

**REPORT OF THE JOINT COMMITTEE IN THE MATTER OF ORIGINAL APPLICATION NO:121/2021 (SUO MOTTO) OF THE NATIONAL GREEN TRIBUNAL, SOUTH ZONE, CHENNAI, SUBMITTED TO THE HON'BLE NATIONAL GREEN TRIBUNAL (SOUTH ZONE) CHENNAI IN COMPLIANCE TO HON'BLE NGT ORDER DATED:04.06.2021.**

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**1.0 Preamble**

The Hon'ble National Green Tribunal, South zone, Chennai has taken "Suo Motu" case on the basis of the newspaper report published in the Hindu Chennai Edition dated 14.05.2021, under the caption "Cuddalore pesticide unit blast kills 4". In the matter of Application No.121 of 2021 the National Green Tribunal, Sothern Zone, Chennai has passed an order dated 04<sup>th</sup> June, 2021 (**Annexure – 1**), constituted a Joint Committee and directed that;

*10. In order to ascertain the genuineness of the allegation and also the violations if any, committed by the 8<sup>th</sup> respondent/Crimsun Organics Private Limited mentioned in the newspaper report and it's impact, we feel it appropriate to appoint a joint committee comprising of (1) The District Collector, Cuddalore, (2) a senior Officer from Tamil Nadu Pollution Control Board (TNPCB) designated by its Chairman, (3) a Senior Officer from the Central Pollution Control Board (CPCB), Integrated Regional Office, Chennai, (4) a Senior Officer from the State Industries Promotion Corporation of Tamil Nadu (SIPCOT) deputed by its Chairman and the Managing Director to inspect the 8<sup>th</sup> respondent/Crimsun Organics Private Limited unit in question and submit a factual as well as action taken report, if there is any violation found.*

*12. The Committee is directed to ascertain as to;*

- (i) Whether the 8<sup>th</sup> respondent unit / M/s. Crimsun Organics Private Limited is having all necessary permissions and clearances for running their unit, including environmental clearance if any required.*
- (ii) Whether the 8<sup>th</sup> respondent unit M/s. Crimsun organics Private Limited is complying with all the imposed conditions in the clearances and the permission granted.*
- (iii) If there is any deficiency for providing safety measures against the conditions imposed whether it is the cause for the accident.*
- (iv) Whether any environmental damage has been caused on account of the incident, if so assess the environmental damage caused and the environmental compensation to be recovered from them.*

13. The Committee is also directed to ascertain the general precautions taken by the industries and the State Industries Promotion Corporation of Tamil Nadu (SIPCOT) in the complex to avoid such incidents and regulatory mechanism to ascertain the number of units that are strictly adhering to the permissions granted and if not, what is the nature of action taken by the State Industries Promotion Corporation of Tamil Nadu (SIPCOT) against such erring industries.

14. The Committee is also directed to ascertain as to

a. Whether any unauthorized discharge of untreated trade effluent/sewage is being done by any of the industries and

b. Whether necessary pollution control mechanism has been provided to curb air pollution likely to be caused on account of the poisonous gas emission being emitted from the units if any,

c. If there is any deficiency found, what is the nature of action taken and what are all the steps to be taken to improve the system to protect environment.

16. The Committee is directed to submit the report in this regard to this Tribunal on or before 16.07.2021 by e-filing in the form of searchable PDF/OCR support PDF and not in the form of image PDF along with necessary hardcopies to be produced as per rules.

The Individual respondents were also directed to file their reports before the Hon'ble NGT(SZ) in the above case.

### **1.0 Constitution of Committee:**

In Compliance to Hon'ble NGT order, the Committee was constituted comprising of following members:

1. Thiru K. Balasubramaniam, I.A.S., District Collector, Cuddalore.
2. Mrs. H.D. Varalaxmi, Regional Director, CPCB, Chennai.
3. Thiru K. Elankumaran, Joint Chief Environmental Engineer, TNPCB (M) Trichy.
4. Thiru A. Balu, Assistant General Manager, SIPCOT, Chennai.

### **2.0 Committee Meeting and Field Visit:**

Upon the constitution of the committee, a meeting was conducted on 08.07.2021 at Collectorate Office headed by the District Collector, Cuddalore. Along with committee members following officers from different department also participated in the meeting and also accompanied the Committee during field visit;

1. Thiru K. Ravichandran, Joint Director, DISH, Cuddalore.
2. Mrs. R. Thamizhselvi, Project officer, SIPCOT, Cuddalore.
3. Thiru R. Seralathan, District Environmental Engineer, TNPCB, Cuddalore.

During the meeting, District Collector briefed the Hon'ble NGT order and discussed the tasks to be completed in compliances of the order. CPCB member explained the details of information's to be obtained from the line department and field work required to be carried out by the committee to address the issues raised by the Hon'ble NGT.

### **3.0 Field visit by Joint Committee**

As per the orders of the Hon'ble National Green Tribunal (SZ), the Joint Committee has inspected the unit on 08.07.2021 in the presence of Thiru.A Paranitharan, General manager of the industry. The Committee has inspected the distillation vessel in which the accident has occurred.

The General Manager has explained the cause of the accident and about the response action taken on incident of accident. It was informed that the accident has occurred due to a mild blast in distillation kettle R-108 followed by minor fire and fumes on the second floor of the production block of the industry. The accident resulted in death of four persons and mild injuries to 2 persons and 10 numbers had inhalation impact. The main cause of death and injury / inhalation of fumes from reactor (distillation kettle) due to sudden blast opening of the manhole of distillation kettle R-108, with a resultant fire and splash of fluid and subsequent inhalation of gases/fumes.

The Committee has also inspected the Air Pollution Control measures attached to the Distillation vessels, such as Scrubbers and Vents.

The Committee has also inspected the steam production boiler, the effluent treatment systems including mechanical evaporator installed for achieving the zero discharge of effluent. There is no discharge of Treated / untreated Trade effluent inside / outside the premises of the industry. The committee has also inspected the storage of the Hazardous waste generated from the industry in the shed before disposal of the waste to the respective disposal facility.

#### **4.0 Findings of the committee in compliance of Hon'ble NGT order dated June 04, 2021 :**

#### **4.1 SIPCOT Industrial Complex, Cuddalore:-**

The SIPCOT Industrial Complex, Cuddalore was established during the year 1984. The Industrial complex has phase-I and phase-II where Textile processing, Pharmaceuticals, Dye, Chemicals, Pesticides and miscellaneous industries are located. The SIPCOT Industrial Complex, Cuddalore is located along the Cuddalore – Chidambaram High ways (NH 45-A). SIPCOT Phase-I has a total extent of 518.79 acres and SIPCOT Phase-II has a total extent of 190.52 acres. The total area of SIPCOT Industrial Complex Cuddalore is 709.31 Acres (Phase I & Phase II).

As per the G.O.No: 1730 Dated: 24.07.1974 The SIPCOT Industrial Estate, is classified as Special Industrial and Hazardous use zone.

#### **4.2 Set up of M/s. Crimsun Organics Private Limited:**

Formerly the unit M/s. GSR Products Limited at Plot No: C-10, a subsidiary of Nagarjuna Agrichem Limited was established during 2005 and the unit has obtained Consent to Operate in April 2006 for manufacturing 3 products (Diacetone Acrylamide, 4 – Hydroxybutyl Acrylate Glycidylether and Chloro dehydromethyl androstenediol) and 7 By-products.

The unit M/s. GSR products Limited had been demerged to M/s. Indo International Fertilizers Limited (IIFL) in the year 2010 and obtained Consent to operate to manufacture the same 3 Products and 7 By-Products. The unit later closed all manufacturing activities and its operation in the year 2016.

Later the SIPCOT has allotted this Plot No. C-10/1.40 acres of land to M/s. Crimsun Organics Pvt Ltd in Phase – I, vide allotment order dated on 13.01.2017 and Modified Lease Deed was executed on 02.08.2017, vide Doc.No.2434/2017.

M/s. Crimsun Organics Pvt Ltd has obtained Consent to Operate on 31.05.2018 to manufacture the following products 1. Fipronil 5% SC – 30 T/m, 2. Isoprothiolane 40% EC – 30 T/m, 3. Acetamiprid 20% SP – 30 T/m, Imidacloprid 17.8% SL – 30 T/m. Later the unit has obtained CTO for Expansion on 28.12.2018 to manufacture the following products 1. Fipronil 5% SC – 30 T/m, 2. Isoprothiolane 40% EC – 30 T/m, 3. Acetamiprid 20% SP – 30 T/m, 4. Imidacloprid 17.8% SL – 30 T/m, 5. Indocarb 15.8%EC – 30 T/m and Intermediate Product Indocarb 25 % Liquid Solution – 70.5 T/m.

Later the unit has obtained another allotment order for Plot No. C-9/1.83 acre dated on 10.05.2018 and Modified Lease Deed was executed on 08.06.2018 vide Doc No.2077/2018. SIPCOT has allotted land for 99 years long lease basis only. Totally 3.23 acres allotted to M/s. Crimsun Organics Pvt Ltd in SIPCOT industrial complex.

Subsequently the unit has obtained the CTE of the Board to manufacture 57 products and 5 By products vide Board Proceeding dated 25.04.2019. The unit has also obtained Consent to Operate (After CTE) for the same products and By Products. The Consent has been subsequently renewed up to 31.03.2021 **and the validity has been extended up to 30.11.2021 by a common order of TNPCB dated 13.05.2021.**

The industry is a pesticide manufacturing unit which has obtained all permissions from Directorate of Boiler, Department of Agriculture, Tamil Nadu Fire and Rescue Service Department, PESO, Tamilnadu Pollution Control Board, Department of Industries Safety and Health, Ministry of Environment and Forest and Climate Change.

#### 4.3 Permissions obtained by the Industry:

The unit has obtained permissions from SIPCOT, Department of Industrial Safety and Health, Tamil Nadu Pollution Control Board, Department of Fire and Rescue, PESO, Inspectorate of Boilers. The details of permissions granted and its validity are as below;

S. No.	Permissions obtained by unit	Document/ license no.	Issue date	Valid upto	Name of the Department
1	Boiler License	062/SAC/2021 - 22	02.08.2021	01.08.2022	Directorate of Boiler
2	Manufacturing License	544/2018	22.01.2019	Lifetime	Department of Agriculture
3	Fire NOC	L.Dis.No.10139/A2/2020	09.11.2020	08.11.2021	Tamil Nadu Fire and Rescue Service Department
4	PESO License	P/SC/TN/15/2832 (P429874)	24.07.2020	31.12.2029	PESO
5	CTE	For AIR - 1901220649983	25.04.2019	31.03.2026	TNPCB
		For Water – 1904224153001			
6	CTO	For Water – 2008130980190	19.08.2020	31.03.2021	TNPCB
		For AIR - 2008230980190			

7	Hazardous Waste Approval	T5/TNPCB/F.0616C UD/HWA/RL/CUD/2020	19.03.2020	18.03.2025	TNPCB
8	Factory License	CDR01044	17.12.2020	31.12.2021	DISH
9	EC Letter	IA-J-11011/207/2018-IA II(I)	28.03.2019	5 Years From the date of Issue	MoEF & CC
10	Panchayath Running License	Panchayat Resolution passed No.6	Panchayat Resolution passed dated 02.11.2005	31.03.2022	Village President, Kudikadu

**Except Consent To Operate (CTO) under Air and Water Act, other permissions are found valid on the day of accident. It is informed that the unit had applied for renewal on 17.03.2021, however, the validity has been extended up to 30.11.2021 by a common order of TNPCB dated 13.05.2021.**

The Compliance status of the imposed conditions in the license / consent issued to the industry is enclosed **(Annexure – 2)**

As per the report of DISH the investigation was made by additional director of Industrial Safety & Health, Trichy & Deputy Director of Industrial Safety & Health, Villupuram. Since, the intermediate products are aromatic compound and the process is amino process, it is covered under chemical works and hence issued Show Cause Notice by Additional Director of Industrial Safety & Health, Trichy. **(Annexure – 3).**

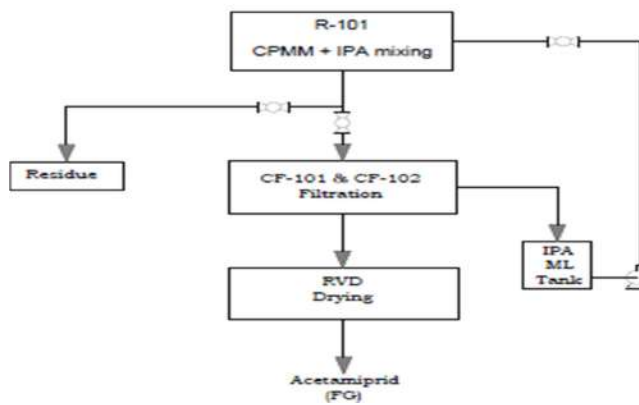
#### **4.4 Process description**

The unit has one production block, one administration block, Two solvent storage section and one ETP. The accident occurred in production in Distillation kettle No R-108. In production 14 Nos of reactors are housed, 8 Nos in second floor 6 Nos in the third floor. Distillation kettle No R-108 - (in which accident took place) is a Stainless steel 316 equipment, installed during the year 2005. It was informed by the unit officials that, depending upon the application and usage , the average life of the reactor varies between 25 to 35 years. On the day of the accident the unit was involved in the manufacture of Acetamiprid and Fipronil Technicals (Pesticide Bulk). The unit is consented to manufacture 57 products, which involves One to six stages of manufacturing depending upon the manufacturing process of the particular product. During interaction with unit representative, it was learnt that they were having more than 25 to 35 years experience in various

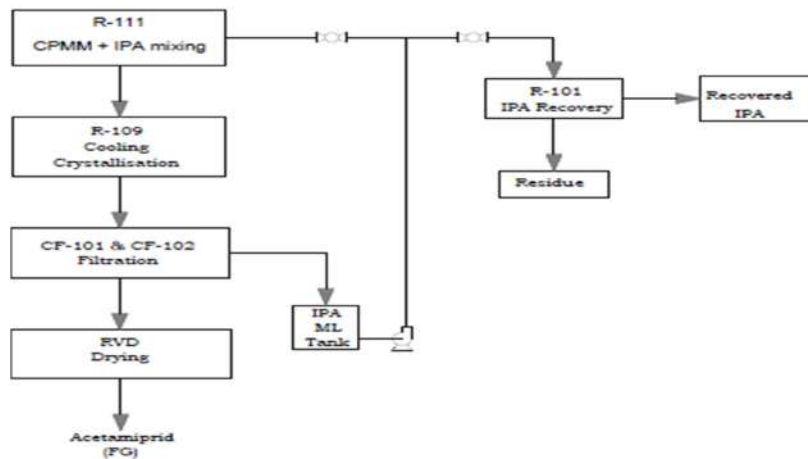
chemical manufacturing industries. The accident occurred while allowing the distillation residue by natural cooling, after the completion of solvent recovery from the Mother liquor by atmospheric distillation, in distillation kettle R-108.

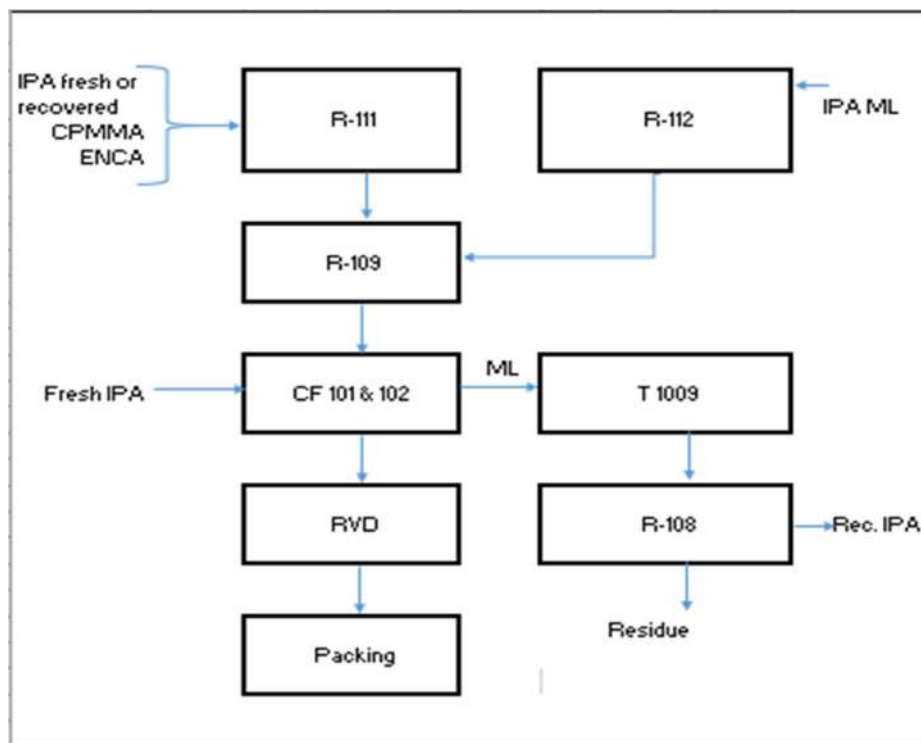
Process flow diagram given below provides the details of the manufacturing process of Acetamidrid.

**Crimsun Organics Pvt Ltd**  
**Acetamidrid Block Drawing**  
**Scale Up Phase - I**



**Crimsun Organics Pvt Ltd**  
**Acetamidrid Block Drawing**  
**Scale Up Phase - II**





### **Chemical Reactions:**

Isopropyl Alcohol (IPA), is charged into the Reactor R-111, then N- (6- chloro pyridin-3-yl ) methyl) methylamine ( CPMMA) is pumped into the Reactor (R-111). The solution is cooled to 25<sup>0</sup>C by circulating chilled water in the reactor jacket. Then 2-cyano-N-ethylacetamide (ENCA) is added slowly to the mass in R-111, the mass temperature shall be maintained between 25 to 35 <sup>0</sup>C. After completion of required quantity of ENCA, the mass temperature is raised to 45- 48<sup>0</sup>C by circulating hot water in the jacket and the mass temperature is maintained at 45- 47 <sup>0</sup>C for 4 – 6 hours for the reaction to take place. Once the reaction completed, the mass would be cooled using chilled water and then transferred to crystallizer R-109.

### **Crystallization:**

Required quantity of IPA shall be added to R-109 and the mass is cooled to 0 – 5<sup>0</sup>C. Crystallization of the product would be started at this temperature and by maintaining this for about another 3 Hrs all the product would get crystallized from the solution.

### Centrifuging (Separation of Product & the ML)

The product suspended in the solution would be separated by centrifuging. Impurity, if any, stuck with the product is removed by washing the product in the centrifuge by IPA. Thus, product and the solvent along with impurities (Mother liquid) will be separated in the centrifuge.

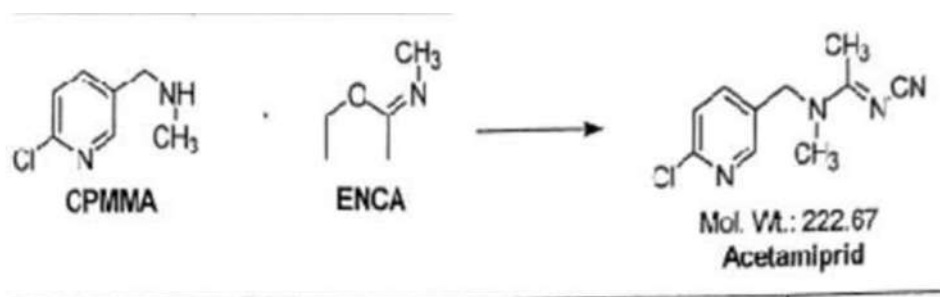
Mother liquid separated from the centrifuge would be collected into the mother liquid storage tank, and shall be taken for the next batch. After circulating the ML for about 10 batches, it would be taken for circulation for removing the dissolved matter in the solvent (Impurities, Acetamiprid, CPMMA, ENCA).

Thus, the process does not generate any liquid effluent or vapor emission.

### Drying

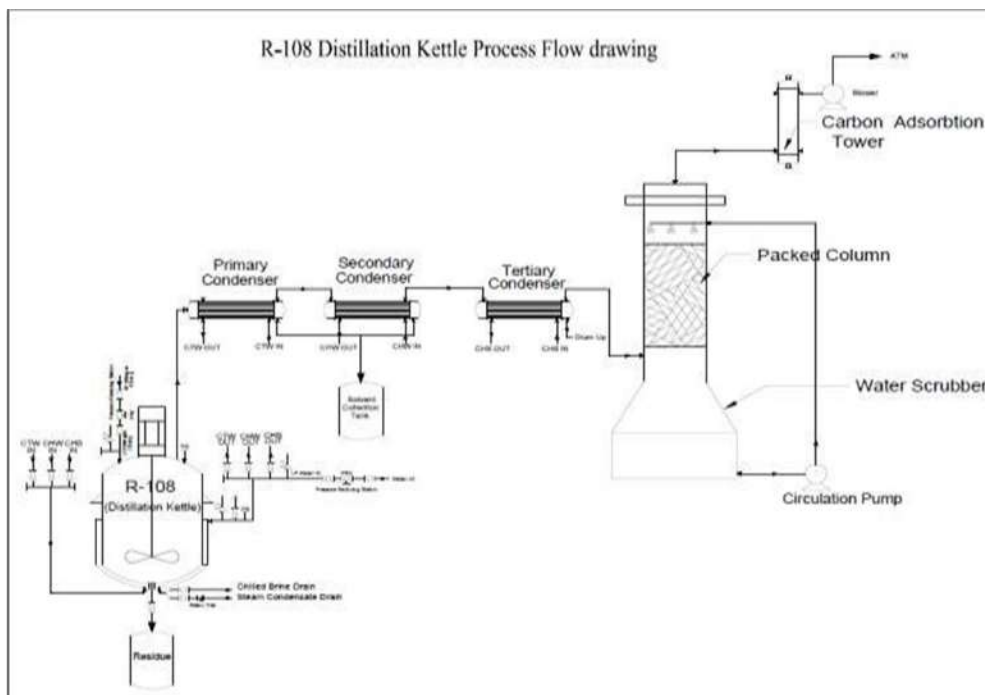
Wet product would be loaded into the rotary vacuum dryer by circulating hot water in the jacket and also by applying vacuum in the shell side. On completion of the drying the product would be packed and sent to finished goods store after quality check and approval.

### Chemical Reaction:



### Solvent Recovery Process

Process flow diagram given below shows the solvent recovery process.



### **Atmospheric Distillation of Solvent in R-108 Distillation Kettle.**

The mixture of solvent, with other impurities, known as mother liquor, is pumped to the distillation kettle R-108 for the purpose of recovery of solvent and separation of impurities from the solution as residue.

The solution is heated slowly by applying low pressure steam at the jacket of the distillation kettle R-108. And the vapours evaporating from the solution is condensed in the series of condensers connected by means of vapour column. Initially the vapour enters the primary condenser where cooling water from the cooling tower would circulate as cooling medium. Most of the solvent vapours are condensed in this condenser.

If any uncondensed vapours are there it would be condensed in the secondary condenser, in which chilled water at a temperature of about  $10^{\circ}\text{C}$  is circulated. Solvent condensed is collected in the solvent storage receiver and taken for reuse in the subsequent batches.

If any non- condensable or residual uncondensed solvent vapour comes out of the secondary condensers goes to the tertiary condenser, where the residual solvent vapour, would be condensed and the non- condensable would leave the condenser and goes to the vent scrubber.

In the vent scrubber, water is circulated, from the top of the scrubber and the gases enters from the bottom. Water soluble matter, if any present in the non-condensable vapours would be removed and then the remaining non – condensable matter would be vented at about 25 mt scrubber stack.

Distillation of IPA is carried out at atmospheric pressure, in Distillation kettle R-108. For monitoring the inside temperature of R -108, a Resistance Temperature Detector (RTD), with a digital display unit indicator is provided; also, a Pressure Gauge with an analogue indicator is provided to monitor pressure inside the kettle. Vapours of IPA from the distillation process are condensed, using a primary condenser with cooling water (33 Deg C) as cooling media and also a secondary condenser with chilled water (+10 Deg C) as the cooling media, then finally using the Tertiary condenser, where chilled brine at -20 Deg C is being used as cooling medium. Non condensable, if any, coming out of the tertiary condenser are connected to the ID fan and vented atmosphere at a height of 25 M. Thus, the vent of the distillation kettle R-108 is maintained atmospheric pressure always.

In order to ensure the complete removal of solvent from the residue, even though the boiling point of the solvent is 82.5 °C at atmospheric temperature, the mass would be gradually heated upto 120 °C.

After this temperature the only impurities, dissolved product, Raw Material alone would be present in the residue. Approx. quantity of residue would be 180 to 200 kg and approx. constituents of such residue after removal of the solvent are as under:

COMPONENT	Total %
CPMMA	5.75
ACETAMIPRID	85.26
INTERMEDIATE	8.51

Once the solvent is recovered, the steam valve to the kettle would be closed and the agitator would be kept on so that the residue temperature would get reduced by natural cooling. Once the residue temperature reaches around 60 °C same would be drained in drum and after cooling to room temperature it would be transferred to Hazardous waste storage shed and disposed from there to cement industries as approved in the Hazardous waste authorization.

The Material Balance of IPA distillation batch in R-108 is as under:

1. Total quantity taken for distillation - 7000 Lit
2. Quantity of solvent distilled out - 6660 Lit
3. Residue left out in the Kettle - approx. 180 to 200 Ltr.
4. Loss of solvent - approx. 140 Ltr.

#### 4.5 Sequences of Events and Causes of Accident

The sequence of events is described as under:

<p>12.05.2021 Around 0200hrs</p>	<p>During the night shift of 12.05.2021, the solvent recovery operation was completed; Steam supply to the Kettle limpet coil was stopped around 0200 hrs, by Mr. Nirmal Raj (Shift Chemist), by closing the steam line inlet valve and kept the stirrer in 'ON' condition and informed the night Shift In-charge, Mr Kalaiselvan about the status of the R-108. Mr Kalaiselvan went to the second floor and inspected the residue, inside the Kettle R-108 and instructed Mr. Nirmal Raj that once the temperature of residue cools to 60 Deg C, it can be drained, during first shift hours, of the succeeding day.</p>
<p>13.05.2021 Around 0730 hrs</p>	<p>Shift Chemist, Mr Kumaresan, who was operating the nearby reactor, had seen that slight fume coming from the reactor area and informed to the Shift Chemical Engineer, Mr Manikandan. Immediately Mr Manikandan, came to the spot and noticed lube oil from the agitator mechanical seal pot, started flowing out like a pressure- spray, over the kettle and fumes coming from the manhole cover of Kettle (R-108)</p>
<p>13.05.2021 Around 0740 hrs</p>	<p>Tried to apply cooling water to the reactor (R-108) limpet coil, but gave up, when he had observed a mild blast lifting the manhole top cover at about 0740hrs, and more smoke started coming around and hence he started to run away from the spot to ground floor.</p>
<p>13.05.2021 Around 0750 hrs</p>	<p>Since some amount of residue material, from the Distillation kettle R-108, got splashed over the pipe lines, reactors, paper bags etc., as an immediate safety measure, electrical power to the plant was put out; More smoke started emanating as the lub oil in the Kettle R-108 Shaft Mechanical seal , cold insulation material and the paper bags, plastic chairs , records kept</p>

	<p>in second floor etc . Fire tender from the SIPCOT fire service station was called and they reached at around 7.50am.</p> <p>Since the fire was mainly due to seal oil, cold insulation, empty bags, plastic chairs, records and some empty drums material, same was brought under control using fire extinguishers and connecting foam nozzles in the fire hydrant hoses , on solid fires using fire hydrant water .</p>
<p>13.05.2021 Around 0755 hrs</p>	<p>At the time of the incident, all the employees &amp; plant helpers, who were working, in second, first and ground floors, Utility etc came down to the adjacent ground floor area, outside the production block.</p> <p>However, 2 company employees and 4 plant helpers (contract workers) who were working on the third floor went to the terrace. In that, one employee and three helpers, who again attempted to come down to ground floor through thick smoke, fainted near to the terrace staircase. These fainted 4 employees were immediately rescued and taken to hospital, where unfortunately all four of them, passed away. At around 0755 hrs, the other 2 employees, who were staying at the terrace, near water tank, came down, after the smoke subsided, without getting affected.</p> <p>Apart from the above four people, who were initially taken to hospital, total 11 people were there in the production block at the time of incident and 1 safety steward went to rescue the people. All these 12 people were provided initial First Aid by the Company which is mentioned as under:</p> <p>The employees were shifted from the accident place to fresh air. Shower wash was given for 10-15mts. Then the contaminated clothes were removed. Water eye wash was given for over 15mts with holding eye open. Employees' consciousness level &amp; SPO2 was checked which was in between 97-98%. Airway were clear &amp; 8 litre of oxygen was given through face mask to treat breathing difficulty. For skin irritation &amp; blister- 2.5% calcium gluconate gel was applied after water wash.</p> <p>The personnel were shifted to the Govt. Head Quarters Hospital, Cuddalore and were later discharged.</p>

#### **4.6 The Possible causes of the Accident as reported by Joint Director - DISH:**

- i. In order to release sudden abrupt rise of pressure and heat in the reactor vessel above the required level of pressure and heat, for additional safety purpose, the safety valve supposed to be installed but the same was not in place. And not connected to Scrubber system to avoid gas release outside.
- ii. If the leak occurred in between steam line to reactor vessel, in order to avoid steam leak, double valves had not been installed & in between the double valves, a bleeder valve had not been installed.
- iii. In case of temperature rise above the required level in the reactor vessel, the arrangement for supply of cooling water in the steam line has not been made.
- iv. Since the Acetamidipride impurities are decomposing material, it should not store in the reactor vessel at large quantity. It should be drained to Drums. After draining the reactor vessel, the reactor vessel should be tested.
- v. *It was concluded that in the absence of above mentioned safety measures, the malfunctioning of the steam valve might have led to the continued heating of the residue, even after closing the valve at 0200 hrs. Sudden blast-opening of the manhole, with minor fire and splash of fluid occurred. Fire at incipient could not be controlled, due to leaking seal oil over the reactor. Another source of ignition could be the static discharge developed due to sudden opening of manhole.*
- vi. *The committee also noticed that absence of automation, comprehensive standard operating procedure on operational parameters like temperature, pressure, addition of chemicals etc., No alarm system in the process area to alert the personnel during unforeseen situation /emergency, lack of knowledge/training on safety precautions to be taken during emergency situation caused the death of four people and injuries to 12 employees.*

#### **4.7 Details of deceased and injured persons due to accident:**

As per the information of industry representative, at the time of accident employees and plant helpers working in second, first and ground floors came down to adjacent ground floor area, however 2 company employees and 4 helpers working in the third floor went to terrace, in that one employee and three helpers attempted to come down due to thick smoke all 4 fainted and shifted to Government hospital, Cuddalore. As per the Post mortem report

all 4 bodies were shifted to hospital in between 4.00 to 5.00 PM on 13.05.2021. In all 4 postmortem report exact cause of death is not specified.

**Table No. 1 Details of deceased persons**

Sl. No	Name of the deceased	Designation	Age	Qualification
1	Mr. Rajkumar. R	Plant Helper	42	8th Standard
2	Mr. Ganapathy. K	Plant Helper	25	12 <sup>th</sup> Standard
3	Mrs. Savitha. S	House Keeping	35	9th Standard
4	Mr. Vijeshraj. V	Trainee Chemist	25	BSc Chemistry

Apart from above 11 people working in production block and one safety steward went to rescue the people got injured, it is informed that all 12 people provided initial First aid before shifting to the government hospital, one person with the injury in the hand was referred to Mahatma Gandhi Medical College and Research Institute, Puducherry. The other 11 were kept under observation for approx. 48 hours, thereafter the hospital was requested to release them on request for further precautionary investigation in other hospital.

**Table no. 2 Details of Injured persons**

Sl. No	Name of the injured	Designation	Age
1	Mr. Hariharan. M	Chemist	23
2	Mr. Raj. M	Trainee Chemist	29
3	Mr. Vinothkumar	Fire Steward	25
4	Mr. Manikandan. R	Shift In charge	31
5	Mr. Jawhar Gowrirajan. S	Chemist	29
6	Mr. Sabari. S	Trainee Chemist	21
7	Mr. Ramkumar	Chillar Operator	26
8	Mr. Sathiyamoorthy. L	Fitter	30
9	Mr. P.Sathishkumar	Trainee Chemist	27
10	Mrs. Selvi	House Keeping	42

11	Mrs. Gunasundari. M	Housekeeping	49
12	Mr. Vignesh S (injured due to assault)	Chemist	25

#### **4.8 Who is responsible for accident:**

It is the primary responsibility of the unit to establish safety measures like Automation, interlocking for critical process parameters like temperature, pressure, Safety valves, alarm system. The unit has to take regular calibration of equipment's, Standard operating Procedures should be made available in each equipment's. It is unit responsibility to allow only trained employees in the production area and also it is mandatory to comply with all statutory, regulatory, safety clearances stipulated by various concerned departments. The committee observed that gross negligence of the unit as well as handling of equipment by semi trained employees are responsible for the accident.

#### **4.9 Damage Assessment and Calculation of Compensation:**

The accident was restricted to one reactor namely R-108 in the particular production block. The other reactors were found intact, no impacts observed outside the production block or outside the unit. The damages occurred are as follows;

##### **i. Loss of life and status of award of compensation:**

Seventeen people were present in the production block where accident happened, out of which one permanent employee and three contract employees were died and 12 people got injured during accident, the committee interacted with two injured employees, the statement given by them is as below ;

- a.** At first fumes were observed from Reactor 108 and learnt that Globe valve was not closed properly which caused for flow of steam into reactor which supposed to be cut off, he was tried to close the secondary valve that time lube oil was started splashing and got spots on his hand hence he ran away from the place and got burn injuries on his hand.
- b.** Safety Steward rushed to rescue the people from production block but due to disturbance in personal protection equipment, he inhaled the fume and got unconsciousness, after giving first aid treatment he was shifted to hospital.

Regarding compensation a peace committee meeting was conducted by the District Administration under the Chairmanship of Revenue Divisional Officer (RDO), Cuddalore and the representatives from the industry and the public participated in the meeting. It was decided in the meeting that the industry shall pay Rs 15.0 Lakhs to the dependants of each deceased employee as compensation (Minutes of the peace committee meeting enclosed vide **Annexure - 4**). Accordingly the industry has paid the compensation amount and the family members of the deceased employees had accepted the compensation.

In accordance with Employees Compensation Act 1923 the mechanism of calculating the compensation is

$$\text{Compensation} = 50 \% \text{ of Monthly wages} \times \text{Relative factor}$$

The amount of Compensation to be paid to the family of the deceased as per the Employees Compensation Act 1923 is detailed below;

**Table 3: Details of Compensation to be paid to the Deceased**

Sl. No	Name of the Deceased	Nature of Employment	Age	Wages Rs.	Employee Compensation Rs.
1	Mr. Rajkumar. R	Private Contract	42	7254.0	647383/-
2	Mr. Ganapathy. K	Private Contract	25	11596.0	1257644/-
3	Mrs. Savitha. S	Private Contract	35	7254.0	714737/-
4	Mr. Vijeshraj. V	Company Employee	25	13170.0	1428352/-

Hence, the compensation of Rs 15 lakhs paid by the industry to the dependant of each deceased is adequate as per the Employees Compensation Act 1923.

In addition the Government of Tamilnadu has paid the compensation of Rs. 3 Lakhs to the family of each deceased. All the above workers are covered under Employee State Insurance (ESI). Under ESI Act monthly pension at the rate of 90 % of Last drawn wages are admissible to them.

Out of 12 injured, 11 were discharged after 48 hours observation from Hospital, one was discharged after 3 days of treatment from MGMC&RI, Puducherry. It was reported that

they resumed the duty. The unit representative informed the committee that expenditure incurred towards their treatment was borne by the unit and all are keeping fine. The unit has announced following compensation of injured employees;

**Table 4: Detail of Compensation paid to injured people**

Sl. No.	Name of the injured	Designation	Compensation paid in Rs.		
			By unit	By govt	Total amount
1	Mr. Hariharan. M	Chemist	10,000/-	1,00,000/-	1,10,000/-
2	Mr. Raj. M	Trainee Chemist	10,000/-	1,00,000/-	1,10,000/-
3	Mr. Vinothkumar	Fire Steward	10,000/-	1,00,000/-	1,10,000/-
4	Mr. Manikandan. R	Shift In charge	10,000/-	1,00,000/-	1,10,000/-
5	Mr. Jawhar Gowrirajan. S	Chemist	10,000/-	1,00,000/-	1,10,000/-
6	Mr. Sabari. S	Trainee Chemist	10,000/-	1,00,000/-	1,10,000/-
7	Mr. Ramkumar	Chillar Operator	10,000/-	1,00,000/-	1,10,000/-
8	Mr. Sathiyamoorthy. L	Fitter	10,000/-	1,00,000/-	1,10,000/-
9	Mr. P.Sathishkumar	Trainee Chemist	10,000/-	1,00,000/-	1,10,000/-
10	Mrs. Selvi	House Keeping	10,000/-	1,00,000/-	1,10,000/-
11	Mrs. Gunasundari. M	Housekeeping	10,000/-	1,00,000/-	1,10,000/-
12	Mr. Vignesh S (injured due to assault)	Chemist	10,000/-	1,00,000/-	1,10,000/-

**ii. Environmental damages due to accident:**

**a. Damage to Water Environment :**

Informed that to drowse the fire, service team used Fire extinguishers to extinguish the small fire which was at the various locations of insulation. The water from the Fire tender was used for quench the drums containing solvents to keep them cool the water used was about 4.5 kl of water and 0.5 kl of foam. The quenched water/ water used for washing in production area was collected and transferred to the ETP. Hence the unit claims that no water pollution was caused due to this incident and the same was confirmed from TNPCB.

**Table 5: Type and quantity of Fire Extinguishers used are as under:**

<b>Sl.no.</b>	<b>Description</b>	<b>Quantity</b>
1	CO <sub>2</sub> -(6.5 kg)	1
2	CO <sub>2</sub> -(4.5 kg)	1
3	ABC-6 kg ( Mono Ammonium Phosphate ) (Powder )	9
4	Dry Chemical Powder - 6kg (Sodium Bi carbonate Powder )	7
5	Dry Chemical Powder - 9kg (Sodium Bi carbonate Powder )	1
6	Self - Containing Breathing Apparatus (Air)	3
7	Aqueous Film Forming Foam can 60 Lit	3
8	Water Used from COPL reservoir in KL	5

**b. Damage to the soil :**

Informed that, the fire was restricted to production area only. However, as a precautionary measure to confirm that there is no impact to the soil, the company suo moto took an initiative and deputed GLENS Lab to collect the homogenous sample all around the production block in order to verify the impact of the incidence including use of the Fire extinguishers on the soil around the production block. As per the Results of Analysis, no soil contamination reported.

**c. Damage to Air**

It is Informed that, there was no major impact of the incident on the surrounding reactors and machineries except for some pipelines, Flanges, Valve, insulation, electrical wires etc. Apart from the above Catalyst got spilled and got drained and was collected into the ETP. Further, some paper bags lying on the shop floor and the cold insulation material got burnt.

The list of the material lost, their chemical formulation and quantity thereof is given below;

<b>Items</b>	<b>Quantity</b>
Residue comprising of Acetamiprid, CPMMA & other impurities	200 Kgs
Paper Bags with LDPE lining (including other papers)	10 Kgs

Cold Insulation comprising of thermocol	50 Kgs
Plastic barrel (LDPE)	10 Kgs
Plastic chair (LDPE)	2.5 Kgs
Lubricating oil	4 Ltr.

- Acetamiprid filtrate taken for distillation-7000Ltrs.
- Solvent recovered – 6600Ltrs.
- Residue – (180-200kgs) Approx.
- Loss- 135Ltrs Approx.

200 kg of residue lost in fire:

COMPONENT	Total %	Weight in Kg
CPMMA	5.75	11.50kg
ACETAMIPRID	85.26	170.5kg
INTERMEDIATE	8.51	17kg

Details of gases produced.

The gases that are released during the reaction are CO<sub>2</sub>, HCl and NO<sub>2</sub>.

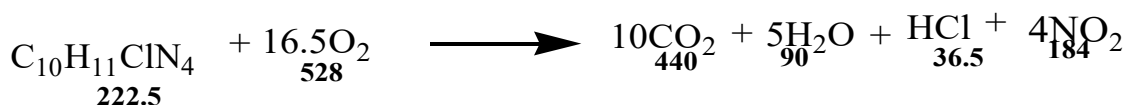
Gases produced because of combustion of each element of CPMMA.



11.50 Kg of CPMMA Available in the residue

So, after combustion

- CO<sub>2</sub> – 22.63Kg
- HCl – 2.68Kg
- NO<sub>2</sub> – 6.76Kg
- H<sub>2</sub>O -5.29Kg

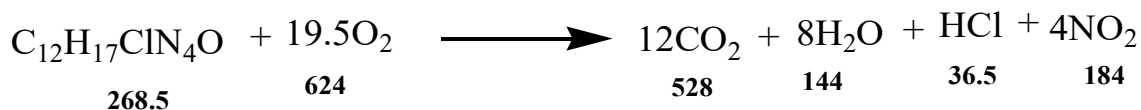


Gases produced because of combustion of each element of Acetamiprid.

170.5 Kg of Acetamiprid Available in the residue.

So, after combustion

- CO<sub>2</sub> – 337.16Kg
- HCl – 27.97Kg
- NO<sub>2</sub> – 140.99Kg
- H<sub>2</sub>O -68.96Kg



Gases produced because of combustion of each element of Acetamidrid intermediate.

17 Kg of Acetamidrid intermediate Available in the residue

So, after combustion

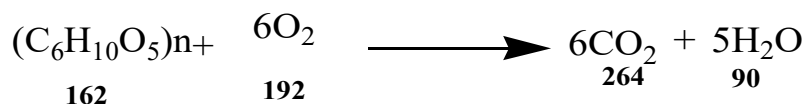
- CO<sub>2</sub> – 33.43Kg
- HCl –2.31Kg
- NO<sub>2</sub> – 11.65Kg
- H<sub>2</sub>O -9.11Kg

So overall gas combustion from the 200kg of the residue is.

CO<sub>2</sub> – 393.23Kg, HCl – 32.96Kg, NO<sub>2</sub> – 159.40Kg and water 83.37Kg.

#### Combustion of paper bags & thermocol

- ❖ Combustion of paper in presence of oxygen(cellulose)



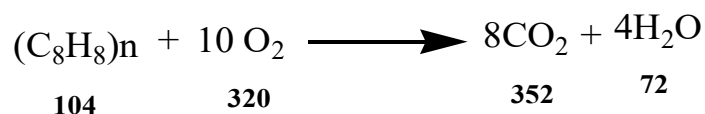
- 5 Kg of paper burnt in fire, it gives 8.14kg of carbon dioxide and 2.77kg of water will generate.

- ❖ Combustion of LDPE in presence of oxygen



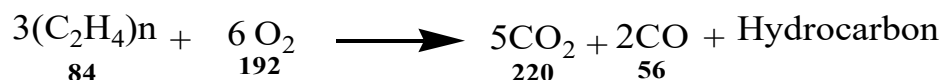
- 5Kg of LDPE will burnt in fire, it gives 13.09kg of carbon dioxide and 3.33kg of carbon monoxide and 0.71kg of hydrocarbon will generate.

❖ Combustion of Thermocol in presence of oxygen



➤ 50Kg of thermocol will burnt in fire, it gives 169kg of carbon dioxide and 34.6kg of water will generate.

❖ Combustion of plastic barrel (LDPE) in presence of oxygen



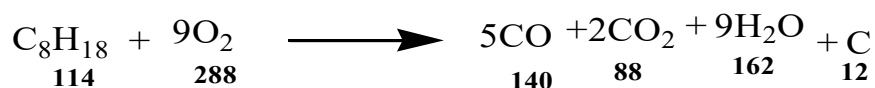
➤ 10Kg of plastic barrel will burnt in fire, it gives 26.19kg of carbon dioxide and 6.6kg of carbon monoxide and 1.5kg of hydrocarbon will generate.

❖ Combustion of (plastic chair) LDPE in presence of oxygen



➤ 2.5Kg of plastic chair will burnt in fire, it gives 9.16kg of carbon dioxide and 2.33 of carbon monoxide and 0.5kg of hydrocarbon will generate.

❖ Combustion of Lubricating oil in presence of oxygen



➤ 4.0 kg of Lubricating oil combust in presence of oxygen will give, 5.71kg of carbon monoxide and 3.52kg of carbon dioxide and 0.5kg of carbon and 6.5kg of water will generate

**Table 6: Calculation of Compensation based on EU handbook**

Using EU Handbook							
COMPONENT	Chemical Formula	Quantity generated (in Kgs)	CO	CO2	HCL	NO2	H2O
CPMMA	C <sub>7</sub> H <sub>9</sub> ClN <sub>2</sub>	11.5	-	22.63	2.68	6.76	5.29

ACETAMIPRID	$C_{10}H_{11}ClN_4$	170.5	-	337.16	27.97	140.99	68.96
INTERMEDIATE	$C_{12}H_{17}ClN_4$	17	-	33.43	2.31	11.65	9.11
Paper Bags with LDPE lining		10	3.33	21.23	-	-	2.77
Cold Insulation comprising of thermocol		50	-	169	-	-	34.6
Plastic barrel (LDPE)		10	6.6	26.19			-
Plastic chair (LDPE)		2.5	2.33	9.16			-
Lubricating oil		4.57	5.71	3.52			6.5
TOTAL (Qty in Kgs)		277.07	17.97	622.32	32.96	159.4	127.23
Environmental Price as per Environmental Price EU 28 version published by European Union)			£0.0918	£0.0950	£17.9000	£22.1	£0.0000
Foreign Ex Rate			88.67	88.67	88.67	88.67	88.67
Amount			146	5,242	52,314	312,361	0.00

European Union has published Handbook of Environmental Prices EU28 version where in prices are expressed in Euros per kilogram pollutant emitted into the environment. The committee has used the document as reference to calculate the prices of the pollutants emitted into environment. The document indicates three types of pricing lower, central and upper depending quantity of emissions. The committee has used higher limit because though the total quantity of gases emitted is less but acute exposure resulted in four casualties. In the document, environmental prices for HCL is not assigned, when released into the environment, it will give acidic impact therefore the rate is taken that of sulfur dioxide. Hence the committee has used the environmental prices assigned to SO2 for calculating damage due to HCL.

**The total amount of compensation payable is Rs. 3,70,064/- as per EU 28 version**

**Contribution of Emissions into the atmosphere as per Environmental Damage Cost Assessment by NEERI document:**

200 kg of residue lost in fire:

**Table 7: Calculation of compensation based on NEERI document**

COMPONENT	Chemical Formula	Quantity generated (in Kgs)	Approximate Market price of material lost	Approximate cost of material lost
CPMMA	C <sub>7</sub> H <sub>9</sub> CIN <sub>2</sub>	11.5	Rs. 250/Kg	2875/-
ACETAMIPRID	C <sub>10</sub> H <sub>11</sub> CIN <sub>4</sub>	170.5	Rs.1000/kg	1,70,500/-
INTERMEDIATE	C <sub>12</sub> H <sub>17</sub> CIN <sub>4</sub> O	17	Rs.500/Kg	8500
Paper Bags with LDPE lining		10	Rs. 5000/kg	50000
Cold Insulation comprising of thermocol		50	Rs.1000/kg	50000
Plastic barrel (LDPE)		10 no.s	Rs.800/ barrel	8000
Plastic chair (LDPE)		1no.	Rs.400/ chair	400
Lubricating oil		4.57	Rs.1000/ kg	4570
Total cost				2,94,845/-

COMPONENT	Total %	Weight in Kg
CPMMA	5.75	11.50kg
ACETAMIPRID	85.26	170.5kg
INTERMEDIATE	8.51	17kg

Damage cost = Market price+ opportunistic cost+ treatment cost

Damage Cost	=	Market price	+	Opportunistic cost	+	Treatment cost
	=	Actual cost of the material lost	+	The essential product which could be beneficially used in treatment of ailments is wasted. The committee has assumed the market price of the product is considered as opportunistic cost	+	Nil  The injured employees have recovered and joined duty and all four injured have informed that they are not facing any health issues. The cost of treatment is already borne by the unit. Hence presently no additional treatment cost is required for injured employees but unit shall carry out health monitoring of injured employees

						for two years. Since the entire reaction mixture evaporated within 30 minutes, no cleanup is required. Hence treatment cost is taken as Nil.
	=	2,94,845/-	+	2,94,845/-	+	Nil
<b>Total damage cost</b>	=	<b>Rs. 5,89,690/-</b> <b>Rs. Five lacs eighty nine thousand six hundred and ninety only</b>				

The committee opines that Environmental Damage cost arrived as per the NEERI document i.e. Rs 5,89,690.00 may be considered for having released the pollutant to atmosphere due to accident.

- iii. Total compensation liable to pay by M/s Crimson Organic ltd;
- The unit has already paid Rs. 15 lacs to the family of each deceased (Total Rs. 60 lacs paid towards Compensation to the family of deceased persons).
  - The unit has already paid compensation of Rs. 1.2 lacs to 12 injured employees @ of Rs. 10000/- to 12 injured employees
  - The unit shall pay environmental compensation of **Rs. 5,89,690.00/- on account of contribution of emissions into environment.**

## 5.0 PRECAUTIONS & SAFETY SYSTEMS IN OTHER INDUSTRIES OF SIPCOT INDUSTRIAL ESTATE.

### 5.1 Status of Licenses obtained and its compliance by the Chemical industries in SIPCOT

- The SIPCOT Verified the license obtained by the 13 chemical industries located in SIPCOT, the status of license are tabulated in Table 8.

**Table 8 : Details of license obtained by 13 Chemical Industry**

<b>Licenses obtained by the individual industries by SIPCOT Industrial Park, Cuddalore with their validities and inferences.</b>					
<b>S.No</b>	<b>Name of the Unit</b>	<b>Product manufactured and its capacity</b>	<b>Licenses obtained</b>	<b>Validity</b>	<b>Remarks</b>
1	M/s. Tagros Chemicals	<u>Product</u> 1.Deltamethrin – 20	1. Factory License	31.12.2021	The application

India Private limited	Tonnes/Month			
	2.Oxyclozanide – 2 Tonnes/Month	2. Fire License	14.2.2020 (application under process)	for renewal of fire licence is under process.
	3.Hexaconazole/Propiconazole/Dicamba/Tricyclazole – 20 Tonnes/Month	3. Town and Country Planning	(Application under Process)	
	4.Metaphenoxy Benzyle Alcohol – 40 Tonnes/Month	4. Pollution control board License	31.03.2022	
	5.Alphacypermethrin / Cypermethrin / Permethrin – 175 Tonnes/Month			
6.Quinopyramine sulphate - 1.75 Tonnes/Month				
7.D.V. Acid Chloride – 15 Tonnes/Month				
<b>By Product:</b>				
1. Hydrochloric Acid – 475 Tonnes/ Month				
2. Sodium Sulphite solution – 1350 Tonnes/ Month				
3. Sodium Sulphite Powder – 200 Tonnes/ Month	5. PESO		31.12.2023	
4. Aluminium Chloride Solution – 125 Tonnes/ Month				
5. Ammonium chloride solution – 330 Tonnes/ Month				
6. Mixture of Ortho and Para bromo Toluene – 95 Tonnes/ Month				
7. IsoPropoylAlcohol and EDC – 30 Tonnes/ Month				
2,2,2 – Trichloroethyl 3,3 Dimethyl -4- Chlorocyclo butanone – 40 Tonnes/ Month.				

2	M/s. Solara Active Pharma Sciences Limited	(32 Products) 2868 TPA (7.858 ton/day)	1. ISO Certificate	19.06.2022	The unit possess all valid licenses
			2. Factory License	31.12.2021	
			3. Fire & Rescue Service License	24.08.2021	
			4. PESO License	31.12.2024	
			5. Consent to operate - Air	31.03.2022	
			6. Consent to Operate - Water	31.03.2022	
			7. Hazardous waste Authorisation	11.02.2024	
			8. Boiler Certificate	11.04.2022	
3	M/s. Tanfac Industries Limited	<b>Product</b> 1. Aluminium Fluoride – 1550 MTPM 2. Hydrofluoric Acid – 1650 MTPM 3. Biomass Gas – 66000 CUM/Day 4. Captive Power - 2.5 MW 5. Sulphuric acid & oleum – 7750 MTPM <b>By Product:</b> 1. Anhydrite Calcium Sulphate 5950 MTPM 2. Hydro Fluo Silicic Acid 75 MTPM	1. Factory License	31.12.2022	Except CTO - Renewal under Air and Water Act the unit has valid license. The Renewal of CTO is under process at TNPCB
			2. Fire License	27.12.2021	
			3. Boiler Certificate	18.04.2022	
			4. Sulphur Storage License	31.12.2021	
			5. NOC for Transportation Sulphur	13.09.2021	
			6. Consent order AIF3	31.03.2020	
			7. Consent order - Cryolite	31.03.2020	
			8. Consent order - SOC	31.03.2022	
			9. Consent order - HFO Genset	31.03.2022	
			10. Hazardous waste Authorization - AIF3	23.05.2022	
			11. Hazardous waste Authorization - SOC	27.02.2022	
			12. Hazardous waste Authorisation -	27.02.2022	

			HFO		
4	M/s. Tata Chemicals Ltd	PRECIPITATED SILICA - 900 TONS/MONTH	1. Factory License	31.12.2023	The unit possess all valid licenses
			2. Consent to Operate (Air)	31.03.2023	
			3. Consent to Operate (Water)	31.03.2023	
			4. Hazardous waste authorisation	30.05.2023	
			5. Fire License	18.08.2021	
5	M/s. Clariant Chemicals India Limited	Blue pigments----- 275 Tons/Month Intermediates --- 115 Tons/Month Tetra Chloro Copper phthalocyanine --- 20 Tons/Month Mono chloro Phthalic Acid --- 30 Tons/Month.	1. External Test Inspection of pressure vessels	17.09.2021	The unit possess all valid licenses
			2. Testing calibration of safety valves (Nitrogen)	28.10.2021	
			3. Boiler Registration	24.09.2021	
			4. Class A	31.12.2023	
			5. Class B	31.12.2023	
			6. Class C	31.12.2023	
			7. N2 License	30.09.2021	
			8. CI2 Tonner	30.09.2025	
			9. Licenses for Goods / Passenger Lifts	09.09.2021	
			10. Lifting tools & tackles	20.11.2022	
			11. Calibration of Electronic weighing machine, weights & stamping	06.07.2021	
			12. Factory License	31.12.2022	
			13. Labour welfare fund	31.01.2022	
			14. Property Tax	31.03.2022	

			15. Consent order	31.03.2022	
			16. Hazardous waste Authorization	15.02.2023	
			17. Fire NOC	23.12.2021	
			18. Export License	31.03.2022	
6	M/s. Chemplast Cuddalore Vinyls Limited	PVC Resins - 300,000TPA	1. Consent to Operate (Air)	31.03.2022	The unit possess all valid licenses
			2. Consent to Operate (Water)	31.03.2022	
			3. Hazardous waste Authorization	21.12.2021	
			4. Authorization Under BW Rules	One time Authorization	
			5. Fire License	20.12.2021	
			6. PESO License	31.12.2022	
			7. Boiler license	28.09.2021	
			8. Factory License	31.12.2021	
			9. Panchayat Running License	One Time Approval	
7	M/s. Pandian Chemicals Ltd	1. Ammonium Perchlorate - 37.50 TPM 2. Sodium Chloride - 18.12 TPM	1. Hazardous Waste Authorization	20.12.2021	The unit possess all valid licenses
			2. Consent to Order (Air)	31.03.2022	
			3. Consent to Order (Water)	31.03.2022	
			4. Fire NOC	17.09.2021	
			5. Factory License	31.12.2024	
			6. Boiler Certificate	14.03.2022	
8	M/s. Pioneer Jellice India Private Limited	Gelatine : 300 MT/ Month Ossein : 800 MT/Month Di calcium Phosphate : 1,700	1. Factory License	31.12.2021	The unit possess all valid licenses
			2. Fire License	04.05.2022	
			3. Boiler Certificate	04.10.2021	

		MT/Month	4.Consent for water	30.11.2021	
			5. Consent for Air	30.11.2021	
			6. Extension validity period for consent orders	31.11.2021	
			7. Drug License	20.08.2022	
9	M/s. DFE Pharma India Private Limited	Microcrystalline Cellulose - 300 MT/Month	1. Factory License	31.12.2022	The unit possess all valid licenses
			2. Consent to Operate (Air)	30.11.2021	
			3. Consent to Operate (Water)	30.11.2021	
			4. Fire NOC	27.12.2021	
			5. Panchayat Running License	27.12.2021	
			6. Boiler Certificate	06.01.2022	
			7. Drug License	31.12.2021	
			8. ISO Certificate	15.02.2022	
10	M/s. Asian Paints Limited	<b>Main Product:</b> 1. Formaldehyde - 675 MTPM 2. PentaErythritols (Powder & solution form) - 730 MTPM <b>By Products:</b> 1. Sodium Formate (Powder and Solution form) - 480 MTPM	1. PESO License	31.12.2022	The unit possess all valid licenses
			2. Fire License	08.11.2021	
			3. Factory License	31.12.2022	
			4. Environmental Clearance	31.03.2021	
			5. Consent order Air	31.03.2022	
			6. Consent order Water	31.03.2022	
11	M/s. Covestro India Ltd	Thermoplastic Polyurethane resin and compound - 500 Tons per month	1. Factory License	31.12.2023	The unit possess all valid licenses
			2. Consent to Operate (Air)	31.03.2027	
			3. Consent to Operate (Water)	31.03.2027	
			4. Hazardous waste authorization	30.11.2021	

			5. Bio medical waste Authorization	31.03.2027	
			6. Fire License	18.09.2021	
			7. PESO License	21.12.2024	
12	M/s. Arkema Peroxides India Private Limited	1. Speciality Chemicals as Organic Peroxides – 400 T/Month, 2. Cross linking agent formulation – 16 Tonnes / Month, 3. Lauryl Chloride -50 Tonnes / Month <b>By Products</b> 1. Phosphoric acid – 0.83 Tons/ Month 2. Benzoic acid – 60 T/ Annum 3. Sulphuric acid – 80 Tons/ Month	1. Factory License 2. Consent to Operate (Air) 3. Consent to Operate (Water) 4. Hazardous waste authorization 5. Fire License	31.12.2023 31.03.2023 31.03.2023 30.01.2025 02.08.2021	The unit possess all valid licenses
13	M/s. Crimsun Organics Private Limited	Para chloro benzyl cyanide – 20 TPM, Pyrazole – 20 TPM, Metaphenoxy Benzaldehyde (MPB) – 30 TPM, Thiophanate Methyl – 50 TPM, Hexaconazole – 30 TPM, Propiconazole – 30 TPM, Difenoconazole – 15 TPM, Tricyclazole – 50 TPM, Carbendazim – 50 TPM, Cyproconazole -30 TPM, Trifloxystrobin – 20 TPM, Cymoxanil – 20 TPM, Pyraclostrobin – 20 TPM, Metalaxil – 20 TPM, Tebuconazole – 20 TPM, Boscalid - 20 TPM, Picoxystrobin – 20	1. Boiler License 2. Manufacturing License 3. Fire NOC 4. PESO License 5. CTO Air 6. CTO water	30.07.2021 Lifetime 08.11.2021 31.12.2029 30.11.2021 30.11.2021	The unit has obtained relevant Licenses and they have obtained validity as on date. The Consent validity has been extended by a common order of TNPCB dated 13.05.2021 and the consent order validity has been extended

TPM, Thifluzamide – 20 TPM, Pretilachlor – 50 TPM, Glyphosate – 50 TPM, Clodinafop-propargyl – 20 TPM, Bispyribac-Sodium – 20 TPM, Quizalofop – 20 TPM, Propaquizafop – 20 TPM, Mesotrione – 20 TPM, Fluroxypyr – 20 TPM, Imazamox – 30 TPM, Pinoxaden – 30 TPM, Ametryn – 30 TPM, Tembotrione – 20 TPM, Topramezone – 20 TPM, Halosulfuron – 20 TPM, Penoxsulam – 20 TPM, Flucetosulfuron – 20 TPM, Pendimethalin – 30 TPM, Chlorimuron – 20 TPM, Nicosulfuron – 20 TPM, Metsulfuron – 20 TPM, Acephate – 30 TPM, Diafenthiuron-30 TPM, Imidacloprid – 30 TPM, Buprofezin – 30 TPM, Thiamethoxam – 30 TPM, Cypermethrin – 30 TPM, Alpha cypermethrin – 20 TPM, Fipronil – 20 TPM, Acetamiprid – 30 TPM, Propargite – 30 TPM, Indoxacarb – 20 TPM, Dinotefuran – 20 TPM, Fonicamid – 20 TPM, Etoxazold			up to 30.11.2021.
	7. CTE Air	31.03.2026	
	8. CTE water	31.03.2026	
	9. Hazardous waste Authorization	18.03.2025	
	10. Factory License	31.12.2021	
	11. EC Letter	27.03.2024	
	12. Panchayat running License	31.03.2022	

		– 20 TPM, Metaflumizone – 20 TPM, Spiromesifen – 20 TPM, Spirotetramat – 20 TPM, Chlorantraniliprole – 20 TPM, Sulfoxaflor – 20 TPM			
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- ii. As per the information's of TNPCB, 40 units (Total 45 units) are complying with all conditions of CTO under Air & Water Acts and Authorisation under H&OW Rules 2016, however 2 units (M/s. Tanfac ALF3 and M/s. Tanfac Cryolite) are not complying the consent order conditions, hence directions were issued to the units and the units have rectified the deficiency indicated in the Board's Directions and the renewal of Consent is under process, other two units were not in operation and one unit was closed and vacated. Industry wise compliances are compiled and enclosed at **Annexure -5**.
- iii. The Committee inspected the industries with process reactors in SIPCOT Industrial Complex along with the Joint Director (Dept. of Industrial Safety and Health). The Committee has inspected the reactors operating under pressure and the reactors operating under atmospheric pressure. During inspection the safety aspects installed for the various reactors in the industries, such as safety valves, alarms, hooters, scrubber systems, vents etc., were inspected and its performances were verified. The systems such as PLC, DCS and SCADA systems employed as the control mechanism were also verified.

The critical vessels with the calibration dates of the safety valves, gas sensors, smoke detectors were inspected. The Fire hydrants, fire monitors employed in the industries of SIPCOT with the storage of fire fighting water and readiness of action in case of an outbreak of fire is inspected.

The details of safety systems and control systems employed in the industries of SIPCOT are compiled and Enclosed as **Annexure – 6**. The industry wise status of compliances and deficiency observed by the committee are tabulated in **Table 9**.

**Table 9 : Status of Safety measures taken by the 13 Chemical industries**

Sl. No.	Name of the Unit M/s.	No. of Reactors			Details of Safety Measures taken		Remarks of the Committee
		Critical	Non Critical	Total			
1.	Tagros Chemicals (INDIA) Limited	5	58	63	Safety Valves	26	The unit has Supervising Control And Data Acquisition (SCADA) which helps to supervise the ongoing operation and indication of any failure in the operational parameters which requires man inception for rectification. Only advantage is early detection and caution to operator in case of any failure.  The committee witnessed the function of SCADA
					Safety Appliances	25	
					Rupture Discs	51	
					Interlocking systems	15	
					Pressure vessel	25	
					Hooter, Temperature Indicator, Reactor agitator guard, Scrubber System and Reactor Alarm Annunciator are connected in the SCADA system. The safety measures are found to be functional and adequate.		
2.	Solara Active Pharma Sciences Pvt Limited	1	14	15	Safety Valves	75	The unit has (SCADA) which helps to supervise the ongoing operation and indication of any failure in the operational parameters which requires man inception for rectification. Only advantage is early detection and caution to operator in case of any failure.  The unit has interlocking system in door of critical reactor room which prevents entry of person during process.
					Safety Appliances	4	
					Interlocking systems	1	
					Pressure vessel	60	
					Hooter, Temperature Indicator, LEL deductor, Scrubber System and Reactor Alarm Annunciator are connected in the SCADA system. The safety measures are found to be functional and		

					adequate.		The committee witnessed the function of SCADA by stimulating operational parameters
3.	Tanfac Industries Limited	3	73	76	Safety Valves	76	The unit has DCS system through which controlling process parameters and safety system. Safety Integrated System of DCS will take care of any manual error and avoid any unfortunate accident. The committee witnessed the functions of DCS by stimulating operational parameters.
					Safety Appliances	3	
					Interlocking systems	3	
					Pressure vessel	73	
					Hooter, Temperature Indicator, Pressure release valve, Scrubber System and Reactor Alarm Annunciator are connected in the DCS system. The safety measures are found to be functional and adequate.		
4.	Tata Chemicals Limited	4	10	14	Safety Valves	14	The unit has SCADA system which helps to supervise the ongoing operation and indication of any failure in the operational parameters which requires man inception for rectification. Only advantage is early detection and caution to operator in case of any failure. The committee witnessed the function of SCADA by stimulating temperature
					Safety Appliances	2	
					Interlocking systems	4	
					Pressure vessel	10	
					Hooter, Temperature Indicator, Pressure release valve, Reactor Level Indicator and Reactor Alarm Annunciator are connected in the SCADA system. The safety measures are found to be functional and adequate.		
5.	Clariant Chemicals (INDIA)	4	10	14	Safety Valves	98	The unit has DCS system through which controlling process
					Safety Appliances	3	

	Limited				Interlocking systems	6	parameters and safety system. Safety Integrated System of DCS will take care of any manual error and avoid any unfortunate accident. It is informed that, function of DCS system is verified once in 4 months by stimulating the operating parameters. The committee witnessed the function of DCS system by stimulating temperature.
					Pressure vessel	10	
					Rupture Disc	1	
					Hooter, Temperature Indicator, Pressure release valve, Rupture Disc and Alarm Annunciator are connected in the DCS system. The safety measures are found to be functional and adequate.		
6.	Chemplast Cuddalore Vinyls Limited	12	199	21 1	Safety Valves	21 1	The unit has DCS system with advanced technology of 5 stage control system through which controlling process parameters and safety system. This advanced control system take care of any manual error and avoid any unfortunate accident.  The committee witnessed the function of DCS system by stimulating temperature. The unit also gave Demo of advantage of 5 stage control mechanism.  The safety measures taken by the unit found satisfactory.
					Safety Appliances	2	
					Interlocking systems	3	
					Pressure vessel	19 9	
					Rupture Disc	12	
					Hooter, Temperature Indicator, Pressure release valve, Rupture Disc and Alarm Annunciator are connected in the DCS system. Cooling water circulation and Jacket heating were provided. The safety measures are found to be functional and adequate.		
7.	Pandian Chemicals Limited	2	2	4	Safety Valves	4	The unit has installed Programme Logistic Control (PLC) system to monitor and control production process. The committee
					Safety Appliances	1	
					Interlocking systems	1	
					Pressure vessel	2	

					Temperature Indicator is connected in the PLC system. The safety measures are found to be functional and adequate.		observed the performance of sequence of events triggered by stimuli.  This system also requires man inception for rectification. Only advantage is early detection and caution to operator in case of any failure  The committee witnessed the function of PLC system
8.	Pioneer Jellice India Pvt Limited	0	26	26	Safety Valves	26	The unit has (SCADA) system in sterilisation section which helps to supervise the ongoing operation and indication of any failure in the operational parameters which requires man inception for rectification.  The committee witnessed the function of SCADA. The unit is not having any chemical reactors.
					Safety Appliances	0	
					Interlocking systems	0	
					Pressure vessel	26	
					The safety measures are found to be functional and adequate.		
9.	DFE Pharma India Limited	4	22	26	Safety Valves	26	The unit has SCADA system which helps to supervise the ongoing operation and indication of any failure in the operational parameters which requires man inception for rectification. Only advantage is early detection and caution to operator in case of any failure.  The committee witnessed the function of SCADA by stimulating operational
					Safety Appliances	5	
					Interlocking systems	0	
					Pressure vessel	26	
					Non critical vessels connected with DCS system. The safety measures are found to be functional and adequate.		

							parameters
10.	Asian Paints Limited	15	19	34	Safety Valves	34	The unit has DCS system through which controlling process parameters and safety system. Safety Integrated System of DCS will take care of any manual error and avoid any unfortunate accident. The Committee witnessed the function of DCS by stimulating Acetaldehyde >20 PPM.
					Safety Appliances	15	
					Interlocking systems	0	
					Pressure vessel	19	
					Non critical vessels connected with DCS system. The safety measures are found to be functional and adequate.		
11.	Covestro India Private Limited	3	27	30	Safety Valves	30	The unit has DCS system through which controlling process parameters and safety system. Safety Integrated System of DCS will take care of any manual error and avoid any unfortunate accident. The committee witnessed the function of DCS system by stimulating temperature and raw material feed in the reactor.
					Safety Appliances	3	
					Rupture Disc	3	
					Pressure vessel	27	
					Non critical vessels connected with DCS system. The safety measures are found to be functional and adequate.		
12.	Arkema Peroxides (INDIA) Limited	4	3	7	Safety Valves	7	The unit has Distributed Control System (DCS) system through which controlling process parameters and safety system. Safety Integrated System of DCS will take care of any manual error and avoid any unfortunate accident. The unit also constructed a concrete blast wall of 1.8 m thickness, 20 m height and length of 40m as barrier to process area and to restrict the
					Safety Appliances	4	
					Rupture Disc	0	
					Pressure vessel	3	
					Non critical vessels connected with DCS system. The safety measures are found to be functional and adequate.		

							<p>impact of any unfortunate accident to process area, no man inception to process area due to complete automation.</p> <p>The safety measures taken by the unit found satisfactory.</p>
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13	Crimsun Organics Pvt Ltd - Cuddalore	Reactors – 14 No's	8	6	<p>1. Total Numbers of Safety relief value – 16 All reactors are having safety valve in jacket side. In Distillation kettle 108/113 are having a safety valve in both process and jacket area.</p> <p>2. Total number of pressure gauge – 28 All reactors are having Pressure gauge in both process and jacket.</p> <p>3. Total numbers of RTD – 14 All reactors are having RTD</p> <p>4. All reactors temperature is connected with one PLC monitor in Online.</p> <p>5. R-108/113/116/117 is having Auto steam cut off valve interlock system available.</p> <p>6. R-108/113 is having temperature alarm indicator with hooter also available.</p>	The safety measures are found. It's on functional condition. Adequate for safe operation system.
		ANFD – 2 No's	-	2	<p>1. Four numbers of Safety valve provided in both Process and Jacket of equipment's.</p> <p>2. Four numbers of PG provided in both process and jacket of equipments</p> <p>3. Two number of RTD fixed.</p>	
		Kettle – 2 No's	2	-	<p>1. Both Kettle jacket side SRV is having.</p> <p>2. Both kettle is having Pressure gauge in process and jacket side and additionally Manometer provided in scrubber line</p> <p>3. RTD available in bottom mass area and top vapor side.</p> <p>4. Steam Auto ON/OFF valve is available.</p>	
		Boiler – 1 No	1	-	2 No's SRV is available PG is available Auto interlock system is available	
		Nitrogen Plant – 1 No	-	1	Fully Automated Plant (PLC Control)	
		Air Plant – 2	-	2	Fully Automated Plant	

	No's				
	Chilled water Compressor – 2 No's	-	2	Fully Automated Plant (PLC Control)	
	Chilled brine Compressor – 2 No's	-	2	Fully Automated Plant	
	MEE Concentrated distillation kettle – 2 No's	-	2	1. Four numbers of SRV available in both reactors in Process and Jacket area 2. Four numbers of PG available in both reactors in process and jacket area. 3. Both reactors are having RTD sensor	

**5.2 In compliance of Hon'ble NGT order, to ascertain the unauthorized discharge of untreated trade effluents/sewage, the committee inspected industries during July 30 - 31, 2021, the findings of the committee is summarized as below;**

In SIPCOT, there are 45 industries, the scenario on mode of final disposal of treated effluents from industries of SIPCOT are given in Table 10.

**Table 10 : Scenario of effluent management in industries of SIPCOT**

<i>No. of Industries treat &amp; reuse the effluent / disposed through MEE/ Solar evaporation and achieving ZLD</i>	<i>No. of Industries treat the effluent and send to common marine disposal system</i>	<i>No. of Industries with their own marine disposal system</i>	<i>Cuddalore Sipcot Industries Common Utilities Ltd.,(CUSECS)</i>	<i>No. of Industries not generating trade effluent</i>
14	14	2	1	14

- a. Fourteen industries have installed Zero Liquid Discharge (ZLD) systems and recovering water through RO system and reusing the treated effluents in their process. The RO reject being concentrated through Multi Effect Evaporator (MEE) /Solar Evaporation and recovering salt.
- b. Fourteen industries are treating the effluents and disposing it to the Common Marine Disposal System, M/s. Cuddalore SIPCOT Industries Common Utilities Limited (CUSECs).

- c. Two industries namely M/s. Clariant Chemicals Limited is having its own marine disposal system for disposing its treated effluent into the sea and where as M/s Chemplast Sanmar Ltd is having its own marine disposal for disposing desalinated water.
- d. M/s. Cuddalore SIPCOT Industries Common Utilities Limited (CUSECs) collects the treated effluents from the individual member industries (14 Nos) through pipelines in a common sump in the SIPCOT Industrial Complex. From there it is pumped into the sea (Bay of Bengal) through a single marine outlet pipeline laid for 1 Km length in the sea bed.
- e. The member industries of CUSECs and industries having their own marine disposal system have installed online sensors to monitor the parameter pH, TSS, BOD, COD and flow rate at their outlet points. The industries installed ZLD system have installed flow meters and pH sensors. All these monitors are connected to the effluent monitoring center 'Water Quality Watch' at Tamil Nadu Pollution Control Board Head Office, Chennai which is continuously recorded. These online monitoring systems in 13 chemical industries were also inspected during the committee visit.
- f. There is no any unauthorized discharge of untreated trade effluents/sewage is being done by any of the industries, in SIPCOT Complex.
- g. The details of product, Quantity of effluent and the details of Effluent Treatment Systems with their mode of disposal of individual industries in SIPCOT are enclosed as **Annexure – 5**.

**5.3 The committee also verified the pollution control measures installed to curb air pollution, the findings of the committee is Summarised as below;**

The industries in SIPCOT Industrial Complex have different types of processes involving heating, chemical reactions and steam production for its various industrial activities. These activities generate air pollutants such as Suspended Particulate Matter (SPM), Nitrous Oxides (NOx) and Sulphur dioxide (SO<sub>2</sub>). The industries in SIPCOT have installed the Air Pollution Control (APC) mechanisms in their sources of air emission from their process vessels and boilers. These APC measures such as Electrostatic Precipitators, Fabric filters, Cyclone dust collectors etc., are installed in the industries as per the requirement of their industrial processes. The particulates and gaseous emissions are controlled by these APC measures and the final treated flue gas is vented out through stacks. To monitor the quality

of stack emissions, online monitors are installed in the stacks which record the levels of the parameters, SPM, NOx and SO2 continuously. These recordings are connected to the ‘Care Air Centre’(CAC) in the TNPCB Head Office at Chennai, where it is recorded continuously. In case of an exceedance of a particular parameter in a particular industry, it will send a communication alert through e-mail/message to the respective industry, to enable the industry to check and control their processes immediately and bring down the concentrations of emissions within the prescribed standards. Industry wise sources of pollution, control measures installed are given in Table 11.

**Table 11: Status of Air Pollution Control System installed in 13 chemical industries**

S. No	Name of the Industry	Sources of Air Pollution	Control Measures	Status of online monitoring and parameters monitored	Remarks of the Committee
1	M/s. Tagros Chemicals India Private Limited	1.8 TPH(Coal) Boiler 2.6TPH(Wood) Boiler and 12TPH(Coal) Boiler(Common Stack) 3.3- Plant-I (CMAC) R-203 Vent 4.3-Plant-I (CMAC) R-204 Vent 5.3- Plant-5(Deltamethrin) R-104A,R-113 6.3- Plant-2(Hexaconazole) R-304,R-314 7.3 -Plant-2(Permethrin) R-220 Vent 8.3-Plant 1 (CMAC) R214, R218, 214A 9.4-Ejector sump vent 10. Water Ring Vacuum Sump Vent	1.Cyclone Separator & Stack (CAC) 2.Cyclone Separator & Stack (CAC) 3.Stack (CAC) 4.Stack 5.Stack	SO2, CI2,SPM,V OC	Installed online monitoring system and the same was found in operation

2	M/s. Solara Active Pharma Sciences Limited	<ol style="list-style-type: none"> <li>1. Reactor Acid fume emission from Production Block –II</li> <li>2. Reactor organic emission from Production Block II</li> <li>3. Mercaptan emission from Block – II&amp;VC</li> <li>4. Reactor organic emission from production Block – III</li> <li>5. Reactor acid fume emission from production Block – III</li> <li>6. Fugitive emission from equalization tank</li> <li>7. 12T Bio briquettes fired boiler</li> <li>8. Reactor Acid fume emission from Production Block-VA</li> </ol>	<ol style="list-style-type: none"> <li>1. Scrubber with Stack (CAC)</li> <li>2. Scrubber with Stack (CAC)</li> <li>3. Scrubber with Stack (CAC)</li> <li>4. Scrubber with Stack</li> <li>5. Scrubber with Stack (CAC)</li> <li>6. Scrubber with Stack</li> <li>7. Bag Filter and Mechanical dust collector (CAC)</li> <li>8. Scrubber with Stack</li> </ol>	Mercapton, PM, SO <sub>2</sub> ,TVOC, HCl, PM <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub> , NO <sub>x</sub> , O <sub>3</sub> , VOC	Installed online monitoring system and the same was found in operation
3	M/s. Tanfac Industries Limited	<ol style="list-style-type: none"> <li>1. Anhydrite plant – Wet scrubber</li> <li>2. Combustion Chamber(HFkiln)</li> <li>3. Central Absorption System HF alkali scrubber outlet</li> <li>4. SFL plant-wet scrubber outlet</li> <li>5. Sulphuric acid plant stack 1-alkali scrubber</li> <li>6. Sulphuric acid plant stack 2-alkali scrubber</li> <li>7. Boiler 10T/hr-MDC outlet</li> <li>8. Fluor spar drier</li> <li>9. BF<sub>3</sub> plant scrubber</li> <li>10. PAC</li> </ol>	<ol style="list-style-type: none"> <li>1. Packed bed scrubber</li> <li>2. Stack</li> <li>3. Acid scrubber venturi Scrubber catower</li> <li>4. Stack</li> <li>5. Stack</li> <li>6. Packed bed scrubber</li> <li>7. alkali scrubber</li> <li>8. alkali scrubber</li> <li>9. Dust collector</li> <li>10. Cyclone separator</li> <li>11. Packed bed scrubber</li> </ol>	SO <sub>2</sub> ,HF,SPM, VOC	Installed online monitoring system and the same was found in operation

		scrubber 11. Central absorption system Alf3 Scrubber 12. AL(OH3) drier 13. Spray drier burner 14. Spray drier scrubber	d Scrubber 12. Stack 13. Cyclone barometric condenser 14. PTFE bags cyclone separator Bag house		
4	M/s. Tata Chemicals Limited	1. Boiler 6TPH 2. Coal fire hot air generator	1. Cyclone dust collector & Stack 2. Modulating dust collector, Cyclone separator with stack	SPM, SOX, NOX, CO	Installed online monitoring system and the same was found in operation
5	M/s. Clariant Chemicals (India) Limited	1. Chloranil Plant Reactor Emission & MCPA 2. Chlorine Handle Area 3. Pigment blue reactors(acid fumes) 4. Blue Plant Neutralization reactors 5. Blue plant Tray Driers(3 No) 6. Blue plant Spin Flash Drier 7. Blue plant Milling Hot Air Generator 8. Blue Plant Ball Mill 9. Blue Plant Milling Plant 10. Fume cup board from R & D Lab -2No 11. Process Control Laboratory	1. Wet scrubber with stack (CAC) 2. Wet scrubber with stack 3. Wet scrubber with stack (CAC) 4. Wet scrubber with stack 5. Stack 6. Stack 7. Stack 8. Bag Filters with stack 9. Stack (CAC) 10. Stack 11. Stack 12. Common stack (CAC) 13. Com	PM, Cl <sub>2</sub> , SO <sub>2</sub> , VOC	Installed online monitoring system and the same was found in operation

		12. Boiler-6 TPH(FO Fired) 13. Boiler -8 TPH(Bio-Fuel Fired) 14. 860 KVA DG Set 15. 200 KVA DG Set 16. 1050 KVA DG Set 17. HOT AIR GENERATOR 18. TC CPC Hot Air Generator 19. TC CPC Spin Flash Drier 20. TC CPC SCRUBBER	mon stack (CAC) 14. Stack 15. Stack 16. Stack 17. Stack 18. Stack 19. Stack 20. Scrub ber followed by stack		
6	M/s. Chemplast Cuddalore Vinyls Limited	1.Boiler 2.Vent gas absorption system 3.Drier stack 4.Emergency Vent attached to VCM Storage Tank 5.Coal Heading Conveyor-Transfer Point- 1- Coal Crusher 6.Coal Heading Conveyor- Transfer Point- 2- Coal Bunker 7.Coal Feed Hopper 8.PVC Bagging Section- Bagging machine- 3 nos. 9.Product Silo- 3 nos.	1.Reverse jet bag filter outlet 2.Reverse jet bag filter outlet 3.Reverse jet bag filter outlet 4.Bin Vent Filter 5.Bin Vent Filter 6.Bin Vent Filter 7.Multi cyclone and Wet scrubber 8.Bag Filter 9.Bag Filter	PM,VCM,S O2, NOx,CO2,C O, VCM,O3,C O,SOx, NOx,PM10, PM2.5,C6H 6	Installed online monitoring system and the same was found in operation
7	M/s Pandian Chemicals	1.Boiler 2.Electrolytic Cell	1.Providing packed bed with Alkali scrubber 2.Cyclone separator with stack	Cl <sub>2</sub>	Installed online monitoring system and the same was found in operation
8	M/s. Pioneer	1. Di-calcium Phosphate Drier	1. Bag Filter with Stack	SPM	Installed online

	Jellice India Private Limited	2. Boiler 15T/hr. (Coal Fired) 3. Power Generator 1238 Kva	2. MDC, Wet Bottom Scrubber with Chimney provided 3. Stack		monitoring system and the same was found in operation
9	M/s. DFE Pharma India Private Limited	1.Boiler 4 T/hr 2.Spray Drier 3.Hot Air Generator	1.Dust Collector with Stack (CAC) 2.Stack 3.Twine cyclone, Quadra cyclone & stack	SPM, VOC	Installed online monitoring system and the same was found in operation
10	M/s. Asian Paints Limited	Boiler	Bag filter and Stack	PM,SO2,NO2, VOC,PM10, PM2.5,NOx, SO2	Installed online monitoring system and the same was found in operation
11	M/s. Covestro India Private Limited	1.Extruder and Finished products 2.Thermopak fluid heater 1 No. (4 Lakh Kcal) 3.DG set 600KVA, 400 KVA, 200KVA	1.Wet scrubber with stack 2.Stack 3. Acoustic enclosures with stack	PM, SO2, TVOC	Installed online monitoring system and the same was found in operation
12	M/s. Arkema Peroxides India Private Limited	1.Diesel Generator 725 KV 2.Diesel Generator 500 KV	Stack (2 Nos.)	VOC, HCI	Installed online monitoring system and the same was found in operation
13	M/s. Crimsun Organics Pvt Ltd	1.Oil Fired Boiler – 3 TPH 2.Reactors (14 Nos.) 3.Reactors (8 Nos. out of 14)	Stack (3 Nos.)	SPM	Installed online monitoring system and the same was found in operation

The TNPCB is monitoring the Air Quality levels in the vicinity of individual industries by conducting Ambient Air Quality (AAQ) Survey around each industry, every year. In this survey, 8 hours of atmospheric air sampling is done to calculate the Ambient levels of SPM, NO<sub>x</sub>, SO<sub>2</sub> around the industry.

Some major industries are instructed by the TNPCB to install and operate continuous AAQ Station in their premises to monitor and record the parameters SPM, NO<sub>x</sub>, SO<sub>2</sub> continuously and the following industries have installed CAAQM Stations in their premises.

1. M/s. Solara Active Pharma Sciences Ltd.
2. M/s.Asian Paints Ltd Penta Division.
3. M/s.Chemplast Cuddalore Vinyls Ltd.

Apart from the continuous ambient air quality monitoring, sensors such as chlorine sensors, VOC sensors, fluorine sensors etc are installed in the specific industries which may emit such type of specific emissions.

The TNPCB Office located amidst SIPCOT industrial complex is also operating a CAAQM Station in the premises, and the Ambient levels of SPM, NO<sub>x</sub>, SO<sub>2</sub>, etc., are monitored and recorded continuously.

**5.4 If there is any deficiency found, what is the nature of action taken and what are all the steps to be taken to improve the system to protect environment;**

With the above Air Pollution Control mechanisms installed in the individual industries of SIPCOT Complex, and with the Boards monitoring and alerting mechanisms, and also with the continuous Ambient Air Quality Stations installed in individual industries, the Air Quality in the SIPCOT area is monitored and maintained within the Air Quality Standards.

The industries in SIPCOT are conducting ‘Mock Drills’ in the premises to train the personnel’s in case of an emergency situation arising in the industries. Safety department in each industry is conducting periodical training to the workers regarding personal protective equipment’s, fire fighting etc.,

## 6.0 CONCLUSION of Committee

### A. Accident of M/s. Crimsun Organics Ltd.

- i. The accident was happened on 13.05.2021 at M/s Crimson organics Pvt., Ltd., due to mild blast in distillation kettle R-108. The accident happened due to malfunctioning of valves of steam line which suppose to be in off line when the residue of 180 – 200 liters was allowed to cool.
- ii. The residue present in the distillation kettle R-108 comprises of - 6- chloro pyridin-3-yl) methyl) methylamine (CPMMA), Acetamiprid and other intermediates which are acute toxic in nature. The fumes of these mixture causes the Respiratory Track irritation. The inhalation of high concentration might have been caused for death of 4 people.
- iii. Absence of automation, lack of comprehensive standards operating procedures on maintaining desired temperature & pressure, absence of temperature indicator, not checking the safety of the reactor, absence of alarm system in the reactor to alert the personnel on not maintaining desired temperature due to malfunctioning of valves, absence of double valve arrangement, absence of scrubber to vent out the gases in emergency, lack of preparedness are all the causes of accident.
- iv. The unit is main responsible for accident due to not having proper safety measures as well as not having trained personnel to understand the situation to reduce the impact of accident.
- v. Around 15 people were present in production area during accident, out of which 4 were fainted on inhalation of strong fumes and lost their lives. Other 11 working in different floors were fainted and recovered after hospitalization. One person safety division who participated for rescue also got fainted and recovered after first aid followed by hospitalization.
- vi. The unit has paid the compensation of Rs. 15.00 lac each to the dependents of the deceased family i.e total of Rs 60.00 lacs paid to all four deceased. The injured people were paid @ Rs10,000.00 each i.e Rs 1,20,000.00 paid to all injured. In addition, Government of Tamil Nadu paid compensation of Rs. 3.00 lac each to deceased family and Rs 1.00 lac to each to the injured employees. These regular and casual labours were covered under Employees State Insurance (ESI). Under ESI Act, monthly pension at the rate of 90 % of last drawn wages are admissible to them.

- vii. The committee did not observe any damage to the surrounding environment, the accident and impacts were confined only to production block. The entire residue present in the distillation kettle R-108 was spilled out and caused for fumes and the same was evaporated. Hence restoration or remediation is not required in this incident case, however the health of the injured employees shall be monitored for a period of at least 2 years. For violations and the damages caused (contribution of reaction mixture into atmosphere) the unit shall pay **Environmental Compensation of Rs. 5,89,690/- to improve the general environmental status of SIPCOT Industrial Complex, Cuddalore.**
- viii. The Cuddalore District off site emergency plan was under preparation, The unit has prepared onsite emergency plan in 1<sup>st</sup> September 2020 and conducted mock drills on 12.04.2021.
- ix. Post accident the unit was shut down for a period of 56 Days, and resumed the operation on 08/07/2021 after rectification of safety measures suggested by Inspectors of factory. During the committee visit on 08.07.2021, the unit was found in operation and manufacturing the pesticides at @ 2 T/day. The distillation Kettle in which accident happened was not taken for operation.
- x. Deputy Chief Inspector of Factories, Cuddalore inspected and issued show cause notice vide Lr Dated: 14<sup>th</sup> May 2021 to implement the following.
1. Safety valve in the shell side
  2. Double valve with bleeder valve arrangement
  3. Appointment of fulltime medical officer
  4. Removal of obstacles near one of the two staircases.
- All the above actions were completed and within 15 days time. The subsequent statutory action of charge sheet against occupier and manager was filed on 12.08.2021 before the Chief Judicial Magistrate Court, Cuddalore and the case is followed up by the Department of Industrial Safety and Health.
- xi. The committee suggests that TNPCB and Chief Inspector of Factories shall verify the compliances of the unit and safety measures taken.
- xii. The committee humbly submits that the industries have to ensure self-compliances of all chemical reactors. The industry & its personnel are solely responsible for this negligent act which resulted in the accident.

## **B. Status of Other Industries in SIPCOT Complex**

- (i) As per the inspection of committee and department of Industrial Safety and health, out of 13 chemical industries, 6 industries has DCS system through which controlling process parameters and safety system. Safety Integrated System of DCS will take care of any manual error and avoid any unfortunate accident. Five industries has SCADA system and one has PLC system which helps to supervise the ongoing operation and indication of any failure in the operational parameter but it requires manual inception to take corrective measures. Hence Committee felt that, the chemical industries which poses more risk in case of any unfortunate accident should install DCS with safety integrated system to reduce human involvement in case of unforeseen situation.
- (ii) As per the records of TNPCB, 40 units (Total 45 Units) were possessing valid CTO under Air & Water Act, Authorisation under HO&W Rules and complying with all conditions. TNPCB has taken action against the two units namely M/s. Tanfac ALF3 and M/s. Tanfac Cryolite, after rectification the renewal of the CTO is under progress, other two units were not in operation and one unit was closed and vacated.
- (iii) Out of 45 industries in SIPCOT, 14 industries are having full-fledged ETP to treat their effluent and achieving the Zero Liquid Discharge to land/water bodies, 14 industries are member of Common marine disposal system (CUSECS) and discharging their effluent after primary treatment to CUSECS through closed conduits. Two units are having their own marine disposal system and 14 industries are dry units and not generating any effluent. M/s. CUSECS is also considered as one industry since it handles collection from 14 units and homogenisation before disposing to Sea. All are having online monitoring system and connected to TNPCB 'Water Quality Watch' centre for real monitoring of effluent management.
- (iv) The committee not observed any unauthorised discharge of untreated trade effluents/sewage in SIPCOT industrial complex.
- (v) All 13 chemical industries have provided required Air Pollution Control Devices and installed online monitoring system. Committee witnessed the operation of online monitoring system for monitoring source emissions.

In view of the above, the Committee humbly submits that the action taken against the industry and levying of EC from the unit will strengthen “Polluter Pay Principle” and all industries have to ensure self monitoring, self compliance and comply with statutory guidelines, safety measures suggested by MOEFCC, CPCB, TNPCB, Directorate of Industrial Safety and Health (DISH) etc.,

*By considering the above facts and observation of the Joint Committee, the Hon'ble Tribunal may pass appropriate Order (s)/Direction (s) as deemed fit.*



**K. Balasubramaniam, I.A.S**  
District Collector  
Cuddalore



**H.D. Varalaxmi**  
Sc.E & Regional Director  
CPCB, Chennai



**K. Elankumaran**  
Joint Chief Environmental Engineer  
TNPCB(M), Trichy



**A. Balu**  
Assistant General Manager  
SIPCOT, Chennai

Item No.03:

BEFORE THE NATIONAL GREEN TRIBUNAL  
SOUTHERN ZONE, CHENNAI

Original Application No. 121 of 2021 (SZ)

(Through Video Conference)

IN THE MATTER OF

Tribunal on its own motion-SUO MOTU Based on the  
News items published in The Hindu Newspaper, Chennai Edition,  
Dated: 14.05.2021, under the caption "Cuddalore pesticide  
Unit blast kills 4".

...Applicant(s)

Versus

1. \*The Chief Secretary to Govt. of Tamil Nadu,  
Government Secretariat, Fort, St. George,  
Chennai, Tamil Nadu- 600- 009.
2. The Secretary to Govt. of Tamil Nadu,  
Department of Environment & Forests,  
Govt. Secretariat, Fort St. George  
Chennai, Tamil Nadu – 600- 009.
3. The Principal Secretary to Govt. of Tamil Nadu,  
Industries Department,  
Govt. Secretariat, Fort St. George  
Chennai, Tamil Nadu – 600- 009.
4. Additional Chief Secretary to Govt. of Tamil Nadu,  
Labour and Employment Department,  
Govt. Secretariat. Fort St. George,  
Chennai, Tamil Nadu – 600 009.

5. The Chairman,  
Tamil Nadu Pollution Control Board,  
No. 76, Anna Salai, Guindy,  
Chennai, Tamil Nadu – 600 032.

6. Directorate of Boilers,  
Rep. by its Director,  
First Floor, (North Wing),  
PWD Office Compound, Chepauk,  
Chennai – 600 005.

7. The District Collector,  
Cuddalore District,  
First Floor, New Collectorate Building,  
Collectorate Manjakuppam,  
Cuddalore – 607 001.

8. Crimsun Organics Private Limited,  
Rep. by its Managing Director,  
C-9, C-10 & C-11, SIPCOT Industrial Complex,  
Kudikadu, Cuddalore – 607 005.

...Respondent(s)

Date of hearing: 04.06.2021.

**CORAM:**

**HON'BLE MR. JUSTICE K. RAMAKRISHNAN, JUDICIAL MEMBER**

**HON'BLE MR. DR. K. SATYAGOPAL, EXPERT MEMBER**

**For Applicant(s):** Suo Motu by Court

**For Respondent(s):** Dr. V. R. Thirunarayanan for R1 to R4, R6 & R7  
Mr. C. Kasirajan through  
Ms. D. Ashwini for R5

## ORDER

1. The above case has been Suo Motu registered by this Tribunal on the basis of the newspaper report published in the Hindu Chennai Edition dated, 14.05.2021, under the caption “*Cuddalore pesticide unit blast kills 4*”
2. It is alleged in the newspaper report that there occurred a major industrial mishap, caused due to a blast in the 8<sup>th</sup> respondent unit/ Crimsun Organics Private Limited in Cuddalore in the State Industries Promotion Corporation of Tamil Nadu (SIPCOT) area in Kudikadu. It is alleged in the newspaper report that in the blast 4 persons died and the several persons injured.
3. According to the newspaper report, this was caused on account of the latches on the part of the industry in maintaining the safety measures and not complying with the conditions imposed in the clearance and the permissions granted.
4. Further on account of the fire broke out in the blast some environmental damage has been caused in that area.
5. The Pollution Control Board (TNPCB) had already issued an order for certain investigation to ascertain the reason for the incident.
6. It was also alleged in the newspaper report that an environmentalist in that area, informed that they were anticipating similar type of incidents in future as well and the people were having apprehension

of such disasters and though it was brought to the notice of the authorities, they have not taken any steps to redress the grievance or remove clear the apprehension of the people in that area.

7. It is also alleged that that there were frequent incidents of gas leak, effluent discharge etc., which contaminates the air as well as the groundwater.
8. On going through the allegations made in the newspaper report, we are satisfied that there arises a substantial question of environment which requires the interference of this Tribunal for resolving the same. So, the application is admitted.
9. When the matter came up for hearing for admission today through Video Conference, Dr. V.R. Thirunarayanan represented respondents 1 to 4 & 6 & 7 and Mr. C. Kasirajan through Ms. D. Ashwini represented 5<sup>th</sup> respondent.
10. Issue notice to the respondents by Registered post with acknowledgement due and also by e-mail, so as to ensure service on them along with the copy of the paper report and the gist of the Suo - Motu proceedings with full cause title immediately in order to ensure their service.
11. In order to ascertain the genuineness of the allegations and also the violations if any, committed by the 8<sup>th</sup> respondent/Crimsun Organics Private Limited mentioned in the newspaper report and its impact,

we feel it appropriate to appoint a joint committee comprising of (1) The District Collector, Cuddalore District, (2) a Senior Officer from Tamil Nadu Pollution Control Board (TNPCB) designated by its Chairman, (3) a Senior Officer from the Central Pollution Control Board (CPCB) Integrated Regional Office, Chennai (4) a Senior Officer from the State Industries Promotion Corporation of Tamil Nadu (SIPCOT) deputed by its Chairman and the Managing Director to inspect the 8<sup>th</sup> respondent/Crimsun Organics Private Limited unit in question and submit a factual as well as action taken report, if there is any violation found.

12. The committee is directed to ascertain as to

- (i) whether the 8<sup>th</sup> respondent unit/ Crimsun Organics Private Limited is having all necessary permissions and clearances for running their unit, including environmental clearance if any required,
- (ii) whether the 8<sup>th</sup> respondent unit/ Crimsun Organics Private Limited is complying with all the imposed conditions in the clearance and the permission granted,
- (iii) If there is any deficiency for providing safety measures against the conditions imposed whether it is the cause for the accident,
- (iv) Whether any environmental damage has been caused on account of the incident, if so assess the environmental damage caused and

the environmental compensation to be recovered from them.

13. The committee is also directed to ascertain the general precautions taken by the industries and the State Industries Promotion Corporation of Tamil Nadu (SIPCOT) in the complex to avoid such incidents and regulatory mechanism to ascertain the number of units that are strictly adhering to the permissions granted and if not, what is the nature of action taken by the State Industries Promotion Corporation of Tamil Nadu (SIPCOT) against such erring industries.

14. The committee is also directed to ascertain as to

- a. whether any unauthorised discharge of untreated trade effluents/sewage is being done by any of the industries and
- b. whether necessary pollution control mechanism has been provided to curb air pollution, likely to be caused on account of the poisonous gas emission being emitted from the units if any,
- c. If there is any deficiency found, what is the nature of action taken and what are all the steps to be taken to improve the system to protect environment.

15. The State Industries Promotion Corporation of Tamil Nadu (SIPCOT) Industries will be the nodal agency for co-ordination and also for providing necessary logistics for this purpose.

16. The committee is directed to submit the report in this regard to this Tribunal on or before **16.07.2021** by e-filing in the form of searchable

PDF/OCR Support PDF and not in the form of Image PDF along with necessary hardcopies to be produced as per rules.

17. Apart from filing the report, the official respondents are also directed to file their independent statements regarding the action taken and the regarding allegations made in the newspaper report and the remedial measures that has been provided by them to redress the grievance expressed by the local people in the newspaper report.
18. The Registry is directed to communicate this order to the members of the committee and also to the official respondents immediately through e-mail along with the copy of the news paper report and the gist of the Suo Motu proceedings with full cause title so as to enable them to comply with the direction.
19. For appearance of parties, filing of their independent responses and also for consideration of report, post on **16.07.2021**.

*(\* Corrected as per order dated 17.06.2021.*

Sd/-  
.....J.M.  
(Justice K. Ramakrishnan)

Sd/-  
.....E.M.  
(Dr. K. Satyagopal)

O.A. No. 121 /2021  
04.06.2021, Sr.

**Compliance status of RCO conditions - M/s. CRIMSUN ORGANICS PRIVATE LIMITED,  
SIPCOT Industrial Complex, KUDIKADU Village, Cuddalore Taluk and Cuddalore District**

Sl.No	Condition	Compliance status
	<b>Water Act</b>	
1	The unit shall manufacture only the products specified in the EC and shall not manufacture pesticide formulation products.	Complied. The industry is manufacturing products mentioned in the EC only.
2	The unit shall not carry out any establishment activities in the Plot No. C-9 and C-11 without obtaining consent of the Board.	No industrial activity is carried out in C- 9 and C-11 for the existing activity.
3	The unit shall operate and maintain the Sewage Treatment Plant efficiently and continuously and the treated sewage shall be utilised for green belt development/gardening after satisfying the standards prescribed by the Board.	Complied. The STP was in operation during the time of inspection. The ROA of the treated sewage samples collected from the industry reveals that the standards are within the prescribed standards.
4	The unit shall not dispose the treated sewage to CUSECS and shall utilize the same for gardening as specified in the EC.	Complied. The treated sewage is not disposed to CUSECS. The treated sewage is disposed for gardening.
5	The unit shall operate and maintain the ETP followed by RO plant, MEE continuously and efficiently so as to achieve the ZLD.	Complied. The industry has provided ETP followed by RO plant and MEE and the unit achieves Zero Liquid Discharge.
6	The unit shall ensure that no discharge of untreated/treated trade effluent on land or into any water bodies either inside or outside the premises at any point of time.	Complied. No untreated / treated trade effluent is disposed outside the premises.
7	The unit shall analyze the treated sewage and treated trade effluent samples through TNPCB lab periodically and furnish ROA of the same.	Complied. Treated sewage and treated trade effluent are meeting the standards
8	The unit shall ensure that the effluent parameters shall satisfy the standards prescribed as per CPCB/MoEF& CC Notification issued from time to time.	Complied.
9	The unit shall furnish the Electro Magnetic Flow Meter readings and	Complied. The details are furnished regularly.

	online connectivity data to JCEE (M), Trichy and DEE, Cuddalore on monthly basis without fail.	
10	The unit shall operate and maintain the EMFM provided at the inlet of STP and provide EMFM with computer recording arrangement at the out let of STP.	Complied. The industry has provided EMFM at the inlet and outlet of STP with computer recording arrangement.
11	The unit shall maintain the electromagnetic flow meters at the inlet of ETP, inlet of the RO System, RO permeate line, RO reject line, Inlet of Multiple Effect Evaporator, Multiple Evaporator condensate line in good condition and transmit the quality data to WQW, TNPCB, Chennai at all the time.	Complied. EMFMs installed and maintained. The same are connected to WQW, TNPCB, Chennai.
12	The unit shall maintain CCTV camera for monitoring the ZLD system in good condition and transmit the quality data to WQW, TNPCB, Chennai at all the time.	Complied. CCTV camera provided and data transmitted to WQW, TNPCB, Chennai.
13	The unit shall dispose the non-hazardous waste then and there without any accumulation.	Complied. The non hazardous solid waste is disposed then and there and no accumulation found.
14	The unit shall ensure that the Hazardous wastes generated shall be properly disposed as per the Authorization obtained under Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.	Complied. The hazardous waste is disposed as per the instruction.
15	The unit shall dispose the hazardous wastes to the authorized facilities then & there before 90 days as per the conditions stipulated in the authorization issued under the provisions of Hazardous & Other Wastes (Management & Transboundary Movement) Rules 2016.	Assure to comply at all times.
16	The unit shall apply for Authorization for proper disposal of Hazardous waste under Hazardous and Other Waste (Management and Transboundary Movement) Rules, 2016 under category 28(Schedule-I) for disposal of 28.4 - off specification products and 28.5 - Date – expired products if any.	Complied. The industry has obtained Authorisation under the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 vide Board's Proc. dated 19.03.2020 with validity for five years.
17	The unit shall ensure proper disposal of discarded/date expired medicines and	Assure to comply.

	not to dispose discarded/date expired medicines in the lake or any other water bodies or any lands.	
18	The unit shall maintain Form – 3 for the generation of hazardous wastes and shall file annual return in Form - 4 to the Board. The unit shall maintain the hazardous waste display board in front of the unit clearly updating the same regularly as mandated by the Hon’ble Supreme Court Order dated 14.10.2003.	Complied. The industry has furnished annual returns for the year 2019-2020.
19	The unit shall not use ‘use and throwaway plastics’ such as plastic sheets used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups, plastic tumbler, water pouches and packets, plastic straw, plastic carry bag and plastic flags irrespective of thickness, within the industry premises. Instead it shall encourage use of eco friendly alternative such as banana leaf, arecanut palm plate, stainless steel, glass, porcelain plates/cups, cloth bag, Jute bag etc.,	Generally Complied With.
20	The unit shall continue to develop adequate green belt with thick canopy within the premises, so as to attenuate air and noise pollution furnish the exact green belt area ear marked/developed as per norms in the unit premises and furnish photographs along with latitude and longitude co-ordinates.	The total land area available for the project is 18051.03 sqm. The industry has developed green belt in an area of about 6300 m <sup>2</sup> with about 750 trees.
21	The unit shall liable to pay the consent fee and shall remit the difference in amount in case of any revision of consent fee by the Government.	Assured to comply.
22	The unit shall submit Environmental Statement for every financial year ending the 31st March in Form -V as per the Rule 14 of the Environment (Protection) Rules, 1986.	Complied. The industry has furnished environmental statement for the year 2019-2020.
23	The unit shall explore possibilities of reducing water consumption in process and also provide rain water harvesting facilities in the unit and practice water conservation measures.	Complied. The industry has provided rain water harvesting system for the buildings.
24	The operation of the unit shall not attract complaints from public.	Complied. No complaints received against the operation of the industry.

25	The unit shall dispose the distillation residue to some other beneficial users/to explore some other better option instead of disposing it to cement industries if the calorific value of hazardous waste is found less.	Complied. The unit has disposed the Hazardous waste to cement industries as per the hazardous waste authorisation.
26	The unit shall comply with the EIA Notification 2006 in case of any proposed changes from consented conditions.	Complied with.
	<b>Air Act</b>	
1	The unit shall operate and maintain the air pollution control measures efficiently and continuously so as to satisfy the AAQ /Emission standards prescribed by the Board at all times.	Complied. The Air Pollution Control Measures are continuously operated. The ROA of the AAQ survey reveals that the standards are met with.
2	The unit shall conduct AAQ/Emission/ANL survey through Board lab and furnish report to the Board within a month.	Complied. Advanced Environmental Lab of TNPCB has conducted the AAQ survey.
3	The unit shall adhere to the National Ambient Air Quality / Stack / Ambient Noise Level standards prescribed by the Board from time to time.	Complied. The ROA of the AAQ/SM/ANL survey conducted in the industry reveals that all the parameters are within the prescribed standards.
4	The unit shall provide Online continuous Ambient Air Quality Monitoring stations at required places for TVOC, PM10, PM2.5, SO2, NOx, and provide proper data to Care Air Centre, TNPCB, Guindy all the times.	Assured to comply. The unit authority informed that continuous ambient air quality monitoring station will be installed before commissioning of the expansion activity.
5	The unit shall provide adsorption systems like Activated carbon/Charcoal to prevent /control odour from the reactors.	Complied. The industry has provided adsorption system.
6	The unit shall operate and maintain the safety measures and APC measures provided to arrest the fugitive emissions during its loading, unloading and handling operations.	Complied. The unit has provided safety measures at solvent storage tanks for charging of chemicals, loading of solid raw materials and product unloading.
7	The unit shall ensure the connectivity of Stack emission Online Monitoring system provided for PM attached to the stack of boiler and provide proper data to CPCB server.	Complied. The unit has provided continuous online monitoring system for the parameter PM for the Boiler stack and connected the same to the CPCB.
8	The unit shall connect the Stack emission Online Monitoring system <sup>6</sup>	Complied. The unit has provided

	provided for PM attached to the stack of boiler with TNPCB server and provide proper data at all the time.	continuous online monitoring system for the parameter PM for the Boiler stack and connected the same to the Care Air Centre, TNPCB, Chennai.
9	The unit shall maintain stack monitoring facility as per Emission Regulation Part-3 (ERP-3) norms for all the stacks attached with emissions sources.	Complied. The unit is maintaining stack monitoring facility as per Emission Regulation Part 3 norms.
10	The unit shall ensure that the port hole and ladder facility is safe to carry out monitoring. In place of monkey ladder, spiral type/scaffold ladder shall be provided to ensure safety of monitoring personnel.	Complied. The unit has provided port hole facilities as per ERP 3 norms and cage ladder.
11	The unit shall continue to develop adequate green belt with thick canopy within the premises, so as to attenuate air and noise pollution furnish the exact green belt area ear marked/developed as per norms in the unit premises and furnish photographs along with latitude and longitude co-ordinates.	Complied. The total land area available for the project is 18051.03 sqm, The unit has developed green belt in an area of 6303 m <sup>2</sup> , which is 34.9 % of total land area.
12	The unit shall liable to pay the consent fee and shall remit the difference in amount in case of any revision of consent fee by the Government.	Assured to comply.
13	The unit shall submit Environmental Statement for every financial year ending the 31st March in Form -V as per the Rule 14 of the Environment (Protection) Rules, 1986.	Complied. The industry has furnished environmental statement for the year 2019-2020.
14	The operation of the unit shall not attract complaints from public.	Complied.
15	The unit shall comply with the EIA Notification 2006 in case of any proposed changes from consented conditions.	Assured to comply.

Compliance of Authorization under Hazardous and Other waste Management and Transboundary Rules

Sl.No	Conditions	Compliance
1	The unit shall dispose the Spent Oil and empty barrels/containers/liners to the units having valid authorization of the Board and registration certificate as recyclers and necessary endorsement shall be made in respect of the quantity transacted in the original letter of registration issued to the recycling unit lifting used oil.	Complied.
2	The unit has to ensure that the used/spent oil disposed shall confirm the standards suitable for the reprocessing of used/spent oil.	Complied.
3	The Hazardous wastes shall be stored in a compatible container on an impervious platform in closed shed which shall be provided with requisite fire protection system, personal protective equipment and safety system.	Complied.
4	The unit shall ensure that adequate fire safety measures have been provided to avoid any fire accidents in the unit.	Complied.
5	The unit shall maintain the Hazardous waste display Boards in front of the factory clearly indicating the same regularly as mandated by the Hon'ble Supreme Court order dated 14.10.2003.	Complied.
6	The person authorized shall comply with all the conditions stipulated in the authorization and other conditions of the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.	Complied.
7	The unit shall maintain Form 3 and submit Form 4 prescribed under the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.	Complied.
8	The Hazardous wastes shall be disposed only with manifest that shall be maintained in Form-10 of the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.	Complied.
9	The manifest shall be endorsed by the despatcher, transporter and receiver of hazardous wastes. The endorsed copy of the manifest shall be furnished to TNPCB as and when such disposal is made.	Complied.
10	The unit shall ensure that all provisions of Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 as amended are complied with while handling hazardous waste.	Complied.
11	The authorization is subject to the terms and conditions as may be specified in the Rules for the time being in force under the Environment (Protection) Act, 1986.	Complied.
12	The unit shall not store the Hazardous waste generated outside the premises of the unit.	Complied.

13	The unit shall maintain log book for the wastewater generation, treated, quantity of dried sludge generated from wastewater treatment.	Complied.
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பதிவுஞ்சல் / ஒப்புதல் அட்டையுடன்

தொழிலக பாதுகாப்பு மற்றும் சுகாதார இணை இயக்குநர் அலுவலகம், கடலூர்  
தடையாணை

எண். இ /906/ 2021

நாள்:14.05.2021

தொழிற்சாலைகள் சட்டம் 1948 (திருத்தப்பட்ட சட்டம் 1987) மற்றும் தமிழ்நாடு  
தொழிற்சாலைகள் விதிகள் 1950

1. தங்கள் தொழிற்சாலையில் 13.05.2021 அன்று பிற்பகல் 01.45 மணியளவில் கடலூர் தொழிலக பாதுகாப்பு மற்றும் சுகாதார இணை இயக்குநர் (மு.க.பொ) மற்றும் கடலூர் தொழிலக பாதுகாப்பு மற்றும் சுகாதார துணை இயக்குநர் (மு.க.பொ) அவர்களுடன் கூட்டாய்வு செய்தபோது இணைப்பில் சுட்டிக்காட்டியவாறு தொழிற்சாலைகள் சட்டம் மற்றும் விதிகளின் கீழான சட்ட மீறதல்கள் இருப்பது கண்டறியப்பட்டது. அதற்காக தற்போது தொழிற்சாலையில் நடந்த தீ விபத்தின் காரணமாக முழுமை பெறாமல் பாதியில் நிறுத்தப்பட்டிருந்தால் Fipronil Technical மற்றும் Acetamiprid Process Incomplete ஆக பாதியில் நிறுத்தப்பட்டுள்ளதால் விபத்து ஏதும் ஏற்படாவண்ணம் Process time ஆறு நாட்களுக்குள் முடித்து பாதுகாப்பாக Plant-ஐ Shut down செய்த பிறகு தொழிற்சாலையில் Reactor Vessel 108 உட்பட தொழிற்சாலை முழுவதும் பயன்பாட்டிற்கு தடையாணை பிறப்பிக்கப்படுகிறது.
2. இவ்வாணை சார்பு செய்யப்பட்ட 30 நாட்களுக்குள் இயக்குநர்,தொழிலக பாதுகாப்பு மற்றும் சுகாதார இயக்ககம், சென்னை அவர்களிடம் இவ்வாணைக்கு எதிராக மேல்முறையீடு செய்யலாம் என்பதை அறியவும், மேற்படி எந்த ஒரு மேல் முறையீடும் ரூ.5.00 மதிப்புள்ள நீதிமன்றக் கட்டணவில்லை மற்றும் இவ்வாணை வழங்கியவரால் சரிபார்க்கப்பட்டது என்று சான்றளிக்கப்பட்ட எதிர்மேல் முறையீடும் ஆணையின் (Order appealed against) உண்மை நகலை கொண்டிருக்க வேண்டும். மேலும் நீதிமன்ற கட்டண சட்டத்தின் கீழ் ஒவ்வொரு முன்னூற்று அறுபது சொற்களுக்கு அல்லது அதனை அடுத்த பின்னத்திற்கு ஐம்பது காசுகள் வீதம் ஆணையின் நகலில் கட்டணவில்லை ஒட்டப்பட வேண்டும்.

3. சட்டம் மற்றும் விதிகளின் கீழான ஏற்பாடுகளை செயற்படுத்தாமைக்கு முன்னறிவிப்பின்றி (Without Prejudice) இவ்வலுவலகம் எந்த ஒரு நடவடிக்கையும் மேற்கொள்ளலாம் என்று இவ்வாணை அளிக்கப்படுகிறது.

(சிக) இணை இயக்குநர்,  
தொழிலக பாதுகாப்பு மற்றும் சுகாதாரம்,  
கடலூர்(பொ)

ஆய்வு செய்த அலுவலர்:

1. திரு.ரெ.சித்தார்த்தன்,எம்.இ.,எம்.பி.ஏ.,டி.ஐ.எச்.,  
இணை இயக்குநர்,  
தொழிலக பாதுகாப்பு மற்றும் சுகாதாரம்,  
கடலூர். (மு.க.பொ)
2. திருமதி.இ. இலக்கியா, பி.டெக்.,  
தூணை இயக்குநர்,  
தொழிலக பாதுகாப்பு மற்றும் சுகாதாரம்,  
கடலூர். (மு.க.பொ)

பெறுநர்:

MR.RAMESH PRABAKARAN , (Age-53)  
S/o.Mr.SENTHUR PANDIYAN,  
OCCUPIER / உரிமையாளர்,  
Crimson Organics Pvt Limited, Plot  
C9,10,11,Sipcot Industrial complex,  
Kudikadu Village, Cuddalore  
Town,Cuddalore Taluk,  
Cuddalore District.

நகல் பணித்தனுப்பப்படுகிறது:

1. இயக்குநர், தொழிலக பாதுகாப்பு மற்றும் சுகாதாரம், சென்னை.
2. கூடுதல் இயக்குநர், தொழிலக பாதுகாப்பு மற்றும் சுகாதாரம், திருச்சிராப்பள்ளி.

தொழிலக பாதுகாப்பு மற்றும் சுகாதார இணை இயக்குநர் அலுவலகம்,  
கடலூர்

தொழிற்சாலைகள் சட்டம் 1948 தமிழ்நாடு தொழிற்சாலைகள் விதிகள் 1950  
மற்றும் திருத்தப்பட்ட சட்டம் 1987

1.பிரிவு 40(2):

தொழிற்சாலையின் எந்தவொரு கட்டிடமோ (அ) கட்டிட பகுதிகளோ (ஆ) வழித்தடம், இயந்திரங்கள் (அ) உற்பத்தி வளாகத்தின் எந்த ஒரு பகுதி மனித உயிருக்கோ (அ) பாதுகாப்பிற்கோ அச்சுறுத்தல் ஏற்படும் வகையில் அமைந்திருக்கக்கூடாது.

ஆனால், அதற்கு மாறாக Crimson Organics Private Limited, Plot C9,10,11,Sipcot Industrial complex, Kudikadu Village Cuddalore Town,Cuddalore Taluk, Cuddalore District. என்ற இத்தொழிற்சாலையில் Fipronil Technical மற்றும் Acetamiprid Technical ஆகிய பூச்சிகொல்லி மருந்துகள் மொத்தமாக (Bulk) தயாரிக்கப்பட்டு வருகிறது. 13.05.2021 அன்று காலை 07.40 மணியளவில் இத்தொழிற்சாலையில் நிறுவப்பட்டுள்ள Reactor Vessel 108 உள்ளே Isoprophyl Alcohol Recovery செய்த பின்னர், Reactor Vessel-ல் ஏற்பட்ட திடீர் அதிக அழுத்தம் காரணமாக Reactor Vessel-ல் உள்ளே இருந்த Acetamiprid impurites இரண்டாவது தளத்தில் உள்ள manhole-ஐ திறந்து கொண்டு அதிக வெப்பம் மற்றும் அதிக அழுத்தத்துடன் வெளியேறியதன் காரணமாக Acetamiprid impurites வெளியேறி தீப்பிடித்து எரியும்பொழுது 2-Cholorophrine gas-ம், smoke-ம் வெளியேறியதன் காரணமாக அதனை சுவாசித்ததினால் முதல், இரண்டாம், மூன்றாம் தளத்தில் பணிபுரிந்து கொண்டிருந்த தொழிலாளர்களுக்கு மூச்சுதிணறல் ஏற்பட்டு 16 தொழிலாளர்கள் கடலூர், அரசு மருத்துவமனையில் சேர்க்கப்பட்டு அதில் 4 தொழிலாளர்கள் மரணமடைந்துள்ளனர் மற்றும் 9 தொழிலாளர்களும் கடலூர், அரசு மருத்துவமனையிலும், ஒரு தொழிலாளி பாண்டிச்சேரி மகாத்மா காந்தி மருத்துவமனையிலும் சிகிச்சை பெற்று வருகின்றனர் என்பது 13.05.2021 அன்றைய புலனாய்வின் போது கண்டறியப்பட்டது.

இவ்விபத்து கீழ்க்காணும் பாதுகாப்பு குறைபாடுகளுடன் Reactor Vessel 108 பயன்படுத்தப்பட்டதன் காரணமாக விபத்து ஏற்பட்டுள்ளது.

1	Steam line-ல் பாதுகாப்புக்கு இரண்டு Valveகள் உடன் நடுவில் ஒரு Bleeder Valve அமைக்கப்பட்டு, Steam line-ல் Leak இருப்பின் Bleeder Valve வழியே வெளியேறும் படியான அமைப்பு ஏற்படுத்தப்பட்டிருக்கவில்லை.
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2	Reactor Vessel —ல் எதிர்பாரா விதமாக வெப்பம், அழுத்தம் போன்ற காரணிகள் அதிகரிக்கும் போது அழுத்தத்தை வெளியேற்ற Safety Valve, அமைக்கப்பட்டு அதில் இருந்து வெளியேறும் வாயுக்கள் பரவி தொழிலாளர்களுக்கு ஆபத்து ஏற்படா வண்ணம் Scrubber system-த்தடன் இணைக்கப்பட்டிருக்கவில்லை.
3	இரண்டாவது தளத்தில் இருந்து தொழிலாளர்கள் உடனடியாக வெளியேறுவதற்கு அமைக்கப்பட்டிருந்த இரண்டு படக்கட்டு அமைப்புகளில் ஒரு அமைப்பு தற்காலிக பணிக்காக அடைக்கப்பட்டிருந்ததன் காரணமாக தொழிலாளர்கள் எளிதில் வெளியேற முடியாத நிலை ஏற்பட்டிருந்தது. மேலும் தொழிலாளர்கள் குறிப்பிட்ட அதிக அழுத்தத்தின் காரணமாக வாயுக்கள் வெளியேறிய போது கீழே இறங்குவதற்கு பதிலாக படக்கட்டுகள் அடைக்கப்பட்டிருந்ததால் மூன்றாவது தளத்திற்கு சென்றதால் மேலே எழும்பிய வாயுக்களை சுவசித்ததன் காரணமாக தொழிலாளர்களுக்கு மூச்சு திணறல் ஏற்பட்டுள்ளது.
4	Occupation Health centre — முழுநேர மருத்துவருடன் Factory Medical Officer உரிய கல்வி தகுதியுடன் முழு நேர மருத்துவ உதவியாளர் (உரிய கல்வி தகுதியுடன்) பணியமர்த்தி அதன் விவரங்களை சென்னை தொழிலக பாதுகாப்பு மற்றும் சுகாதார இயக்குநர் அவர்களிடம் ஒப்புதல் பெறப்படவில்லை.

மேற்படி பாதுகாப்பு குழந்தைகளை முற்றிலும் அகற்றி Reactor Vessel 108 ஐ முழுமையாக சரிசெய்து உற்பத்தியாளரால் நிர்ணயிக்கப்பட்ட அழுத்தத்தில் Hydro test செய்தும், Agitator ஐ சரிசெய்தும், Primary, Secondary Comdensor கள், Vapour line, Pipe line கள் மற்றும் இதர பாதுகாப்பு சாதனங்களின் பாதுகாப்பு செயல்பாடுகளை சரிசெய்து, உறுதி செய்து, சென்னை தொழிலக பாதுகாப்பு மற்றும் சுகாதார இயக்குநர் அவர்களால் அங்கீகரிக்கப்பட்ட தகுதி வாய்ந்த நபரிடமிருந்து Examination of Instruments and Safety system மற்றும் testing, examination and repair of plants and equipments தகுதி சான்று பெற்று பாதுகாப்பாக உற்பத்திப்பணி தொழிற்சாலையில் நடைமுறைப்படுத்தப்பட்ட விவரம் தொழிலக பாதுகாப்பு மற்றும் சுகாதார இயக்குநர் அவர்களுக்கு உரிய வழியில் சமர்ப்பித்து அவர்களின் அனுமதி பெறப்படும் வரை தொழிற்சாலையின் பயன்பாட்டிற்கு தடையாணை Fipronil Technical மற்றும் Acetamidrid Technical Batch process முடிந்த நாளில் இருந்து பிறப்பிக்கப்படுகிறது. இந்த தடையாணை உடனடியாக அமுலுக்கு வருகிறது எனவும் தெரிவிக்கப்படுகிறது.

எனவே, இவ்வாண கிடைக்கப்பெற்ற தேதியிலிருந்து 30 நாட்களுக்குள் மேலே குறிப்பிட்டுள்ள பாதுகாப்பற்ற குழந்தைகளை சரி செய்யப்பட்டு, போதுமான பாதுகாப்பு ஏற்பாடுகள் நடைமுறைப்படுத்தப்பட்ட விவரம் புகைப்பட மற்றும் ஆவண ஆதாரங்களுடன் இயக்குநர், தொழிலக பாதுகாப்பு மற்றும் சுகாதார இயக்ககம், சென்னை மற்றும் இணை இயக்குநர், தொழிலக பாதுகாப்பு மற்றும் சுகாதாரம், கூடலூர் அவர்களுக்கு தெரிவிக்கப்பட வேண்டும். அவ்வாறு 30 நாட்களுக்குள் சரி செய்யப்படவில்லை எனில் எந்த ஒரு முன்னறிவிப்பும் இன்றி தொழிற்சாலைகள் சட்டப்படி உரிய மேல் நடவடிக்கை எடுக்க ஏதுவாகும் எனவும் இதன் மூலம் தெரிவிக்கப்படுகிறது.

இணை இயக்குநர்,  
தொழிலக பாதுகாப்பு மற்றும் சுகாதாரம்,  
கூடலூர்.(பொ)

ந.க.ஆ2/1/2021.  
நாள்:13.05.2021.

வட்டாட்சியர் அலுவலகம்,  
கடலூர்.

### அமைதி பேச்சுவார்த்தை கூட்ட நடவடிக்கைகள்.

கடலூர் வட்டம், மஞ்சக்குப்பம் குறுவட்டம், குடிகாடு கிராமம், சிப்காட் தொழிற்பேட்டையில் இயங்கிவரும் க்ரிம்ஸன் ஆர்கானிக் பி.லிட் நிறுவனத்தில் 13.05.2021 இன்று காலை 07.04 மணியளவில், வடிகட்டும் உலை கலன் சரியாக இயங்காத காரணத்தினால், விபத்திற்குள்ளாகி வாயு தாக்கியதில் அந்நிறுவனத்தில் பணிபுரிந்த ஊழியர்களில் பதினேழு நபர்கள் மூச்சு திணறல் ஏற்பட்டு கடலூர் மாவட்ட அரசு தலைமை மருத்துவமனையில் சிகிச்சைக்காக அனுமதிக்கப்பட்டனர். இவர்களில் 4 நபர்கள் இறந்துவிட்டனர். இவ்விபத்து தொடர்பாக நிறுவனம் சார்பாக இழப்பீட்டு தொகை வழங்கக் கோரி கடலூர் வருவாய் வட்டாட்சியர் அலுவலகத்தில் வருவாய் கோட்டாட்சியர் தலைமையில் அமைதி பேச்சுவார்த்தைக் கூட்டம் நடைபெற்றது.

கூட்டத்தில் கலந்து கொண்டவர்கள் விவரம்:

1. வருவாய் கோட்டாட்சியர், கடலூர்
2. காவல் துணை கண்காணிப்பாளர், கடலூர்
3. காவல் உதவி கண்காணிப்பாளர், கடலூர்
4. வருவாய் வட்டாட்சியர், கடலூர்
5. வருவாய் ஆய்வாளர், மஞ்சக்குப்பம் குறுவட்டம்
6. ரமேஷ் பிரபாகர், மேனேஜிங் டைரக்டர், க்ரிம்ஸன் ஆர்கானிக் பி. லிட். நிறுவனம்
7. பரணிதரன், இயக்குநர், க்ரிம்ஸன் ஆர்கானிக் பி. லிட். நிறுவனம்
8. குமார், (PRO)
9. பா.தாமரைச்செல்வன், கடலூர் விடுதலைச் சிறுத்தைகள் கட்சி
10. RKL.சிவக்குமார், ஈச்சங்காடு, சிப்காட்
11. சன். முத்துகிருஷ்ணன், மாவட்ட கவுன்சிலர்
12. V.சிவக்குமார், தலைவர், குடிகாடு
13. R.P.குரை, முன்னாள் ஊராட்சி மன்ற தலைவர்
14. கோ.சந்திரசேகரன், மாநில இணைச்செயலாளர், பா.ம.க.
15. கலியமூர்த்தி, காரைக்காடு,
16. செல்வகுமார்,
17. T.ராமலிங்கம்
18. ஏ.சிவமணி
19. ரவி
20. எஸ்.முருகன்
21. எஸ்.சிவக்குமார்





V. vishyad  
3/10/2017

Shri. S. S. S.

K. S. S.

Shri. S. S. S.

V. S. S.

S. S. S. S. S.

V. S. S. S. S.

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The details of product, Quantity of effluent and the details of Effluent Treatment Systems with their mode of disposal of individual industries in SIPCOT

**Zero Liquid Discharge units**

**1. Report on M/s. Tagros Chemicals India Limited [UNIT - I]**

Name and Address of the unit	M/s. Tagros Chemicals India Limited [UNIT - I] A-4/1 & A-4/2, Sipcot Industrial Complex, Pachayankuppam, Cuddalore - 607 005.		
Product with Quantity	<p><u>Product</u></p> <p>1.Deltamethrin – 20 Tonnes/Month                  2.Oxyclozanide – 2 Tonnes/Month                  3.Hexaconazole/Propiconazole/Dicamba/Tricyclazole – 20 Tonnes/Month                  4.Metaphenoxy Benzyle Alcohol – 40 Tonnes/Month                  5.Alphacypermethrin / Cypermethrin / Permethrin – 175 Tonnes/Month                  6.Quinopyramine sulphate - 1.75 Tonnes/Month                  7.D.V. Acid Chloride – 15 Tonnes/Month</p> <p>By Product:</p> <p>8. Hydrochloric Acid – 475 Tonnes/ Month                  9. Sodium Sulphite solution – 1350 Tonnes/ Month                  10. Sodium Sulphite Powder – 200 Tonnes/ Month                  11. Aluminium Chloride Solution – 125 Tonnes/ Month                  12. Ammonium chloride solution – 330 Tonnes/ Month                  13. Mixture of Ortho and Para bromo Toluene – 95 Tonnes/ Month                  14. IsoPropoylAlcohol and EDC – 30 Tonnes/ Month                  2,2,2 – Trichloroethyl 3,3 Dimethyl -4- Chlorocyclo butanone – 40 Tonnes/ Month.</p>		
Trade Effluent quantity	188.9 KLD		
Effluent Treatment Plant Details	Name of the Treatment Unit	Nos	Dimensions
	Collection Tank	1	3.18 (Dia) * 5
	Flash Mixer	1	2.7*2.7*1.4
	Flocculation Tank	1	2.7*2.7*1.4
	Lamella Plate Filter	1	1*1.5*0.8
	Sludge Drying Bed	1	4.65*4.65*2
	Collection Tank	1	12.7*5.7*2.7
	Equalization tank	1	8.82*3.83*3.06

	Neutralization Tank	1	2.6*2.6*2.6
	Flash Mixer	1	1*1*1
	Lamella Plate Filter	1	1.5*1*0.8
	Filter Feed Collection tank	1	3.8*3.3*2.9
	Dual media Filter	1	0.8 (Dia) * 2
	Treated Effluent Collection Tank	1	3.72*3.7*2.58
	MEE Feed tank/RO II Reject Tank	1	5.6*3.71*2.4
	Multi Effect Evaporator	1	10 KL/ Hr
	Multi Effect Evaporator(Spare)	1	7 KL/Hr
	Condensate Collection Tank	1	1.4 (Dia)*1.4
	Pressure Sand Filter	1	0.8 (Dia)*1.5
	Activated Carbon Filter	1	0.8 (Dia) * 2
	Filter Water Collection Tank	1	4.92*1.93*2.2
	RO Feed Tank	1	5.6*3.71*2.4
	Sand Filter	2	0.927 (Dia)*1.856
	RO-I Disc Type	1	241 m3/day
	RO-I Permeate Tank	1	5.6*2.92*2.4
	RO Reject Tank	1	5.6*2.92*2.4
	RO-II Spiral Type	1	150 m3/day
	Agitated Thin film drier	1	1.5 m3/hr
	Agitated Thin film drier	1	.85 m3/hr
	ML Tank	1	5.6*2.9*2.4
	Spare Tank	1	17*8*3
Trade Effluent Disposal	Zero Liquid Discharge. (Treated effluent is reused).		
	Effluents samples are collected in Various points in the Effluent Treatment and reject management systems for monitoring purpose.		
Air Pollution Control Measures	8 TPH(Coal) Boiler	Cyclone Separator & Stack (CAC)	30 m Ht
	6TPH(Wood) Boiler and 12TPH(Coal)	Cyclone Separator &	30 m Ht

	Boiler(Common Stack)	Stack (CAC)	
	3- Plant-I (CMAC) R-203 Vent 3-Plant-I (CMAC) R-204 Vent 3- Plant-5(Deltamethrin) R-104A,R-113 3- Plant-2(Hexaconazole) R-304,R-314 3 -Plant-2(Permethrin) R-220 Vent 3-Plant 1 (CMAC) R214, R218, 214A	Stack (CAC)	4 m Ht
	4-Ejector sump vent	Stack	5
	Water Ring Vacuum Sump Vent	Stack	6
	The Ambient Air Quality Monitoring is done twice in a year and the Report of Analysis Reveals that the parameters are within the standards prescribed by the Board.		

**Compliance of consent order condition of M/s. TAGROS CHEMICALS INDIA LIMITED [UNIT - I]**

**Water Act**

Sl. No	Condition	Compliance
1.	The unit shall operate and maintain the Effluent Treatment Plant provided for Low TDS trade effluent (101 KLD) and High TDS trade effluent (71 KLD) followed by Multiple Effect evaporator & Reverse osmosis System efficiently and continuously so as to achieve and maintain Zero Liquid Discharge System.	Complied.
2.	The unit shall install CCTV camera as per CPCB directions.	Complied.
3.	The unit shall collect the samples of Treated sewage discharged to CUSECS for marine disposal in the presence of the TNPCB officials and to analyze them every month through the Board Lab, Cuddalore.	Complied.
4.	The unit shall store the Hazardous Waste generated in an impervious platform with in a covered shed.	Complied.
5.	The unit shall apply for hazardous waste authorization for the expansion activity after obtaining CTO-Expansion.	Assured to comply
6.	The unit shall conduct Environmental Audit through a reputed Institute/Consultant within 3 months and action plan should be submitted to the Board	Assured to comply
7.	The unit shall ensure that there shall not be any discharge of treated/untreated effluent outside the premises under any circumstances	Complied.
8.	The unit shall ensure that online pH, BOD, COD, TSS and Flow meters connected to the Water Quality Watch shall be operated	Complied.

	continuously.	
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Air Act

<b>Sl. No</b>	<b>Condition</b>	<b>Compliance</b>
1.	The unit shall operate and maintain the Air Pollution Control measures provided efficiently and continuously so as to achieve the emission standards prescribed by the Board.	Complied.
2.	The unit shall monitor gaseous emissions (SO <sub>2</sub> , NO <sub>x</sub> , HCl, VOC and HC) and particulate from various process areas regularly.	Complied.
3.	The unit shall conduct performance evaluation study for the existing Solvent Recovery System.	Assured to comply
4.	The unit shall conduct HC and VOC survey in all vents and work zone areas.	Assured to comply
5.	The unit shall conduct Ambient VOC/THC, Fugitive VOC and Stack VOC/THC survey through MoEF approved lab every quarter of the year and furnish the report to the Board regularly.	Assured to comply
6.	The unit shall ensure that online stack emission parameters, online ambient parameters for total chlorine and VOC Sensor connected to the Care Air Centre shall be operated continuously.	Complied
7.	The unit shall maintain stack monitoring facility as per Emission Regulation Part-3 (ERP-3) norms for all stacks attached with boilers.	Complied
8.	The unit shall ensure that the port hole and ladder facility is safe to carry out monitoring. In place of monkey ladder, spiral type/scaffold ladder shall be provided to ensure safety of monitoring personnel.	Complied

## 2. M/s. TAGROS CHEMICALS INDIA LTD [UNIT-II]

Name and Address of the unit	Tagros Chemicals India Ltd (Unit – II) S.F.NO.54 PART, Plot No:A-4/3, SIPCOT Industrial Complex, Pachayankuppam Village, Cuddalore Taluk, Cuddalore district.,607005
Trade Effluent quantity	16.9 KLD
Product with Quantity	<u>Product</u>  1. Ammonium Chloride 56 T/M 2. Cupric Hydroxide 1 TPM 3. Sodium Sulphite 99 T/M
Effluent Treatment Plant Details	Collection Tank and sent to Plant I ETP
Trade Effluent Disposal	Zero Liquid Discharge. (Treated effluent is reused).
	Effluents samples are collected in Various points in the Effluent Treatment and reject management systems for monitoring purpose.
Air Pollution Control Measures	<ul style="list-style-type: none"> <li>i. MPBA, Sodium Sulphite Evaporation Condenser vent Wet scrubber with stack – Now MPBA product is not produced.</li> <li>ii. Concrete storage tank vent for sodium sulphite Wet scrubber with stack.</li> <li>iii. Rotary Drier-2 Nos. Cyclone dust collector with Air Balloon</li> <li>iv. Pulveriser Cyclone with bag filter</li> <li>v. DG SET 500 KVA Stack.</li> </ul>
	The Ambient Air Quality Monitoring is done twice in a year and the Report of Analysis Reveals that the parameters are within the standards prescribed by the Board.

### Compliance of Consent order Conditions of M/s. TAGROS CHEMICALS INDIA LTD [UNIT-II]

#### Water Act

Sl No	Conditions	Compliance
1.	The unit shall ensure that the production of the existing and proposed products shall not exceed the consented quantity at all times.	Assured to comply
2.	The unit shall ensure that the generation trade effluent shall not exceed the consented quantity at all times.	Assured to comply
3.	The unit shall operate and maintain the Effluent Treatment Plant with Zero Liquid Discharge System efficiently and continuously and to ensure Zero Liquid Discharge at all times.	Complied

4.	The unit shall ensure that no effluent (sewage/trade effluent) reach to storm water drains running inside and outside the premises at all times.	Complied
5.	The unit shall operate and maintain the Sewage Treatment Plant efficiently and continuously so as to achieve standards prescribed by the Board at all times.	Complied.
6.	The unit shall furnish the Electro Magnetic Flow Meter readings and online connectivity data to JCEE (M), Trichy and DEE, Cuddalore on monthly basis without fail.	Complied
7.	The unit shall dispose the Hazardous Waste generated as per the authorization then and there without accumulation and also shall furnish the name and address of the authorized recyclers/vendors to which the hazardous waste are being disposed	Complied
8.	The unit shall maintain good housekeeping at all times	Complied
9.	In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the unit as per law.	Complied
10.	The unit shall not use 'use and throw away plastics' such as plastic sheets used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups, plastic tumbler, water pouches and packets, plastic straw, plastic carry bag and plastic flags irrespective of thickness, within industry premises. Instead unit shall encourage use of eco-friendly alternative such as banana leaf, arecanut palm plate, stainless steel, glass, porcelain plates/cups, cloth bag, jute bag etc.	Complied
11.	The unit shall develop more green belt inside the premises	Complied

#### Air Act

SI No	Conditions	Compliance
1.	The unit shall ensure that the production of the existing and proposed products shall not exceed the consented quantity at all times.	Assured to comply
2.	The unit shall operate maintain the Air Pollution Control measures efficiently and continuously so that the emission shall satisfy the Ambient Air Quality standards prescribed by the Board.	Assured to comply
3.	The unit shall adhere to the Ambient Noise Level standards prescribed by the Board.	Assured to comply
4.	The unit shall operate and maintain the online sensors provided continuously and upload the data to Care Air Centre, Tamil Nadu Pollution Control Board, Chennai without any interruption.	Assured to comply
5.	The unit shall maintain good housekeeping at all times.	Complied

### 3. Report on M/s. Solara Active Pharma Sciences Limited

Name and Address of the unit	M/s. Solara Active Pharma Sciences Limited A1/A,A1/B,A1/C,A2/B,A2/CA2/D, C8/3A & C8/3C, SIPCOT Industrial Complex, Kudikadu, Cuddalore-05		
Product with Quantity	<u>Product</u>  (32 Products) 2868 TPA (7.858 ton/day) Apreptant - 1 TPA, Carisoprodol - 40 TPA Celecoxib - 20 TPA, Chlorophenesin – 144 TPA Cinacalcet – 1 TPA, ColesevelamHCl – 50 TPA Cycloserine – 2 TPA, Dabigatran – 3 TPA Dextromethorphan – 10 TPA ,Gabapentine – 150 TPA, Ibuprofen – 400 TPA, Isradipine – 1 TPA Lanthanum Carbonate – 10 TPA, Leviteracetam - 50TPA, Lurasidone – 1 TPA, Meprobamate – 2 TPA Nabumutone – 10 TPA, Nizatidine – 6 TPA Olanzapine – 1 TPA, Olmestartat – 1 TPA, Pitavastatin – 1 TPA, Pregabalin – 50 TPA Ranitidine Hydrochloride – 50 TPA, Rivaroxaban – 1 TPA, Roflumilast – 1 TPA, Rosuvastatin – 1 TPA Sapropterine – 1 TPA, SevalamarHydrochoride – 40 TPA, Sevelamer Carbonate – 50 TPA, Tenofovir DF – 10 TPA, Venlafaxine Hydrochloride – 60 TPA Ibu intermediate Aldehyde – 1700 TPA		
Trade Effluent quantity	90 KLD		
Effluent Treatment Plant Details	Name of the Treatment Unit	No. of Units	Dimension
	Equalisation tank-I	1	7.2*4*4
	Equalisation tank-II	1	6.8*4*4
	Flash Mixer-I	1	1*1*1.5
	Flocculator-I	1	1.5*1.5*1.5
	Primary clarifier	1	3.5*3.5*2
	Aeration tank-I	1	14.5*5*6.65
	Secondary clarifier-I	1	3.5*3.5*2
	Aeration tank-II	1	14.5*5*6.65
	Secondary clarifier-II	1	3.5*3.5*2
	Flash Mixer-II	1	1*1*1.5
	Flocculator-II	1	1.5*1.5*1.5
	Tertiary Clarifier	1	3.5*3.5*2
	Treated water Storage tank	1	3*2.5*4

	Primary collection tank -1	1	9.7*9.7*2.7
	Primary collection tank -2	1	9.7*9.7*2.7
	Clarifier-III	1	3*2.5*4
	Clarifier-IV	1	3*2.5*4
	Chemical Treatment system for Lean effluent-2nos	2	20
	Coagulation tank (PAC)	1	1.2*0.95*1.35
	Coagulation tank (PE)	1	0.4* 0.60*1.10
	Dewatering system Centrifuge - 3Nos	3	Feed - 5 kl/hr
	Oil skimmer	1	Feed-15 kl/hr
	Dissolved Air Flotation (DAF)	1	Feed-10 kl/hr
	Sludge thickener	1	4m dia * 2m SWD
	<b>ZLD System</b>		
	Reverse Osmosis (R.O)	1	Feed - 11.4 kl/hr
	Multiple Effect Evaporator (MEE)	1	Feed - 10000 kg/hr
	Agitated Thin Film Dryer (ATFD) - 1 No	1	Feed - 1610 kg/hr
	Agitated Thin Film Dryer (ATFD) - 2 Nos	2	Feed - 1412 kg/hr – each
Trade Effluent Disposal	Zero Liquid Discharge. (Treated effluent is reused).		
	Effluents samples are collected in Various points in the Effluent Treatment and reject management systems for monitoring purpose.		
Air Pollution Control Measures	Reactor Acid fume emission from Production Block -II	Scrubber with Stack (CAC)	15 m Ht
	Reactor organic emission from Production Block II	Scrubber with Stack (CAC)	15
	Mercaptan emission from Block – II&VC	Scrubber with Stack (CAC)	27
	Reactor organic emission from production Block – III	Scrubber with Stack	12
	Reactor acid fume emission from production Block – III	Scrubber with Stack (CAC)	13
	Fugitive emission from equalization tank	Scrubber with Stack	20

	12T Bio briquettes fired boiler	Bag Filter and Mechanical dust collector (CAC)	42
	Reactor Acid fume emission from Production Block-VA	Scrubber with Stack	24
The Ambient Air Quality Monitoring is done twice in a year and the Report of Analysis Reveals that the parameters are within the standards prescribed by the Board.			

Compliance of consent order condition of **M/s. SOLARA ACTIVE PHARMA SCIENCES LIMITED**,  
Water Act

SI No	Conditions	Compliance
1.	The unit shall manufacture the products within the consented quantity.	Complied.
2.	The unit shall operate and maintain the Sewage Treatment Plant efficiently and continuously and the treated sewage shall be utilised for green belt development after satisfying the standards prescribed by the Board.	Complied.
3.	The unit shall operate and maintain the ETP followed by RO plant, MEE and ATFD continuously and efficiently so as to achieve the ZLD.	Complied
4.	The unit shall ensure that the 188 KLD of low TDS stream shall be treated in 4 stage RO plant. The RO reject (47 KLD) shall be treated in MEE for further treatment along with High TDS Stream effluent of 134 KLD.	Complied.
5.	The unit shall ensure that no discharge of untreated/treated trade effluent on land or into any water bodies either inside or outside the premises at any point of time.	Complied.
6.	The unit shall analyze the treated sewage and treated trade effluent samples through TNPCB lab periodically and furnish ROA of the same.	Complied.
7.	The unit shall ensure that the effluent parameters shall satisfy the standards prescribed as per CPCB/MoEF& CC Notification issued from time to time.	Complied.
8.	The unit shall furnish the Electro Magnetic Flow Meter readings and online connectivity data to JCEE (M), Trichy and DEE, Cuddalore on monthly basis without fail.	Complied.
9.	The unit shall dispose the non hazardous waste then and there without any accumulation.	Complied.
10.	The unit shall not carry out any production activity in Block VB until the unit obtains valid consent of the Board as well the production capacity shall not be more than the consented capacity.	Complied.
11.	The unit shall conduct the LDAR (Leak Detection and Repair) study and furnish the report to the Board once in a year.	Complied

12.	The unit shall ensure that the web camera, flow meter and pH meter connected to the Water Quality Watch, TNPCB, Guindy to be operated continuously.	Complied
13.	The unit shall ensure that the Hazardous wastes generated shall be properly disposed as per the Authorization obtained under Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.	Complied.
14.	The unit shall dispose the hazardous wastes to the authorized facilities then & there before 90 days as per the conditions stipulated in the authorization issued under the provisions of Hazardous & Other Wastes (Management & Transboundary Movement) Rules 2016.	Complied.
15.	The unit shall maintain Form – 3 for the generation of hazardous wastes and shall file annual return in Form - 4 to the Board. The unit shall maintain the hazardous waste display board in front of the unit clearly updating the same regularly as mandated by the Hon'ble Supreme Court Order dated 14.10.2003.	Complied.
16.	The unit shall not use 'use and throwaway plastics' such as plastic sheets used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups, plastic tumbler, water pouches and packets, plastic straw, plastic carry bag and plastic flags irrespective of thickness, within the industry premises. Instead it shall encourage use of eco friendly alternative such as banana leaf, areca nut palm plate, stainless steel, glass, porcelain plates/cups, cloth bag, Jute bag etc.,.	Assured to comply
17.	The unit shall continue to develop adequate green belt with thick canopy within the premises, so as to attenuate air and noise pollution furnish the exact green belt area ear marked/developed as per norms in the unit premises and furnish photographs along with latitude and longitude co-ordinates.	Complied.
18.	The unit shall liable to pay the consent fee and shall remit the difference in amount in case of any revision of consent fee by the Government.	Assured to comply
19.	The unit shall submit Environmental Statement for every financial year ending the 31st March in Form -V as per the Rule 14 of the Environment (Protection) Rules, 1986.	Complied

#### Air Act

Sl. No	Conditions	Compliance
1.	The unit shall operate and maintain the air pollution control measures efficiently and continuously so as to satisfy the AAQ /Emission standards prescribed by the Board at all times.	Complied.
2.	The unit shall conduct AAQ/Emission/ANL survey through Board lab and furnish report to the Board within a month.	Complied.
3.	The unit shall adhere to the National Ambient Air Quality / Stack / Ambient Noise Level standards prescribed by the Board from time to time.	Complied.
4.	The unit shall ensure the connectivity of Online continuous Ambient Air Quality Monitoring stations provided for TVOC, PM 10 ,PM2.5, SO2, NOx, and Ozone and provide proper data to Care Air Centre, TNPCB, Guindy all the times.	Complied.

5.	The unit shall ensure the connectivity of Stack emission Online Monitoring system provided for HCl attached to the stack of production Block II & III, TVOC attached to the stack of production block II, PM attached to the stack of boiler and Mercaptan attached to the stack of Production Block II & VC and provide proper data to Care Air Centre, TNPCB, Guindy all the times.	Complied
6.	The unit shall study and explore the possibility of providing thermal oxidizer to collect and treat fugitive Volatile organic vapour.	Complied
7.	The unit shall provide interlocking system so as to cease for the production, if the emission from the Ambient TVOC and HCl sensors exceeds the standards prescribed by the Care Air Centre, TNPC Board, Chennai. within 3 months' time.	Complied
8.	The unit shall maintain stack monitoring facility as per Emission Regulation Part-3 (ERP-3) norms for all the stacks attached with emissions sources.	Complied
9.	The unit shall ensure that the port hole and ladder facility is safe to carry out monitoring. In place of monkey ladder, spiral type/ scaffold ladder shall be provided to ensure safety of monitoring personnel.	Complied
10.	The unit shall continue to develop adequate green belt with thick canopy within the premises, so as to attenuate air and noise pollution furnish the exact green belt area ear marked/developed as per norms in the unit premises and furnish photographs along with latitude and longitude co-ordinates.	Complied
11.	The unit shall liable to pay the consent fee and shall remit the difference in amount in case of any revision of consent fee by the Government.	Complied
12.	The unit shall submit Environmental Statement for every financial year ending the 31st March in Form -V as per the Rule 14 of the Environment (Protection) Rules, 1986.	Complied

**4. M/s. Solara Active Pharma Sciences Limited, R&D Block (Pilot Plant):**

Address of Industry	:	M/s. Solara Active Pharma Sciences Limited, R&D Block (Pilot Plant), SIPCOT Industrial Complex, Kudikadu, Cuddalore-05
Contact person & Telephone No/ Fax No/Mobile No	:	Mr. P. Velmurugan Senior Vice President (Operations) 04142 285400, 7373730991
Establishment Date	:	2012
Commissioned Date	:	17/09/2012
Category & Scale of Operation	:	Red category, Large Scale
Consent Status	:	Valid upto 31.03.2020
Water Source and consumption If they have own bore well, whether NOC obtained by CGWA or any other department	:	SIPCOT - 13 KLD  Water Consumption: NIL
Installed Capacity	:	Aprepitant – 50 Kg/Month Colesevelam HCL – 25 Kg/Month Dabigatran Etexilate mesylate – 70 Kg/Month Ledipasvir – 150 Kg/Month Pitavastatin calcium – 100 -Kg/Month Venlafaxine Hydrochloride & Intermediate– 25 Kg/Month Zileuton – 150 Kg/Month Carisoprodol – 330 Kg/Month
Consented capacity	:	Aprepitant – 50 Kg/Month Colesevelam HCL – 25 Kg/Month Dabigatran Etexilate mesylate – 70 Kg/Month Ledipasvir – 150 Kg/Month Pitavastatin calcium – 100 -Kg/Month Venlafaxine Hydrochloride & Intermediate– 25 Kg/Month Zileuton – 150 Kg/Month Carisoprodol – 330 Kg/Month
Operating capacity at the time of inspection	:	Carisoprodol – 330 Kg/Month  Aprepitant – NIL Colesevelam HCL – NIL Dabigatran Etexilate mesylate – NIL Ledipasvir – NIL Pitavastatin calcium – NIL Venlafaxine Hydrochloride & Intermediate– NIL Zileuton – NIL Carisoprodol – NIL
Raw materials	:	1-Bromo decane, 2-acetyl benzothiophene, 3 - Bromomethyl - 2 -cyclopropyl - 4 - (4 - fluorophenyl) quinoline, 6-Bromohexyl trimethyl amm.bromide, Acetonitrile, Aldehyde, Bis(pinacolato)diboron, Calcium chloride dehydrate, Cyclohexane, D (+) – Phenyl

		ethylamine, Dimethylformamide, Formalin, Formic Acid, Heptane, Hexane, Hydroxybenzotriazole, Isopropyl alcohol, KSM-1, KSM-2, Liq.Polyallyamine Hydrochloride, MePhos, Moc-Valine, Morpholine HCl, N,N-Di isopropyl ethylamine, N-Acetyl cysteine, N-Heptane, N-Methnyl carboxy-2-chloro aceamimdrasone, N-Methylmorpholine, Oxalic acid, P- Methoxyphenyl acetonitrile, Palladium Carbon, Pheny hydrocarbamate, Potassium acetate, Potassium -t-Butoxide, Sodium Borhydride, t-Amyl alcohol, Triphenylphosphine, Tripotassium phosphate, 2 - Methyl - 2 - Propyl - 1,3 - Propane diol, 2-(4-cyanophenyl amino acetic acid,3-(3-amino-4methylamino benzoylpyrdine-2ylamino propionic ethyl ester, Acetic acid, Acetone, Activated Carbon, Ammonia, Dichloromethane, Dimethyl Carbonate, Dimethyl sulphoxide, Ehyl acetate, Epichlorohydrin, Ethanol, Hydrochloric acid, Hyflo, Isopropyl acetate, Isopropyl alcohol, Isopropyl amine, Methane Sulfonic acid, Methanol, Methyl tert butyl ether, N-,N-Carbonyl dimidazole, n-Hexy chloroform, Potassium carbonate, Sodium bicarbonate, Sodium chloride, Sodium Cyanate, Sodium Hydroxide, Sodium Methoxide, Toluene, Xylenes
Products	:	Aprepitant – 50 Kg/Month Colesevelam HCL – 25 Kg/Month Dabigatran Etexilate mesylate – 70 Kg/Month Ledipasvir – 150 Kg/Month Pitavastatin calcium – 100 -Kg/Month Venlafaxine Hydrochloride & Intermediate– 25 Kg/Month Zileuton – 150 Kg/Month Carisoprodol – 330 Kg/Month
Process	:	The raw materials are charged in the reactor and after reaction it is centrifuged. The centrifuged materials are dried. After milling, sifting and blending, the finished products are packed for dispatch. Detailed process description is attached as process description in document folder.
Waste water sources	:	Reactor wash, Floor wash, scrubber bleed off & Process
Quantity of Waste Water generated as per consent issued		10 KLD
Actual generation of effluent		NIL
Effluent treatment plant components	:	Effluent Taken to Plant I ETP
Mode of treated effluent discharge as per consent	:	Zero Liquid Discharge connected with Main Plant
Treated effluent quality	:	Zero Liquid Discharge

prescribed in consent		
Adequacy of treatment system provided to achieve prescribed standards of effluent	:	Adequate
Status of installation of Online Monitoring system for Effluent	:	Inlet Flow meter connected to TNPCB
Number of violations observed during past five years and action taken		NIL
Air Pollution Emission sources and Control Devices	:	<ul style="list-style-type: none"> <li>i. 1 Process Reactors vents Scrubber with Stack - 0.16 - 11</li> <li>ii. 2 Process Reactors Pressure Relief Valve Scrubber with Stack - 0.11 - 11</li> <li>iii. 3 Process Reactors Local Exhaust Ventilation Scrubber with Stack - 0.11 - 11</li> <li>iv. 4 Reactor organic emission Activated carbon filter and Stack - 0.1 - 15</li> </ul>
Status of installation of Online Monitoring system for Source emissions		Hcl Stack connected to TNPCB
Number of violations observed during past five years and action taken		NIL
Adequacy of air pollution control devices provided to achieve prescribed standards of Source Emissions		Adequate

Compliance of consent order condition **M/s. SOLARA ACTIVE PHARMA SCIENCES LIMITED,R&D BLOCK(PILOT PLANT)** ,  
Water Act

Sl. No	Conditions	Compliance
1.	The unit shall restrict its activity only to pilot scale R & D and it shall not scale up the production	Complied.
2.	The unit shall manufacture the products within the consented quantity.	Complied.
3.	The unit shall not carry out any production activity in Block VB until the unit obtains valid consent of the Board.	Complied.
4.	The unit shall not carry out any type of activity which attracts the provisions of EIA Notification 2006	Complied.
5.	The unit shall operate and maintain the Sewage Treatment Plant efficiently and continuously and the treated sewage shall be utilised for green belt development after satisfying the standards prescribed by the Board.	Complied.
6.	The unit shall operate and maintain the ETP followed by RO plant, MEE and ATFD continuously and efficiently so as to achieve the ZLD.	Complied.
7.	The unit shall ensure that no discharge of untreated/treated trade	Complied.

	effluent on land or into any water bodies either inside or outside the premises at any point of time.	
8.	The unit shall analyze the treated sewage and treated trade effluent samples through TNPCB lab periodically and furnish ROA of the same	Complied.
9.	The unit shall ensure that the effluent parameters shall satisfy the standards prescribed as per CPCB/MoEF& CC Notification issued from time to time.	Complied.
10.	The unit shall furnish the Electro Magnetic Flow Meter readings and online connectivity data to both JCEE (M), Trichy and DEE, Cuddalore on monthly basis without fail	Complied.
11.	The unit shall dispose the non hazardous waste then and there without any accumulation.	Complied
12.	The unit shall ensure that the web camera, flow meter and pH meter connected to the Water Quality Watch, TNPCB, Guindy to be operated continuously.	Complied
13.	The Hazardous wastes generated shall be properly disposed as per the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.	Complied.
14.	The unit shall dispose the hazardous wastes to the authorized facilities then & there before 90 days as per the conditions stipulated in the authorization issued under the provisions of Hazardous & Other Wastes (Management & Transboundary Movement) Rules 2016.	Complied.
15.	The unit shall maintain Form – 3 for the generation of hazardous wastes and shall file annual return in Form - 4 to the Board. The unit shall maintain the hazardous waste display board in front of the unit clearly updating the same regularly as mandated by the Hon’ble Supreme Court Order dated 14.10.2003.	Complied.
16.	The unit shall not use ‘use and throwaway plastics’ such as plastic sheets used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups, plastic tumbler, water pouches and packets, plastic straw, plastic carry bag and plastic flags irrespective of thickness, within the industry premises. Instead it shall encourage use of eco friendly alternative such as banana leaf, areca nut palm plate, stainless steel, glass, porcelain plates/cups, cloth bag, Jute bag etc.,.	Assured to comply
17.	The unit shall continue to develop adequate green belt with thick canopy within the premises, so as to attenuate air and noise pollution furnish the exact green belt area ear marked/developed as per norms in the unit premises and furnish photographs along with latitude and longitude co-ordinates.	Complied.
18.	The unit shall liable to pay the consent fee and shall remit the difference in amount in case of any revision of consent fee by the Government.	Assured to comply
19.	The unit shall submit Environmental Statement for every financial year ending the 31st March in Form -V as per the Rule 14 of the Environment (Protection) Rules, 1986.	Complied

## Air Act

<b>Sl. No</b>	<b>Conditions</b>	<b>Compliance</b>
1.	The unit shall operate and maintain the air pollution control measures efficiently and continuously so as to satisfy the AAQ /Emission standards prescribed by the Board at all times.	Complied.
2.	The unit shall conduct AAQ/Emission/ANL survey through Board lab and furnish report to the Board within a month.	Complied.
3.	The unit shall adhere to the National Ambient Air Quality / Stack / Ambient Noise Level standards prescribed by the Board from time to time.	Complied.
4.	The industry shall conduct LDAR (Leak Detection & Repair) study and furnish the report to Board once in a year.	Complied.
5.	The unit shall ensure the connectivity of Online continuous Ambient Air Quality Monitoring stations provided for TVOC and provide proper data to Care Air Centre, TNPCB, Guindy all the times.	Complied
6.	The unit shall ensure the connectivity of Stack emission Online Monitoring system provided for HCl attached to the reactor stack and provide proper data to Care Air Centre, TNPCB, Guindy all the times.	Complied
7.	The unit shall continue to develop adequate green belt with thick canopy within the premises, so as to attenuate air and noise pollution furnish the exact green belt area ear marked/developed as per norms in the unit premises and furnish photographs along with latitude and longitude co-ordinates	Complied
8.	The unit shall liable to pay the consent fee and shall remit the difference in amount in case of any revision of consent fee by the Government.	Complied
9.	The unit shall submit Environmental Statement for every financial year ending the 31st March in Form -V as per the Rule 14 of the Environment (Protection) Rules, 1986.	Complied

### 5. Report on M/s. TANFAC Industries Limited (SOC)

Name and Address of the unit	M/s. TANFAC INDUSTRIES LTD Plot No 14,SIPCOT Industrial Complex Kudikadu Village Cuddalore – 607 005, Tamil Nadu			
Product with Quantity	1. 4-isobutyl acetophenone 417 MTPM By Product: 1. Acetic acid 172.80 MTPM			
Trade Effluent quantity	135 KLD			
Effluent Treatment Plant Details	<b>Name of the Treatment Unit</b>	<b>No. of Units</b>	<b>Dimension</b>	
	Screen Chamber	1	1x 1 x1 m	
	Collection tank	1	5x5x5 m	
	Neutralization tank	1	6.2X5X2.8 m	
	Flash Mixer	1	0.7x0.7x1 m	
	Dosing tanks for Alum and Lime	2	500 Litres each	
	Parallel Plate separator	2	1.8x1x3.5 each	
	Clarified water tank	1	10 m <sup>3</sup>	
	Dual media filter	1	0.8 m dia x1.60 m	
	Filter water tank	1	10m <sup>3</sup>	
	Sludge drying beds	3	4x4x4 m each	
	Multiple effect evaporator consisting of Agitated Thin film dryer	1	Stripper Column-1, Triple Effect Evaporator-1 and Vertical Thin film dryer-1	
	Condensate tank	1	6.8x3.8x1.7 m	
Trade Effluent Disposal	CUSECS			
	The Treated Trade Effluents are collected in Sumps provided by M/s. CUSECS Ltd and then disposed to Marine through pipelines installed by M/s. CUSECS.			
Air Pollution Control Measures	Reactor and HF removal column	Packed scrubber Venturi scrubber	32	
	Distillation system of IBAP	Vent condensers 3 Nos	-	

	HCl/HBr emissions	Vent condensors 3 Nos	-
	Reactor vent in 3-Phenoxy 4	Packed scrubber Venturi scru	32
	EDC MEG Toluene storage tan	Vent condensors for each stora	35
	Boiler- 5 T/hr F.O fired	Stack	26
	Thermic fluid Heater 6 lakh K	Stack	26
	Thermic fluid Heater 4 lakh K	Stack	
Report of Analysis of treated effluent reveals that the parameters are within the standards prescribed by the Board. The Ambient Air Quality Monitoring is done twice in a year and the Report of Analysis Reveals that the parameters are within the standards prescribed by the Board.			

**Compliance of Consent order Conditions of M/s. TANFAC INDUSTRIES LIMITED (SYNTHETIC ORGANIC CHEMICALS PLANT)**

Water Act

Sl. No	Conditions	Compliance
1.	The unit shall commence their industrial activity after revamping the ETP and on giving prior intimation to the Board.	Assured to comply during its operation
2.	The unit shall ensure to produce only 4-Iso Butyl Acetophenone (IBAP) as main product and the corresponding by product Acetic Acid with the quantity of 417 and 172.80 Tons/Month respectively as per the Amendment issued by the Board vide Proceedings Dated: 01.12.2014.	Assured to comply during its operation
3.	The unit shall revamp and maintain the Zero Liquid Discharge System before restarting the unit.	Assured to comply during its operation
4.	The unit shall ensure to operate and maintain the Sewage Treatment Plant efficiently and continuously so that the treated sewage satisfies the standards prescribed by the Board.	Complied
5.	The unit shall revamp and maintain the EMFMs provided in the Zero Liquid Discharge System before restarting the unit.	Assured to comply
6.	The unit shall carry out LDAR study for the IBAP plant during continuous operation so as to take adequate steps to control solvent leakage and control of solvent emission as and when the plant is operated at full capacity.	Assured to comply
7.	The unit shall ensure that the Non Hazardous wastes generated are disposed then and there without accumulating the same within the unit premises.	Assured to comply
8.	In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee,	Assured to comply

	this consent order will be withdrawn without any notice and further action will be initiated against the unit as per law.	
9.	The Unit shall not use 'use and throwaway plastic' such as plastic sheets used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups, plastic tumbler, water pouches and packets, plastic straw, plastic carry bag and plastic flags irrespective of thickness, within the industry premises. Instead unit shall encourage use of eco friendly alternative such as banana leaf, arecanut palm plate, stainless steel, glass, porcelain plates / cups, cloth bag, jute bag etc.	Assured to comply
10.	The unit shall submit the Environmental statement in Form V for each financial year as prescribed under the Environment (Protection) Act, 1986 as amended.	Assured to comply
11.	The unit shall comply with E-Waste Management Rules 2016. E-Waste as listed in schedule –I, generated by them shall be channelized through collection centre or dealer of authorized producer or dismantler or recycler or through the designated take back service provider of the producer to authorized dismantler or recycler. The unit shall maintain records of e-waste generated by them in Form-2 and make such records available for scrutiny by the TNPCB. The unit shall file annual returns in Form-3, to the TNPCB on or before the 30th day of June following the financial year.	Assured to comply
12.	The unit shall furnish the exact green belt area earmarked / developed as per the norms in the unit's premises showing photographs along with longitude and latitude co-ordinates.	Assured to comply

#### Air Act

Sl. No	Conditions	Compliance
1.	The unit shall commence their industrial activity after revamping the APC measures and on giving prior intimation to the Board.	Assured to comply
2.	The unit shall ensure to produce only 4-Iso Butyl Aceto Phenone (IBAP) of main product and the corresponding by product Acetic Acid with the quantity of 417 and 172.80 Tons/Month respectively as per the Amendment issued by the Board vide Proceedings Dated: 01.12.2014.	Assured to comply
3.	The unit shall revamp and maintain the Air Pollution Control measures before restarting the unit.	Assured to comply
4.	The unit shall conduct ambient VOC/THC, fugitive VOC and stack VOC/THC as and when the plant is operated at full capacity and furnish the report to the Board.	Assured to comply
5.	The unit shall calibrate the analysers of Ambient VOC, MEE inlet periodically and maintain all the analyzers and provide proper data to CAC, TNPCB, Chennai at all times.	Assured to comply
6.	The unit shall develop an adequate greenbelt within the periphery of the unit to attenuate noise and air pollution.	Assured to comply

**6. M/s. Asian Paints Ltd, Penta Division**

Name and Address of the unit	M/s. Asian Paints Ltd, Penta Division ,B5-B10,Sipcot Industrial area, Kudikadu village, Cuddalore-607005		
Product with Quantity	Main Product: 1. Formaldehyde - 675 MTPM 2. PentaErythritols (Powder & solution form) - 730 MTPM  By Products: 1. Sodium Formate (Powder and Solution form) - 480 MTPM		
Trade Effluent quantity	60 KLD		
Effluent Treatment Plant Details	<b>Name of the Treatment Unit</b>	<b>No. of Units</b>	<b>Dimension</b>
	Equalization tank	1	2.5*2.5*2.5
	Settling tank	1	2.5*3.5
	Reaction tank	1	5.5*2.5
	Aeration Tank	1	34*16.5*3
	Clarifier	1	5*5*3
	Guard pond	1	15*5*3
	Primary Clarifier	1	5.5*3
	Treated effluent collection tank	1	3*3*1.2
	Guard pond	1	15*5*3
	WTP/ CT effluent collection tank	1	7 Dia *3
	Buffer Tank	1	10 dia *3
	Secondary Clarifier	1	5.5 Dai *3
	Lamela filter	2	10 KL
	Sludge drying bed	7	10*7*.15
	MEE Feed tank	1	10 KL
	Clear water tank	1	10 kL
	Multimedia filter	2	1 cum
	Ultra filtration membrane	2	Available (5.5 KLD +2 KLD)
	UF permeate tank	2	10 cum
	RO plant	1	5 KLD
	Permeate tank	1	10 cum
Buffer tank	1	10.5*3	
RO Clarifier Feed tank	1	16 KL	

	Clarifier for RO2	1	3.5 Dia *3.6
	MEE	1	6 KLD
	RO I Stage	1	7.5 KL
	RO2	1	8 KL
	RO2 reject tank	1	16 KL
	ATFD	1	41 KGPH
Trade Effluent Disposal	Zero Liquid Discharge.(Treated effluent is reused).		
	Effluents samples are collected in Various points in the Effluent Treatment and reject management systems for monitoring purpose.		
Air Pollution Control Measures	Boiler	Bag filter and Stack	42 m Ht
	The Ambient Air Quality Monitoring is done twice in a year and the Report of Analysis Reveals that the parameters are within the standards prescribed by the Board.		

**Compliance of Consent order Conditions of M/s. ASIAN PAINTS LTD, PENTA DIVISION ,  
Water Act**

Sl. No	Conditions	Compliance
1.	The unit shall comply with the conditions stipulated in the Environmental Clearance obtained for expansion activity vide Letter No. SEIAA/TN/ F.6495/5(f)/ EC60/2018 Dated: 24.04.2018 obtained from SEIAA, Chennai from time to time.	Complied.
2.	The unit shall operate and maintain the Zero Liquid Discharge System for the treatment and disposal of trade effluent generated from the unit.	Complied.
3.	The unit shall operate and maintain the Sewage Treatment Plant for the treatment of the sewage generated and the treated sewage shall be utilized for green belt development/gardening purposes inside the premises.	Complied.
4.	The unit shall operate and maintain the online pH and TDS meter provided in the storm water drains to ensure that no chemical contamination takes place during rains outside the premises at all the time.	Complied.
5.	The unit shall take necessary follow up with Directorate of Industrial safety and Health (DISH) and obtain Offsite emergency preparedness plan with due approval from the District Collector.	Assured to comply.
6.	The unit shall ensure that a rehearsal of the Offsite emergency plan is conducted at least once in calendar year.	Assured to comply.

7.	The unit shall analyse the parameters viz. pH, BOD, TSS, COD, Nitrogen-Total, and Fecal Coliform(in MPN) for the treated sewage being discharged inside the unit premises for green belt development and shall comply with the STP standards prescribed by CPCB.	Complied.
8.	The unit shall further continue to develop greenbelt inside/outside the premises of the unit.	Complied.
9.	The unit shall provide rain water harvesting facility for all the buildings so as to recharge the ground water.	Complied.
10.	The unit shall furnish the details of activities done through 'Corporate Social Responsibility' along with the amount spent and evidences every year.	Complied.
11.	The unit shall not increase the production without the valid consent of the Board.	Assured to comply.
12.	In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the unit as per law.	Assured to comply.
13.	The Unit shall not use 'use and throwaway plastic' such as plastic sheets used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups, plastic tumbler, water pouches and packets, plastic straw, plastic carry bag and plastic flags irrespective of thickness, within the industry premises. Instead unit shall encourage use of eco friendly alternative such as banana leaf, arecanut palm plate, stainless steel, glass, porcelain plates / cups, cloth bag, jute bag etc.	Assured to comply.

#### Air Act

Sl. No	Conditions	Compliance
1.	The unit shall operate and maintain the Air Pollution Control measures efficiently and continuously so that the emission shall satisfy the Ambient Air Quality/Emission standards prescribed by the Board.	Complied.
2.	The unit shall adhere to the Ambient Air Quality/Stack Emission/ Ambient Noise Level standards prescribed by the Board.	Complied.
3.	The unit shall conduct the Ambient Air Quality/Stack Emission/Fugitive Emission/Ambient TVOC/THC survey through MoEF approved Laboratory once in three months and furnish the report to the Board without fail.	Assured to comply.
4.	The unit shall operate and maintain the Continuous Ambient Air Quality Monitoring Station (PM2.5, PM10, SO2, NOx) continuously and ensure the connectivity without any interruption with CARE AIR Centre, TNPC Board, Chennai.	Complied.
5.	The unit shall maintain the online sensors connected with CARE AIR Centre, Tamilnadu Pollution Control Board, Chennai and upload the data without any interruption.	Complied.

### 7.M/s. Asian Paints Limited (Captive Power Plant)

Address of Industry	:	M/s. Asian Paints Limited (Captive Power Plant) B5-B10, Sipcot Industrial Area, Kudikadu Village, Cuddalore – 607005.
Contact person & Telephone No/ Fax No/Mobile No	:	Mr. K. Thulaseedharan Nair. Phone no. 04142-239248
Establishment Date	:	1985
Commissioned Date	:	20/10/2009
Category & Sclae of Operation	:	Red category, Large Scale
Consent Status	:	Valid upto 31.03.2020
Water Source and consumption If they have own bore well, whether NOC obtained by CGWA or any other department	:	SIPCOT - 690 KLD  Water Consumption during inspection - 66 KLD
Installed Capacity  Consented capacity  Operating capacity at the time of inspection	:	Steam – 16 MT/hour Captive Power - 1.5 MW/hour  Steam – 16 MT/hour Captive Power - 1.5 MW/hour  Steam – 15.7 MTH Captive Power - 1.2 MW
Raw materials	:	1. Coal / Lignite – 125 MTD 2. Water – 385 KLD
Products	:	1. Steam – 16 MT/hour 2. Captive Power - 1.5 MW/hour
Process	:	
The Captive Power Plant (CPP) is operating with following facilities 1. AFBC boiler supplied by M/s. Cethar Vessels Limited, Trichy, having a capacity of 16 TPH steam generation rate. 2. A back pressure turbo generator supplied by M/s. Belliss India Limited, Kolkata, for generating power from high pressure steam. The exhaust steam is used at Penta Plant for heating applications.		
Waste water sources	:	Boiler Blow Down
Quantity of Waste Water generated as per consent issued Actual generation of effluent	:	Quantity of Waste Water generated as per consent issued: 1 KLD Actual generation of effluent : NIL
Effluent treatment plant components	:	The effluent being sent to Main plant ETP
Mode of treated effluent discharge as per consent	:	ETP with Zero liquid discharge.
Treated effluent quality prescribed in consent	:	Zero liquid discharge
Adequacy of treatment system provided to achieve prescribed standards of effluent	:	Adequate
Status of installation of Online Monitoring system for Effluent	:	NA
Number of violations observed	:	NIL

during past five years and action taken		
Air Pollution Emission sources and Control Devices	:	1. 16 TPH Boiler Multiclone separators and bag filters followed by Stack - 1.1 - 42 2. 14 TPH Boiler Multiclone separators and bag filters followed by Stack - 1.2 – 50
Status of installation of Online Monitoring system for Source emissions		SO <sub>x</sub> , NO <sub>x</sub> , PM <sub>10</sub> , PM <sub>2.5</sub> , VOC
Number of violations observed during past five years and action taken		Nil
Adequacy of air pollution control devices provided to achieve prescribed standards of Source Emissions		Adequate

Compliance of Consent order Conditions **M/S. ASIAN PAINTS LIMITED (CAPTIVE POWER PLANT)**,  
Water Act

Sl. No	Conditions	Compliance
1.	The unit shall operate and maintain the Zero Liquid Discharge system efficiently and continuously so as to ensure that the treated effluent satisfy the standards prescribed by the Board..	Complied.
2.	The unit shall operate and maintain the Sewage Treatment Plant for the treatment of sewage generated and the treated sewage shall be utilized for green belt development/gardening purposes inside the premises	Complied.
3.	The Unit shall ensure to maintain the EMFM with computer recording arrangements provided in the Zero Liquid Discharge plant and furnish the data to the Board.	Complied.
4.	The Unit shall operate and maintain the online pH and TDS meter provided in the storm water drains to ensure that no chemical contamination takes place during rains outside the premises at all the time.	Complied.
5.	The unit shall dispose the boiler ash then and there without accumulation for further beneficial use.	Assured to comply.
6.	The unit shall maintain the rain water harvesting facility for all the buildings so as to recharge the ground water.	Assured to comply.
7.	The unit shall furnish the details of activities done through 'Corporate Social Responsibility along with the amount spent and evidences every year.	Complied.
8.	The unit shall maintain the Camera and flow meter in the channel / drain provided for carrying the effluent from within the industry premises.	Complied.

Air Act

Sl. No	Conditions	Compliance
1.	The unit shall operate and maintain the Air Pollution Control measures efficiently and continuously so that the emission shall satisfy the Ambient Air Quality/Emission standards prescribed by the Board.	Complied.
2.	The unit shall adhere to the Ambient Air Quality/Stack Emission/ Ambient Noise Level standards prescribed by the Board.	Complied.
3.	The unit shall conduct the Ambient Air Quality/Stack Emission/Fugitive Emission/Ambient TVOC/THC survey through MoEF approved Laboratory once in three months and furnish the report to the Board without fail.	Assured to comply.
4.	The unit shall operate and maintain the Continuous Ambient Air Quality Monitoring Station (PM2.5, PM10, SO2, NOx) continuously and ensure the connectivity without any interruption with CARE AIR Centre, TNPC Board, Chennai.	Complied. CAAQUM Station maintained.
5.	The unit shall furnish the details of activities done through 'Corporate Social Responsibility along with the amount spent and evidences every year.	Complied.
6.	The Unit shall comply the SWM Rules 2016 by consuming RDF in 5% of the coal daily consumed for Boiler.	Complied.
7.	The unit shall install and operate the Pneumatic ash handling system	Complied.
8.	The unit shall not use 'use and throwaway plastics' such as plastic sheets used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups, plastic tumbler, water pouches and packets, plastic straw, plastic carry bag and plastic flags irrespective of thickness, within the industry premises. Instead it shall encourage use of eco friendly alternative such as banana leaf, arecanut palm plate, stainless steel, glass, porcelain plates/cups, cloth bag, Jute bag etc.,	Complied.
9.	The unit shall develop adequate greenbelt within the periphery of the unit to attenuate noise and air pollution.	Complied.
10.	The unit shall furnish exact greenbelt area earmarked/ developed as per norms in the unit premises and furnish photographs along with Latitude and Longitude co-ordinates.	Complied.

### 8. Report on M/s. DFE Pharma India LLP

Name and Address of the unit	M/s. <b>DFE Pharma India LLP</b> B-4, Sipcot Industrial Complex, Kudikadu, Cuddalore-607005		
Product with Quantity	Microcrystalline Cellulose - 300 MT/Month		
Trade Effluent quantity	127 KLD		
Effluent Treatment Plant Details	<b>Name of the Treatment Unit</b>	<b>No. of Units</b>	<b>Dimensions in metres</b>
	Equalization tank	1	9.5 x 2.5 x 1.7
	Flash Mixer	1	1 x 1 x 1
	Primary Clariflocclator	1	2.6 dia X 3.5 swd
	Aeration tank	1	5.5 x 9 x 6.2
	Sludge Holding tank	1	1.6 x 1 x 2.8
	Filter Press	1	1 m3/hr
	Activated Carbon Filter	1	0.8 dia x 1.5
	RO-I Feed tank	1	30 KL
	RO-I Stage	1	150 KLD
	RO-II Stage	1	46 KLD
	RO-II Reject tank	1	5 KL
	HRSCC (High rate Solid contact Clarifier)	1	1.2 dia x 3.5
	Pressure Sand Filter (PSF)	1	0.35 dia X 1.5
	RO-III Stage	1	18 KLD
	RO-III Reject tank	1	10 KL
	RO Permeate tank	1	10 KL
	Solar Evaporation pan	4	10 x 5 x 0.3
Additional MBR Tank	1	3x2x4	
MEE	1	12 KLD	

	ATFD	1	9.6 KLD
Trade Effluent Disposal	Zero Liquid Discharge.(Treated effluent is reused).		
	Effluents samples are collected in Various points in the Effluent Treatment and reject management systems for monitoring purpose.		
Air Pollution Control Measures	Boiler 4 T/hr	Dust Collector with Stack (CAC)	30 m Ht
	Spray Drier	Stack	30
	Hot Air Generator	Twine cyclone, Quadra cyclone & stack	30
	The Ambient Air Quality Monitoring is done twice in a year and the Report of Analysis Reveals that the parameters are within the standards prescribed by the Board.		

Compliance of consent order condition of **M/s. DFE PHARMA INDIA LLP**,  
Water Act

Sl. No	Condition	Compliance
1.	The unit shall continuously operate and efficiently maintain and the Zero Liquid Discharge System for the treatment and disposal of trade effluent generated from the unit as so as to achieve Zero Liquid Discharge System.	Complied.
2.	The unit shall continuously operate and efficiently maintain and the Sewage Treatment Plant for the treatment and disposal of sewage generated from the unit so as to achieve standards prescribed by the Board.	Complied.
3.	The unit shall operate and maintain the online pH and TDS meter provided in the storm water drains so as to ensure that no chemical contamination takes place during rains outside the premises at all the time.	Complied.
4.	The unit shall dispose the hazardous waste then and there without any accumulation after obtaining authorization under Hazardous and other wastes (M & TM) Rules, 2016.	Complied.

Air Act

Sl. No	Condition	Compliance
1.	The unit shall operate and maintain the APC measures efficiently and continuously so as to achieve the AAQ/ Emission standards prescribed by the Board.	Complied.
2.	The unit shall adhere to the ANL standards prescribed by the Board.	Complied.
3.	The unit shall conduct AAQ/SM/ANL through TNPCB lab periodically and furnish ROA to the Board.	Complied.
4.	The unit shall ensure that the data from the online sensors connected	Complied.

	with CARE AIR Centre, TNPC Board, Chennai shall be uploaded continuously without any interruption.	
5.	The unit shall maintain the metrological station to collect the data on wind velocity, direction, temperature, humidity, rainfall etc., and the daily readings shall be revived, and the extract to be sent to the board once in a month.	Complied.
6.	The unit shall not use 'use and throwaway plastics' such as plastic sheets used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups, plastic tumbler, water pouches and packets, plastic straw, plastic carry bag and plastic flags irrespective of thickness, within the industry premises. Instead it shall encourage use of eco-friendly alternative such as banana leaf, arecanut palm plate, stainless steel, glass, porcelain plates/cups, cloth bag, Jute bag etc.,	Assured to comply
7.	The unit shall develop adequate greenbelt within the periphery of the unit to attenuate noise and air pollution.	Complied.

### 9. M/s. Amcor Flexibles India Pvt Ltd

Name and Address of the unit	M/s. AMCOR FLEXIBLES INDIA PVT LIMITED, (Formerly M/s Packing India) A 9/2 Sipcot Industrial Complex, Kudikadu Village, Chidambaram Main Road, Cuddalore – 607 005.		
Product with Quantity	Rotogravure printing rollers - 40 Rollers/day		
Trade Effluent quantity	5 KLD		
Effluent Treatment Plant Details	<b>Name of the Treatment Unit</b>	<b>No. of Units</b>	<b>Dimensions in metres</b>
	COLLECTION CUM EQUALIZATION SUMP	1	DIA X 3.0 DEPTH
	MGOPREPARATION TANK	1	1.20 DIA X 1.0 DEPTH
	PRECIPITATION TANK	1	1.50 DIA X 1.0 DEPTH
	CLEAR WATER SUMP	1	DIA X 3.00 DEPTH
	PRESSURE SAND FILTER	1	0.45 DIA X 2.15 DEPT
	PRESSURE ACTIVATED CARBON FILTER	1	0.30 DIA X 2.15 DEPT
	SLUDGE DRYING BED	3	1.50 X 1.00 X 1.50
	SETTLING TANK/PLATE SETTLERS	1	1.50 X 2.50 X 3.00
	MEMBRANE TECHNOLOGY USING REVERSE OSMOSIS	1	1000 LITERS / HR
	RO PERMEATE TANK	1	500 LITER SINTEX TAN
	RO FEED TANK	1	500 LITER SINTEX TAN
	MECHANICAL FILTER PRESS	1	1.2 X 0.560
	SOLAR EVAPORATOR	6	6 X 3.34 X 0.3
Trade Effluent Disposal	Zero Liquid Discharge. (Treated effluent is reused).		
	Effluents samples are collected in Various points in the Effluent Treatment and reject management systems for monitoring purpose		
Air Pollution Control Measures	Chrome Plating Section	Wet Scrubber	15 m Ht
	Nickel Plating Section	Stack	7

	Copper Plating - I	Stack	7
	Copper Plating – II	Stack	7
	Degreasing Machine	Stack	7
	De chrome Machine	Stack	7
	Proofing Machine	Stack	8
	The Ambient Air Quality Monitoring is done twice in a year and the Report of Analysis Reveals that the parameters are within the standards prescribed by the Board.		

### Compliance of Consent order Conditions of M/s. **Ancor Flexibles India Pvt Ltd**

#### Water Act

SI No	Conditions	Compliance
1.	The unit shall operate and maintain the Sewage Treatment Plant efficiently and continuously so as to achieve the standards prescribed by the Board.	Complied.
2.	The unit shall operate and maintain the Effluent Treatment Plant efficiently and continuously so that the unit shall maintain Zero Liquid Discharge System.	Complied.
3.	The unit shall comply with the provisions of Hazardous and other wastes (Management and Transboundary Movement) Rules, 2016.	Complied
4.	The unit shall not use 'use and throwaway plastics' such as plastic sheets used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups, plastic tumbler, water pouches and packets, plastic straw, plastic carry bag and plastic flags irrespective of thickness, within the industry premises. Instead it shall encourage use of eco friendly alternative such as banana leaf, arecanut palm plate, stainless steel, glass, porcelain plates/cups, cloth bag, Jute bag etc.,	Assured to comply
5.	In case of revision of consent fee by the Government, the unit shall remit the difference in consent fee amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the unit as per law.	Assured to comply
6.	The unit shall comply with the E-Waste Management Rules 2016. E-Waste as listed in Schedule-I, generated by them shall be channelized through collection centre or dealer of authorized producer or dismantler or recycler or through the designated take back service provider of the producer to authorized dismantler or recycler. The unit shall maintain records of e-waste generated by them in Form-2 and make such records available for scrutiny by the TNPCB. The unit shall file annual returns in Form-3, to the TNPCB on or before the 30th day of June following the financial year.	Assured to comply
7.	The unit shall submit the Environmental Statement for the financial	Complied

	year ending on 31st March on or before 30th of September every year.	
8.	The unit shall maintain rain water harvesting facility within the premises.	Assured to comply
9.	The unit shall maintain hazardous waste display board in front of the main gate clearly updating the details of hazardous waste regularly as mandated by the Hon'ble Supreme Court Order dated 14.10.2003.	Complied
10.	The unit shall not carryout manual cleaning of STP/ETP components and shall carry out only through mechanical devices.	Assured to comply

#### Air Act

<b>SI No</b>	<b>Conditions</b>	<b>Compliance</b>
1.	The unit shall operate and maintain air pollution control measures/acoustic measures effectively and continuously so as to adhere to Ambient Air Quality/Stack Emission/Ambient Noise Level standards prescribed by the Board.	Complied.
2.	The unit shall conduct AAQ/ANL survey through TNPCB Lab and furnish the report to Board periodically.	Complied.
3.	The unit shall ensure that the data from the online sensors connected with CARE AIR Centre, TNPC Board, Chennai shall be uploaded continuously without any interruption.	Complied
4.	The unit shall further continue green belt development inside/outside the premises of the unit.	Assured to comply
5.	In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the unit as per law.	Assured to comply

**10. M/s. Covestro (India)Private Limited**

Name and Address of the unit	M/s. Covestro (India)Private Limited, S.F. No: 135 /1A, Semmankuppam Village, Cuddalore – 607005		
Product with Quantity	Thermoplastic Polyurethane resin and compound - 500 Tons per month		
Trade Effluent quantity	5 KLD		
Effluent Treatment Plant Details	Name of the Treatment Unit	No. of Units	Dimension
	Collection Tank	1	3.41 x 4.98 x 1.77
	Oxidation Tank	2	3.31 x 5.17 x 1.77
	Settling Tank	1	800 L
	Collection cum Aeration Tank	2	2.95 x 2.95 x 1.37
	Treated effluent Collection Tank	1	3.42 x 5 x 1.93
	Tube Settler	1	1.8 dia x 1.89
	Sand Filter	1	1.44 x 1.44 x 3.45
	HDPE storage tank	1	4.27 x 1.39
	Leaf Filter	1	800 L
Trade Effluent Disposal	Zero Liquid Discharge.(Treated effluent is reused).		
	Effluents samples are collected in Various points in the Effluent Treatment and reject management systems for monitoring purpose.		
Air Pollution Control Measures			
	Extruder and finished products	Wet scrubber with stack	17.3
	Thermopak fluid heater-1NO (4 Lakh Kcal)	Stack	31.9
	DG set 600KVA, 400KVA, 200 KVA	Acoustic enclosures with stack	11
	The Ambient Air Quality Monitoring is done twice in a year and the Report of Analysis Reveals that the parameters are within the standards prescribed by the Board.		

Compliance of Consent order Conditions of **M/s. COVESTRO (INDIA) PRIVATE LIMITED**

Water Act

<b>Sl. No</b>	<b>Conditions</b>	<b>Compliance</b>
1.	The unit shall operate and maintain the zero liquid discharge system efficiently and continuously at all times and shall ensure that the treated trade effluent is recycled in the process ensuring zero liquid discharge of effluents in the premises.	Complied.
2.	The unit shall operate and maintain the sewage treatment plant efficiently and continuously so as to ensure that the treated sewage satisfy the standards prescribed by the Board.	Complied
3.	The unit shall operate and maintain the online pH and TDS meter in the storm water drains to ensure no chemical contamination takes place during rains outside the premises at all the time.	Complied.
4.	The unit shall analyze the treated trade effluent samples periodically and furnish ROA of the same to Board.	Complied.
5.	The unit shall dispose the non-hazardous solid waste then and there for further beneficial uses without any accumulation.	Complied.
6.	The unit shall handle hazardous waste as per the authorization issued under HW (MH & TM) Rules, 2008 and shall comply with the Hazardous and other wastes (M & TM) Rules, 2016.	Complied.
7.	The unit shall further continue green belt development inside/outside the premises of the unit.	Complied.
8.	The unit shall maintain the rain water harvesting facilities so as to recharge the ground water.	Complied
9.	The unit shall furnish the details of activities done through 'Corporate Social Responsibility' along with the amount spent every year.	Complied.
10.	In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the unit as per law.	Assured to comply

Air Act

<b>Sl. No</b>	<b>Conditions</b>	<b>Compliance</b>
1.	The unit shall operate and maintain the Air Pollution Control measures efficiently and continuously so that the emission shall satisfy the Ambient Air Quality/Emission standards prescribed by the Board.	Complied.
2.	The unit shall adhere to the Ambient Air Quality/Stack Emission/Ambient Noise Level standards prescribed by the Board.	Complied.
3.	The unit shall conduct Ambient Air Quality/Stack Emission/ Ambient Noise Level/Ambient TVOC surveys through external lab approved by MoEF once in six month and furnish report to the Board.	Assured to Comply
4.	The applicant shall provide and maintain at his own cost a	Assured to

	meteorological station to collect the data on wind velocity, direction, temperature, humidity, rainfall, etc.,. And the daily reading shall be recorded and the extract sent to the Board once in a month.	Comply
5.	The unit shall further continue green belt development inside/outside the premises of the unit.	Assured to Comply
6.	The unit shall furnish the details of activities done through 'Corporate Social Responsibility' along with the amount spent every year.	Assured to Comply
7.	In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the unit as per law.	Assured to Comply

### 11. Report on M/s. Chemplast Cuddalore Vinyls Limited

Name and Address of the unit	M/s. <b>Chemplast Cuddalore Vinyls Limited</b> , SIPCOT Industrial Complex, Phase II , Semmankuppam Village, Cuddalore			
Product with Quantity	PVC Resins -300,000TPA			
Trade Effluent quantity	3450KLD			
Effluent Treatment Plant Details	Equalization tank	1	20 L x 20 W x 3.5 H	
	Flash Mixer	1	2.2L x 2.2 W x 1.2 H	
	High Rate Solid Clarifier	1	13.8 dia x4.5 H	
	Sand Filter	2	3.3 dia x1.5 H	
	Ultra filtration	2 system	40 Membranes in each system	
	RO stage 1	2 system	96 Membranes in each system	
	RO stage 2	2 System	24 Membranes in each system	
	Multiple effect evaporator	1	Triple effect	
Trade Effluent Disposal	Zero Liquid Discharge			
	The RO reject is disposed to Marine waters through own pipeline.			
Air Pollution Control Measures	Stack No	Source of emission	Pollution Control measures	Stack Height(M)
	1	Boiler	Reverse jet bag filter outlet	54
	2	Vent gas absorption system	Reverse jet bag filter outlet	20
	3	Drier stack	Reverse jet bag filter outlet	44
	4	Emergency Vent attached to VCM Storage Tank	Bin Vent Filter	60

	5	Coal Heading Conveyor- Transfer Point- 1- Coal Crusher	Bin Vent Filter	15.5
	6	Coal Heading Conveyor- Transfer Point- 2- Coal Bunker	Bin Vent Filter	22.75
	7	Coal Feed Hopper	Multi cyclone and Wet scrubber	-
	8	PVC Bagging Section- Bagging machine- 3 nos.	Bag Filter	21
	9	Product Silo- 3 nos.	Bag Filter	54
<p>Report of Analysis of treated effluent reveals that the parameters are within the standards prescribed by the Board. The Ambient Air Quality Monitoring are done twice in a year and the Report of Analysis Reveals that the parameters are within the standards prescribed by the Board.</p>				

#### Compliance of Consent order Conditions of M/s. Chemplast Cuddalore Vinyls Ltd

##### Water Act

Sl No	Conditions	Compliance
1.	The unit shall strictly comply with the consented annual production capacity without any deviation.	Complied.
2.	The unit shall operate and maintain the STP efficiently and continuously so as to achieve the standards prescribed by the Board.	Complied.
3.	The unit shall utilise the treated sewage on land for gardening after satisfying the standards prescribed by the Board.	Complied
4.	The unit shall operate and maintain the ETP with RO and reject management system efficiently and continuously and achieve ZLD at all times.	Complied.
5.	The unit shall utilise the RO permeate in the process after satisfying the standards prescribed by the Board.	Complied
6.	The unit shall operate and maintain the online monitors for effluent and ensure that proper data is uploaded to the CARE Air Centre.	Complied.
7.	The unit shall ensure that the Non Hazardous wastes generated are disposed then and there without accumulating the same within the unit premises.	Complied.
8.	The Unit shall not use 'use and throwaway plastic' such as plastic sheets used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups, plastic tumbler, water	Complied.

	pouches and packets, plastic straw, plastic carry bag and plastic flags irrespective of thickness, within the industry premises. Instead unit shall encourage use of eco friendly alternative such as banana leaf, arecanut palm plate, stainless steel, glass, porcelain plates / cups, cloth bag, jute bag etc.	
9.	The unit shall submit the Environmental statement in Form V for each financial year as prescribed under the Environment (Protection) Act, 1986 as amended.	Complied.
10.	The unit shall comply with E-Waste Management Rules 2016. E-Waste as listed in schedule –I, generated by them shall be channelized through collection centre or dealer of authorized producer or dismantler or recycler or through the designated take back service provider of the producer to authorized dismantler or recycler. The unit shall maintain records of e-waste generated by them in Form-2 and make such records available for scrutiny by the TNPCB. The unit shall file annual returns in Form-3, to the TNPCB on or before the 30th day of June following the financial year.	Complied.
11.	The unit shall furnish the exact green belt area earmarked / developed as per the norms in the unit's premises showing photographs along with longitude and latitude co-ordinates.	Complied.
12.	In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the unit as per law.	Assured to Comply

Air Act

Sl No	Conditions	Compliance
1.	The unit shall strictly comply with the consented annual production capacity without any deviation	Complied
2.	The unit shall operate and maintain the APC measures efficiently and continuously so as to achieve the standards prescribed by the Board	Complied
3.	The unit shall adhere to the ANL standards prescribed by the Board.	Complied.
4.	The unit shall conduct health evaluation studies once in three years by independent competent agencies/institutions to monitor the impact of VCM exposure covering all the villages within a range of 5 Km of the plant and the results of the study to be furnished to the District Collector, The Health Department and Tamil Nadu Pollution Control Board within 3 months.	Assured to comply
5.	The unit shall conduct a comprehensive environmental audit for PVC production (3,00,000 T/A) focusing on the Performance of the pollution control measures, in plant control measures and mass balance of VCM every year and submit report to the Board.	Complied.
6.	The unit shall conduct LDAR study every year and furnish the report to the Board	Complied.
7.	The unit shall calibrate the analysers and shall operate and maintain the online monitor for emission/stack parameters and	Complied.

	provide proper data to CAC, TNPCB.	
8.	The unit shall continue to develop green belt within the premises	Complied.
9.	The unit shall take immediate action to connect the CCTV camera to CAC Chennai	Complied.

**12. M/s. Crimsun Organics Private Limited :**

Name and Address of the unit	M/s. Crimsun Organics Private Limited ( Formerly M/s. Indo International Fertilizers Ltd), SF No.138/1,138,137 of Plot No C-9,C-10,C11, Sipcot Industrial Complex, Kudikadu village, Cuddalore Taluk, Cuddalore District.		
Product with Quantity	Para chloro benzyl cyanide – 20 TPM, Pyrazole – 20 TPM Metaphenoxy Benzaldehyde (MPB) – 30 TPM, Thiophanate Methyl – 50 TPM, Hexaconazole – 30 TPM, Propiconazole – 30 TPM, Difenconazole – 15 TPM, Tricyclazole – 50 TPM, Carbendazim – 50 TPM, Cyproconazole -30 TPM, Trifloxystrobin – 20 TPM Cymoxanil – 20 TPM, Pyraclostrobin – 20 TPM, Metalaxil – 20 TPM, Tebuconazole – 20 TPM, Boscalid - 20 TPM, Picoxystrobin – 20 TPM, Thifluzamide – 20 TPM, Pretilachlor – 50 TPM, Glyphosate – 50 TPM, Clodinafop-propargyl – 20 TPM, Bispyribac-Sodium – 20 TPM, Quizalofop – 20 TPM, Propaquizafop – 20 TPM, Mesotrione – 20 TPM, Fluroxypyr – 20 TPM, Imazamox – 30 TPM, Pinoxaden – 30 TPM, Ametryn – 30 TPM, Tembotrione – 20 TPM, Topramezone – 20 TPM, Halosulfuron – 20 TPM, Penoxsulam – 20 TPM Flucetosulfuron – 20 TPM, Pendimethalin – 30 TPM, Chlorimuron – 20 TPM, Nicosulfuron – 20 TPM, Metsulfuron – 20 TPM, Acephate – 30 TPM, Diafenthiuron- 30 TPM, Imidacloprid – 30 TPM, Buprofezin – 30 TPM ,Thiamethoxam – 30 TPM, Cypermethrin – 30 TPM, Alpha cypermethrin – 20 TPM, Fipronil – 20 TPM, Acetamiprid – 30 TPM, Propargite – 30 TPM, Indoxacarb – 20 TPM Dinotefuran – 20 TPM, Flonicamid – 20 TPM, Etoxazold – 20 TPM, Metaflumizone – 20 TPM, Spiromesifen – 20 TPM, Spirotetramat – 20 TPM, Chlorantraniliprole – 20 TPM, Sulfoxaflor – 20 TPM		
Trade Effluent quantity	87 KLD		
Effluent Treatment Plant Details	Oil and Grease Trap	1 No.	3.9 m x 1.3 m x 2.0 m
	Collection Pit	1 No.	5.6 m x 2.9 m x 2.0 m
	Neutralizer Pit	2 Nos.	1.9 m x 1.9 m x 1.5 m
	Sand Filter	2 Nos.	1.95 m x 1.95 m x 1.5 m
	Sand Filter Pit	2 Nos.	1.15 m x 1.15 m x 1.5 m
	Collection Tank	1 No	2.1 m Dia x 2.9 m Ht
	MEE Feed Tank	1 No.	2.1 m Dia x

			3.5 m Ht
	Multiple Effect Evaporator (Triple Effect)	1 No.	48 KL/day
	POT Distillation Reactor - 1	1 No.	6.3 Cum
	POT Distillation Reactor - 2	1 No.	3.0 Cum
	Collection Tank	1 No.	2.0 m Dia x 1.8 m Ht
	MBBR Tank	2 Nos.	3.5 m x 4.9 m x 6.0 m
	Aeration Tank (ASP)	1 No.	3.5 m x 10.5 m x 5.4 m
	Clarifier	1 No.	2.0 m Dia x 2.5 m Depth
	Pressure Sand Filter	1 No.	0.46 m Dia x 1.625 m Ht
	Activated Carbon Filter	1 No.	0.46 m Dia x 1.625 m Ht
	Filter Press	1 No.	0.65 m x 0.65 m
	RO Feed Tank	1 No.	2.1 m Dia x 2.9 m
	RO System	1 No.	4.5 Cum/Hr
	RO Permeate Tank	1 No.	2.1 m Dia x 2.9 m
	RO Reject Collection Tank	1 No.	2.0 m Dia x 1.8 m
Trade Effluent Disposal	Zero Liquid Discharge.(Treated effluent is reused).		
	Effluents samples are collected in Various points in the Effluent Treatment and reject management systems for monitoring purpose.		
Air Pollution Control Measures	Oil Fired Boiler – 3 TPH	Stack	25 m Ht
	Reactors (14 Nos).	Stack	25
	Reactors (8 Nos out of 14)	Stack	25
	The Ambient Air Quality Monitoring is done twice in a year and the Report of Analysis Reveals that the parameters are within the standards prescribed by the Board.		

**Compliance status of RCO conditions - M/s. CRIMSUN ORGANICS PRIVATE LIMITED**

Sl. No	Condition	Compliance status
	<b>Water Act</b>	
1	The unit shall manufacture only the products specified in the EC and shall not manufacture pesticide formulation products.	Complied. The industry is manufacturing products mentioned in the EC only.
2	The unit shall not carry out any establishment activities in the Plot No. C-9 and C-11 without obtaining consent of the Board.	No industrial activity is carried out in C- 9 and C-11 for the existing activity.
3	The unit shall operate and maintain the Sewage Treatment Plant efficiently and continuously and the treated sewage shall be utilised for green belt development/gardening after satisfying the standards prescribed by the Board.	Complied. The STP was in operation during the time of inspection. The ROA of the treated sewage samples collected from the industry reveals that the standards are within the prescribed standards.
4	The unit shall not dispose the treated sewage to CUSECS and shall utilize the same for gardening as specified in the EC.	Complied. The treated sewage is not disposed to CUSECS. The treated sewage is disposed for gardening.
5	The unit shall operate and maintain the ETP followed by RO plant, MEE continuously and efficiently so as to achieve the ZLD.	Complied. The industry has provided ETP followed by RO plant and MEE and the unit achieves Zero Liquid Discharge.
6	The unit shall ensure that no discharge of untreated/treated trade effluent on land or into any water bodies either inside or outside the premises at any point of time.	Complied. No untreated / treated trade effluent is disposed outside the premises.
7	The unit shall analyze the treated sewage and treated trade effluent samples through TNPCB lab periodically and furnish ROA of the same.	Complied. Treated sewage and treated trade effluent are meeting the standards
8	The unit shall ensure that the effluent parameters shall satisfy the standards prescribed as per CPCB/MoEF& CC Notification issued from time to time.	Complied.
9	The unit shall furnish the Electro Magnetic Flow Meter readings and online connectivity data to JCEE (M), Trichy and DEE, Cuddalore on monthly basis without fail.	Complied. The details are furnished regularly.
10	The unit shall operate and maintain the EMFM provided at the inlet of STP and provide EMFM with computer recording arrangement at the outlet of STP.	Complied. The industry has provided EMFM at the inlet and outlet of STP with computer recording arrangement.
11	The unit shall maintain the electromagnetic flow meters at the inlet of ETP, inlet of the RO System, RO permeate line, RO reject line, Inlet of Multiple Effect Evaporator, Multiple Evaporator condensate line in good condition and transmit the quality data to WQW, TNPCB, Chennai at all the time.	Complied. EMFMs installed and maintained. The same are connected to WQW, TNPCB, Chennai.

12	The unit shall maintain CCTV camera for monitoring the ZLD system in good condition and transmit the quality data to WQW, TNPCB, Chennai at all the time.	Complied. CCTV camera provided and data transmitted to WQW, TNPCB, Chennai.
13	The unit shall dispose the non-hazardous waste then and there without any accumulation.	Complied. The non hazardous solid waste is disposed then and there and no accumulation found.
14	The unit shall ensure that the Hazardous wastes generated shall be properly disposed as per the Authorization obtained under Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016.	Complied. The hazardous waste is disposed as per the instruction.
15	The unit shall dispose the hazardous wastes to the authorized facilities then & there before 90 days as per the conditions stipulated in the authorization issued under the provisions of Hazardous & Other Wastes (Management & Transboundary Movement) Rules 2016.	Assure to comply at all times.
16	The unit shall apply for Authorization for proper disposal of Hazardous waste under Hazardous and Other Waste (Management and Transboundary Movement) Rules, 2016 under category 28(Schedule-I) for disposal of 28.4 - off specification products and 28.5 - Date – expired products if any.	Complied. The industry has obtained Authorisation under the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016 vide Board's Proc. dated 19.03.2020 with validity for five years.
17	The unit shall ensure proper disposal of discarded/date expired medicines and not to dispose discarded/date expired medicines in the lake or any other water bodies or any lands.	Assure to comply.
18	The unit shall maintain Form – 3 for the generation of hazardous wastes and shall file annual return in Form - 4 to the Board. The unit shall maintain the hazardous waste display board in front of the unit clearly updating the same regularly as mandated by the Hon'ble Supreme Court Order dated 14.10.2003.	Complied. The industry has furnished annual returns for the year 2019-2020.
19	The unit shall not use 'use and throwaway plastics' such as plastic sheets used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups, plastic tumbler, water pouches and packets, plastic straw, plastic carry bag and plastic flags irrespective of thickness, within the industry premises. Instead it shall encourage use of eco friendly alternative such as banana leaf, arecanut palm plate, stainless steel, glass, porcelain plates/cups, cloth bag, Jute bag etc.,	Generally Complied With.
20	The unit shall continue to develop adequate green belt with thick canopy within the premises, so as to attenuate air and noise pollution furnish the	The total land area available for the project is 18051.03 sqm. The industry has developed green belt in an area of about

	exact green belt area ear marked/developed as per norms in the unit premises and furnish photographs along with latitude and longitude co-ordinates.	6300 m <sup>2</sup> with about 750 trees.
21	The unit shall liable to pay the consent fee and shall remit the difference in amount in case of any revision of consent fee by the Government.	Assured to comply.
22	The unit shall submit Environmental Statement for every financial year ending the 31st March in Form -V as per the Rule 14 of the Environment (Protection) Rules, 1986.	Complied. The industry has furnished environmental statement for the year 2019-2020.
23	The unit shall explore possibilities of reducing water consumption in process and also provide rain water harvesting facilities in the unit and practice water conservation measures.	Complied. The industry has provided rain water harvesting system for the buildings.
24	The operation of the unit shall not attract complaints from public.	Complied. No complaints received against the operation of the industry.
25	The unit shall dispose the distillation residue to some other beneficial users/to explore some other better option instead of disposing it to cement industries if the calorific value of hazardous waste is found less.	Complied. The unit has disposed the Hazardous waste to cement industries as per the hazardous waste authorisation.
26	The unit shall comply with the EIA Notification 2006 in case of any proposed changes from consented conditions.	Complied with.
<b>Air Act</b>		
1	The unit shall operate and maintain the air pollution control measures efficiently and continuously so as to satisfy the AAQ /Emission standards prescribed by the Board at all times.	Complied. The Air Pollution Control Measures are continuously operated. The ROA of the AAQ survey reveals that the standards are met with.
2	The unit shall conduct AAQ/Emission/ANL survey through Board lab and furnish report to the Board within a month.	Complied. Advanced Environmental Lab of TNPCB has conducted the AAQ survey.
3	The unit shall adhere to the National Ambient Air Quality / Stack / Ambient Noise Level standards prescribed by the Board from time to time.	Complied. The ROA of the AAQ/SM/ANL survey conducted in the industry reveals that all the parameters are within the prescribed standards.
4	The unit shall provide Online continuous Ambient Air Quality Monitoring stations at required places for TVOC, PM10, PM2.5, SO2, NOx, and provide proper data to Care Air Centre, TNPCB, Guindy all the times.	Assured to comply. The unit authority informed that continuous ambient air quality monitoring station will be installed before commissioning of the expansion activity.
5	The unit shall provide adsorption systems like Activated carbon/Charcoal to prevent /control odour from the reactors.	Complied. The industry has provided adsorption system.
6	The unit shall operate and maintain the safety measures and APC measures provided to arrest the fugitive emissions during its loading, unloading and handling operations.	Complied. The unit has provided safety measures at solvent storage tanks for charging of chemicals, loading of solid raw materials and product unloading.

7	The unit shall ensure the connectivity of Stack emission Online Monitoring system provided for PM attached to the stack of boiler and provide proper data to CPCB server.	Complied. The unit has provided continuous online monitoring system for the parameter PM for the Boiler stack and connected the same to the CPCB.
8	The unit shall connect the Stack emission Online Monitoring system provided for PM attached to the stack of boiler with TNPCB server and provide proper data at all the time.	Complied. The unit has provided continuous online monitoring system for the parameter PM for the Boiler stack and connected the same to the Care Air Centre, TNPCB, Chennai.
9	The unit shall maintain stack monitoring facility as per Emission Regulation Part-3 (ERP-3) norms for all the stacks attached with emissions sources.	Complied. The unit is maintaining stack monitoring facility as per Emission Regulation Part 3 norms.
10	The unit shall ensure that the port hole and ladder facility is safe to carry out monitoring. In place of monkey ladder, spiral type/scaffold ladder shall be provided to ensure safety of monitoring personnel.	Complied. The unit has provided port hole facilities as per ERP 3 norms and cage ladder.
11	The unit shall continue to develop adequate green belt with thick canopy within the premises, so as to attenuate air and noise pollution furnish the exact green belt area ear marked/developed as per norms in the unit premises and furnish photographs along with latitude and longitude co-ordinates.	Complied. The total land area available for the project is 18051.03 sqm, The unit has developed green belt in an area of 6303 m <sup>2</sup> , which is 34.9 % of total land area.
12	The unit shall liable to pay the consent fee and shall remit the difference in amount in case of any revision of consent fee by the Government.	Assured to comply.
13	The unit shall submit Environmental Statement for every financial year ending the 31st March in Form -V as per the Rule 14 of the Environment (Protection) Rules, 1986.	Complied. The industry has furnished environmental statement for the year 2019-2020.
14	The operation of the unit shall not attract complaints from public.	Complied.
15	The unit shall comply with the EIA Notification 2006 in case of any proposed changes from consented conditions.	Assured to comply.

**13. Report on M/s. KAWMAN PHARMA (A Division of K.P.Manish Global Ingredients Pvt Ltd)**

Name and Address of the unit	M/s. Kawman Pharma (A Division of K.P.Manish Global Ingredients Pvt Ltd), Sipcot Industrial Complex, Kudikadu village, Cuddalore Taluk, Cuddalore District.		
Product with Quantity	Sumatriptan Succinate – 6 MT/Annum, Olmesartan Medoxomil – 6 MT/Annum, Duloxetine Hydrochloride – 6 MT/Annum ,Atomoxetine Hydrochloride – 6 MT/Annum, Dabigatran – 6 MT/Annum, Sitagliptin – 6 MT/Annum, Etoricoxib – 24 MT/Annum, Ticagrelor – 6 MT/Annum, Tapentadol – 12 MT/Annum, Doxofylline – 6 MT/Annum, Pregabalin – 6 MT/Annum, Lactitol - 2.4 MT/Annum, Rivastigimine – 12 MT/Annum, Rivaroxaban - 1.2 MT/Annum, Eslicarbazepine - 3.6 MT/Annum, Vildagliptin – 6 MT/Annum, Acetyl L Carnitine – 6 MT/Annum, L -Carnitine L- Tartrate – 6 MT/Annum, L-Carnitine Base – 6 MT/Annum D-Biotin - 2.4 MT/Annum, Benfothiamine – 6 MT/Annum ,Phenylephrine - 6 MT/Annum Mosapride – 6 MT/Annum, Alpha Lipoic Acid – 12 MT/Annum, Dextromethorphan - 24 MT/Annum 3- Hydroxyacetophenone – 24 MT/Annum, Loratidine intermediate – 6 MT/Annum, Silodosin intermediate - 24 MT/Annum, Rosuvastatin Hemi Calcium – 6 MT/Annum Pitavastatin HemiCalcium – 6 MT/Annum, Bromohexine – 12 MT/Annum, Ambroxol – 12 MT/Annum, MAP Sulphate – 12 MT/Annum, Theobromine – 48 MT/Annum cis-Lactam – 24 MT/Annum, Diltazem hydrochloride – 24 MT/Annum, 11-Piperazinyldibenzothiazepine – 12 MT/Annum, Quetiapine - 7.2 MT/Annum, Astaxanthin – 6 MT/Annum, Allopurinol - 3.96 MT/Annum.		
Trade Effluent Disposal	Zero Liquid Discharge & CUSECS		
Trade Effluent quantity	Trade Effluent 1	28 KLD – ZLD	
	Trade Effluent 2	17.5 KLD – CUSECS	
Effluent Treatment Plant Details	Lamella clarifier	1 no	1.2mL*1.2m W * 1.9m D
	Sequential batch reactor	1 no	Capacity- 58.33 Cum and Diameter 5.0m
	Sludge Drying Bed	2	2.0 m L

		nos	*1.0m W * 1.5m D
	Sand and Activated carbon filter	1 nos	327 mm diameter and filtration rate- 12.3m <sup>3</sup> /hr
	Treated water collection tank	1 no	3 m*3m*1m= 9 m <sup>3</sup>
	<p>ZLD – Effluents samples are collected in Various points in the Effluent Treatment and reject management systems for monitoring purpose.</p> <p>CUSECS- The Treated Trade Effluents are collected in Sumps provided by M/s. CUSECS Ltd and then disposed to Marine waters through pipelines laid by M/s. CUSECS.</p>		
Air Pollution Control Measures	Boiler	Stack	30 m Ht
	Reactors	Wet scrubber Stack (CAC)	9
	<p>Report of Analysis of treated effluent reveals that the parameters are within the standards prescribed by the Board. The Ambient Air Quality Monitoring is done twice in a year and the Report of Analysis Reveals that the parameters are within the standards prescribed by the Board.</p>		

**Compliance of Consent order Conditions of KAWMAN PHARMA ( A Division of K.P.Manish Global Ingredients Pvt Ltd)**

**Water Act**

Sl. No	Conditions	Compliance
1.	The unit shall operate and maintain the Sewage Treatment Plant efficiently and continuously so as to bring the quality of the treated sewage to satisfy the standards prescribed by the Board before disposing to on land for gardening	Complied.
2.	The unit shall operate and maintain the Effluent Treatment System along with Zero Liquid Discharge system efficiently and continuously for the treatment of process effluent and to ensure Zero Liquid Discharge at all times	Complied.
3.	The unit shall treat the non-process effluent through the	Complied.

	effluent treatment plant so as to bring the quality of the treated effluent to satisfy the standards prescribed by the Board before disposal to marine through CUSECS system as reported	
4.	The industry shall ensure that the effluent (sewage/trade effluent) shall not reach storm water drains or outside the unit's premises at any time	Complied.
5.	The unit shall ensure that no discharge of untreated/treated trade effluent on land or into any water bodies either inside or outside the premises at any point of time	Complied.
6.	The unit shall analyze the treated sewage and treated trade effluent samples through TNPCB lab periodically and furnish ROA of the same	Complied.
7.	The unit shall ensure that the effluent parameters shall satisfy the standards prescribed as per CPCB / MoEF& CC Notification issued from time to time	Complied.
8.	The unit shall reuse the mother liquor generated from centrifuge and various stages of manufacturing process in the process in all the time	Complied.
9.	The unit shall furnish the Electro Magnetic Flow Meter readings and online connectivity data to JCEE (M), Trichy and DEE, Cuddalore on monthly basis without fail	Complied.
10.	The unit shall operate and maintain the electromagnetic flow meters provided at the inlet of ETP, inlet of the Multiple Effect Evaporator, out let of ETP, at the marine discharge and raw water intake in good condition and transmit the quality data to WQW, TNPCB, Chennai at all the time	Complied.
11.	The unit shall maintain CCTV cameras provided for monitoring the ZLD system in good condition and transmit the quality data to WQW, TNPCB, Chennai at all the time.	Complied.
12.	The unit shall operate and maintain the online effluent monitors for pH, TSS, BOD, COD provided at the ETP out let and provide proper data to WQW, TNPCB, Chennai at all the time	Complied.
13.	The unit shall operate and maintain the online monitors for pH, TDS provided at the storm water drain and to ensure no chemical contamination takes place outside the premises during rain and provide proper data to WQW, TNPCB, Chennai at all the time	Complied.
14.	The unit shall collect the ground water samples from the 4 Nos. of piezo meters provided in the unit premises and analyze the same so as to monitor the ground water quality	Complied
15.	The unit shall dispose the non-hazardous waste then and there without any accumulation	Complied
16.	The unit shall ensure that the Hazardous wastes generated shall be properly disposed as per the Authorization obtained under Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016	Complied
17.	The unit shall dispose the hazardous wastes to the authorized facilities then & there before 90 days as per the conditions stipulated in the authorization issued under the provisions of Hazardous & Other Wastes(Management&Transboundary Movement ) Rules 2016	Complied
18.	The unit shall apply for Authorization for proper disposal of	Assured to comply

	Hazardous waste under Hazardous and Other Waste (Management and Transboundary Movement) Rules, 2016 under category 28 (Schedule- I for disposal of 28.4 - off specification products and 28.5 - Date – expired products if any	
19.	The unit shall ensure proper disposal of discarded/date expired medicines and not to dispose Discarded / date expired medicines in the lake or any other water bodies or any lands	Assured to comply
20.	The unit shall maintain Form – 3 for the generation of hazardous wastes and shall file annual return in Form - 4 to the Board. The unit shall maintain the hazardous waste display board in front of the unit clearly updating the same regularly as mandated by the Hon'ble Supreme Court Order dated 14.10.2003	Assured to comply
21.	The unit shall not use 'use and throwaway plastics' such as plastic sheets used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups, plastic tumbler, water pouches and packets, plastic straw, plastic carry bag and plastic flags irrespective of thickness, within the industry premises. Instead it shall encourage use of eco friendly alternative such as banana leaf, areca nut palm plate, stainless steel, glass, porcelain plates/cups, cloth bag, Jute bag etc	Assured to comply
22.	The unit shall continue to develop adequate green belt with thick canopy within the premises, so as to attenuate air and noise pollution furnish the exact green belt area ear marked/developed as per norms in the unit premises and furnish photographs along with latitude and longitude co-ordinates.	Assured to comply
23.	The unit shall liable to pay the consent fee and shall remit the difference in amount in case of any revision of consent fee by the Government	Assured to comply
24.	The unit shall submit Environmental Statement for every financial year ending the 31st March in Form -V as per the Rule 14 of the Environment (Protection) Rules, 1986	Assured to comply
25.	The industry shall adopt the waste minimization technologies as envisaged in the Environmental Clearance obtained from the SEIAA, Tamilnadu	Assured to comply
26.	The unit shall ensure that the operation of the plant shall not invite any complaint from nearby public at any point of time	Assured to comply

#### Air Act

Sl. No	Conditions	Compliance
1.	The unit shall operate and maintain the air pollution control measures efficiently and continuously so as to satisfy the AAQ / Emission standards prescribed by the Board at all times.	Complied.
2.	The unit shall conduct AAQ/Emission/ANL survey through Board lab and furnish report to the Board within a month	Complied
3.	The unit shall adhere to the National Ambient Air Quality / Stack / Ambient Noise Level standards prescribed by the Board from time to time	Complied.
4.	The unit shall ensure the connectivity of online sensors for	Complied.

	HCl in HCl Acid scrubber and NH <sub>3</sub> in NH <sub>3</sub> Scrubber and provide proper data to Care Air Centre, TNPCB, Guindy all the times	
5.	The unit shall ensure the connectivity of Stack emission Online Monitoring system provided for SO <sub>2</sub> , NO <sub>x</sub> and PM attached to the stack of boiler and provide proper data to Care Air Centre, TNPCB, Guindy all the times	Complied.
6.	The unit shall operate and maintain the Online continuous Ambient Air Quality Monitoring stations provided for TVOC, PM <sub>10</sub> , PM <sub>2.5</sub> , SO <sub>2</sub> , NO <sub>x</sub> , HCl and provide proper data to Care Air Centre, TNPCB, Guindy at all the times	Complied.
7.	The unit shall operate and maintain the ambient Online continuous monitors provided at the process area to monitor the parameter TVOC, HCl and NH <sub>3</sub> and provide proper data to Care Air Centre, TNPCB, Guindy at all the times.	Complied.
8.	The industry shall operate and maintain the solvent recovery system to ensure maximum recovery of solvents there by to avoid VOC emissions to Ambient Air.	Complied.
9.	The industry shall ensure that the closed loop system is always in operational conditions for the transfer of raw materials, unloading of products from reactors and other activities involved in the process area.	Complied.
10.	The unit shall maintain stack monitoring facility as per Emission Regulation Part-3 (ERP-3) norms for all the stacks attached with emissions sources	Complied.
11.	The unit shall ensure that the port hole and ladder facility is safe to carry out monitoring. In place of monkey ladder, spiral type/scaffold ladder shall be provided to ensure safety of monitoring personnel	Complied.
12.	The unit shall continue to develop adequate green belt with thick canopy within the premises, so as to attenuate air and noise pollution furnish the exact green belt area ear marked/developed as per norms in the unit premises and furnish photographs along with latitude and longitude co-ordinates	Complied.
13.	The unit shall liable to pay the consent fee and shall remit the difference in amount in case of any revision of consent fee by the Government	Assured to Comply
14.	The unit shall submit Environmental Statement for every financial year ending the 31st March in Form -V as per the Rule 14 of the Environment (Protection) Rules, 1986.	Complied.
15.	The industry shall adopt the waste minimization technologies as envisaged in the Environmental Clearance obtained from the SEIAA, Tamilnadu	Complied.
16.	The unit shall ensure that the operation of the plant shall not invite any complaint from nearby public at any point of time	Complied.

#### 14. M/s. Golden Fish Meal And Fish Oil Company

Address of Industry	:	M/s. Golden Fish Meal And Fish Oil Company Sipcot Industrial Complex, Semmankuppam ,Cuddalore Taluk
Contact person & Telephone No/ Fax No/Mobile No	:	T.Ravichandran The Managing Partner 9626252865
Establishment Date	:	24/10/2013
Commissioned Date	:	17/03/2015
Consent Status	:	Valid upto 31.03.2021
Category & Scale of Operation	:	Orange category, Small Scale
Water Source and consumption If they have own bore well, whether NOC obtained by CGWA or any other department	:	SIPCOT - 24.5 KLD  Water Consumption – NIL ( Unit not under operation)
Installed Capacity	:	1. Fish Meal - 45 T/D 2. Fish Oil - 5 T/D
Consented capacity	:	1. Fish Meal - 45 T/D 2. Fish Oil - 5 T/D
Operating capacity at the time of inspection	:	1. Fish Meal - NIL 2. Fish Oil – NIL ( Unit not under operation)
Raw materials	:	Fish – 100 T/D
Products	:	1. Fish Meal - 45 T/D 2. Fish Oil - 5 T/D
Process	:	
Fresh fish used as a raw material, cooked in cooker, pressed in press. In press fish cake and cola water gets separated. Fish cake is processed in drier, cooled and packed. Cola water processed in decanter and centrifuge. In decanter solids in cola water are separated and reused in drier. Oil is separated in centrifuge and stored in oil tank. Remaining water processed in ETP, RO and Evaporator. Evaporator concentrate reused in drier. Boiler steam used in cooker and drier.		
Waste water sources	:	Clear Condensate water from Evaporator Blood water, Equipment and Vehicle washing water Vapour Condensate Water from Process steam in Cooling condenser, Evaporator shell, Bio Filter Scrubber, Floor wash water
Quantity of Waste Water generated as per consent issued	:	25 KLD
Actual generation of effluent	:	NIL ( Unit not under operation)
Effluent treatment plant components	:	Screen Chamber, Oil Trap, Collection Tank, Aeration Tank, Secondary Settling Tank, Sludge Drying Beds Filtrate Collection Sump, Valve Pits, Pressure sand filter

		Activated Carbon Filter, Bio Filter, Parallel Plate Separator, Anaerobic Tank
<p>The Raw Blood effluent generated from the various sources (Vehicle Parking, Fish Feeding Tank etc.,) of the unit will be collected via pipeline and send to the ETP. In the ETP, the Blood effluent is entering into the screen chamber. One number of M.S.bar screen is provided to remove the coarse suspended and remove floating materials by Manual, this is present in the waste water. The effluent is then entering into the oil trap, to remove the oily and fatty substances, if any, carried over by the waste water. Blood water and Floor wash, Equipment Waste water pumped in to Up flow Anaerobic Sludge Blanket (ANAEROBIC TANK) for Digesting Organic Load water. In this ANAEROBIC TANK, recirculation Pump keep Sludge blanket as moving (Up Flow) and digest complex heavy organic Molecule into simple molecule by anaerobic bacteria. It break and reduce complex heavy chain molecule into simple molecule with bio gas productions (Carbon dioxide, Methane, Hydrogen Supleide, etc.,) This Gas burned in gas stove for safe discharge of Gas.</p>		
Mode of treated effluent discharge as per consent	:	Zero Liquid Discharge
Treated effluent quality prescribed in consent		Zero Liquid Discharge
Adequacy of treatment system provided to achieve prescribed standards of effluent		Adequate
Status of installation of Online Monitoring system for Effluent		NIL
Number of violations observed during past five years and action taken		NIL
Air Pollution Emission sources and Control Devices	:	1 Boiler - 3 T/Hr – Stack - 0.25 - 20 2 Diesel Generator 250 KVA - Acoustic enclosures with stack - 0.15 - 5 4 Boiler - 5 T/Hr – Stack - 0.25 - 20 3 Cooker and Drier Wet Scrubber - 0.2 - 4
Status of installation of Online Monitoring system for Source emissions		NIL
Number of violations observed during past five years and action taken		NIL
Adequacy of air pollution control devises provided to achieve prescribed standards of Source Emissions		Adequate

**Water Act**

<b>SI No</b>	<b>Conditions</b>	<b>Compliance</b>
1	The unit shall continue to adhere to the conditions imposed in previous consent orders.	Assured to comply
2	The Unit shall not use 'use and throwaway plastic' such as plastic sheets used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups, plastic tumbler, water pouches and packets, plastic straw, plastic carry bag and plastic flags irrespective of thickness, within the industry premises. Instead unit shall encourage use of eco friendly alternative such as banana leaf, arecanut palm plate, stainless steel, glass, porcelain plates / cups, cloth bag, jute bag etc.	Assured to comply
3.	In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the unit as per law.	Assured to Comply

**Air Act**

<b>SI No</b>	<b>Conditions</b>	<b>Compliance</b>
1	The unit shall continue to adhere to the conditions imposed in previous consent orders.	Assured to comply
2	The Unit shall not use 'use and throwaway plastic' such as plastic sheets used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups, plastic tumbler, water pouches and packets, plastic straw, plastic carry bag and plastic flags irrespective of thickness, within the industry premises. Instead unit shall encourage use of eco friendly alternative such as banana leaf, arecanut palm plate, stainless steel, glass, porcelain plates / cups, cloth bag, jute bag etc.	Assured to comply
3	In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the unit as per law.	Assured to Comply

**Units discharging their Trade Effluent to M/s.CUDDALORE SIPCOT INDUSTRIES COMMON UTILITIES LIMITED CUSECS Ltd.),**

**15. Report on M/s. TANFAC Industries Limited (ALF3 Plant)**

Name and Address of the unit	M/s. TANFAC Industries Limited (ALF3 Plant) Plot No 14,SIPCOT Industrial Complex, Kudikadu Village, Cuddalore – 607 005, TamilNadu		
Product with Quantity	6. Aluminium Fluoride – 1550 MTPM 7. Hydrofluoric Acid – 1650 MTPM 8. Biomass Gas – 66000 CUM/Day 9. Captive Power - 2.5 MW 10. Sulphuric acid & oleum – 7750 MTPM By Product: 1. Anhydrite Calcium Sulphate 5950 MTPM 2. Hydro Fluo Silicic Acid 75 MTPM		
Trade Effluent quantity	178.75 KLD		
Effluent Treatment Plant Details	<b>Name of the Treatment Unit</b>	<b>No. of Units</b>	<b>Dimension</b>
	Collection tank	3	4.75 dia x2 ht each
	Neutralization tank	2	4.75 dia x2 ht each
	Clariflocculator	1	12dia x 24inch
	Filter Press	1	24” X 24” 35 plates
	Sludge drying beds	2	10x10x1
	Treated water tank	1	2.5x2.5x1.7
	Lime preparation tank	2	54 M3
	Sand filter / Alumina bed	2	Dia 3.0 X Ht. 1.35
	Guard Pond – I	1	110 M3
	Guard Pond – II	1	200 M3
	Filter Press	1	36” X 36” 51 plates
	Softener	1	8x4x2.5 m
	Clarifier	1	5m x2.5m
	<b><u>Synthetic organic chemicals</u></b>		
Screen Chamber	1	1x 1 x1 m	
Collection tank	1	5x5x5 m	

	Neutralization tank	1	6.2X5X2.8 m
	Flash Mixer	1	0.7x0.7x1 m
	Dosing tanks for Alum and Lime	2	500 Litres each
	Parallel Plate separator	2	1.8x1x3.5 each
	Clarified water tank	1	10 m3
	Dual media filter	1	0.8 m dia x1.60 m
	Filter water tank	1	10m3
	Sludge drying beds	3	4x4x4 m each
	Multiple effect evaporator consisting of Agitated Thin film dryer	1	Stripper Column-1, Triple Effect Evaporator-1 and Vertical Thin film dryer-1
	Condensate tank	1	6.8x3.8x1.7 m
Trade Effluent Disposal	CUSECS		
	The Treated Trade Effluents are collected in Sumps provided by M/s. CUSECS Ltd and then disposed to Marine through pipelines installed by M/s. CUSECS.		
Air Pollution Control Measures	Anhydrite plant –Wet scrubber	Packed bed scrubber	23.4
	Combustion Chamber(HFkiln)	Stack	40
	Central Absorption System HF alkali scrubber outlet	Acid scrubber venturi Scrubber catower	35
	SFLplant-wet scrubber outlet	Stack	24
	Sulphuric acid plant stack 1-alkali scrubber	Stack	42
	Sulphuric acid plant stack 2-alkali scrubber	Packed bed scrubber	42
	Boiler 10T/hr-MDC outlet	alkali scrubber	40
	Fluor spar drier	alkali scrubber	28
	BF3 plant scrubber	Dust collector	9.0
	PAC scrubber	Cyclone separator	32
	Central absorption system AlF3 Scrubber	Packed Scrubber	35
	AL(OH3) drier	Stack	24
	Spray drier burner	Cyclone barometric	26

		condenser	
	Spray drier scrubber	PTFE bags cyclone separator Bag house	24
	Report of Analysis of treated effluent reveals that the parameters are within the standards prescribed by the Board. The Ambient Air Quality Monitoring is done twice in a year and the Report of Analysis Reveals that the parameters are within the standards prescribed by the Board.		

Compliance of consent order conditions **M/s. TANFAC Industries Limited**

Water Act

1	The unit shall not undertake any expansion activities without obtaining CTO Expansion from the Board.	Complied.
2	The unit shall operate and maintain the common sewage effluent treatment plant effectively and continuously so as to achieve the standards prescribed by the Board	Complied.
3	The unit shall operate and maintain the common effluent treatment plant effectively and continuously so as to achieve the marine disposal standards prescribed by the Board	Complied.
4	The unit shall dispose the boiler ash for further beneficial use then and there without any accumulation.	Complied.
5	The unit shall dispose the Hazardous waste 35.3 to the authorized Cement industry for co-processing then and there without accumulation.	Complied.
6	The unit shall ensure delisting of storm water gutter to ensure free drain of water during rainy season to prevent stagnation of water	Complied.
7	The unit shall dispose the fly ash generated form process boiler for beneficial purpose	Complied.
8	The unit shall ensure adequate safety protection system on storage and handling of sulfur	Complied.
9	The unit shall prevent spillage of sulfur during transferring form storage area to process melting pits	Complied
10	The Unit shall conduct soil study as per the standard within the premises of the factory by engaging competent third party	Complied.
11	In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any	Assured to comply.

	notice and further action will be initiated against the unit as per law	
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Air Act

1	The unit shall not undertake any expansion activities without obtaining CTO Expansion from the Board.	Complied.
2	The unit shall operate and maintain the air pollution control measures efficiently and continuously so as to achieve the standards as per Ministry of Environment and Forest, Notification dated 16.11.2009	Complied.
3	The unit shall conduct LADAR study for Oleum and SO2 in sulphuric acid plant	Complied.
4	In case of revision of consent fee by the Government , the unit shall remit the difference in amount within one month from the date of notification . Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the unit as per law.	Assured to comply.
5	The unit shall calibrate the HF analysers and provide proper data CAC, TNPCB, Chennai at all times.	Complied.
6	The unit shall not use! Use and throw away plastics! such as plastic sheets used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups, plastic tumbler, water pouches and packets , plastic straw, plastic carry bag and plastic flags irrespective of thickness, within the industry premises. Instead it shall encourage use of eco friendly alternative such as banana leaf, arecanut palm plate, stainless steel, glass, porcelain plates/cups, cloth bag, jute bag etc.,	Assured to Comply.
7	The unit shall develop adequate greenbelt within the periphery of the unit to attenuate noise and air pollution.	Complied.
8	The unit shall furnish exact greenbelt area earmarked/developed as per norms in the unit premises and furnish photographs along with Latitude and Longitude co-ordinates.	Complied.
9	The unit shall submit the Environmental statement in Form V for each financial year as prescribed under the Environment (protection) Act, 1986 as amended.	Complied.
10	The unit shall comply with the E-Waste Management Rules, 2016. E-Waste as listed in Schedule I generated by them shall be channelized through collection centre or dealer of	Assured to comply

	authorized producer or dismantler or recycler or through the designated take back service provider of the producer to authorized dismantler or recycler. The unit shall maintain records of e-waste generated by them in Form-2 and make such records available for scrutiny by the TNPCB. The unit shall file annual returns in Form-3 , to the TNPCB on or before the 30th day of June following the financial year.	
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**16.M/s. TANFAC Industries Limited (2.5mw Gen Set-HFO)**

Name and Address of Industry	:	M/s. TANFAC Industries Limited (2.5mw Gen Set-HFO)
Contact person & Telephone No/ Fax No/Mobile No	:	Dr.L.Ravichandran- Senior General Manager- Technical 04142/239002-5 Fax- 04142/239008 Mobile – 90920 33585
Establishment Date	:	Company Established on 1985 HFO Genset Consent 10.11.2009
Commissioned Date	:	16.8.2010
Category & Size		Red- Large
Consent Status	:	Validity 31-Mar-2020
Water Source and consumption If they have own bore well, whether NOC obtained by CGWA or any other department	:	SIPCOT – 4070 KLD This Consent - 72+ 0.6(Domestic) – 72.6 KLD  Water Consumption – 10KL
Installed Capacity	:	Electric Power (HFO Gen set) - 2.50 MW
Consented capacity	:	Electric Power (HFO Gen set) -2.50 MW
Operating capacity at the time of inspection		Electric Power (HFO Gen set) - 0.413 MW
Raw materials	:	Furnace Oil - 19.40 MT/Day
Process	:	
<p>The unit has stated that the Furnace oil is used as a fuel for HFO Gen Set for generation of Electricity. The fuel oil is heated to 110 *C by electrical heaters and pumped to Gen Set engine. Since the engine is coupled with generator, electricity is generated and distributed to the plant. The engine is cooled with circulation of cooling water and cylinder, piston and shaft are lubricated with oil. The hot gas from the engine is let out through the stack of 32metres height</p>		
Waste water sources	:	Cooling tower blow down
Quantity of Waste Water generated as per consent issued	:	10 KLD
Actual generation of effluent	:	2 KLD
Effluent treatment plant components	:	The effluent is treated in the Effluent treatment plant of the main unit.
Mode of treated effluent discharge as per consent	:	Discharge to Marine through CUSECS
Treated effluent quality prescribed in consent	:	Marine Discharge Standards
Adequacy of treatment system provided to achieve prescribed standards of effluent	:	Adequate
Status of installation of Online Monitoring system for Effluent	:	Online Parameters connected in outlet of the Effluent Treatment plant of the main plant.
Number of violations observed	:	NIL

during past five years and action taken		
Air Pollution Emission sources and Control Devices	:	Generator set (2.5MW) Stack - 1.20 – 32
Status of installation of Online Monitoring system for Source emissions	:	SO <sub>2</sub> Stack connected to Care Air Centre, TNPCB
Number of violations observed during past five years and action taken	:	NIL
Adequacy of air pollution control devices provided to achieve prescribed standards of Source Emissions	:	Adequate

**Compliance of Consent order Conditions of M/s. TANFAC INDUSTRIES LIMITED (2.5MW GENSET-HFO)**

**Water Act**

Sl. No	Conditions	Compliance
1.	The unit shall continue to operate and maintain the Combined Effluent Treatment Plant so as the treated trade effluent always satisfy the standards prescribed by the Board	Assured to comply during its operation
2.	The unit shall commence their industrial activity after revamping the ETP and on giving prior intimation to the Board.	Assured to comply during its operation
3.	The Unit shall not use 'use and throwaway plastic' such as plastic sheets used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups, plastic tumbler, water pouches and packets, plastic straw, plastic carry bag and plastic flags irrespective of thickness, within the industry premises. Instead unit shall encourage use of eco friendly alternative such as banana leaf, arecanut palm plate, stainless steel, glass, porcelain plates / cups, cloth bag, jute bag etc	Assured to comply during its operation
4.	In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the unit as per law.	Complied
5.	The unit shall furnish the exact green belt area earmarked / developed as per the norms in the unit's premises showing photographs along with longitude and latitude co-ordinates.	Assured to comply

Air Act

Sl. No	Conditions	Compliance
1.	The unit shall commence their industrial activity after revamping the APC measures and on giving prior intimation to the Board.	Assured to comply
2.	The unit shall operate and maintain the APC measures efficiently and continuously so that the unit achieves the standards prescribed by the Board.	Assured to comply
3.	The unit shall maintain the analyzer provided for online monitor and provide quality data to Care Air Centre, TNPCB.	Assured to comply
4.	The unit shall develop adequate greenbelt within the periphery of the unit to attenuate noise and air pollution.	Assured to comply

**17.M/s. TANFAC Industries Limited (Cryolite Plant)**

Address of Industry	:	M/s. TANFAC Industries Limited (Cryolite Plant) Plot No 14,SIPCOT Industrial Complex Kudikadu Village Cuddalore – 607 005, Tamil Nadu
Contact person & Telephone No/ Fax No/Mobile No	:	Dr.L.Ravichandran- Senior General Manager-Technical 04142/239002-5 Fax- 04142/239008 Mobile – 90920 33585
Establishment Date	:	11/06/2008
Commissioned Date	:	09-08-2006
Category & Size	:	Red- Medium
Consent Status	:	Valid upto 31.03.2020
Water Source and consumption If they have own bore well, whether NOC obtained by CGWA or any other department	:	SIPCOT – 4,090 KLD Consented – 344 KLD Consumption on inspection date – 90 KL
Installed Capacity	:	Specialty Fluorides (Sodium Silico fluoride,Potassium Fluoride, Potassium bifluoride, BF3 Complexes running ) - 467.5 T/M. Poly Aluminium Chloride ( various grades on 18%basis) – 3000 T/M
Consented capacity	:	Specialty Fluorides (Sodium Silico fluoride,Potassium Fluoride, Potassium bifluoride, BF3 Complexes running ) - 467.5 T/M  Poly Aluminium Chloride ( various grades on 18%basis) – 3000 T/M
Operating capacity at the	:	

time of inspection		Specialty Fluorides (Sodium Silico fluoride, Potassium Fluoride, Potassium bifluoride, BF <sub>3</sub> Complexes running ) – 5 T/M  Poly Aluminium Chloride ( various grades on 18%basis) – 14 T
Raw materials	:	Hydrofluoric acid, Sodium Chloride, Potassium carbonate Potassium Hydroxide, Hydrofluosilic acid, Boric acid Oleum, Potassium chloride, Sodium carbonate, Sulphuric acid, Aluminum Hydroxide, Titanium di oxide, Ammonia Tin oxide, Phosphoric acid, Lead carbonate, Copper carbonate Sodium di hydrogen ortho phosphate, Sodium phosphate Magnesium oxide ,Zirconium dioxide, Tetra butyl ammonium bromide, Ether/Ethyl acetate, Aluminum Hydroxide, Hydrochloric acid, Sulphuric acid.
Products	:	<ol style="list-style-type: none"> <li>1. Potassium fluoride - 60 MTPM</li> <li>2. Potassium fluoborate – 20 MTPM</li> <li>3. Potassium bi fluoride – 60 MTPM</li> <li>4. Fluoboric acid – 30 MTPM</li> <li>5. Lead ,copper and tin fluoborates – 3 MTPM</li> <li>6. Sodium mono fluoro phosphate – 2 MTPM</li> <li>7. Poly Aluminium Fluoride – 1 MTPM</li> <li>8. Potassium Titanium Fluoride – 40 MTPM</li> <li>9. Sodium silico fluoride – 60 MTPM</li> <li>10. Sodium (Alkaline ) Fluoride – 5 MTPM</li> <li>11. Ammonium bi fluoride – 30 MTPM</li> <li>12. Electronic grade HF – 1 MTPM</li> <li>13. Magnesium (Alkaline earth ) Fluoride – 20 MTPM</li> <li>14. Potassium silico fluoride – 30 MTPM</li> <li>15. Potassium Zirconium fluoride – 20 MTPM</li> <li>16. Hexa fluoro phosphoric acid – 25 MTPM</li> <li>17. Potassium tetra/penta borate – 30 MTPM</li> <li>18. Tetra butyl ammonium fluoride - 0.50 MTPM</li> <li>19. BF<sub>3</sub> Etherate /Complex – 30 MTPM</li> <li>20. Specility fluorides- total ( sl no 1 to 19 ) - 467.50 MTPM</li> <li>21. Poly Aluminium Chloride (Various grades on 18% basis) – 3000 MTPM</li> </ol> <p>By Product: 1. Silica - 5 MTPM</p>
Waste water sources	:	Floor and vessel washings,centrifuges,Scrubbing
Quantity of Waste Water generated as per consent issued		344 KLD
Actual generation of effluent		72 KL
Effluent treatment plant components	:	The trade effluent is disposed to the Effluent Treatment Plant of the Main Plant and discharged to M/s. CUSECS
Mode of treated effluent	:	Discharge to marine through CUSECS

discharge as per consent																		
Treated effluent quality prescribed in consent		Marine discharge standards																
Adequacy of treatment system provided to achieve prescribed standards of effluent		Adequate																
Status of installation of Online Monitoring system for Effluent		Online sensors provided by the Main Plant.																
Number of violations observed during past five years and action taken		NIL																
Air Pollution Emission sources and Control Devices	:	<ul style="list-style-type: none"> <li>i. 001 Misc Fluoride plant and SFL Common scrubber with stack - 0.20 - 24</li> <li>ii. 002 Spray dryer Cyclone separator and Scrubber - 0.675 - 26</li> <li>iii. 003 Spray dryer burner Stack - 0.450 - 26</li> <li>iv. 004 Fluidised Bed dryer Bag filter with cyclone separator and stack - 0.20 - 13</li> <li>v. 005 BF3 Etherate /Complex Scrubber with stack - 0.20 - 9</li> <li>vi. 006 Poly Aluminium Chloride Scrubber with stack - 0.20 - 32</li> </ul>																
Status of installation of Online Monitoring system for Source emissions	:	<table border="1"> <thead> <tr> <th>Sl No</th> <th>Parameter in SAM-WI</th> <th>Stack / Ambient / Effluent</th> <th>Name of the Stack attached to / Location</th> </tr> </thead> <tbody> <tr> <td>1.</td> <td>HF- SFL</td> <td>STACK</td> <td>Connected to SFL</td> </tr> <tr> <td>2.</td> <td>FLOW</td> <td>EFFLUENT</td> <td>ETP Outlet</td> </tr> <tr> <td>3.</td> <td>PH- ETP OUTLET</td> <td>EFFLUENT</td> <td>ETP Outlet</td> </tr> </tbody> </table>	Sl No	Parameter in SAM-WI	Stack / Ambient / Effluent	Name of the Stack attached to / Location	1.	HF- SFL	STACK	Connected to SFL	2.	FLOW	EFFLUENT	ETP Outlet	3.	PH- ETP OUTLET	EFFLUENT	ETP Outlet
Sl No	Parameter in SAM-WI	Stack / Ambient / Effluent	Name of the Stack attached to / Location															
1.	HF- SFL	STACK	Connected to SFL															
2.	FLOW	EFFLUENT	ETP Outlet															
3.	PH- ETP OUTLET	EFFLUENT	ETP Outlet															

Compliance of Consent order Conditions of M/s. **TANFAC INDUSTRIES LIMITED (CRYOLITE PLANT)**  
Water Act

Sl. No	Conditions	Compliance
1.	The unit shall calibrate the analyser to analyse the water quality and to furnish the correct value at all the times	Assured to comply during its operation
2.	The unit shall operate and maintain the common sewage treatment plant effectively and continuously so as to achieve the standards prescribed by the Board	Assured to comply during its operation
3.	The unit shall operate and maintain the common treatment plant effectively and continuously so as to achieve the marine disposal standards prescribed by the Board	Assured to comply during its operation
4.	The unit shall continue to dispose the hazardous waste 35.3 category to cement industries for co processing without accumulation.	Complied
5.	The unit shall not produce any other product in SOC-MPP	Assured to comply

	plant divisions of the unit other than the consented products except Poly Aluminium Chloride.	
6.	The unit shall dispose the treated effluent into marine coastal areas through M/s. CUSECS Ltd after achieving the marine disposal standards prescribed by the Board.	Assured to comply
7.	The unit shall dispose the hazardous waste as per the authorization issued to the unit under HW (MH&TM) Rules, 2008 and shall comply with the Hazardous and other wastes (M&TM) Rules, 2016.	Assured to comply
8.	The unit shall not use 'use and throwaway plastics' such as plastic sheets used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups, plastic tumbler, water pouches and packets, plastic straw, plastic carry bag and plastic flags irrespective of thickness, within the industry premises. Instead it shall encourage use of eco friendly alternative such as banana leaf, arecanut palm plate, stainless steel, glass, porcelain plates/cups, cloth bag, Jute bag etc.,	Assured to comply
9.	In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the unit as per law.	Assured to comply

#### Air Act

Sl. No	Conditions	Compliance
1.	The unit shall operate and maintain the Air Pollution Control measures efficiently and continuously so that the quality of emission shall satisfy the standards prescribed by the Board.	Assured to comply
2.	The unit shall maintain Online Sensors and the CARE AIR connectivity without fail and data shall be imported to CARE AIR Centre, Tamilnadu Pollution Control Board without any interruption.	Assured to comply
3.	The unit shall not use 'use and throwaway plastics' such as plastic sheets used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups, plastic tumbler, water pouches and packets, plastic straw, plastic carry bag and plastic flags irrespective of thickness, within the industry premises. Instead it shall encourage use of eco friendly alternative such as banana leaf, arecanut palm plate, stainless steel, glass, porcelain plates/cups, cloth bag, Jute bag etc.,	Assured to comply
4.	In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the unit as per law.	Assured to comply

**18. M/s. Loyal Super Fabrics (Unit of Loyal Textile Mills Ltd.)**

Name and Address of the unit	M/s. LOYAL SUPER FABRICS (Unit of Loyal Textiles Mills Ltd.) C-7-1,Sipcot Complex Kudikadu, Cuddalore-607005		
Product with Quantity	Processed Fabrics (Bleached / Mercerized / Dyed - Woven and Knitted Fabrics - 579 Ton/Month		
Trade Effluent quantity	618 KLD		
Effluent Treatment Plant Details	<b>Name of the Treatment Unit</b>	<b>No. of Units</b>	<b>Dimensions in metres</b>
	Effluent collection tank-I	1	10.6 X 10.3 X 2.2 (CD) &1(SD)
	Effluent collection tank -II	1	4.30dia X 6.2 LD
	Equalisation tank	1	10.8 X 4.93 X 2.5CD & 1.35SD
	Cascade Reactor Module	1	0.3 x 0.28 x 1.85m Each
	Air Diffusion Tank-I	1	Dia 7.6 x 7.3
	Air Diffusion Tank-II	1	Dia 7.6 x 7.3
	Primary Clarifier	1	Dia 7.6 x 7.3
	Bio Tower Feed Tank	1	9.53 X 4.4 X 2.2
	Bio Tower A1( Stage-I)	1	4.7 X 4.7 X 7.6MD
	Bio Tower B1(Stage-I)	1	4.67 X 4.75 X 5.3MD
	Bio Tower A2( Stage-II)	1	3.5 X 3.57 X 7.6MD
	Bio Tower B2( Stage-II)	1	3.42 X 3.48 X 5.3MD
	Biological Aeration Tank	1	9.23 x 6.87Dia
	Secondary Clarifier - I	1	7.9dia X 3LD
	Secondary Clarifier - II	1	5.5 X 3.70
	Treated Effluent Tank	1	5.0 X 3.44 X 2(TD)
	Dual Media Filter	1	2.5 X 1.5HOS
	Sludge Thickener feed Tank	1	1.5 X 1.1
	Sludge Thickener Tank	1	4.5 X 4.5 X 2.5
Filter Press	2		

	Sludge Drying Bed	1	4.75 X 4.82 X 0.65
	Hopper Tank (Settling Tank)	1	4.07 X 4.07 X 4.5LD
	Ro Pressure Sand Filter	1	2.5 X 1.5HOS
	RO Membrane	48	
Trade Effluent Disposal	Discharged to Marine waters through CUSECS		
	The Treated Trade Effluents are collected in Sumps provided by M/s. CUSECS Ltd and then disposed to Marine waters through pipelines installed by M/s. CUSECS.		
Air Pollution Control Measures	Boiler	Dust Collection System & Stack	30 m Ht
	Report of Analysis of treated effluent reveals that the parameters are within the standards prescribed by the Board. The Ambient Air Quality Monitoring is done twice in a year and the Report of Analysis Reveals that the parameters are within the standards prescribed by the Board.		

Compliance of consent order conditions **M/s. LOYAL SUPER FABRICS (UNIT OF LOYAL TEXTILE MILLS LTD.,)**  
Water Act

Sl No	Conditions	Compliance
1	The unit shall operate and maintain the Effluent Treatment Plant efficiently and continuously so that the treated Effluent satisfies the marine disposal standards prescribed by the Board.	Complied
2	The unit shall properly manage the sludge generated from the Effluent Treatment Plant.	Assured to comply
3	The unit shall ensure that no leakage or overflow of treated/untreated effluent to the nearby canal or drains at any point of time.	Assured to Comply
4	The unit shall operate and maintain the sensors for online monitoring of BOD, COD and TSS, in the Treated Effluent outlet to CUSECS pipeline.	Complied
5	The unit shall dispose the hazardous wastes to cement industry for Co-processing or to any TNPCB authorized recyclers as per the Authorization obtained by the unit.	Complied

Air Act

Sl No	Conditions	Compliance
1	The unit shall operate the Air Pollution control measures attached to Ammonia Curing Machine, Boilers & D.G Sets efficiently and continuously so as to achieve the Ambient Air Quality /Emission standards prescribed by the Board.	Complied
2	The unit shall adhere to the AAQ/ANL standards prescribed by the Board.	Complied.

**19. M/s. VIVIN TEX, SIPCOT, Cuddalore.**

Name and Address of the unit	M/s. Vivin Tex, Plot No. A-8/C, Sipcot Industrial Complex, Phase 1, Cuddalore - 637 005			
Product with Quantity	Bleached Cotton Hosiery Fabric - 33.600 Tons / Month Dyed Cotton Hosiery Fabric - 16.800 Tons / Month Bleached Cotton Yarn - 54.068 Tons / Month Dyed Cotton Yarn - 64.848 Tons / Month			
Trade Effluent quantity	186.8 KLD			
Effluent Treatment Plant Details	<b>Name of the Treatment Unit</b>	<b>No. of Units</b>	<b>Dimensions in metres</b>	
	Screen Chamber	1	3X1.0X0.6	
	Collection Tank	1	6X4.0X(2.0+1.5)	
	Equalization Tank	1	12.5X11.0X(4.2+0.5)	
	Anaerobic Digester	1	12.0X9.0X(6.0+0.75)	
	Aeration Tank	1	12.5X14.5X(4.2+0.5)	
	Clarifier – Biological Treatment	1	7.5diaX(4.0+0.3)	
	Clarifier – Chemical Treatment	1	7.0diaX(4.0+0.3)	
	Treated effluent Tank 1	1	4.25X3.2X(3.5+1.0)	
	Treated effluent 2	1	4.25X3.2X(4.0+0.5)	
	Treated Effluent Tank 3	1	8.8X8.75X(4.0+0.5)	
	Sludge Holding Tank	1	5.0X3.0X(2.5+0.5)	
	Guard Pond	1	17.5X5.5X(4.0+0.5)	
	Filter Press	1	20 No.s – 800mmX800mm	
	Sludge Drying Bed	4	3.09X4.645X1.0	
	Chemical Mixing and Flocculator	1	2 KL Capacity	
Pressure Sand Filter	1	1.2diaX2.0		
Activated Carbon Filter	1	1.2diaX3.0		
Trade Effluent Disposal	Discharged to marine waters through CUSECS			
	The Treated Trade Effluents are collected in Sumps provided by M/s. CUSECS Ltd and then disposed to Marine waters through pipelines installed by M/s. CUSECS.			
Air Pollution Control Measures	Boiler	Cyclone Dust Collector & Stack	20 m Ht	

	Report of Analysis of treated effluent reveals that the parameters are within the standards prescribed by the Board. The Ambient Air Quality Monitoring is done twice in a year and the Report of Analysis Reveals that the parameters are within the standards prescribed by the Board.
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Compliance of Consent order Conditions of **VIVIN TEX**, Kudikadu Village, Cuddalore Taluk and Cuddalore District.

Water Act

Sl. No	Conditions	Compliance
1.	The unit shall furnish the Sewage Treatment Plant (STP) proposal and install the same for treating sewage of 17.6 KLD and operate efficiently so that the treated sewage shall meet the standards prescribed by the Board, as assured in unit letter dated 11.03.2021.	Complied
2.	The unit shall operate and maintain the Effluent Treatment Plant (ETP) for the trade effluent quantity of 482.83 KLD arising from expansion activity so that the treated effluent shall satisfy the marine disposal standards prescribed by the Board.	Complied
3.	The unit shall provide the Hypochlorite treatment system, instead of Gas Chlorination system in the ETP treatment process, as assured in unit letter dated 11.03.2021.	Complied
4.	The unit shall operate and maintain the online pH sensor provided in the treated effluent disposal line and connection of the same with Water Quality Watch Centre, TNPCB, Chennai without any interruption.	Complied
5.	The unit shall maintain log book for the operation and maintenance of ETP properly.	Complied
6.	The unit shall maintain surveillance camera with CCTV provided in and around ETP area and shall connect it to the internet and shall have past recording for a minimum period of three months so as to verify the operation or any events happened in the ETP area.	Complied
7.	The unit shall apply and obtain Hazardous Waste Authorization under Hazardous and other Wastes (Management and Handling) Rules, 2016 for its expansion activity.	Assured to comply
8.	The unit shall dispose the accumulated hazardous waste to TSDF, Gummidipoondi /Co-processing to Cement industry without accumulating more than 90 days.	Assured to comply
9.	The unit shall maintain the hazardous waste display board in front of the factory clearly updating the same regularly as mandated by the Hon'ble Supreme Court Order dated. 14.10.2003.	Complied
10.	The unit should ensure that its piping is over ground as far as possible.	Complied

11.	The sludge accumulated in the ETP components should be cleaned mechanically only and manual cleaning of the sludge should not be carried out under any circumstances.	Assured to comply
12.	The unit shall ensure that the storm water arising from the plant area during rainy season shall not contain any chemical contaminants and shall satisfy the inland surface water standards before disposal.	Assured to comply

#### Air Act

Sl. No	Conditions	Compliance
1.	The unit shall operate and maintain APC measure such as Cyclone dust collector with common stack of height of 30 m attached to Wood Fired Boiler 4 TPH- 1 No., Cyclone dust collector with common stack of height of 30 m attached to Wood Fired Boiler 3 TPH- 1 No, Acoustic enclosures with stack of height 6 m attached to DG Set - 500 KVA – 1 No, Enclosed room with stack of height 30 m attached to DG Set - 1500 KVA – 1 No efficiently so as to adhere to Ambient Air Quality/Ambient Noise Level standards prescribed by the board from time to time.	Complied.
2.	The unit shall adhere to the Ambient Noise Level standards prescribed by the Board.	Complied
3.	The unit shall maintain the CARE AIR CENTRE connectivity of online SPM sensor provided in the boiler stack and upload the data to CARE AIR CENTRE at Chennai without any interruption.	Complied
4.	The unit shall dispose the boiler ash then and there for beneficial purpose such as manure etc.	Assured to comply

**20. M/s. R.K. Exports (Karur) Private Limited**

Name and Address of the unit	M/s. R. K. Exports (Karur) Private Limited, Plot No-A-8/B, SIPCOT Industrial Complex, Kudikadu, Cuddalore-607005.		
Product with Quantity	Bleaching, Dyeing & Printing of Cotton Woven Fabric – 166.4 T/M Bleaching & Dyeing of Cotton Yarn – 39.0 T/M		
Trade Effluent quantity	366 KLD		
Effluent Treatment Plant Details	<b>Name of the Treatment Unit</b>	<b>No. of Units</b>	<b>Dimensions in metres</b>
	Collection Tank-1	01	3.9 x 12 x 0.85
	Collection Tank-2	01	8.15 x 12.2 x 4.5
	Collection Tank-3	01	12.2 x 7.8 x 4.5
	Aeration Tank 1	01	16.3 x 10 x 4
	Aeration Tank 2	01	16.3 x 10 x 4
	Secondary clarifier	01	7.0 dia x 2.5
	Secondary Treated Water Tank	01	4.7 x 6.7 x 3.4
	Flash mixture Tank	01	1.2 x 1.2 x 1.25
	Flash mixture Tank	01	1.6 x 1.6 x 1.25
	Tertiary Clarifier	01	7.0 dia x 2.5
	Tertiary Treated Water Tank	01	4.7 x 5.3 x 3.95
	Guard water Tank	02	8 x 7.65 x 4.25
	Sludge Thickner Tank	01	5.5 dia x 2.5
	Multi Grade Filter	01	1.4 dia x 2.3

	Activated Carbon Filter	01	1.4 dia x 2.3
	Filter Press	01	35 plates – 0.8 x 0.8
	Sludge Drying Beds	10	5.5 x 5.5 x 1.4
Trade Effluent Disposal	Discharged to marine waters through CUSECS		
	The Treated Trade Effluents are collected in Sumps provided by M/s. CUSECS Ltd and then disposed to Marine waters through pipelines installed by M/s. CUSECS.		
Air Pollution Control Measures	Boiler	Cyclonic Dust Collector with stack	30 m Ht
	Report of Analysis of treated effluent reveals that the parameters are within the standards prescribed by the Board. The Ambient Air Quality Monitoring is done twice in a year and the Report of Analysis Reveals that the parameters are within the standards prescribed by the Board.		

**Compliance of M/s. R.K.EXPORTS (KARUR) PVT LTD,**

**Water Act**

Sl. No	Conditions	Compliance
1.	The unit shall operate and maintain the Sewage Treatment Plant continuously and efficiently so that the treated sewage shall satisfy the standards prescribed by the Board.	Complied.
2.	The unit shall operate and maintain Effluent Treatment Plant efficiently and continuously so that the treated effluent shall satisfy the marine disposal standards prescribed by the Board.	Complied.
3.	The unit shall ensure that the treated trade effluent shall be free from colour before let into CUSECS by achieving marine disposal standards prescribed by the Board.	Complied
4.	The unit shall analyze the treated effluent through external lab approved by the Ministry of Environment & Forest and furnish the report of analysis to the Board once in three months without fail.	Complied
5.	The unit shall operate online sensor for pH in the treated effluent disposal line and connect with Water Quality Watch Centre, Tamilnadu Pollution Control Board, Chennai and furnish report to the DEE, Cuddalore.	Complied
6.	The unit shall maintain the Water Quality Watch Centre connectivity of Electro Magnetic Flow Meters provided both at	Complied

	the inlet and outlet of ETP and upload the data to Water Quality Watch Centre, Tamilnadu Pollution Control Board, Chennai without any interruption.	
7.	The unit shall dispose the ash generated from the Boiler and Thermic Fluid Heater then and there without accumulation of the same.	Assured to comply
8.	The unit shall maintain log book for the operation and maintenance of ETP system properly.	Complied
9.	The unit shall develop green belt to an extent of 33 % of the total area within the premises.	Complied
10.	The unit shall maintain the surveillance camera with CCTV provided in and around the ETPs plant area and shall connect to internet shall have past recording for a minimum period of three months so as to verify the operation or any events happened in the ETPs plant area.	Complied

#### Air Act

Sl. No	Conditions	Compliance
1.	The unit shall operate and maintain the Air Pollution Control measures efficiently and continuously so that the emission shall satisfy the Ambient Air Quality / Emission standards prescribed by the Board.	Complied.
2.	The unit shall adhere to the Ambient Noise Level standards prescribed by the Board.	Complied
3.	The unit shall maintain the CARE AIR Centre connectivity of online SPM sensor provided in the Boiler Stack and upload the data to CARE AIR Centre, Tamilnadu Pollution Control Board, Chennai without any interruption.	Complied
4.	The unit shall conduct Ambient Air Quality/Stack/Ambient Noise Level Survey through external lab approved by the Ministry of Environment & Forest and furnish the report of analysis to the Board once in six months without fail.	Complied

## 21. M/s. Topknit Processing Mill Private Limited

Address of Industry	:	M/s. Topknit Processing Mill Private Limited
Contact person & Telephone No/ Fax No/Mobile No.	:	Thiru PRABHU A.G +919944663852
Establishment Date	:	18.09.2012
Commissioned Date	:	14.08.2015
Category & Scale of Operation	:	Red category, Large Scale
Consent Status	:	Valid upto 31.03.2019
Water Source and consumption If they have own bore well, whether NOC obtained by CGWA or any other department	:	SIPCOT - 500 KLD  Water Consumption during inspection on 01.08.2019
Installed Capacity Consented capacity Operating capacity at the time of inspection	:	Fabric Dyeing - 390 Tons/Month Fabric Dyeing - 390 Tons/Month Fabric Dyeing - NIL
Raw materials	:	1. Grey fabric in hosiery/woven 2. Dyes 3. Sodium hydroxide 4. Hydrogen peroxide 5. Sodium sulphate 6. Sodium carbonate 7. Acetic acid 8. Wetting agent
Products	:	Fabric Dyeing - 390 Tons/Month
Process	:	The manufacturing process includes bleaching, Dyeing, Washing, Drying of grey fabric & Packing as dyed fabric for delivery.
Waste water sources	:	Process (Dyeing/Bleaching Machine), Boiler Blow Down
Quantity of Waste Water generated as per consent issued		450.5 KLD
Actual generation of effluent		NIL
Effluent treatment plant components	:	Bar screen, Treated water circular tank, Aeration circular tank, Equalization circular tank, Filter feed circular tank Reactivated clarifer circular tank, Sludge holding circular tank, Rc feed circular tank, Secondary clarifier circular tank, Sipcot water circular tank 1, Sipcot water circular tank 2, Collection tank
The effluent was treated through Individual effluent treatment plant comprising of Collection tank Bar screen, Rc Feed circular tank, Secondary clarifier circular tank, Treated water circular tank, Equalization circular tank, filter feed circular tank, Aeration circular tank, Reactivated clarifer circular tank, sludge holding circular tank, Sipcot water circular tank, Sipcot water circular tank.		

Mode of treated effluent discharge as per consent	:	Disposal through M/s. CUSECS
Treated effluent quality prescribed in consent		Marine Discharge Standards
Adequacy of treatment system provided to achieve prescribed standards of effluent		Adequate
Status of installation of Online Monitoring system for Effluent		pH, Flow
Number of violations observed during past five years and action taken		NIL
Air Pollution Emission sources and Control Devices	:	i. Boiler 5 TPH - 1 No. Mechanical Dust Collector with Stack - 0.8 - 30 ii. DG Set 350 KVA – 1 No. Acoustic enclosures with stack -0.2032 - 7 iii. DG Set 250 KVA – 1 No. Acoustic enclosures with stack -0.2032 - 7
Status of installation of Online Monitoring system for Source emissions		1.STACK SENSOR SPM
Number of violations observed during past five years and action taken		NIL
Adequacy of air pollution control devices provided to achieve prescribed standards of Source Emissions		Adequate

Compliance of Consent order Conditions of **M/s. Topknit Processing Mill Private Limited**, SIPCOT , Cuddalore District.

#### Water Act

Sl. No	Conditions	Compliance
1.	The unit shall operate and maintain Effluent Treatment Plant efficiently and continuously so that the treated effluent shall satisfy the marine disposal standards prescribed by the Board.	Complied.
2.	The unit shall ensure that the treated trade effluent shall be free from color before let into CUSECS by achieving marine disposal standards prescribed by the Board.	Assured to Comply
3.	The unit shall maintain log books for the ETP operations and effluent parameters before letting into CUSECS.	Complied
4.	The unit shall analyze the treated effluent through external lab approved by the Ministry of Environment & Forest and furnish the report of analysis to the Board once in three months without fail.	Complied
5.	The unit shall maintain online sensor provided for pH in the treated effluent disposal line and connect with Water Quality	Assured to Comply

	Watch Centre, Tamilnadu Pollution Control Board, Chennai within a month.	
6.	The unit shall maintain the connectivity of Electro Magnetic Flow Meters provided both at the inlet and outlet of ETP and connect the same to Water Quality Watch Centre, Tamilnadu Pollution Control Board, Chennai without any interruption.	Complied
7.	The unit shall provide garland drain within the factory premises to collect rain water and also to provide rain water collection sump of adequate capacity to prevent chemically mixed rain water flow from the industry premises during rainy season.	Assured to Comply
8.	The unit shall provide online sensors for pH and TDS in the storm water drains so as ensure the contamination of rain water during the time of rainy season.	Complied
9.	The unit shall develop green belt of thick canopy within the premises.	Complied
10.	The unit shall dispose the hazardous waste then and there without any accumulation as per Hazardous and other Wastes (Management and Transboundary Movement) Rules, 2016 obtained by the unit. Transboundary Movement) Rules 2016, for its expansion activity.	Assured to Comply
11.	The unit shall ensure that, "In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the units as per law"	Complied
12.	The unit shall not use "use and throwaway plastics" such plastic sheets used for food wrapping, spreading on dining table etc', plastic plates, plastic coated tea cups, -plastic tumbler, water pouches and packets, plastic straw, plastic carry bag and plastic flags irrespective-of thickness, within the industry premises. Instead the unit shall encourage use of eco-friendly alternative such as banana, leaf, areca nut palm plate, stainless steel, glass, porcelain plates/cups, cloth bag, jute bag, etc.	Complied

#### Air Act

Sl. No	Conditions	Compliance
1.	The unit shall operate and maintain the Air Pollution Control measures efficiently and continuously so that the emission shall satisfy the Ambient Air Quality / Emission standards prescribed by the Board.	Complied.
2.	The unit shall adhere to the Ambient Noise Level standards prescribed by the Board.	Complied.
3.	The unit shall maintain the connectivity of online SPM sensor provided in the Boiler Stack and upload the data to CARE AIR Centre, Tamilnadu Pollution Control Board, Chennai without any interruption.	Complied.

4.	The unit shall conduct AAQ/Stack survey through External Lab approved by the MoEF and shall furnish the report to the Board once in Six months.	Complied.
5.	The unit shall furnish exact green belt area marked in the unit premises and develop the same accordingly. After green belt development, the unit shall furnish the photographs along with longitude and latitude coordinates to the Board.	Complied.

## 22. Arkema Peroxides India Pvt. Ltd.

Name and Address of the unit	M/s. Arkema Peroxides India Pvt Ltd Semmankuppam Cuddalore 607005.		
Product with Quantity	1. Speciality Chemicals as Organic Peroxides – 400 T/Month 2. Cross linking agent formulation – 16 Tonnes / Month 3. Lauryl Chloride -50 Tonnes / Month By Products 1. Phosphoric acid – 0.83 Tons/ Month 2. Benzoic acid – 60 T/ Annum 3. Sulphuric acid – 80 Tons/ Month		
Trade Effluent quantity	80 KLD		
Effluent Treatment Plant Details	<b>Name of the Treatment Unit</b>	<b>No. of Units</b>	<b>Dimensions in metres</b>
	Neutralization Tank	1	2.7*2.25*2 (In Mtrs)
	Equalization Tank	1	250 Cu.M
	Anaerobic Tank	1	22.5*7*4.5 (In Mtrs)
	Diffused Aeration tank	1	23.75*5*3 (In Mtrs)
	Clarifier	1	5.7 diaX4.62 (In Mtr)
	Treated Effluent Collection tank	1	2 dia X 2 (In Mtrs)
	Sludge drying Bed	5	7.7X4.1X1.5
	Intermediate Anaerobic tank	1	15 X 10 X 3.5
	Collection sump	2	2.75*2.75*2 (In Mtr)
	Pressure Sand Filter	1	1.2 diaX 3 (In Mtrs)
	Carbon Filter	1	1.2 dia X 3 (In Mtrs)
	Holding tank ( Aerobic & Anaerobic)	2	17X7.5X2(In Mtrs)
	Dump pit ( Sulphate treatment tank)	1	250 Cu.m
Trade Effluent Disposal	Discharged to marine waters through CUSECS		
	The Treated Trade Effluents are collected in Sumps provided by M/s. CUSECS Ltd and then disposed to Marine waters through pipelines installed by M/s. CUSECS.		
Air Pollution Control	Diesel Generator 725 KV 12 m Stack		

Measures	Diesel Generator 500 KV12 m Stack
	Report of Analysis of treated effluent reveals that the parameters are within the standards prescribed by the Board. The Ambient Air Quality Monitoring is done twice in a year and the Report of Analysis Reveals that the parameters are within the standards prescribed by the Board.

Compliance of consent order condition of **M/s. ARKEMA PEROXIDES INDIA PRIVATE LIMITED.**

Water Act

Sl. No	Condition	Compliance
1.	The unit shall continue to operate and maintain Effluent treatment plant efficiently and continuously so that the treated trade effluent satisfies the marine disposal standards prescribed by the Board.	Complied.
2.	The unit shall not deviate consented quantity, shall not improve quality of existing product, shall not install new machineries or change the efficiency of the existing machineries and shall not increase the shift etc, at any point of time without obtaining consent of the Board.	Complied
3.	The unit shall restrict the production of all the products to the consented capacity, till obtaining the Fresh Consent to Operate to the capacity of Annual production.	Complied
4.	The unit shall properly maintain the CCTV camera in the ETP area and the bank of river Uppanar for monitoring and connectivity shall be maintained with Water quality watch, TNPCB, Guindy for monitoring.	Complied.
5.	The unit shall maintain the connectivity of online monitors for treated Trade Effluent and Air Emission with Water Quality Watch Centre, Chennai and Care Air Centre of TNPCB, Chennai and provide proper data at all times.	Complied.
6.	The unit shall operate and maintain odour control arrangements (wet scrubber) in collection sump of untreated/treated effluent.	Complied.
7.	The unit shall comply with the conditions stipulated in the Authorisation under Hazardous and other wastes (M&TM) Rules 2016.	Complied.
8.	In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the unit as per law.	Assured to comply
9.	The Unit shall not use 'use and throwaway plastic' such as plastic sheets used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups, plastic tumbler, water pouches and packets, plastic straw, plastic carry bag and plastic flags irrespective of thickness, within	Assured to comply

	the industry premises. Instead unit shall encourage use of eco friendly alternative such as banana leaf, arecanut palm plate, stainless steel, glass, porcelain plates / cups, cloth bag, jute bag etc.	
10.	The unit shall submit Environmental Statement.	Complied.
11.	The unit shall comply with E-Waste Management Rules 2016. E-Waste as listed in schedule –I, generated by them shall be channelized through collection centre or dealer of authorized producer or dismantler or recycler or through the designated take back service provider of the producer to authorized dismantler or recycler. The unit shall maintain records of e-waste generated by them in Form-2 and make such records available for scrutiny by the TNPCB. The unit shall file annual returns in Form-3, to the TNPCB on or before the 30th day of June following the financial year.	Assured to comply
12.	The unit shall furnish the exact green belt area earmarked / developed as per the norms in the unit's premises showing photographs along with longitude and latitude co-ordinates.	Complied.

#### Air Act

Sl. No	Conditions	Compliance
1.	The unit shall operate and maintain the APC measures efficiently and continuously so as to achieve the AAQ/Emission standards prescribed by the Board.	Complied.
2.	The unit shall adhere to the ANL standards prescribed by the Board.	Complied.
3.	The unit shall conduct AAQ/SM/ANL through TNPCB lab periodically and furnish ROA to the Board.	Complied.
4.	The unit shall maintain the connectivity of online HCL sensor with Care Air Centre of TNPCB, Chennai and furnish proper data at all times.	Assured to comply
5.	The unit shall maintain the ambient TVOC analyzers in the premises and provide data to CAC, TNPCB.	Assured to comply

**23. M/s Pioneer Jellice India Pvt. Ltd.**

Name and Address of the unit	M/s. PIONEER JELLICE INIDA P. LIMITED Semmankuppam Cuddalore 607005.		
Product with Quantity	Gelatine : 300 MT/ Month Ossein : 800 MT/Month Di calcium Phosphate : 1,700 MT/Month		
Trade Effluent quantity	2500 KLD		
Effluent Treatment Plant Details	<b>Name of the Treatment Unit</b>	<b>No. of Units</b>	<b>Dimensions in metres</b>
	Bone washing effluent Collection Tank	1	5 x 5 x 1.6
	Bone Washing Pre-treatment Clarifier	1	7.5 dia x 2
	Bone Washing pH Correction Sump	2	5 x 6 x 2
	Bone Washing Flash Mixer	2	2 dia x 1.6
	Bone Washing Primary Clarifier	1	9 dia x 4
	Bone Washing Filter Press	3	0.8 x 0.8 x 80 Plates
	Ossein Plant, Collection Tank for Pre-treatment	4	5 x 7 x 2 each
	Gelatine Plant effluent Collection Pit	1	2 x 2 x 1.5
	Gelatine effluent Storage Tank for pretreatment	2	7.5 x 7.5 x 1.8
	Ossein & Gelatine Effluent Collection Tank	1	30 x 15 x 2.4
	Ossein Plant Primary Clarifier	3	7.0 dia x 3
	Ossein Plant Filter Press	1	0.8 x 0.8 x 80 Plates
	Screw Press for Gelatine Waste	1	0.83 m $\phi$ x 5.03 m
	Equalisation Tank	1	20 x 10 x 6
	Buffer Tank	1	10 x 10 x 6
UASBR	1	14.0 x 20.0 x 7	

	Biodigester	1	18m $\phi$ x 13m ht
	Gas Holder for UASBR	1	51 KL
	De-Nitrification Tanks	3	10 x 10 x 6
	Aeration Tank	2	30 x 10 x 6 each
	Secondary Clarifier	1	18 dia x 3
	PSF 105 KLH	2	3 m $\phi$
	UF Feed Tank	1	10 x 6.6 x 6.3
	RO Feed Tank	1	10 x 6.6 x 6.3
	RO Permeate Collection Tank	2	10 x 6.6 x 6.3
	Sludge drying beds	2	7 x 7 x 1.5
	Decanter	2	10 KL/ Hr.
	UF 45 KLH	1	80 Membranes 8" dia x 40" each
	UF 65 KLH	2	Hollow Fibre Membranes
	RO 45 KLH	1	8" dia x 40" Membranes
	RO 60 KLH	2	8" dia x 40" cross flow Membranes
	DCP Plant effluent Collection Tank	1	5 x 5.5 x 2
	DCP effluent pre-treatment Clarifier	1	9.5 m $\phi$ x 2.5 m
	DCP Pre-treated effluent Collection Tank	2	7.5 x 7.5 x 1.8
	DCP Aeration Tanks	2	20 x 10 x 6 each
	DCP Secondary Clarifier	1	12 m $\phi$ x 3 m
	Screw Blowers	2	2250 Nm <sup>3</sup> / hr. each
	Nossels for Biospray	34	--
	Biospray Pump	2 Nos.	4 Ltrs / Hr., 1 Ltr. / Hr.
	Odour Chemical make up Tank - SS	1 No.	500 Ltrs.
	Odour Chemical make up Tank - FRP	1 No.	500 Ltrs.
Trade Effluent Disposal	Discharged to marine waters through CUSECS.		
	The Treated Trade Effluents are collected in Sumps provided by M/s. CUSECS Ltd and then disposed to Marine waters through pipelines installed by M/s. CUSECS.		

Air Pollution Control Measures	Di-calcium Phosphate Drier	Bag Filter with Stack	14 m ht
	Boiler 15T/hr. (Coal Fired)	MDC, Wet Bottom Scrubber with Chimney provided	30
	Power Generator 1238 Kva	Stack	30
Report of Analysis of treated effluent reveals that the parameters are within the standards prescribed by the Board. The Ambient Air Quality Monitoring is done twice in a year and the Report of Analysis Reveals that the parameters are within the standards prescribed by the Board.			

Compliance of Consent order Conditions **M/s. PIONEER JELLICE INIDA P. LIMITED**

Water Act

S. No.	Conditions	Compliance
1.	The unit shall operate and maintain the Effluent Treatment Plant with Up Flow Anaerobic Sludge Blanket Reactor followed by Aeration, De-Nitrification, Secondary Clarification, UF and RO efficiently and continuously so as to satisfy the standards prescribed by the Board at all times.	Complied.
2.	The unit shall utilize the RO permeate in the process and discharge the RO rejects into marine coastal areas through CUSECS after satisfying the marine disposal standards prescribed by the Board.	Complied.
3.	The unit shall ensure that no leakage of effluent from pipeline, pumps etc., occurs during the operation of the Effluent Treatment Plant.	Complied.
4.	The unit shall draw ground water with valid approval from the concerned authorities.	Complied.
5.	In case of withdrawal of water from River Uppanar, the unit shall obtain and furnish permission from the concerned Authorities.	Complied.
6.	The unit shall monitor the pH of storm water drain regularly.	Complied.
7.	The unit shall have continuous record on the quantity of water drawn from SIPCOT and Bore Well.	Complied.
8.	The unit shall ensure that the storage of Effluent Treatment Plant sludge (bone sludge) and sinews separately in dedicated impervious and covered storage shed.  No ETP sludge (bone sludge) and sinews shall be stored in open place at any cost.	Complied.
9.	The unit shall ensure that the bone sludge and sinews are digested in the Bio-digester and the digested sludge is	Complied.

	dewatered and stored in dedicated impervious and covered storage shed and disposed for utilization as manure.	
10	The unit shall maintain and operate the Bio-digester efficiently for the solid waste management and Odour control.	Complied.
11	The unit shall ensure that all provisions of Hazardous and other wastes (M & TM) Rules, 2016 as amended are complied with while handling hazardous waste.	Complied.
12	The unit shall continue to develop greenbelt in and around the unit premises so as to have thick greenbelt cover around its periphery.	Complied.
13	In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the unit as per law.	Assured to comply.

Air Act

<b>S. No.</b>	<b>Conditions</b>	<b>Compliance</b>
1.	The unit shall operate and maintain the Air Pollution Control measures efficiently and continuously so that the emission shall satisfy the standards prescribed by the Board.	Complied.
2.	The unit shall adhere to the Ambient Noise Level Standards prescribed by the Board.	Complied.
3.	The unit shall ensure to store all the raw material and products inside the closed shed to avoid dust emission and odour nuisances.	Complied.
4.	The unit shall conduct Odour study within 6 months on commissioning and stabilisation of the Bio Digester.	Complied.
5.	The unit shall continue to develop greenbelt in and around the unit premises so as to have thick greenbelt cover around its periphery.	Complied.
6.	In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdraw without any notice and further action will be initiated against the unit as per law.	Complied.

## 24. M/s. TATA CHEMICALS LIMITED

Name and Address of the unit	M/S. TATA CHEMICALS LTD PLOT NO10,13&14 SIPCOT INDUSTRIAL COMPLEX PHASE 11, SEMMAKUPPAM VILLAGE CUDDALORE-607005		
Product with Quantity	PRECIPITATED SILICA - 900 TONS/MONTH		
Trade Effluent quantity	960 KLD		
Effluent Treatment Plant Details	<b>Name of the Treatment Unit</b>	<b>No. of Units</b>	<b>Dimensions in metres</b>
	Effluent receiver Tank	1	12.9*6.1*4.92 M
	Clarifier	1	5 M dia/4.5 M height
	Flocculent Dosing tank	1	3Kl tank cap /200 L to 4500 L Dosing cap
	Caustic dosing tank	1	1 Kl tank cap /0 L to 20 L/Hr Dosing cap
	Settling tank 1	1	12.9*6.1*4.92 M
	Settling tank 2	1	13.7*7.90*6.10 M
	Treated water storage tank	1	13.7*7.90*6.10 M
Trade Effluent Disposal	Discharged to marine waters through CUSECS		
	The Treated Trade Effluents are collected in Sumps provided by M/s. CUSECS Ltd and then disposed to Marine waters through pipelines installed by M/s. CUSECS.		
Air Pollution Control Measures	Boiler 6TPH	Cyclone dust collector & Stack	30 m Ht
	Coal fire hot air generator	Modulating dust collector, Cyclone separator with stack	35
	Report of Analysis of treated effluent reveals that the parameters are within the standards prescribed by the Board. The Ambient Air Quality Monitoring is done twice in a year and the Report of Analysis Reveals that the parameters are within the standards prescribed by the Board.		

## Compliance of Consent order conditions of M/s. Tata Chemicals

### Water Act

Sl No	Conditions	Compliance
1.	The unit shall restrict its activity to Plot No 10, SIPCOT Industrial Estate as stated in the Inspection Report.	Complied
2.	The consent is valid on submission of Certificate of Incorporation from Register of companies for Name change to the Board.	Complied.
3.	Till pipelines are laid to sump 5 of Mls. CUSECS, the unit shall curtail the production activity to the quantity of 342 KLD which can be disposed to Sump 2 for which already consent has been issued.	Complied.
4.	The unit shall apply & obtain fresh consent if there is any change in the management/ other entries in the consent order.	Assured to comply
5.	The unit shall operate and maintain the Sewage Treatment Plant efficiently and continuously so as to meet the standards prescribed by the Board.	Complied.
6.	The unit shall operate and maintain the Effluent Treatment Plant efficiently and continuously so as to meet the marine standards prescribed by the Board before disposal.	Complied.
7.	The unit shall provide computer recorder arrangement for the EMFMs of inlet and outlet of ETP and connect the same to the Water Quality Watch, TNPCB within 31st July 2018.	complied
8.	The unit shall discharge 1140 KLD of treated effluent to Sump 5 of M/s.CUSECS Ltd only after laying of pipeline from unit to Sump -5 of Mls. CUSECS Ltd for marine disposal.	Complied
9.	The standard for sulphate parameter is omitted as per B.P.No. 71 dated 30.11.2017.	Complied
10.	The unit shall conduct ROA (Report of Analysis) of treated sewage through TNPCB lab and furnish the report of the same to the Board.	Complied
11.	The unit shall install online pH and TDS meter in the storm water drains to ensure no chemical contamination takes place during rains outside the premises at all the time.	Assured to comply
12.	The unit shall obtain authorization of the board under the Hazardous and Other Waste (Management and Transboundary Movement) Rules, 2016 as amended for the hazardous waste generation from the unit if any.	Complied
13.	The unit shall ensure that M/s. CUSECS shall have valid consent of the Board for the disposal of increased quantity of trade effluent through Mls. CUSEC S pipeline for marine disposal.	Complied
14.	The unit shall not use 'use and throw away plastics' such as plastic sheets used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups, plastic tumbler, water pouches and packets, plastic straw, plastic carry bag and plastic flags irrespective of thickness, within industry premises. Instead unit shall encourage use of eco friendly alternative such	Assured to comply

	as banana leaf, arecanut palm plate, stainless steel, glass, porcelain plates/cups, cloth bag, jute bag etc.	
15.	The unit shall remit consent fee as per revised G.O.(Ms).No.40 & 41, E & F(ECI) Department dated 09.04.2018 effective from 01.04.2018.	Assured to comply

Air Act

Sl No	Conditions	Compliance
1.	The unit shall restrict its activity to Plot No.10, SIPCOT Industrial Estate as stated in the Inspection Report.	Complied
2.	The consent is valid on submission of Certificate of Incorporation from Register of companies for Name change to the Board.	Complied
3.	Till pipelines are laid to sump 5 of M/s. CUSECS, the unit shall curtail the production activity to the quantity of 342 KLD which can be disposed to Sump 2 for which already consent has been issued.	Complied.
4.	The unit shall apply & obtain fresh consent if there is any change in the management/other entries in the consent order.	Complied.
5.	The unit shall operate and maintain APC measures provided for the emission from boiler and coal fired Hot air generator , process dryers efficiently and continuously so as to satisfy the standards prescribed by the Board from time to time.	Assured to comply
6.	The unit shall adhere to the AAQ/SM/ANL standards prescribed by the Board.	Complied.
7.	The unit shall conduct AAQ/SM/ANL survey through TNPCB lab and furnish the report of the same to the Board.	Complied.
8.	The unit shall develop adequate greenbelt within the periphery of the unit to attenuate noise and air pollution.	Complied.
9.	The unit shall provide online stack monitor for SPM, SO <sub>2</sub> , NO <sub>x</sub> , and CO for coal fired boiler stack and coal fired hot air generator stack and the online data shall be connected to care Air Centre, Guindy, Chennai within 30th November 2018.	Assured to comply
10.	The unit shall not use 'use and throw away plastics' such as plastic sheets used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups, plastic tumbler, water pouches and packets, plastic straw, plastic carry bag and plastic flags irrespective of thickness, within industry premises. Instead unit shall encourage use of eco friendly alternative such as banana leaf, arecanut palm plate, stainless steel, glass, porcelain plates/cups, cloth bag, jute bag etc.	Assured to comply
11.	The unit shall remit consent fee as per revised G.O.(Ms).No.40 & 41, E & F(ECI) Department dated 09.04.2018 effective from 01.04.2018	Assured to comply

**25.M/s. Thangamman Textile Private Ltd**

Name and Address of the unit	M/s. THANGAMMAN TEXTILE .PVT.LTD. Plot No: A-6/A63 complex, Sipcot,Cuddalore-607005		
Product with Quantity	Dyed Cotton Hosiery Fabric 377.0 T/M		
Trade Effluent quantity	750 KLD. – CUSECS, 375 KLD - ZLD		
Effluent Treatment Plant Details	<b>Name of the Treatment Unit</b>	<b>No. of Units</b>	<b>Dimensions in metres</b>
	Collection tank	2	10x7.5x4+0.3m
	Anaerobic digester	1	Dia 11.5x6+0.3m
	Primary clarifier	1	9m diaX2.8+0.3m Ht
	Aeration tank	1	18X12.5X4+0.3m
	Secondary clarifier	1	9m diaX2.8+0.3m Ht
	Clarified effluent tank	1	10x5x4+0.3
	Flash mixer	1	1.5mX1.5mX1m+0.23
	Tertiary clarifier	1	9m diaX2.8+0.3m Ht
	Pressure sand filter	1	2m diax2mHt
	Activated carbon filter	1	2m diax2mHt
	Sludge thickener	1	4mdiax3+0.3mHt
Ro	Single stage RO		
Trade Effluent Disposal	Zero Liquid Discharge & CUSECS		
	ZLD – Effluents samples are collected in Various points in the Effluent Treatment and reject management systems for monitoring purpose. CUSECS- The Treated Trade Effluents are collected in Sumps provided by M/s. CUSECS Ltd and then disposed to Marine waters through pipelines installed by M/s. CUSECS.		
Air Pollution Control Measures	Boiler 5TPH	Cyclone dust collector with stack	21 m Ht
	Report of Analysis of treated effluent reveals that the parameters are within the standards prescribed by the Board. The Ambient Air Quality Monitoring is done twice in a year and the Report of Analysis Reveals that the parameters are within the standards prescribed by the Board.		

Compliance of Consent order Conditions of **M/s. THANGAMMAN TEXTILE PRIVATE LTD,**  
Water Act

Sl. No	Conditions	Compliance
1.	The unit shall operate and maintain Effluent Treatment Plant capacity of 750 KLD efficiently and continuously and operate the RO plant for the recovery and reuse of RO permeate of 375 KLD & remaining effluent of 375 KLD into CUSECS , after satisfying the marine disposal standards prescribed by the Board.	Complied.
2.	The unit shall completely reuse the RO permeate of 375 KLD to the process.	Assured to Comply
3.	These units shall maintain log book for the operation and maintenance of Effluent treatment system and RO system, EMFMs readings, pH meter and TDS readings and APC measures readings and shown to DEE every month.	Complied
4.	The unit shall furnish the structural stability and impermeability study of all the ETP tanks through reputed institution like Anna University, Chennai / IIT Madras.	Complied
5.	The unit shall ensure that the treated trade effluent shall be free from colour before let into CUSECS by achieving marine disposal standards prescribed by the Board.	Assured to Comply
6.	The unit shall maintain the Water Quality Watch Centre connectivity of Electro Magnetic Flow Meters provided both at the inlet and outlet of ETP and upload the data to Water Quality Watch Centre, Tamilnadu Pollution Control Board, Chennai without any interruption.	Complied
7.	The unit shall maintain garland drain within the factory premises for collecting rain water and also to provide rain water collection sump so as to prevent chemically mixed rain water flow from the industry premises during rainy season.	Assured to Comply
8.	The unit shall analyse the treated effluent through external lab approved by the Ministry of Environment & Forest and furnish the report of analysis to the Board once in three months.	Complied
9.	The unit shall maintain online sensors for pH and TDS in the storm water drains so as ensure the contamination of rain water during the time of rainy season within a period of three months.	Complied
10.	The unit shall apply for Hazardous Waste Authorization to dispose the accumulated/ per year generation of hazardous waste under Hazardous and Other Wastes (Management and Transboundary Movement) Rules 2016, for its expansion activity.	Assured to Comply
11.	The unit shall store the hazardous waste in a covered or closed shed within the premises.	Complied
12.	The unit shall develop green belt to an extent of 25 % of the total area within the premises.	Complied

13.	The unit shall furnish the original plant machineries layout, as already approved by SIPCOT, Cuddalore.	Complied
14.	The unit shall furnish the latest auditor's balance sheet obtaining from the competent authority.	Complied

Air Act

Sl. No	Conditions	Compliance
1.	The unit shall maintain the CARE AIR Centre connectivity of online SPM sensor provided in the Boiler Stack and upload the data to CARE AIR Centre, Tamilnadu Pollution Control Board, Chennai without any interruption.	Complied.
2.	The unit shall operate and maintain the Air Pollution Control measures efficiently and continuously so that the emission shall satisfy the Ambient Air Quality / Emission standards prescribed by the Board.	Complied.
3.	The unit shall adhere to the Ambient Noise Level standards prescribed by the Board.	Complied.
4.	The unit shall conduct AAQ/Stack survey through External Lab approved by the MoEF and shall furnish the report to the Board once in Six months.	Complied.

**26. M/s. Pandian Chemicals Limited**

Name and Address of the unit	M/s. Pandian Chemicals Limited-APC unit Plot No.4/Part 1, SIPCOT Industrial Complex, Phase –II, Semmankuppam Village, Cuddalore-607005 Cuddalore District.		
Product with Quantity	1. Ammonium Perchlorate - 37.50 TPM 2. Sodium Chloride - 18.12 TPM		
Trade Effluent quantity	12 KLD		
Effluent Treatment Plant Details	<b>Name of the Treatment Unit</b>		
	<b>No. of Units</b>		
	<b>Dimensions in metres</b>		
	Neutralisation tank	2	2.5 x 2.4 x 0.75
	Clarifier	1	1.6 dia x 1.75
Sludge drying bed treat water	2	2.2 x 1.2 x 1.1	
T.W. Collection tank	2	3.5 x 3.4 x 2.0	
Trade Effluent Disposal	Discharged to marine waters through CUSECS		
	The Treated Trade Effluents are collected in Sumps provided by M/s. CUSECS Ltd and then disposed to Marine waters through pipelines installed by M/s. CUSECS.		
Air Pollution Control Measures	Boiler	Providing packed bed with Alkali scrubber	30 m Ht
	Electrolytic Cell	Cyclone separator with stack	10
	Report of Analysis of treated effluent reveals that the parameters are within the standards prescribed by the Board. The Ambient Air Quality Monitoring is done twice in a year and the Report of Analysis Reveals that the parameters are within the standards prescribed by the Board.		

Compliance of Consent order Conditions of **M/s.PANDIAN CHEMICALS LIMITED,**

Water Act

Sl. No	Conditions	Compliance
1.	The unit shall operate and maintain the ETP efficiently and continuously so as to satisfy the standards	Complied.

	prescribed by the Board.	
2.	The unit shall dispose the treated effluent into marine coastal line maintained by M/s.CUSECS Ltd after achieving the standards prescribed by the Board.	Complied.
3.	The unit shall operate and maintain the EMFM located at the inlet and outlet of the ETP with computer recorder arrangement for assessing the performance.	Complied.
4.	The unit shall dispose the hazardous waste then and there without any accumulation as per the conditions stipulated in the HWA issued under HW (MHTM) Rules.	Complied.
5.	The unit shall ensure that the remarks given in the onsite emergency plan prepared by Regional Labour Institute, Chennai are complied at all times.	Assured to comply.
6.	The unit shall calibrate and maintain the online sensors and shall furnish continuous data to Care Air Centre, TNPCB, Guindy at all times.	Complied.
7.	The unit shall collect all the drain and wash water from the process area in a collection pit and pump them for treatment in ETP.	Complied.
8.	The unit shall provide impervious platform to the boiler ash storage pit.	Complied.
9.	The unit has to segregate the non hazardous solid waste generated and store in a dedicated closed shed scrap yard and sent the waste for beneficial purpose.	Complied.

#### Air Act

Sl. No	Conditions	Compliance
1.	The unit shall operate and maintain the Air Pollution Control measures efficiently and continuously so that the emission shall satisfy the Ambient Air Quality/ Emission standards prescribed by the Board.	Complied.
2.	The unit shall operate and maintain the Packed Bed Alkali Scrubber provided in the Electrolytic Cell efficiently and continuously so that the emission let out shall satisfy the Ambient Air Quality/Emission standards prescribed by the Board.	Complied.
3.	The unit shall adhere to the Ambient Air Quality/ Stack Emission/Ambient Noise Level standards prescribed by the Board.	Complied.
4.	The unit shall calibrate and maintain the online sensors and shall furnish continuous data to Care Air Centre, TNPCB, Guindy at all times.	Complied
5.	The unit shall ensure that the remarks given in the onsite	Assured to comply.

	emergency plan prepared by Regional Labour Institute, Chennai are complied at all times.	
6.	The unit shall not use 'use and throwaway plastics' such as plastic sheets used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups, plastic tumbler, water pouches and packets, plastic straw, plastic carry bag and plastic flags irrespective of thickness, within the industry premises. Instead it shall encourage use of eco friendly alternative such as banana leaf, arecanut palm plate, stainless steel, glass, porcelain plates/cups, cloth bag, Jute bag etc.,	Assured to comply.
7.	The unit shall develop adequate green belt within the periphery of the unit to attenuate noise and air pollution.	Complied.
8.	The unit shall furnish exact greenbelt area earmarked/developed as per norms in the unit premises and furnish photographs along with Latitude and Longitude co-ordinate.	Complied.

## 27. M/s. Sudhakar Chemicals (P) Limited

Address of Industry	:	M/s. Sudhakar Chemicals (P) Limited
Contact person & Telephone No/ Fax No/Mobile No	:	Thiru S Sudhakar Proprietor
Establishment Date	:	1994
Commissioned Date	:	01/04/1995
Category & Scale of Operation	:	Red category, Small Scale
Consent Status	:	Valid upto 31.03.2020
Water Source and consumption If they have own bore well, whether NOC obtained by CGWA or any other department	:	Bore well and SIPCOT - 10.7 KLD
Installed Capacity	:	Orthophenylene Diamine - 20 T/M
Consented capacity	:	Orthophenylene Diamine - 20 T/M
Operating capacity at the time of inspection	:	Orthophenylene Diamine – NIL
Raw materials	:	1. Ortho Nitro Chloro Benzene 2. Ammonia Gas 3. Sodium Sulphide 4. Sulphur 5. Caustic Lye Solution
Process	:	
<p>Ortho Nitro Chloro Benzene is reacted with ammonia at high pressure and temperature 150 deg C to form ortho nitro aniline. This is then washed with water. The wash water is separated and sent to ETP. The washed material is further reacted with sulphur, Sodium sulphide and caustic lye with the help of steam at a temperature of 80-100 deg C. The resultant product is Ortho Phenylene Diamine. this is passed Through activated carbon and cooled. The crystal formed is centrifuged and removed. The centrate is sent to ETP. The product crystal are dried in tray drier and packed.</p>		
Waste water sources	:	Filter press wash water & decanter effluent
Quantity of Waste Water generated as per consent issued Actual generation of effluent	:	No Effluent Generation since the unit was not under operation.
Effluent treatment plant components	:	1. Grit Removal Tank 2. Collection Cum Settling Tank 3. Up Flow Reactor 4. Aeration Tank 5. Secondary Settling Tank 6. sand filter 7. Sludge drying beds
Mode of treated effluent discharge as per consent	:	Disposed to M/s. CUSECS
Treated effluent quality prescribed in consent	:	Marine Disposal Standards
Adequacy of treatment system provided to achieve prescribed	:	Adequate

standards of effluent		
Status of installation of Online Monitoring system for Effluent	:	NIL
Number of violations observed during past five years and action taken	:	NIL
Air Pollution Emission sources and Control Devices	:	1 Boiler - 1.0 Tons/Hr 1No - Stack - 250mm dia - 11 2 Diesel Generator Set - 75 KVA-1 No - Stack - 75mm dia - 5
Status of installation of Online Monitoring system for Source emissions	:	NIL
Number of violations observed during past five years and action taken	:	NIL
Adequacy of air pollution control devices provided to achieve prescribed standards of Source Emissions	:	Adequate

Compliance of Consent order Conditions of **M/s. SUDHAKAR CHEMICALS (P) LIMITED**

Water Act

Sl. No	Conditions	Compliance
1.	The unit shall treat and disposal the sewage through septic tank and soak pit arrangements.	Complied
2.	The unit shall treat and dispose the trade effluent after achieving the standards prescribed by the Board.	Complied
3.	The unit shall dispose the municipal solid waste generated then and there without accumulation.	Complied
4.	The unit shall provide and maintain rain water harvesting system within the premises so as to recharge the Ground water.	Assured to comply
5.	The unit shall develop adequate green belt..	Assured to comply
6.	The operation of the unit shall not invite complaint from public.	Complied
7.	In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against as per law.	Complied
8.	The unit shall not use “ Use and throw away Plastics” such as plastic sheet used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups and plastic tumblers, water pouches and packets, plastic straw ,plastic carry bags and plastic flags, irrespective of thickness within the premises. Instead the unit shall encourage use of eco friendly alternatives	Complied

	such as banana leaves, arecanut palm plates, stainless steel glass, porcelain plates/cups, cloth bags, jute bags etc.,	
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Air Act

Sl. No	Conditions	Compliance
1.	The unit shall operate and maintain air pollution control measures /acoustic measures effectively and continuously so as to adhere to AAQ/ ANL/ /Emission standards prescribed by the Board.	Complied.
2.	The unit shall develop adequate green belt.	Complied
3.	The operation of the unit shall not invite complaint from the nearby public.	Complied

### 28. M/s. Supreme Dyechem Private Limited

Name and Address of the unit	M/s. Supreme Dyechem Private Limited SIPCOT Industrial Complex, Phase –I, Cuddalore-607005 Cuddalore District.																																			
Product with Quantity	ALPHA BLUE - 5.25 TPM BETA BLUE - 5 TPM FERROUS SULPHATE – 79 TPM																																			
Trade Effluent quantity	12 KLD																																			
Effluent Treatment Plant Details	<table border="1"> <thead> <tr> <th>Name of the Treatment Unit</th> <th>No. of Units</th> <th>Dimensions in metres</th> </tr> </thead> <tbody> <tr> <td>Oil and Greece</td> <td>1</td> <td>1 Mtrs X 1 Mtrs X 1 Mtrs</td> </tr> <tr> <td>Collection Sump</td> <td>1</td> <td>60000 Ltrs RCC Rubber Lined and Brick lined</td> </tr> <tr> <td>Filter Press</td> <td>1</td> <td>36' X 36' X 45 Plates for color removal</td> </tr> <tr> <td>Neutralizer</td> <td>3</td> <td>35000 Ltrs</td> </tr> <tr> <td>Filter Press</td> <td>1</td> <td>36' X 36' X 45 Plates for Final Treated Water Filtration</td> </tr> <tr> <td>Filter Press</td> <td>2</td> <td>48' X 48' X 75 Plates for Gypsum</td> </tr> <tr> <td>Filter Press</td> <td>1</td> <td>36' X 36' X 49 Plates for Gypsum</td> </tr> <tr> <td>Aerator</td> <td>1</td> <td>50000 Ltrs</td> </tr> <tr> <td>Secondary Clarifier</td> <td>1</td> <td>40000 Ltrs</td> </tr> <tr> <td>Sand filter and carbon Filter</td> <td>1</td> <td>10000 Ltrs</td> </tr> </tbody> </table>			Name of the Treatment Unit	No. of Units	Dimensions in metres	Oil and Greece	1	1 Mtrs X 1 Mtrs X 1 Mtrs	Collection Sump	1	60000 Ltrs RCC Rubber Lined and Brick lined	Filter Press	1	36' X 36' X 45 Plates for color removal	Neutralizer	3	35000 Ltrs	Filter Press	1	36' X 36' X 45 Plates for Final Treated Water Filtration	Filter Press	2	48' X 48' X 75 Plates for Gypsum	Filter Press	1	36' X 36' X 49 Plates for Gypsum	Aerator	1	50000 Ltrs	Secondary Clarifier	1	40000 Ltrs	Sand filter and carbon Filter	1	10000 Ltrs
	Name of the Treatment Unit	No. of Units	Dimensions in metres																																	
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	Sand filter and carbon Filter	1	10000 Ltrs																																	
Trade Effluent Disposal	Discharged to marine waters through CUSECS																																			
	The Treated Trade Effluents are collected in Sumps provided by M/s. CUSECS Ltd and then disposed to Marine waters through pipelines installed by M/s. CUSECS.																																			
Air Pollution Control Measures	Boiler	Dust Collector with Stack	30 m Ht																																	
	Report of Analysis of treated effluent reveals that the																																			

	parameters are within the standards prescribed by the Board. The Ambient Air Quality Monitoring is done twice in a year and the Report of Analysis Reveals that the parameters are within the standards prescribed by the Board.
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Compliance of Consent order Conditions of **M/s. SUPREME DYECHEM PRIVATE LIMITED** ,

Water Act

Sl. No	Conditions	Compliance
1.	The unit shall treat and disposal the sewage through septic tank and soak pit arrangements.	Complied
2.	The unit shall operate and maintain the Effluent Treatment Plant efficiently and continuously so that the treated effluent shall satisfy the standards prescribed by the Board before disposal to the marine disposal facility, CUSECS Ltd.	Complied
3.	The unit shall properly maintain the Electro Magnetic Flow Meter at the outlet of the Effluent Treatment Plant before let into CUSECS pipeline.	Complied
4.	The unit shall dispose the ETP sludge then and there without accumulation in the unit premises.	Assured to comply
5.	The unit shall comply with the authorization issued for handling hazardous waste under the provisions of Hazardous and other wastes (Management and Transboundary movement) Rules, 2016.	Assured to comply
6.	The unit shall maintain good housekeeping both inside and outside the premises.	Complied
7.	The unit shall ensure that, “In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against as per law.	Complied
8.	The unit shall not use “ Use and throw away Plastics” such as plastic sheet used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups and plastic tumblers, water pouches and packets, plastic straw ,plastic carry bags and plastic flags, irrespective of thickness within the premises. Instead the unit shall encourage use of eco friendly alternatives such as banana leaves, arecanut palm plates, stainless steel glass, porcelain plates/cups, cloth bags, jute bags etc.,	Complied
9.	The unit shall comply with the E-waste management Rules 2016. E-waste as listed in Schedule – I, generated by them shall be channelized through collection centre or dealer of the authorised producer or dismantler or recycler or through designated take back service provider of the producer to authorised dismantler or recycler. The unit shall maintain records of e-waste generated by them in	Assured to comply

	Form and make such records available for scrutiny by the TNPCB. The unit shall file annual returns in Form – 3, to the TNPCB on or before the 30th day of the June following financial years.	
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Air Act

Sl. No	Conditions	Compliance
1.	The unit shall adhere to the AAQ/stack/noise level standards prescribed by the Board.	Complied.
2.	The unit shall operate and maintain the Air Pollution Control measures efficiently and continuously so as to satisfy the standards prescribed by the Board.	Complied
3.	The unit shall maintain good housekeeping both inside and outside the premises.	Complied
4.	The unit shall ensure that, “In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against as per law.	Assured to comply

**29. M/s. Panda Bio Proteins Pvt Ltd.**

Address of Industry	:	M/s. Panda Bio Proteins Pvt Ltd A14/A, SIPCOT INDUSTRIAL COMPLEX, Pachaiankuppam Village, CUDDALORE Taluk
Contact person & Telephone No/ Fax No/Mobile No	:	Thiru Teja Managing Partner 8686555955
Establishment Date	:	13.02.2017
Commissioned Date	:	07-12-2016
Category & Scale of Operation	:	Orange category, Small Scale
Consent Status	:	Valid upto 31.03.2024
Water Source and consumption If they have own bore well, whether NOC obtained by CGWA or any other department	:	Bore well and SIPCOT - 39 KLD  Water Consumption – NIL (Unit not under operation)
Installed Capacity	:	FISH MEAL – 40 MT/DAY FISH OIL – 15 MT/DAY
Consented capacity	:	FISH MEAL – 40 MT/DAY FISH OIL – 15 MT/DAY
Operating capacity at the time of inspection	:	FISH MEAL – NIL ( Unit not under operation) FISH OIL – NIL
Raw materials	:	RAW FISH (WET)
Process	:	Fish will be reduced to Fish oil and Fish meal
Waste water sources	:	Vessel Washing & Floor Washing, Boiler Flow down
Quantity of Waste Water generated as per consent issued Actual generation of effluent	:	10 KLD  NIL (Unit not under operation)
Effluent treatment plant components	:	OIL & GREASE TRAP, ANAEROBIC DIGESTION TANK, PRESSURE SAND FILTER, ACTIVATED CARBON FILTER, TREATED WATER TANK BAR SCREEN CHAMBER, OZONE GENERATOR WITH OXYGEN CONCENTRATOR, MULTI GRADE FILTER.
Mode of treated effluent discharge as per consent	:	Marine Disposal.
Treated effluent quality prescribed in consent	:	Marine Discharge Standards
Adequacy of treatment system provided to achieve prescribed standards of effluent	:	Adequate.
Air Pollution Emission sources and Control Devices	:	i. BOILER - 12 TPH - 1NO Wet scrubber with stack - 1.2 - 35 ii. DG SET - 600KVA - 1 NO Acoustic enclosures

		with stack - 0.1 - 3.5 iii. Spray Drier & Steam Cooker Condenser, Deodourising Tower followed by Bio Filter and Stack - 1 - 30
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Compliance of consent order conditions **M/s. Panda Bio Protien Pvt Ltd.**

Water Act

Sl No	Conditions	Compliance
1	The unit shall adhere to the conditions imposed in the CRZ clearance dated 28.12.2012 at all times.	Assured to comply
2	The unit shall provide Electro Magnetic Flow Meter in the ETP outlet discharge line to the M/s.CUSECS Ltd., and submit the Electro Magnetic Flow Meters (EMFM) readings to Board.	Assured to comply
3	The unit shall develop adequate green belt of thick cover in an area of 33% of total land, so as to reduce the odour pollution emanating from its premises reaching the surrounding area	Assured to Comply
4	The unit shall operate without creating any nuisance to the surrounding and shall not invite any complaint during its operation.	Complied
5	In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the unit as per law.	Complied

Air Act

Sl No	Conditions	Compliance
1	The unit shall adhere to the conditions imposed in the CRZ clearance dated 28.12.2012 at all times.	Assured to Comply
2	The unit shall operate the deodorizing system at all times so as to control the odour emanating from its premises.	Complied.
3.	The unit shall collect the odour samples at the inlet and outlet of the deodorizing system and analyze the same through external lab approved by MoEF, for a week while the unit is in operation and submit report to Board every six months.	Assured to Comply
4.	The unit shall develop adequate green belt of thick cover in an area of 33% of total land, so as to reduce the odour pollution emanating from its premises reaching the surrounding area.	Assured to Comply
5.	The unit shall operate without creating any nuisance to	Assured to Comply

	the surrounding and shall not invite any complaint during its operation.	
6.	In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the unit as per law.	Assured to Comply

## Industries having individual Marine Disposal System

### 30. Report on M/s. Chemplast Cuddalore Vinyls Limited

Name and Address of the unit	M/s. <b>Chemplast Cuddalore Vinyls Limited</b> , SIPCOT Industrial Complex, Phase II , Semmankuppam Village, Cuddalore			
Product with Quantity	PVC Resins -300,000TPA			
Trade Effluent quantity	3450KLD			
Effluent Treatment Plant Details	Equalization tank	1	20 L x 20 W x 3.5 H	
	Flash Mixer	1	2.2L x 2.2 W x 1.2 H	
	High Rate Solid Clarifier	1	13.8 dia x4.5 H	
	Sand Filter	2	3.3 dia x1.5 H	
	Ultra filtration	2 system	40 Membranes in each system	
	RO stage 1	2 system	96 Membranes in each system	
	RO stage 2	2 System	24 Membranes in each system	
	Multiple effect evaporator	1	Triple effect	
Trade Effluent Disposal	Zero Liquid Discharge			
	The RO reject is disposed to Marine waters through own pipeline.			
Air Pollution Control Measures	Stack No	Source of emission	Pollution Control measures	Stack Height(M)
	1	Boiler	Reverse jet bag filter outlet	54
	2	Vent gas absorption system	Reverse jet bag filter outlet	20
	3	Drier stack	Reverse jet bag filter outlet	44
	4	Emergency Vent attached to VCM Storage Tank	Bin Vent Filter	60

	5	Coal Heading Conveyor- Transfer Point- 1- Coal Crusher	Bin Vent Filter	15.5
	6	Coal Heading Conveyor- Transfer Point- 2- Coal Bunker	Bin Vent Filter	22.75
	7	Coal Feed Hopper	Multi cyclone and Wet scrubber	-
	8	PVC Bagging Section- Bagging machine- 3 nos.	Bag Filter	21
	9	Product Silo- 3 nos.	Bag Filter	54
<p>Report of Analysis of treated effluent reveals that the parameters are within the standards prescribed by the Board. The Ambient Air Quality Monitoring are done twice in a year and the Report of Analysis Reveals that the parameters are within the standards prescribed by the Board.</p>				

#### Compliance of Consent order Conditions of M/s. Chemplast Cuddalore Vinyls Ltd

##### Water Act

Sl No	Conditions	Compliance
1.	The unit shall strictly comply with the consented annual production capacity without any deviation.	Complied.
2.	The unit shall operate and maintain the STP efficiently and continuously so as to achieve the standards prescribed by the Board.	Complied.
3.	The unit shall utilise the treated sewage on land for gardening after satisfying the standards prescribed by the Board.	Complied
4.	The unit shall operate and maintain the ETP with RO and reject management system efficiently and continuously and achieve ZLD at all times.	Complied.
5.	The unit shall utilise the RO permeate in the process after satisfying the standards prescribed by the Board.	Complied
6.	The unit shall operate and maintain the online monitors for effluent and ensure that proper data is uploaded to the CARE Air Centre.	Complied.
7.	The unit shall ensure that the Non Hazardous wastes generated are disposed then and there without accumulating the same within the unit premises.	Complied.
8.	The Unit shall not use 'use and throwaway plastic' such as plastic sheets used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups, plastic tumbler, water	Complied.

	pouches and packets, plastic straw, plastic carry bag and plastic flags irrespective of thickness, within the industry premises. Instead unit shall encourage use of eco friendly alternative such as banana leaf, arecanut palm plate, stainless steel, glass, porcelain plates / cups, cloth bag, jute bag etc.	
9.	The unit shall submit the Environmental statement in Form V for each financial year as prescribed under the Environment (Protection) Act, 1986 as amended.	Complied.
10.	The unit shall comply with E-Waste Management Rules 2016. E-Waste as listed in schedule –I, generated by them shall be channelized through collection centre or dealer of authorized producer or dismantler or recycler or through the designated take back service provider of the producer to authorized dismantler or recycler. The unit shall maintain records of e-waste generated by them in Form-2 and make such records available for scrutiny by the TNPCB. The unit shall file annual returns in Form-3, to the TNPCB on or before the 30th day of June following the financial year.	Complied.
11.	The unit shall furnish the exact green belt area earmarked / developed as per the norms in the unit's premises showing photographs along with longitude and latitude co-ordinates.	Complied.
12.	In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the unit as per law.	Assured to Comply

Air Act

Sl No	Conditions	Compliance
1.	The unit shall strictly comply with the consented annual production capacity without any deviation	Complied
2.	The unit shall operate and maintain the APC measures efficiently and continuously so as to achieve the standards prescribed by the Board	Complied
3.	The unit shall adhere to the ANL standards prescribed by the Board.	Complied.
4.	The unit shall conduct health evaluation studies once in three years by independent competent agencies/institutions to monitor the impact of VCM exposure covering all the villages within a range of 5 Km of the plant and the results of the study to be furnished to the District Collector, The Health Department and Tamil Nadu Pollution Control Board within 3 months.	Assured to comply
5.	The unit shall conduct a comprehensive environmental audit for PVC production (3,00,000 T/A) focusing on the Performance of the pollution control measures, in plant control measures and mass balance of VCM every year and submit report to the Board.	Complied.
6.	The unit shall conduct LDAR study every year and furnish the report to the Board	Complied.
7.	The unit shall calibrate the analysers and shall operate and maintain the online monitor for emission/stack parameters and	Complied.

	provide proper data to CAC, TNPCB.	
8.	The unit shall continue to develop green belt within the premises	Complied.
9.	The unit shall take immediate action to connect the CCTV camera to CAC Chennai	Complied.

### 31. Report on M/s. Clariant Chemicals (India) Limited

Name and Address of the unit	M/s. Clariant Chemicals (India) Limited RS.No- 158/1C,161/5B,162/1,162/3,169 /1(P), 170/2, 170/3(P), 170/4, 171/1, 171/2, Sipcot Industrial Complex, Kudikadu, Cuddalore			
Product with Quantity	Blue pigments ---- 275 Tons/Month Intermediates --- 115 Tons/Month Tetra Chloro Copper phthalocyanine --- 20 Tons/Month Mono chloro Phthalic Acid ---30 Tons/Month.			
Trade Effluent quantity	577 KLD			
Effluent Treatment Plant Details	Equalization Tank	1	8.8*4.5	
	Primary Clarifloculator	1	5(dia)*1.9	
	Clarifloculator	1	5(dia)*2.5	
	Equalization Basin	1	10*10*6.5	
	Aeration Tank-1	1	12.5*7.5*7.2	
	Aeration Tank-2	1	12.5*7.5*7.2	
	Secondary clarifier	2	9.8(dia)*3.0	
	Marine pit	1	5.3*2.2*0.75	
	Impervious Pond	1	80*20*1.4	
	Lime Preparation Tank	3	5*5*2	
	Flash Mixer	3	3*3*3	
	Holding Tank	1	13.8*13.8*2.8	
	Equalization tank	1	13.8*13.8	
	Flash mixer	3	2*2*3	
	Clarifier	1	9(dia)*2.5	
	Thickener	1	2.4(dia)*2.2	
	Holding tank	1	9*11*2	
	Filter Press	1	3*1	
RO Plant	1	650 KLD		
Trade Effluent Disposal	Disposed into Sea through own marine disposal system.			
	The Treated Trade Effluent is collected in Sump and then disposed to Marine waters through own pipeline.			
Air Pollution Control Measures	Stack No	Source of emission	Pollution Control measures	Stack Height(M)
	1	Chloranil Plant Reactor Emission & MCPA	Wet scrubber with stack (CAC)	20

	2	Chlorine Handle Area	Wet scrubber with stack	20
	3	Pigment blue reactors(acid fumes)	Wet scrubber with stack (CAC)	20
	4	Blue Plant Neutralization reactors	Wet scrubber with stack	20
	5	Blue plant Tray Driers(3 No)	Stack	11
	6	Blue plant Spin Flash Drier	Stack	4
	7	Blue plant Milling Hot Air Generator	Stack	17
	8	Blue Plant Ball Mill	Bag Filters with stack	25
	9	Blue Plant Milling Plant	Stack (CAC)	4
	10	Fume cup board from R & D Lab - 2No	Stack	7
	11	Process Control Laboratory	Stack	17
	12	Boiler-6 TPH(FO Fired)	Common stack (CAC)	37.2
	13	Boiler -8 TPH(Bio-Fuel Fired)		37.2
	14	860 KVA DG Set	Stack	10
	15	200 KVA DG Set	Stack	4
	16	1050 KVA DG Set	Stack	20
	17	HOT AIR GENERATOR	Stack	17
	18	TC CPC Hot Air Generator	Stack	20
	19	TC CPC Spin Flash Drier	Stack	5
	20	TC CPC SCRUBBER	Scrubber followed by stack	20
	Report of Analysis of treated effluent reveals that the parameters are within the standards prescribed by the Board. The Ambient Air Quality Monitoring are done twice in a year and the Report of Analysis Reveals that the parameters are within the standards prescribed by the Board.			

Compliance of Consent order Conditions of **M/s. CLARIANT CHEMICALS [INDIA] LIMITED**

Water Act

Sl. No	Conditions	Compliance
1.	The unit shall manufacture only the products for which consent is obtained and shall ensure that the production is within the consented quantity.	Complied.
2.	The unit shall operate and maintain both the STPs efficiently and continuously and shall ensure that the treated sewage is utilized for gardening and toilet flushing after achieving the standards prescribed by the Board.	Complied.
3.	The unit shall regularly analyse the treated sewage and periodically furnish ROA of the Board.	Complied.
4.	The unit shall operate and maintain the existing ETP and RO efficiently and continuously and ensure that the treated trade effluent achieve the standards prescribed by the Board	Complied.
5.	The unit shall reuse the 400 KLD of treated trade effluent for cooling tower make up, discharge 903 KLD into marine after necessary treatment to conform to marine standards, shall recycle the 452 KLD of RO permeate in the process after satisfying the standards prescribed by the Board.	Complied.
6.	The unit shall regularly analyse the treated trade effluent and periodically furnish ROA to the Board	Complied.
7.	The unit shall ensure the connectivity of online monitoring system for the effluent parameters pH, TSS, COD, BOD and Cr with Care Air Centre of TNPCB and provide proper data at all times.	Complied.
8.	The unit shall obtain renewal of the ground water clearance from State Ground and Surface Water Resources Data Centre before expiry of the validity of the existing certificate	Complied.
9.	The unit shall comply with the conditions stipulated in the Environmental Clearance issued by the SEIAA vide Letter No. F.SEIAA/TN/ F.6462/5(f)/EC-59/2017 dated 16.04.2018 and amendment to the Environmental Clearance vide Letter No. F.SEIAA/TN/F.6462/5(f)/EC-59/2017/A dated 07.08.2018.	Complied.
10.	The unit shall comply with the provisions of the Hazardous and Other Wastes (Management and Trans boundary Movement) Rules, 2016 notified under EP Act, 1986.	Complied.
11.	The unit shall operate and maintain the online pH and TDS meter in the storm water drains to ensure no chemical contamination takes place during rains outside	Complied.

	the premises at any time	
12.	The unit shall maintain the EMFM at the UF inlet, UF outlet, RO inlet and RO permeate and connectivity to WQW, TNPCB, Chennai	Complied.
13.	The unit shall calibrate and maintain the online continuous monitoring system provided for the effluent and emission parameters so as to transmit quality data to TNPCB.	Complied.
14.	The unit shall dispose the hazardous waste to the cement industries without any accumulation	Complied.
15.	The unit shall maintain rain water harvesting facility for all the buildings so as to recharge the ground water.	Complied.
16.	The unit shall not establish any physical structure or carry out any activity within CRZ Zone under any circumstances.	Complied.

#### Air Act

Sl. No	Conditions	Compliance
1.	The unit shall operate and maintain the Air Pollution Control measures effectively and continuously so that the emission shall satisfy the Ambient Air Quality/Emission standards prescribed by the Board.	Complied.
2.	The unit shall maintain the ammonia sensor for the scrubber stack for the TCCPC.	Complied.
3.	The unit shall provide necessary online monitors for the emission parameters as directed by the MoEFCC/ CPCB/ TNPCB for 17 Category industries.	Complied.
4.	The unit shall further continue green belt development inside/outside the premises of the unit.	Green belt is provided and maintained.
5.	The unit shall meet the noise level standards prescribed by the Board.	Complied.
6.	The unit shall comply with the conditions stipulated in the Environmental Clearance issued by the SEIAA vide Letter No. F.SEIAA/TN/ F.6462/5(f)/EC-59/2017 dated 16.04.2018 and amendment to the Environmental Clearance vide Letter No. F.SEIAA/TN/F.6462/5(f)/EC-59/2017/A dated 07.08.2018.	Complied.
7.	The unit shall not use 'use and throwaway plastics' such as plastic sheets used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups, plastic tumbler, water pouches and packets, plastic straw, plastic carry bag and plastic flags irrespective of thickness, within the industry premises. Instead it shall encourage use of eco friendly alternative such as banana leaf, arecanut palm plate, stainless steel, glass, porcelain plates/cups, cloth bag, Jute bag etc.,	Assured to comply

**Common Marine Disposal System**

**32. M/s. CUDDALORE SIPCOT INDUSTRIES COMMON UTILITIES LIMITED  
(CUSECS Ltd.)**

Address of Industry	:	M/s. CUDDALORE SIPCOT INDUSTRIES COMMON UTILITIES LIMITED (CUSECS Ltd.)
Contact person & Telephone No/ Fax No/Mobile No	:	Thiru T. Arumugam, Director 9443439386 Thiru Kuppuram,
Establishment Date	:	25.05.1995
Commissioned Date	:	15.01.2000
Category & Scale of Operation	:	Red category, Small Scale
Consent Status	:	Valid upto 31.03.2021
Water Source and consumption If they have own bore well, whether NOC obtained by CGWA or any other department	:	SIPCOT – 0.5 KLD  Water withdrawal - 0.5 KLD
Consented capacity	:	Infrastructure Facilities for Common Marine Disposable System (The Facility comprises of six nos. of collection sumps and inter connecting pipelines to a total length of 2.2 Kms. The pipeline passes across the river Uppannar followed by land and into sea. At the final point into sea, the pipeline is anchored by Concrete blocks with diffuser arrangements to dispose the effluent into sea at a depth of 8 mts below sea surface) – 12000 KLD.  Infrastructure Facilities for Common Marine Disposable System (The Facility comprises of six nos. of collection sumps and inter connecting pipelines to a total length of of 2.2 Kms. The pipeline passes across the river Uppannar followed by land and into sea. At the final point into sea, the pipeline is anchored by Concrete blocks with diffuser arrangements to dispose the effluent into sea at a depth of 8 mts below sea surface) – 3925 KLD
Raw materials	:	Infrastructure Facilities for Common Marine Disposable System. Collection of Treated effluent from Member Industries and dispose into the Marine outfall.
Process	:	Collection & Disposal
Waste water sources	:	From Member Industries
Quantity of Waste Water generated as per consent issued Actual generation of effluent		12000.0 KLD  3925 KLD
Effluent treatment plant components	:	Only Pumping system with standby Genset.

Mode of treated effluent discharge as per consent	:	Marine Disposal
Treated effluent quality prescribed in consent		Marine Discharge Standards
Adequacy of treatment system provided to achieve prescribed standards of effluent		Adequate
Status of installation of Online Monitoring system for Effluent		Sensors for Temp, pH, BOD, COD, TSS, Flow installed and under operation.
Number of violations observed during past five years and action taken		NIL

**Compliance of Consent order Conditions of M/s. CUDDALORE SIPCOT INDUSTRIES COMMON UTILITIES LIMITED (CUSECS Ltd.)**

**Water Act**

Sl No	Conditions	Compliance
1.	The unit shall comply with the conditions mentioned in the CTO Proc No: T12/F.29031/TNPCB/CUD/RM/A/2013 Dated: 10.05.2013 and Proc No: F.0103CUD/RS/DEE/ TNPCB/ CUD/A/2018 DATED: 03/01/2018.	Assured to comply
2.	The unit shall maintain the flow meter and online sensors provided in the final outlet pipe line and maintain the connectivity for 'Water Quality Watch'.	Complied.
3.	The unit shall immediately attend and rectify the Leakage / Breakage of effluent receiving pipeline if any occurs, after stopping the pumping of treated effluent from the Member industry.	Assured to comply
4.	In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the unit as per law.	Assured to comply
5.	The Unit shall not use 'use and throwaway plastic' such as plastic sheets used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups, plastic tumbler, water pouches and packets, plastic straw, plastic carry bag and plastic flags irrespective of thickness, within the industry premises. Instead unit shall encourage use of eco friendly alternative such as banana leaf, arecanut palm plate, stainless steel, glass, porcelain plates / cups, cloth bag, jute bag etc.	Assured to comply

Air Act

Sl No	Conditions	Compliance
1.	The unit shall comply with the conditions mentioned in the CTO Proc No: T12/F.29031/TNPCB/CUD/RM/A/2013 Dated: 10.05.2013 and Proc No: F.0103CUD/RS/DEE/TNPCB/ CUD/A/2018 DATED: 03/01/2018.	Assured to comply
2.	In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the unit as per law	Assured to comply
3.	The Unit shall not use 'use and throwaway plastic' such as plastic sheets used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups, plastic tumbler, water pouches and packets, plastic straw, plastic carry bag and plastic flags irrespective of thickness, within the industry premises. Instead unit shall encourage use of eco friendly alternative such as banana leaf, arecanut palm plate, stainless steel, glass, porcelain plates / cups, cloth bag, jute bag etc.	Assured to comply

## **No Trade Effluent Generating Units**

### **33. Tagros Chemicals India Pvt Ltd, (Unit-III)**

Name and Address of the unit	Tagros Chemicals India Pvt Ltd (Unit – III) S.F.No. Plot No.A-3/2,A-3/3,4/5, Sipcot Industrial Complex, Pachayankuppam, Cuddalore - 607 005
Product with Quantity	1. Cypermethrin/ Permethrin Formulation – 450 TPM 2. Deltamethrin/ Alphacypermethrin Formulation – 500 TPM 3. Hexaconazole/ Chloropyrifos/ Lamdacyhalothrin Formulation – 300 TPM. 4. Imidacloprid/ Propiconazole/DEPA Formulation – 350 TPM 5. Temiphos/ Propoxur/ Tefluthrin Formulation – 350 TPM 6. Pyriproxyfen Formulation – 300 TPM 7. Fipronil / Sulfentrazone/ Dicamba Formulation – 450 TPM 8. Delta/ Alphamethrin Tablets - 7.5 TPM
Effluent Treatment Plant Details	No Trade Effluent
Trade Effluent quantity	NIL
Trade Effluent Disposal	NIL
Air Pollution Control Measures.	GMP Block Workplace Vent connected to Reactor

Compliance of Consent order Conditions of M/s.TAGROS CHEMICALS INDIA PVT LTD,(UNIT-III) ,

#### Water Act

Sl No	Conditions	Compliance
1.	The unit shall not generate trade effluent at any stage of its manufacturing process.	Complied
2.	The unit shall ensure that no spillage of raw materials occur during handling in the process and packing area.	Complied
3.	The unit shall ensure that the containers used for supplying the technical grade pesticides and solvents are returned to the original suppliers.	Assured to comply
4.	The unit shall not produce banned pesticides and restricted pesticides listed in the Annexure-II and Annexure-III respectively specified under the Insecticides Act, 1968.	Assured to comply
5.	The unit shall maintain Material Safety Data Sheets for all the	Assured to

	Hazardous materials handles by it and it shall ensure that hazardous material are handled by adhering to the safety procedures specified in the Material Safety Data Sheets which shall be maintained in schedule 9 of the Manufacturers, Storage and Import of Hazardous Material Rule, 1989 and amended in 2000.	comply
6.	The unit shall comply with the rules and regulations under the Manufacturers, Storage and Import of Hazardous Material Rule, 1989 and amended in 2000.	Assured to comply
7.	The unit shall maintain good housekeeping both within and outside the premises.	Complied
8.	The activity of the unit shall not invite any complaints.	Complied
9.	The Unit shall not use 'use and throwaway plastic' such as plastic sheets used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups, plastic tumbler, water pouches and packets, plastic straw, plastic carry bag and plastic flags irrespective of thickness, within the industry premises. Instead unit shall encourage use of eco friendly alternative such as banana leaf, arecanut palm plate, stainless steel, glass, porcelain plates / cups, cloth bag, jute bag etc.	Complied
10.	In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the unit as per law.	Complied
11.	The unit shall develop adequate green belt within its premises.	Complied
12.	The occupier shall prepare a safety report in consultation with the concerned authority and submit the same within one year from the date of commencement of the Manufacture, Storage and Import of Hazardous Chemicals (Amendment) Rules, 1994, for storing and using the Hazardous Chemicals.	Assured to comply

#### Air Act

Sl No	Conditions	Compliance
1.	The unit shall not let out process emission in the premises.	Assured to comply
2.	The unit shall adhere to the AAQ/emission/Ambient Noise level standards prescribed by the Board.	Assured to comply
3.	The unit shall not produce banned pesticides and restricted pesticides listed in the Annexure-II and Annexure-III respectively specified under the Insecticides Act, 1968.	Assured to comply
4.	The unit shall maintain Material Safety Data Sheets for all the Hazardous materials handles by it and it shall ensure that hazardous material are handled by adhering to the safety procedures specified in the Material Safety Data Sheets which shall be maintained in	Assured to comply

	schedule 9 of the Manufacturers, Storage and Import of Hazardous Material Rule, 1989 and amended in 2000.	
5.	The unit shall comply with the rules and regulations under the Manufacturers, Storage and Import of Hazardous Material Rule, 1989 and amended in 2000.	Assured to comply
6.	The occupier shall prepare a safety report in consultation with the concerned authority and submit the same within one year from the date of commencement of the Manufacture, Storage and Import of Hazardous Chemicals (Amendment) Rules, 1994, for storing and using the Hazardous Chemicals.	Assured to comply
7.	The unit shall maintain good housekeeping both within and outside the premises.	Complied
8.	The activity of the unit shall not invite any complaints.	Complied

### 34. M/s. TANFAC Industries Limited (Peracetic Acid)

Name and Address of Industry	:	M/s. TANFAC Industries Limited (Peracetic Acid)
Contact person & Telephone No/ Fax No/Mobile No	:	Dr.L.Ravichandran- Senior General Manager- Technical 04142/239002-5 Fax- 04142/239008 Mobile – 90920 33585
Establishment Date	:	Company Established on 1985 Per Acetic Acid plant Consent 7.4.2015
Commissioned Date	:	26.6.2015
Category & Size		Red- Small
Consent Status	:	Validity 31-Mar-2022
Water Source and consumption If they have own bore well, whether NOC obtained by CGWA or any other department	:	SIPCOT – 4070 KLD This Consent – $0.95 + 0.25 = 1.20$ KLD  Water Consumption - NIL
Installed Capacity	:	Per acetic acid ( various grades on 15% basis) – 360 MTPM
Consented capacity	:	Per acetic acid ( various grades on 15% basis) – 360 MTPM
Operating capacity at the time of inspection	:	Not running for the last 2 years
Raw materials	:	1. Acetic acid 2. Hydrogen peroxide (50%) 3. Sulphuric acid
Waste water sources	:	Nil
Quantity of Waste Water generated as per consent issued Actual generation of effluent		No source of waste water
Effluent treatment plant components	:	0
Mode of treated effluent discharge as per consent	:	Does not arise
Treated effluent quality prescribed in consent		Does not arise
Adequacy of treatment system provided to achieve prescribed standards of effluent		Does not arise
Status of installation of Online Monitoring system for Effluent		Does not arise
Number of violations observed during past five years and action taken		Nil
Air Pollution Emission sources and	:	Nil

Control Devices		
Status of installation of Online Monitoring system for Source emissions		Nil
Number of violations observed during past five years and action taken		No source of emission
Adequacy of air pollution control devices provided to achieve prescribed standards of Source Emissions		Does not arise

Compliance of Consent order Conditions of **M/s. TANFAC INDUSTRIES LIMITED (PERACETIC ACID)**,

Water Act

Sl. No	Conditions	Compliance
1.	In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the unit as per law.	Assured to comply

Air Act

Sl. No	Conditions	Compliance
1.	In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the unit as per law.	Assured to comply

**35. M/s. Pioneer Jellice India Pvt. Ltd Biogas Genset 1168 KW.**

Address of Industry	:	M/s. Pioneer Jellice India P. Limited
Contact person & Telephone No/ Fax No/Mobile No	:	Mr. T. ARUMUGAM – VICE PRESIDENT Phone No: 04142-239355 ; FAX: 04142-239290 Mobile No: 9894639386
Establishment Date	:	04.01.2012
Commissioned Date	:	12.02.2014
Category & Size	:	Orange/Small
Consent Status	:	Valid upto 31.03.2020
Water Source and consumption If they have own bore well, whether NOC obtained by CGWA or any other department	:	0.2 KLD  0.2 KLD
Installed Capacity	:	Product - Electric Power – 28056 KWHr/Day By Product - Exhaust Flue Gas – 4335 NM3/Hr.
Consented capacity	:	Product - Electric Power – 28056 KWHr/Day By Product - Exhaust Flue Gas – 4335 NM3/Hr.
Operating capacity at the time of inspection	:	Product - Electric Power – 15,417 KWHr/Day By Product - Exhaust Flue Gas – 2384 NM3/Hr.
Raw materials	:	Bio Gas
Waste water sources	:	NIL
Quantity of Waste Water generated as per consent issued Actual generation of effluent	:	NIL
Effluent treatment plant components	:	Does not Arise
Mode of treated effluent discharge as per consent	:	NIL
Air Pollution Emission sources and Control Devices	:	i. Genset, Stack – 32 Meters
Adequacy of air pollution control devises provided to achieve prescribed standards of Source Emissions	:	Adequate

**Compliance of Consent order Conditions of M/s. Pioneer Jellice India Private Limited,  
Biogas Power Generation Plant - 1169 KW**

**Water Act**

Sl No	Conditions	Compliance
1.	The unit shall discharge the sewage generated to the Septic tank and Dispersion trench provide in the main plant	Complied

2.	The unit shall ensure that no trade effluent is generated at any stage of its manufacturing process.	Complied
3.	The unit shall ensure to provide adequate PPE to the employees working near the engine.	Assured to comply
4.	The unit shall continue to utilize the flue gas for drying purpose in its main plant Di-calcium phosphate drier	Assured to comply
5.	The unit shall comply with the provisions of HOW (M & TM) Rules, 2016 and shall handle the hazardous waste generated such as waste oil from this unit with main plant's hazardous waste authorization.	Assured to comply
6.	The unit shall not use 'use and throwaway plastics' such as plastic sheets used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups, plastic tumbler, water pouches and packets, plastic straw, plastic carry bag and plastic flags irrespective of thickness, within the industry premises. Instead it shall encourage use of eco friendly alternative such as banana leaf, arecanut palm plate, stainless steel, glass, porcelain plates/cups, cloth bag, Jute bag etc.,	Assured to comply
7.	In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the health care facility as per law.	Assured to comply
8.	The unit shall remit the balance consent fee of Rs. 8874/- as per the latest GFA.	Complied.

#### Air Act

Sl No	Conditions	Compliance
1.	The unit shall operate and maintain the Air Pollution & Noise Pollution Control Measures so as to achieve the AAQ/ ANL/ Emission Standards prescribed by the Board..	Assured to comply
2.	The unit shall develop adequate greenbelt within the periphery of the unit to attenuate noise and air pollution	Assured to comply
3.	In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the health care facility as per law.	Assured to comply

**37. M/s. Coastal Packers Pvt Limited**

Address of Industry	:	M/s. Coastal Packers Pvt Limited
Contact person & Telephone No/ Fax No/Mobile No	:	Thiru P. Janarthanan
Establishment Date	:	2007
Commissioned Date	:	13-06-2007
Category & Size	:	Orange/Small
Consent Status	:	Valid upto 31.03.2019
Water Source and consumption If they have own bore well, whether NOC obtained by CGWA or any other department	:	SIPCOT – 2.0 KLD  Water Consumption NIL
Installed Capacity  Consented capacity  Operating capacity at the time of inspection	:	Corrugated boxes - 210 Tones/Month  Corrugated boxes - 210 Tones/Month  Corrugated boxes - NIL Tones/Month
Raw materials	:	Kraft Paper
Products	:	Corrugated Boxes
Process	:	
Fluited media and Kraft paper wrapping		
Waste water sources	:	Nil
Quantity of Waste Water generated as per consent issued Actual generation of effluent	:	1.3 KLD NIL
Effluent treatment plant components	:	No Trade Effluent
Mode of treated effluent discharge as per consent	:	NIL
Treated effluent quality prescribed in consent	:	NIL
Air Pollution Emission sources and Control Devices	:	NIL
Status of installation of Online Monitoring system for Source emissions	:	NIL
Adequacy of air pollution control devices provided to achieve prescribed standards of Source Emissions	:	NIL

Compliance of consent order conditions M/s. **COASTAL PACKERS PRIVATE LIMITED**, S.F.No. 63/2 & 63/3, PACHAYAKUPPAM village, Cuddalore Taluk and Cuddalore District

Water Act

Sl No	Conditions	Compliance
1	In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the unit as per law.	Assured to Comply

Air Act

Sl No	Conditions	Compliance
1.	In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the unit as per law.	Assured to Comply

**38. M/s. Morgan Propack Limited.**

Address of Industry	:	M/s. Morgan Propack Limited
Contact person & Telephone No/ Fax No/Mobile No	:	Thiru A Sangaiyah 8667794103
Establishment Date	:	1991
Commissioned Date	:	01-01-1992
Category & Size	:	Orange/Small
Consent Status	:	Valid upto 31.03.2019
Water Source and consumption If they have own bore well, whether NOC obtained by CGWA or any other department	:	SIPCOT – 1.3 KLD  Water Consumption 1.0 KLD
Installed Capacity  Consented capacity  Operating capacity at the time of inspection	:	Paper Core, Tubes & Containers, Paper Drum, Paper edge protector - 140 Tones/Month  Paper Core, Tubes & Containers, Paper Drum, Paper edge protector - 140 Tones/Month  Paper Core, Tubes & Containers, Paper Drum, Paper edge protector – NIL (Unit not under Operation)
Raw materials	:	1. Kraft and Mill Board, Kraft paper, Maplitho Paper 2. Yellow Dextrine Powder 3. Borax
Products	:	Paper Core, Tubes & Containers, Paper Drum, Paper edge protector - 140 Tones/Month
Process	:	Paper Core, Tubes & Containers, Paper Drum, Paper edge protector
Waste water sources	:	Nil
Quantity of Waste Water generated as per consent issued		1.3 KLD
Actual generation of effluent		NIL
Effluent treatment plant components	:	No Trade Effluent
Adequacy of treatment system provided to achieve prescribed standards of effluent		NIL
Status of installation of Online Monitoring system for Effluent		NIL
Number of violations observed during past five years and action taken		NIL
Air Pollution Emission sources and Control Devices	:	i. DG Set 22.5 KVA Stack - 0.1 - 3
Adequacy of air pollution control devices provided to achieve		NIL

prescribed standards of Source Emissions		
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Water Act

Sl No	Conditions	Compliance
1	In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the unit as per law.	Assured to Comply

Air Act

Sl No	Conditions	Compliance
1.	In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the unit as per law.	Assured to Comply

**39. M/s. Morgan Industries Limited.**

Address of Industry	:	M/s. Morgan Industries Limited
Contact person & Telephone No/ Fax No/Mobile No	:	Mr Ashok Balasubramaniyan Mobile Number:
Establishment Date	:	
Commissioned Date	:	01-07-1992
Category/ Size	:	Orange / Large
Consent Status	:	Valid upto 31.03.2018
Water Source and consumption If they have own bore well, whether NOC obtained by CGWA or any other department	:	SIPCOT – 150 KLD  Water Consumption - Nil
Installed Capacity	:	1. PVC Taps 125 Tonns/Month 2. BOPP Taps 120 Tonns/Month
Consented capacity	:	1. PVC Taps 125 Tonns/Month 2. BOPP Taps 120 Tonns/Month
Operating capacity at the time of inspection	:	1. PVC Taps NIL ( No Production Since 2018) 2. BOPP Taps NIL ( No Production Since 2018)
Raw materials	:	1. PVC Film 2. DPR ROSIN 3. FURNACE OIL 4. ESCOREZ 1204 5. ESCOREZ 1402 6. ESCOREZ 1315 7. ANTI OXIDENT 8. WATER BASED PRIMER LNR 20 M 9. BOPP FILM 29 micron 10. BONDEX A 117 WATER BASED ACRYLIC ADHESIVE 11. NATURAL RUBBER 12. SBR1502 RUBBER 13. TOLUENE 14. BOPP FILM 23 micron
Waste water sources	:	Boiler Blow Down
Quantity of Waste Water generated as per consent issued	:	No Effluent since unit not under operation
Effluent treatment plant components	:	Collection cum Neutralization Tank Solar Evaporation Pan
Mode of treated effluent discharge as per consent	:	Zero Liquid Discharge
Treated effluent quality prescribed in consent	:	Zero Liquid Discharge
Adequacy of treatment system provided to achieve prescribed	:	Adequate

standards of effluent		
Status of installation of Online Monitoring system for Effluent	:	NIL
Number of violations observed during past five years and action taken	:	NIL
Air Pollution Emission sources and Control Devices	:	<ul style="list-style-type: none"> <li>i. Boiler 3 TPH - 1 No. Stack - 0.8 - 20</li> <li>ii. DG Set 250 KVA – 1 No. Stack - 0.1 - 9.0</li> <li>iii. Coating Machine Stack - 1.2 - 20</li> </ul>

Compliance of consent order conditions **M/s. Morgan Industries Limited.**

Water Act

Sl No	Conditions	Compliance
1	The unit shall operate and maintain sewage disposal system continuously and efficiently so as to achieve the standards prescribed by the Board.	Assured to Comply
2	The unit shall dispose the entire quantity of trade effluent (Softener Regeneration Wastewater) into impervious solar evaporation pan.	Complied
3	The unit shall ensure that there shall not be any seepage/overflow from solar evaporation pan.	Complied
4	The unit shall dispose the solid waste generated then and there without any accumulation.	Complied
5	The unit shall develop adequate depth of green belt at the rate of 400 trees per hectare	Complied
6	The unit shall dispose the salt generating from solar evaporation pan then and there without any accumulation to the authorized recycles.	Complied

Air Act

Sl No	Conditions	Compliance
1.	The unit shall operate and maintain all the Air Pollution control measures continuously and efficiently so as to achieve the standards prescribed by the Board.	Assured to Comply
2	The unit shall adhere Ambient Air Quality Standards and Ambient Noise Level standards prescribed by the Board.	Complied
3	The unit shall provide acoustic enclosures for DG set and noise emission shall satisfy ANL standards prescribed by the Board.	Complied
4	The unit shall develop adequate depth of green belt at the rate of 400 trees per hectare.	Complied

#### 40. M/s. Diamond Ice and Cold Storage

Address of Industry	:	M/s. Diamond Ice and Cold Storage
Contact person & Telephone No/ Fax No/Mobile No	:	Thiru Saravanan Proprietor
Establishment Date	:	1995
Commissioned Date	:	09-08-1996
Consent Status	:	Valid upto 31.03.2021
Category & Scale of Operation	:	Green category, Small Scale
Water Source and consumption If they have own bore well, whether NOC obtained by CGWA or any other department	:	Ground Water (within premises) Bore well - 22.0 KLD  Water Consumption – 8 KLD
Consented capacity	:	White Ice 600 T/Month
Raw materials	:	Water
Products	:	White Ice 600 T/Month
Air Pollution Emission sources and Control Devices	:	i. DG Set 120 KVA – 1 No. Stack - 0.10 - 3.97

#### Compliance of consent order conditions M/s. Diamond Ice and Cold Storage

##### Water Act

Sl No	Conditions	Compliance
1	The unit shall continue to adhere to the conditions imposed in previous consent orders.	Assured to comply
2	The Unit shall not use 'use and throwaway plastic' such as plastic sheets used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups, plastic tumbler, water pouches and packets, plastic straw, plastic carry bag and plastic flags irrespective of thickness, within the industry premises. Instead unit shall encourage use of eco friendly alternative such as banana leaf, arecanut palm plate, stainless steel, glass, porcelain plates / cups, cloth bag, jute bag etc.	Assured to comply
3	In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the unit as per law.	Assured to Comply

##### Air Act

Sl No	Conditions	Compliance
1	The unit shall continue to adhere to the conditions imposed in previous consent orders.	Assured to comply
2	The Unit shall not use 'use and throwaway plastic' such as plastic sheets used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups, plastic tumbler, water pouches and packets, plastic straw, plastic carry bag and plastic flags irrespective of thickness, within the industry premises. Instead unit shall encourage use of eco friendly alternative such as banana leaf, arecanut palm plate, stainless steel, glass, porcelain plates / cups, cloth bag, jute bag etc.	Assured to comply
3.	In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the unit as per law.	Assured to Comply

#### 41. M/s. IGLOO ICE

Address of Industry	:	M/s. IGLOO ICE
Contact person & Telephone No/ Fax No/Mobile No	:	Thiru A Balasubramanian Proprietor
Establishment Date	:	2006
Commissioned Date	:	01-05-2007
Consent Status	:	Valid upto 31.03.2019
Category & Scale of Operation	:	Green category, Small Scale
Water Source and consumption If they have own bore well, whether NOC obtained by CGWA or any other department	:	Bore well and SIPCOT - 12 KLD  Water Consumption NIL
Consented capacity	:	White Ice Bar 210 T/M
Raw materials	:	1. Ammonia 2. Salt 3. Water
Products	:	1. White Ice Bar 210 T/M
Waste water sources	:	Nil
Quantity of Waste Water generated as per consent issued Actual generation of effluent	:	Nil
Effluent treatment plant components	:	No Trade Effluent.

#### Compliance of consent order conditions **M/s. Igloo Ice, SIPCOT**

##### Water Act

Sl No	Conditions	Compliance
1	The unit shall continue to adhere to the conditions imposed in previous consent orders.	Assured to comply
2	The Unit shall not use 'use and throwaway plastic' such as plastic sheets used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups, plastic tumbler, water pouches and packets, plastic straw, plastic carry bag and plastic flags irrespective of thickness, within the industry premises. Instead unit shall encourage use of eco friendly alternative such as banana leaf, arecanut palm plate, stainless steel, glass, porcelain plates / cups, cloth bag, jute bag etc.	Assured to comply
3	In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the unit as per law.	Assured to Comply

Air Act

Sl No	Conditions	Compliance
1	The unit shall continue to adhere to the conditions imposed in previous consent orders.	Assured to comply
2	The Unit shall not use 'use and throwaway plastic' such as plastic sheets used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups, plastic tumbler, water pouches and packets, plastic straw, plastic carry bag and plastic flags irrespective of thickness, within the industry premises. Instead unit shall encourage use of eco friendly alternative such as banana leaf, arecanut palm plate, stainless steel, glass, porcelain plates / cups, cloth bag, jute bag etc.	Assured to comply
3.	In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the unit as per law.	Assured to Comply

#### 42. M/s. Kowsalya Ice Company

Address of Industry	:	M/s. Kowsalya Ice Company
Contact person & Telephone No/ Fax No/Mobile No	:	Thiru Matcharegai
Establishment Date	:	2006
Commissioned Date	:	01-06-2007
Consent Status	:	Valid upto 31.03.2021
Category & Scale of Operation	:	Green category, Small Scale
Water Source and consumption If they have own bore well, whether NOC obtained by CGWA or any other department	:	SIPCOT – 10.2 KLD  Water Consumption – 4 KLD
Installed Capacity	:	White Ice Bar - 200 MT/Month
Consented capacity	:	White Ice Bar - 200 MT/Month
Operating capacity at the time of inspection	:	White Ice Bar – 4 Tonnes
Raw materials	:	1. Ammonia 2. Salt 3. Water
Waste water sources	:	Nil
Quantity of Waste Water generated as per consent issued Actual generation of effluent		Nil

#### Compliance of consent order conditions M/s. Kowsalya Ice Company, SIPCOT

##### Water Act

Sl No	Conditions	Compliance
1	The unit shall continue to adhere to the conditions imposed in previous consent orders.	Assured to comply
2	The Unit shall not use 'use and throwaway plastic' such as plastic sheets used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups, plastic tumbler, water pouches and packets, plastic straw, plastic carry bag and plastic flags irrespective of thickness, within the industry premises. Instead unit shall encourage use of eco friendly alternative such as banana leaf, arecanut palm plate, stainless steel, glass, porcelain plates / cups, cloth bag, jute bag etc.	Assured to comply
3	In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the unit as per law.	Assured to Comply

Air Act

Sl No	Conditions	Compliance
1	The unit shall continue to adhere to the conditions imposed in previous consent orders.	Assured to comply
2	The Unit shall not use 'use and throwaway plastic' such as plastic sheets used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups, plastic tumbler, water pouches and packets, plastic straw, plastic carry bag and plastic flags irrespective of thickness, within the industry premises. Instead unit shall encourage use of eco friendly alternative such as banana leaf, arecanut palm plate, stainless steel, glass, porcelain plates / cups, cloth bag, jute bag etc.	Assured to comply
3.	In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the unit as per law.	Assured to Comply

### 43. M/s. MAB METALS

Address of Industry	:	M/s. MAB METALS
Contact person & Telephone No/ Fax No/Mobile No	:	Thiru Ravi Proprietor
Establishment Date	:	1999
Commissioned Date	:	01-04-2000
Consent Status	:	Valid upto 31.03.2023
Category & Scale of Operation	:	Orange category, Small Scale
Water Source and consumption If they have own bore well, whether NOC obtained by CGWA or any other department	:	SIPCOT - 1 KLD  Water Consumption – 1 KLD
Installed Capacity	:	Aluminium Circles – 3 T/Month Domestic Utensils – 2 T/Month
Consented capacity	:	Aluminium Circles – 3 T/Month Domestic Utensils – 2 T/Month
Operating capacity at the time of inspection	:	Aluminium Circles – NIL Domestic Utensils – 0.1 Tonnes
Raw materials	:	1. Aluminium Circles 2. Domestic Utensils
Waste water sources	:	Scrubber Liquid
Quantity of Waste Water generated as per consent issued Actual generation of effluent	:	0.05 KLD  0.05 KLD
Effluent treatment plant components	:	Solar Evaporation Pan
Mode of treated effluent discharge as per consent	:	Zero Liquid Discharge
Treated effluent quality prescribed in consent	:	Zero Liquid Discharge
Adequacy of treatment system provided to achieve prescribed standards of effluent	:	Adequate
Status of installation of Online Monitoring system for Effluent	:	NIL
Number of violations observed during past five years and action taken	:	NIL
Air Pollution Emission sources and Control Devices	:	i. Annealing and melting Furnace Scrubber and stack - 0.6*0.6 - 7.0 ii. Melting Furnace Hood Arrangement with Stack 50CM x50CM - 7.0 iii. DG Set 125 KVA – 1 No. Stack - 0.05 - 4.0

Compliance of consent order conditions **M/s. MAB METALS, SIPCOT**

Water Act

Sl No	Conditions	Compliance
1	The unit shall continue to adhere to the conditions imposed in previous consent orders.	Assured to comply
2	The Unit shall not use 'use and throwaway plastic' such as plastic sheets used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups, plastic tumbler, water pouches and packets, plastic straw, plastic carry bag and plastic flags irrespective of thickness, within the industry premises. Instead unit shall encourage use of eco friendly alternative such as banana leaf, arecanut palm plate, stainless steel, glass, porcelain plates / cups, cloth bag, jute bag etc.	Assured to comply
3	In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the unit as per law.	Assured to Comply

Air Act

Sl No	Conditions	Compliance
1	The unit shall continue to adhere to the conditions imposed in previous consent orders.	Assured to comply
2	The Unit shall not use 'use and throwaway plastic' such as plastic sheets used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups, plastic tumbler, water pouches and packets, plastic straw, plastic carry bag and plastic flags irrespective of thickness, within the industry premises. Instead unit shall encourage use of eco friendly alternative such as banana leaf, arecanut palm plate, stainless steel, glass, porcelain plates / cups, cloth bag, jute bag etc.	Assured to comply
3.	In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the unit as per law.	Assured to Comply

#### 44. M/s. Pondyerry Alum and Chemicals Ltd

Address of Industry	:	M/s. Pondyerry Alum and Chemicals Ltd
Contact person & Telephone No/ Fax No/Mobile No	:	Thiru Prasad Rao The Managing Director
Establishment Date	:	2003
Commissioned Date	:	23-05-2004
Category/ Scale	:	Red /Small
Consent Status	:	Valid upto 31.03.2020
Category & Scale of Operation	:	Red category, Small Scale
Water Source and consumption If they have own bore well, whether NOC obtained by CGWA or any other department	:	SIPCOT - 20 KLD  Water Consumption – 1.5 KLD
Consented capacity	:	1. FERRIC ALUM – 600 Tons/month 2. NON FERRIC ALUM – 150 Tons/month
Raw materials	:	1. BAUXITE 2. SPENT SULPHURIC ACID 3. SULPHURIC ACID 98% 4. ALUMINA HYDRATE
Waste water sources	:	Boiler Blow Down
Quantity of Waste Water generated as per consent issued	:	0.1 KLD
Effluent treatment plant components	:	Solar Evaporation Pan
Mode of treated effluent discharge as per consent	:	Zero Liquid Discharge
Treated effluent quality prescribed in consent	:	Zero Liquid Discharge
Air Pollution Emission sources and Control Devices	:	i. Boiler 1 TPH Stack - 0.35 - 28.6 ii. Pulveriser Cyclone with Bag Filter

#### Compliance of Consent order Conditions of M/s. Pondyerry Alum & Chemicals Ltd

##### Water Act

Sl No	Conditions	Compliance
1.	The unit shall ensure that no trade effluent generated at any stage of its manufacturing process.	Complied.
2.	The unit shall maintain good housekeeping within the premises.	Complied.
3.	The unit shall develop and maintain the tree saplings planted within the premises or outside the premises	Complied
4.	In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and	Assured to comply

	further action will be initiated against the unit as per law.	
5.	The Unit shall not use 'use and throwaway plastic' such as plastic sheets used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups, plastic tumbler, water pouches and packets, plastic straw, plastic carry bag and plastic flags irrespective of thickness, within the industry premises. Instead unit shall encourage use of eco friendly alternative such as banana leaf, arecanut palm plate, stainless steel, glass, porcelain plates / cups, cloth bag, jute bag etc.	Assured to comply

#### Air Act

Sl No	Conditions	Compliance
1.	The unit shall adhere to the Ambient Air Quality/Emission/ Ambient Noise Level standards prescribed by the Board.	Complied.
2.	The unit shall maintain good housekeeping within the premises.	Complied.
3.	The unit shall develop and maintain the tree saplings planted within the premises or outside the premises..	Complied
4.	In case of revision of consent fee by the Government, the unit shall remit the difference in amount within one month from the date of notification. Failing to remit the consent fee, this consent order will be withdrawn without any notice and further action will be initiated against the unit as per law	Assured to comply
5.	The Unit shall not use 'use and throwaway plastic' such as plastic sheets used for food wrapping, spreading on dining table etc., plastic plates, plastic coated tea cups, plastic tumbler, water pouches and packets, plastic straw, plastic carry bag and plastic flags irrespective of thickness, within the industry premises. Instead unit shall encourage use of eco friendly alternative such as banana leaf, arecanut palm plate, stainless steel, glass, porcelain plates / cups, cloth bag, jute bag etc.	Assured to comply

**45. M/s. Kumar Chemicals Corporation, A-4/4, SIPCOT Industrial Complex, Pachayankuppam Village, Cuddalore - 607 005.**

The unit has valid Consent upto 31.03.2021. The unit is engaged in manufacturing of Aluminium sulphates 75 MT/M and metallic stearates 5 MT/M. During inspection the unit was not in operation. It is reported that the unit was closed since 2018.

**Remarks of the committee on functioning of effluent treatment plant:**

During inspection the unit was closed and unit has furnished a letter for deletion of the technical file.

Compliance of consent order conditions M/s. **Kumar Chemicals Corporation., SIPCOT**

Water Act

Sl No	Conditions	Compliance
1	The unit shall ensure that the trade effluent generated shall be neutralized and disposed through impervious solar evaporation pan.	Assured to Comply
2	The unit shall operate and maintained efficiently of the effluent treated effluent and ensure that no seepage or over flow of effluent occurs.	Assured to Comply
3	The unit shall plant adequate number of trees around boundary.	Assured to Comply
4	The unit shall furnish latest auditor balance sheet as on 31.03.2015 within week time	Assured to Comply

Air Act

Sl No	Conditions	Compliance
1.	The unit shall adhere to the AAQ/emission/Ambient noise level standards prescribed by the Board.	Assured to Comply
2	The unit shall furnish latest auditor balance sheet as on 31.03.2015 within week time.	Assured to Comply

**Report of Inspection based on the safety measures in Reaction Vessels of  
Chemical Factories situated in SIPCOT, Cuddalore.**

**1. Introduction:**

The National green Tribunal registered a case in Suo Moto Case original application No.121 of 2021 in (SZ) on the basis of the newspaper report published in the Hindu. The major industrial accident occurred on 13.05.2021 in Crimsun Organics Private Limited in SIPCOT, Cuddalore.

They noticed the main reason for that industrial accident was not maintaining safety measures and not complying with the conditions imposed in the clearance and the permission granted.

The committee directed to inspect the various chemical factories in SIPCOT, Cuddalore and also to submit the report of inspection. Based on the direction, Joint Director of industrial safety and health, cuddalore and Deputy Director of industrial safety and health, cuddalore jointly inspected the chemical factories in various dates.

Based on the Factories Act and Rules vessels are classified into two types.

1. Reaction Vessel and kettle
2. Pressure Plant/ vessel

**Reaction Vessel and kettle**

Means a system/vessel which normally works at a pressure **not above the atmospheric pressure** but in which there is likelihood of pressure being created above the atmospheric pressure due to reaction getting out of control or any other circumstances.

**Pressure Plant/ vessel**

Means a system of piping that is connected to a Pressure Vessel and is used to contain a gas vapour or liquid under pressure **greater than** the atmospheric pressure.

The pressure vessel and reaction vessel are further classified into two categories such as

1. Critical vessels
2. Non-Critical vessels

### **Critical vessels:**

It means, during the process any physical parameters such as temperature, pressure, flow rate and nature/quantity of chemical used is altered / varied, it causes imminent danger to the work place and the environment.

### **Non-Critical vessels:**

It means during the process, any physical parameters such as temperature, pressure, flow rate and nature/quantity of chemical increased or decreased it causes no danger to the work place and the environment.

### **OBJECTIVES OF THE REPORT:**

- To prevent similar type of accident (Reaction Vessel accident in crimson organics India pvt limited) in future.
- To ensure safety in Reaction Vessels of all Chemical Factories in SIPCOT, Cuddalore.
- To create safe work environment in which the worker can work without fear of accident in future.
- To encourage the recent technology system/ controller, by which it is automatically interlocked and the system control the process which gives safe work platform to the worker and prevent accident.
- To ascertain periodic examination of all types of vessels.
- To conduct periodic maintenance and preventive maintenance to ensure safety in Reaction Vessels.

### **3. SAFETY SYSTEMS PROVIDED IN THE FACTORIES:**

1. Alarm system connected to Hooter.
2. Safety valve connected to reactor vessel and pressure vessel and it release the pressue automatically and immediately at above the set pressure value.
3. PLC (Programmable Logic Controller) connection.
4. SCADA (Supervisory Control And Data Acquisition) connection.
5. DCS (Distributed Control System) connection.
6. Smoke detector, Gas detector connected to safety monitoring and controlling device.
7. Fire hydrant/ sprinklers connected to safety control device.

**Tagros Chemicals India Private Limited**

**SIPCOT Industrial Complex**

## Cuddalore

**Tagros Chemicals India Private Limited** is manufacturing of Agrochemicals, Located at A-4/1, 4/2, 4/4 & 4/5, SIPCOT Industrial Complex, Pachayankuppam, Cuddalore, Tamilnadu,

Tagros is the leading manufacturer of Synthetic Pyrethroids, Herbicides, Fungicides, Pesticide Intermediates and Special Formulations, producing 2,500 metric tons of active ingredients and exporting them to over 90 countries. Its state-of-the-art manufacturing and R&D facilities have enabled the company to consistently deliver world-class quality.

Tagros is committed to manufacture and supply products and intermediates for Agriculture, Public Health, Veterinary and other allied applications, conforming to National and International standards thus ensuring customer satisfaction.

Tagros also strives for the continual improvement of systems by adopting sound design and operational practices to ensure safe work environment

Our Health and Environmental System sketches a framework for analyzing, maintaining and improving our environmental and Safety standards in compliance with the requirements of the International Standards ISO 9001, 14001, OHSAS 18001, ISO 50001 and Responsible Care.

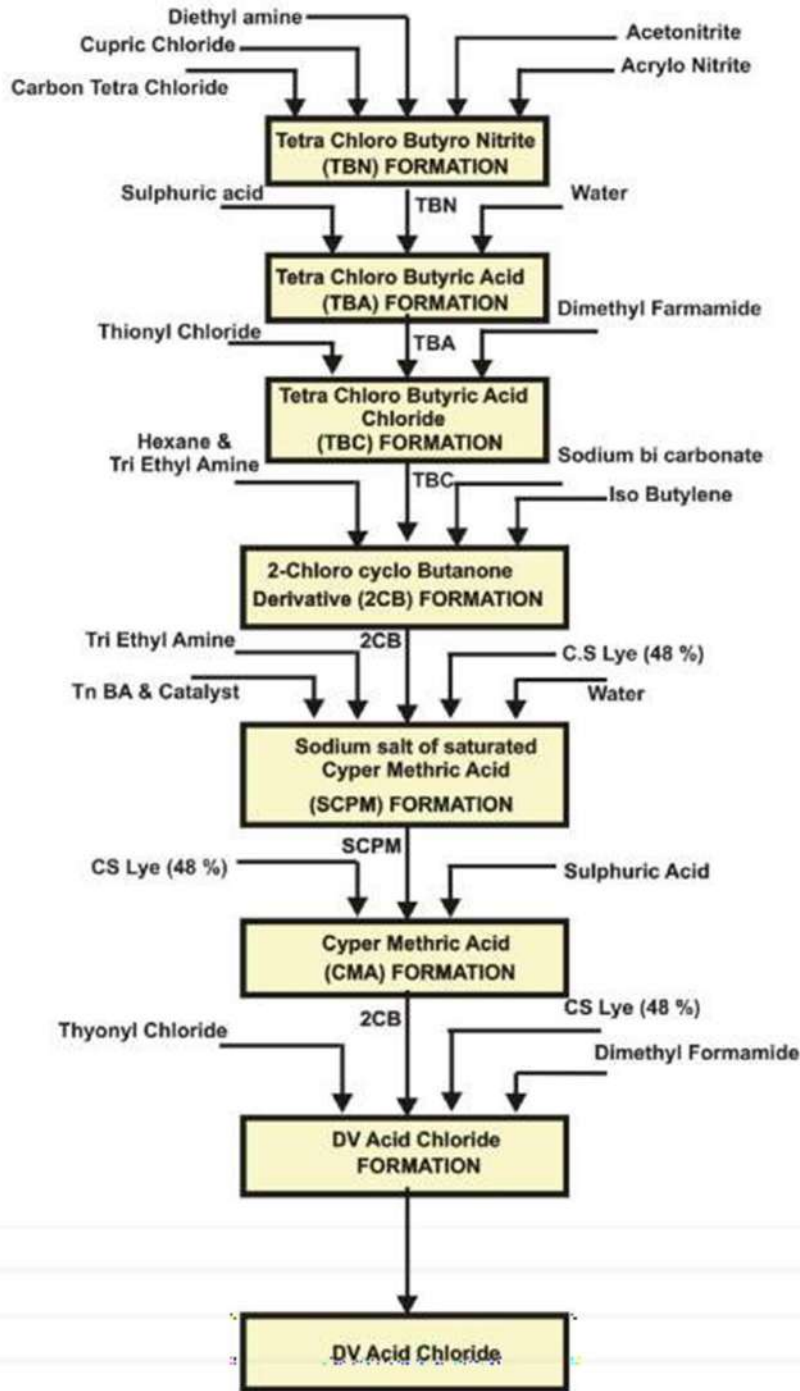
We have also incorporated various novel measures with care for our own common home – the society with several CSR activities. Our Social Contributions has been never failed have impact on the most wanted areas such Education, quality healthcare, Environmental well-being and resource preservations from the beginning. Here we throw some light on the various contributions towards the society which has taken place in the past year.

Total Number of reactors – 63

Critical reactors – 05

Non critical reactors - 58

# D.V Acid Chloride Process Flow Chart



**Master list of safety valves in Plant**

S.No	Equipm ent Name	Plant	safety Valve inlet flange Size	safety Valve out let flange size	MOC	design pressure	Workin g pressure	safety valve test pressure
1	ANF-I	ALPH A	1 1/2"	2"	SS316 L	3.5kg/cm 2	2.0kg/cm 2	3.2kg/cm2
2	ANF-II		1 1/2"	2"	SS316 L	3.5kg/cm 2	2.0kg/cm 2	3.2kg/cm2
3	ANF- 225	DELT A	1 1/2"	2"	SS316 L	3.5kg/cm 2	2.0kg/cm 2	0
4	ANF- 226		2"	3"	SS316 L	3.5kg/cm 2	2.0kg/cm 2	0
5	ANF- 101		3"	4"	SS316 L	3.5kg/cm 2	2.0kg/cm 2	1.4kg/cm2
6	ANF- 102		3"	4"	SS316 L	3.5kg/cm 2	2.0kg/cm 2	0
7	ANF- 209A	P-III	1 1/2"	2"	SS316 L	3.5kg/cm 2	2.5kg/cm 2	0
8	ANF- 209B		3"	4"	SS316 L	3.5kg/cm 2	2.5kg/cm 2	0
9	ANF- 213C		2"	3"	SS316 L	3.5kg/cm 2	2.5kg/cm 2	0
10	R-213A		2"	3"	SS316 L	3.5kg/cm 2	2.5kg/cm 2	0
11	R-201B	P-I	2"	3"	SS316 L	6kg/cm2	4.5kg/cm 2	0
12	R-201C		3"	4"	SS316 L	6kg/cm2	4.5kg/cm 2	0
13	T-101	BROM INE YARD	1"	2"	CS PTFE	2.2kg/cm 2	1.2kg/cm 2	0
14	T-102		1"	2"	CS PTFE	2.2kg/cm 2	1.2kg/cm 2	0
15	T-103		1"	2"	CS PTFE	2.2kg/cm 2	1.2kg/cm 2	0
16	T-1366	TANK FARM	1 1/2"	2"	M.S	9.0kg/cm 2	5.5kg/cm 2	8.8kg/cm2
17	T-1366		1 1/2"	2"	M.S	9.0kg/cm 2	5.5kg/cm 2	8.8kg/cm2
18	R-213C	Plant-3	2"	3"	SS316 L	1.96kg/c m2	1.5kg/cm 2	2.5 Kg/cm2
19	R-213D		2"	3"	SS316 L	1.96kg/c m2	1.5kg/cm 2	2.5 Kg/cm2
20	R-206D		3"	4"	SS316 L	5.5kg/cm 2	4.5kg/cm 2	6.0 kg/cm2

21	R-206B	3"	4"	SS316 L	5.5kg/cm 2	4.5kg/cm 2	6.0 kg/cm2
22	R-206C	3"	4"	SS316 L	5.5kg/cm 2	4.5kg/cm 2	6.0 kg/cm2
23	R-208 A II	2"	3"	SS316 L	1.96kg/c m2	1.5kg/cm 2	2.5 Kg/cm2
24	R-209A	1 1/2"	2"	SS316 L	3kg/cm2	1.5kg/cm 2	2.5 Kg/cm2
25	R-209D	1 1/2"	2"	SS316 L	3kg/cm2	1.5kg/cm 2	2.5 Kg/cm2
26	R-207C II	2"	3"	SS316 L	1.96kg/c m2	1.5kg/cm 2	2.5 Kg/cm2

**Master list of Rupture disc in Plant**

S. No	Equipme nt Name	Plan t	Ruptur e disc inlet flange Size	Ruptur e disc out let flange size	MOC	design temperat ure	design pressure	Worki ng temper ature	Working pressure
1	R-216C	ALP HA	3"	3"	SS316 L	25°C	4.0Kg/c m2	20°C	1.8kg/cm2
2	ALPHA RVD		3"	3"	SS316 L	25°C	4.0Kg/c m2	20°C	1.8kg/cm2
3	R-220C		3"	3"	SS316 L	25°C	4.0Kg/c m2	20°C	1.8kg/cm2
4	R-101	DEL TA	3"	3"	SS316 L	25°C	4.0Kg/c m2	20°C	1.8kg/cm2
5	R-102		3"	3"	SS316 L	25°C	4.0Kg/c m2	20°C	1.8kg/cm2
6	R-103		3"	3"	SS316 L	25°C	4.0Kg/c m2	20°C	1.8kg/cm2
7	R-104		3"	3"	SS316 L	25°C	4.0Kg/c m2	20°C	1.8kg/cm2
8	R-104A		3"	3"	SS316 L	25°C	4.0Kg/c m2	20°C	1.8kg/cm2
9	R-103A		3"	3"	SS316 L	25°C	4.0Kg/c m2	20°C	1.8kg/cm2
10	R-105A		3"	3"	SS316 L	25°C	4.0Kg/c m2	20°C	1.8kg/cm2
11	R-113		3"	3"	SS316 L	25°C	4.0Kg/c m2	20°C	1.8kg/cm2
12	R-114		3"	3"	SS316 L	25°C	4.0Kg/c m2	20°C	1.8kg/cm2
13	R-115		3"	3"	SS316 L	25°C	4.0Kg/c m2	20°C	1.8kg/cm2

14	R-225		3"	3"	SS316 L	25°C	4.0Kg/c m <sup>2</sup>	20°C	1.8kg/cm <sup>2</sup>
15	R-226		3"	3"	SS316 L	25°C	4.0Kg/c m <sup>2</sup>	20°C	1.8kg/cm <sup>2</sup>
16	R-227		3"	3"	SS316 L	25°C	4.0Kg/c m <sup>2</sup>	20°C	1.8kg/cm <sup>2</sup>
17	RVD-226		3"	3"	SS316 L	25°C	4.0Kg/c m <sup>2</sup>	20°C	1.8kg/cm <sup>2</sup>
18	R-206D		4"	4"	SS316 L	80°C	4.0Kg/c m <sup>2</sup>	60°C	1.4 kg/cm <sup>2</sup>
19	R-207A		3"	3"	SS316 L	150°C	5.5kg/cm <sup>2</sup>	64°C	4.5kg/cm <sup>2</sup>
20	R-207B		2"	2"	SS316 L	150°C	5.5kg/cm <sup>2</sup>	64°C	4.5kg/cm <sup>2</sup>
21	R-207D		3"	3"	SS316 L	150°C	5.5kg/cm <sup>2</sup>	64°C	4.5kg/cm <sup>2</sup>
22	R-207E		3"	3"	SS316 L	150°C	5.5kg/cm <sup>2</sup>	64°C	4.5kg/cm <sup>2</sup>
23	R-207F		3"	3"	SS316 L	150°C	5.5kg/cm <sup>2</sup>	64°C	4.5kg/cm <sup>2</sup>
24	R-207G		3"	3"	SS316 L	150°C	5.5kg/cm <sup>2</sup>	64°C	4.5kg/cm <sup>2</sup>
25	R-208 A II		3"	3"	SS316 L	150°C	5.5kg/cm <sup>2</sup>	64°C	4.5kg/cm <sup>2</sup>
26	R-208 B		3"	3"	SS316 L	150°C	5.5kg/cm <sup>2</sup>	64°C	4.5kg/cm <sup>2</sup>
27	R-209A	PLA NT- III	2"	2"	SS316 L	150°C	5.5kg/cm <sup>2</sup>	64°C	4.5kg/cm <sup>2</sup>
28	R-209B		2"	2"	SS316 L	150°C	5.5kg/cm <sup>2</sup>	64°C	4.5kg/cm <sup>2</sup>
29	R-209C		2"	2"	SS316 L	150°C	5.5kg/cm <sup>2</sup>	64°C	4.5kg/cm <sup>2</sup>
30	R-209D		2"	2"	SS316 L	150°C	5.5kg/cm <sup>2</sup>	64°C	4.5kg/cm <sup>2</sup>
31	R-210A-II		3"	3"	SS316 L	150°C	5.5kg/cm <sup>2</sup>	64°C	4.5kg/cm <sup>2</sup>
32	R-210B		2"	2"	SS316 L	150°C	5.5kg/cm <sup>2</sup>	64°C	4.5kg/cm <sup>2</sup>
33	R-211A		3"	3"	SS316 L	150°C	5.5kg/cm <sup>2</sup>	64°C	4.5kg/cm <sup>2</sup>
34	R-211B		3"	3"	SS316 L	150°C	5.5kg/cm <sup>2</sup>	64°C	4.5kg/cm <sup>2</sup>
35	R-211C		3"	3"	SS316 L	150°C	5.5kg/cm <sup>2</sup>	64°C	4.5kg/cm <sup>2</sup>
36	R-211D		3"	3"	SS316 L	150°C	5.5kg/cm <sup>2</sup>	64°C	4.5kg/cm <sup>2</sup>

37	R-212A		3"	3"	SS316 L	150°C	5.5kg/cm <sup>2</sup>	64°C	4.5kg/cm <sup>2</sup>
38	R-212B		3"	3"	SS316 L	150°C	5.5kg/cm <sup>2</sup>	64°C	4.5kg/cm <sup>2</sup>
39	R-213A		3"	3"	SS316 L	150°C	5.5kg/cm <sup>2</sup>	64°C	4.5kg/cm <sup>2</sup>
40	R-213B		3"	3"	SS316 L	150°C	5.5kg/cm <sup>2</sup>	64°C	4.5kg/cm <sup>2</sup>
41	R-213E		3"	3"	SS316 L	150°C	5.5kg/cm <sup>2</sup>	64°C	4.5kg/cm <sup>2</sup>
42	R-202A	PLA NT- VI	3"	3"	SS316 L	150°C	5.5kg/cm <sup>2</sup>	64°C	4.5kg/cm <sup>2</sup>
43	R-203		3"	3"	SS316 L	150°C	5.5kg/cm <sup>2</sup>	64°C	4.5kg/cm <sup>2</sup>
44	R-203A		3"	3"	SS316 L	150°C	5.5kg/cm <sup>2</sup>	64°C	4.5kg/cm <sup>2</sup>
45	R-205A		3"	3"	SS316 L	150°C	5.5kg/cm <sup>2</sup>	64°C	4.5kg/cm <sup>2</sup>
46	R-205B		3"	3"	SS316 L	150°C	5.5kg/cm <sup>2</sup>	64°C	4.5kg/cm <sup>2</sup>
47	R-214A		3"	3"	SS316 L	150°C	5.5kg/cm <sup>2</sup>	64°C	4.5kg/cm <sup>2</sup>
48	R-214B		3"	3"	SS316 L	150°C	5.5kg/cm <sup>2</sup>	64°C	4.5kg/cm <sup>2</sup>
49	R-214C		3"	3"	SS316 L	150°C	5.5kg/cm <sup>2</sup>	64°C	4.5kg/cm <sup>2</sup>
50	R-215A		3"	3"	SS316 L	150°C	5.5kg/cm <sup>2</sup>	64°C	4.5kg/cm <sup>2</sup>
51	R-215B		3"	3"	SS316 L	150°C	5.5kg/cm <sup>2</sup>	64°C	4.5kg/cm <sup>2</sup>

**Interlocks across the Reactor**

<b>S. NO</b>	<b>Inter Lock TAG No</b>	<b>Activities that will be performed by DCS/SCADA with the triggering of the Interlock</b>	<b>Reactor Interlock Description</b>	<b>Brief Explanations</b>
1	R208A-conductivity meter	Hooter will indicate in audio alarm	When conductivity of the organic content goes below the set point in R208A-II then the hooter will indicate in audio alarm to operator for to take corrective action	If schemes fails Organic content will be transferred to ETP leads to environmental damage
2	R207A Conductivity meter	hooter will indicate in audio alarm to operator for to take corrective action	When conductivity of the organic content goes below the set point in R207A then the hooter will indicate in audio alarm to operator for to take corrective action	If schemes fail Organic content will be transferred to ETP leads to environmental damage.
3	Hydrocarbon sensor	the hooter will give audio alarm	When Hydrocarbon is detected in % of LEL then the hooter will give audio alarm to operator for to take corrective action	If schemes fails Hydrocarbon leak will be unidentified can lead to fire.
4	R206A/B/C Temperature Indicator	hooter will give audio alarm to operator	When the R206A/B/C temperature goes above the set point then the hooter will give audio alarm to operator for to take corrective action.	If schemes fails Reactor will get pressurized, may lead to explosion.
5	R208 Temperature Indicator	the hooter will give audio alarm to operator	When the R208 temperature goes above the set point then the hooter will give audio alarm to operator for to take corrective action	If schemes fails Reactor will get pressurized, may lead to explosion.
6	RVD Pressure	hooter will	When RVD pressure goes	

	<b>Transmitter</b>	indicate audio alarm to operator	higher than the set point then the hooter will indicate audio alarm to operator for to take corrective action	If schemes fail Air entry will lead to fire.
7	<b>R111 Pressure Transmitter</b>	When the Temperature of the R111 Pressure goes above the set point then the hooter will trigger alarm	When the Temperature of the R111 Pressure goes above the set point then the hooter will trigger alarm	If schemes fails Without vacuum steam is applied means then the R111 gets pressurized
8	<b>R111 Control valve</b>	R111 temperature goes above the set point or R111 agitator not running or R111.	When R111 temperature goes above the set point or R111 agitator not running or R111 vacuum goes below set point then the Control valve set point goes to 0	If schemes fails Without vacuum or high temperature or Agitator off condition steam is applied means then the R111 gets pressurized
9	<b>R201B/C Temperature</b>	Temperature goes high level will indicate audio alarm to operator for	R201B/C Temperature goes high level will indicate audio alarm to operator for to take corrective action	If schemes fails Reactor will get pressurized lead to accident
10	<b>R201B/C Pressure Transmitter</b>	high level will indicate audio alarm to operator	R201B/C Pressure goes high level will indicate audio alarm to operator for to take corrective action	If schemes fails Reactor will get pressurized lead to accident
11	<b>R201B/C</b>	high level will indicate audio alarm to operator for	R201B/C Pressure goes high level will indicate audio alarm to operator for to take corrective action	If schemes fails Reactor will get pressurized lead to accident
12	<b>TC day tank Fork type level switch</b>	over flows then the hooter will give audio alarm to operator	When TC day tank over flows then the hooter will give audio alarm to operator for to take corrective action	If schemes fails TC tank will be over flow leads to toxic fumes.
13	<b>storm water gutter line water PH Meter</b>	The hooter will give audio alarm to operator	When the storm water gutter line water pH goes above or below the set point then the hooter will give audio alarm to operator for to take corrective action.	If schemes fails High and low pH water goes in environment pollution.
14	<b>MEE 1st stage seal water pit</b>	Automatic cut-off	When MEE 1st stage seal water pit level	If schemes fails

	<b>Level switch</b>		<b>automatic cut-in and cut-off based on the level In the pit.</b>	<b>Pump will be continuously running without water level in the pit.</b>
<b>15</b>		<b>Seal water pit level automatic cut-in and cut-off based on the level In the pit.</b>	<b>When 2nd stage seal water pit level automatic cut-in and cut-off based on the level In the pit.</b>	<b>If schemes fails  Pump will be continuously running without water level in the pit.</b>

#### Details of the Safety Appliances across the Reactor

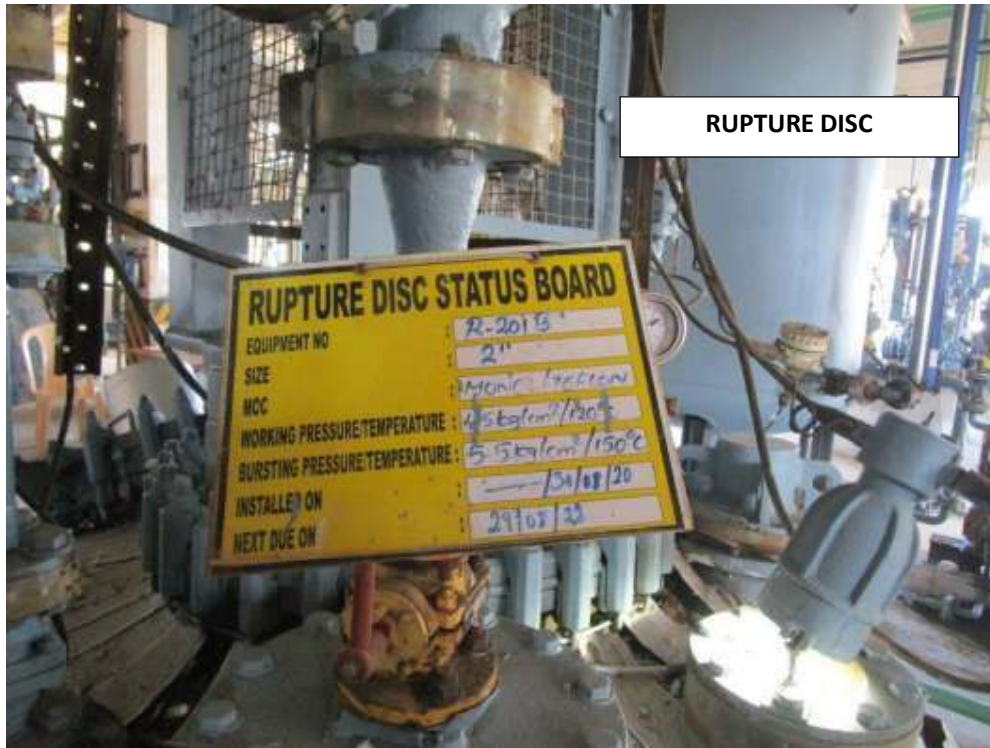
<b>S.No</b>	<b>Name of the Pressure Vessel and safety valve</b>	<b>Safety valve Opening pressure</b>	<b>Safety valve Closing pressure</b>
1	R 209 A	3.1 Kg/Cm <sup>2</sup>	2.9 Kg/Cm <sup>2</sup>
2	ANF 102	3.5 Kg/Cm <sup>2</sup>	3.0 Kg/Cm <sup>2</sup>
3	ANF 225	3.5 Kg/Cm <sup>2</sup>	3.0 Kg/Cm <sup>2</sup>
4	ANF I	3.5 Kg/Cm <sup>2</sup>	3.0 Kg/Cm <sup>2</sup>
5	ANF II	3.5 Kg/Cm <sup>2</sup>	3.0 Kg/Cm <sup>2</sup>
6	R 201 B	6.0 Kg/Cm <sup>2</sup>	5.5 Kg/Cm <sup>2</sup>
7	ANF 226	3.5 Kg/Cm <sup>2</sup>	3.0 Kg/Cm <sup>2</sup>
8	T 103	2.2 Kg/Cm <sup>2</sup>	1.8 Kg/Cm <sup>2</sup>
9	T 102	2.2 Kg/Cm <sup>2</sup>	1.8 Kg/Cm <sup>2</sup>
10	T 101	2.2 Kg/Cm <sup>2</sup>	1.8 Kg/Cm <sup>2</sup>
11	ANF 213 C	3.5 Kg/Cm <sup>2</sup>	3.0 Kg/Cm <sup>2</sup>
12	ANF 209 A	3.5 Kg/Cm <sup>2</sup>	3.0 Kg/Cm <sup>2</sup>
13	ANF 209 B	3.5 Kg/Cm <sup>2</sup>	3.0 Kg/Cm <sup>2</sup>
14	R 206 C	5.5 Kg/Cm <sup>2</sup>	5.0 Kg/Cm <sup>2</sup>
15	R 206 B	5.5 Kg/Cm <sup>2</sup>	5.0 Kg/Cm <sup>2</sup>
16	R 206 A	5.5 Kg/Cm <sup>2</sup>	5.0 Kg/Cm <sup>2</sup>
17	T 206 III	4.0 Kg/Cm <sup>2</sup>	3.6 Kg/Cm <sup>2</sup>
18	R 213 A	3.0 Kg/Cm <sup>2</sup>	2.8 Kg/Cm <sup>2</sup>
19	R 207 C II	1.96 Kg/Cm <sup>2</sup>	1.76 Kg/Cm <sup>2</sup>
20	R 213 D	1.96 Kg/Cm <sup>2</sup>	1.76 Kg/Cm <sup>2</sup>
21	R 213 C	1.96 Kg/Cm <sup>2</sup>	1.76 Kg/Cm <sup>2</sup>

22	R 208 A II	1.96 Kg/Cm <sup>2</sup>	1.76 Kg/Cm <sup>2</sup>
23	R 209 D	3.1 Kg/Cm <sup>2</sup>	2.9 Kg/Cm <sup>2</sup>
24	R 201 C	6.0 Kg/Cm <sup>2</sup>	5.5 Kg/Cm <sup>2</sup>
25	ANF 101	3.5 Kg/Cm <sup>2</sup>	3.0 Kg/Cm <sup>2</sup>

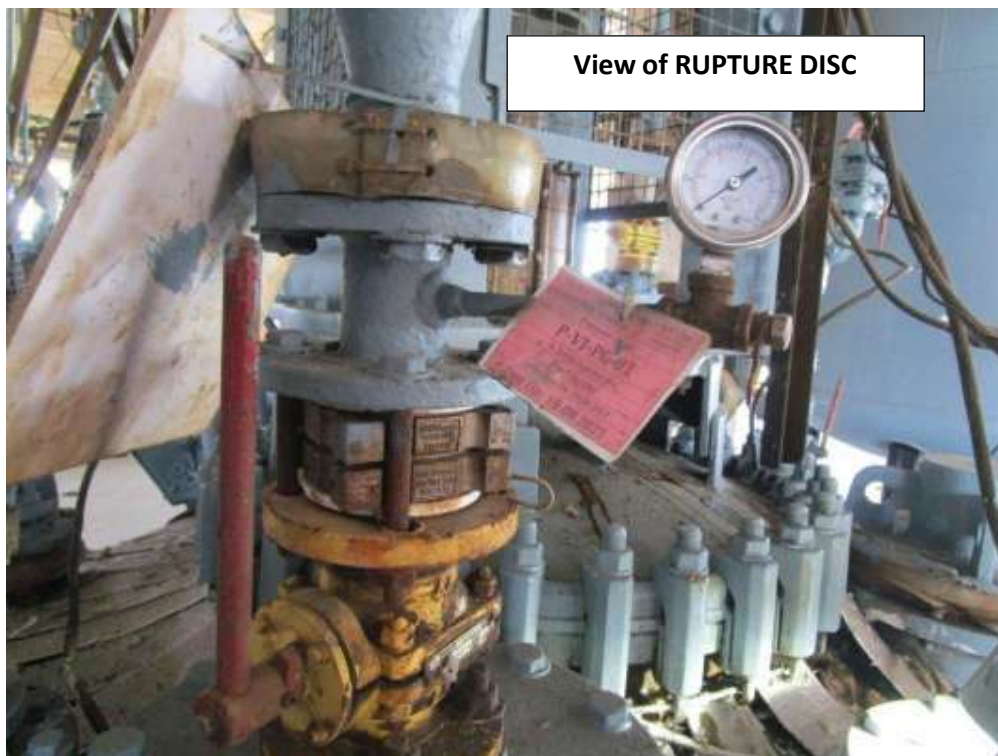
### Pressure Vessel Details

S.No	Name of the Pressure Vessel	Safety valve Opening pressure	Safety valve Closing pressure	Inspection Date	Next Due Date
1	R 209 A	3.1 Kg/Cm <sup>2</sup>	2.9 Kg/Cm <sup>2</sup>	22.01.2021	21.01.2022
2	ANF 102	3.5 Kg/Cm <sup>2</sup>	3.0 Kg/Cm <sup>2</sup>	21.01.2021	20.01.2022
3	ANF 225	3.5 Kg/Cm <sup>2</sup>	3.0 Kg/Cm <sup>2</sup>	21.01.2021	20.01.2022
4	ANF I	3.5 Kg/Cm <sup>2</sup>	3.0 Kg/Cm <sup>2</sup>	21.01.2021	20.01.2022
5	ANF II	3.5 Kg/Cm <sup>2</sup>	3.0 Kg/Cm <sup>2</sup>	21.01.2021	20.01.2022
6	R 201 B	6.0 Kg/Cm <sup>2</sup>	5.5 Kg/Cm <sup>2</sup>	21.01.2021	20.01.2022
7	ANF 226	3.5 Kg/Cm <sup>2</sup>	3.0 Kg/Cm <sup>2</sup>	21.01.2021	20.01.2022
8	T 103	2.2 Kg/Cm <sup>2</sup>	1.8 Kg/Cm <sup>2</sup>	21.01.2021	20.01.2022
9	T 102	2.2 Kg/Cm <sup>2</sup>	1.8 Kg/Cm <sup>2</sup>	21.01.2021	20.01.2022
10	T 101	2.2 Kg/Cm <sup>2</sup>	1.8 Kg/Cm <sup>2</sup>	21.01.2021	20.01.2022
11	ANF 213 C	3.5 Kg/Cm <sup>2</sup>	3.0 Kg/Cm <sup>2</sup>	22.01.2021	21.01.2022
12	ANF 209 A	3.5 Kg/Cm <sup>2</sup>	3.0 Kg/Cm <sup>2</sup>	22.01.2021	21.01.2022
13	ANF 209 B	3.5 Kg/Cm <sup>2</sup>	3.0 Kg/Cm <sup>2</sup>	21.01.2021	20.01.2022
14	R 206 C	5.5 Kg/Cm <sup>2</sup>	5.0 Kg/Cm <sup>2</sup>	22.01.2021	21.01.2022
15	R 206 B	5.5 Kg/Cm <sup>2</sup>	5.0 Kg/Cm <sup>2</sup>	22.01.2021	21.01.2022
16	R 206 A	5.5 Kg/Cm <sup>2</sup>	5.0 Kg/Cm <sup>2</sup>	21.01.2021	20.01.2022
17	T 206 III	4.0 Kg/Cm <sup>2</sup>	3.6 Kg/Cm <sup>2</sup>	22.01.2021	21.01.2022
18	R 213 A	3.0 Kg/Cm <sup>2</sup>	2.8 Kg/Cm <sup>2</sup>	22.01.2021	21.01.2022
19	R 207 C II	1.96 Kg/Cm <sup>2</sup>	1.76 Kg/Cm <sup>2</sup>	22.01.2021	21.01.2022
20	R 213 D	1.96 Kg/Cm <sup>2</sup>	1.76 Kg/Cm <sup>2</sup>	22.01.2021	21.01.2022
21	R 213 C	1.96 Kg/Cm <sup>2</sup>	1.76 Kg/Cm <sup>2</sup>	22.01.2021	21.01.2022
22	R 208 A II	1.96 Kg/Cm <sup>2</sup>	1.76 Kg/Cm <sup>2</sup>	22.01.2021	21.01.2022
23	R 209 D	3.1 Kg/Cm <sup>2</sup>	2.9 Kg/Cm <sup>2</sup>	22.01.2021	21.01.2022
24	R 201 C	6.0 Kg/Cm <sup>2</sup>	5.5 Kg/Cm <sup>2</sup>	21.01.2021	20.01.2022
25	ANF 101	3.5 Kg/Cm <sup>2</sup>	3.0 Kg/Cm <sup>2</sup>	21.01.2021	20.01.2022

## Reactor Safety Instrument/Equipment Photos



RUPTURE DISC



View of RUPTURE DISC

## Reactor Agitator guard



## HOOTER



## REACTOR TEMPERATURE INDICATOR



## SCRUBBER SYSTEM



## REACTOR ALARM ANNUNCIATOR



## SOLARA ACTIVE PHARMA SCIENCES LIMITED

### Company Profile:

In the Year 1991, Shasun Chemicals & Drugs limited set up its plant at Cuddalore to manufacture Active Pharmaceuticals Ingredients and its Intermediates for different regulatory markets.

This site is situated at A1/B, SIPCOT (State Industries Promotion Corporation of Tamil Nadu) industrial Complex in Kudikadu Village, Cuddalore 607005, Which is in the designated area provided by the Government of Tamil Nadu for the Promotion of Industries.

The site is about 180 km away from Chennai, the capital of Tamil Nadu State (India).

This site occupies an area of about of 72896.09 m<sup>2</sup> with 41600.26 m<sup>2</sup> of constructed area of manufacturing of API with five production blocks and thirteen Packing Sections. For process improvement and Development, a dedicated in-house lab and pilot plant is available at the site.

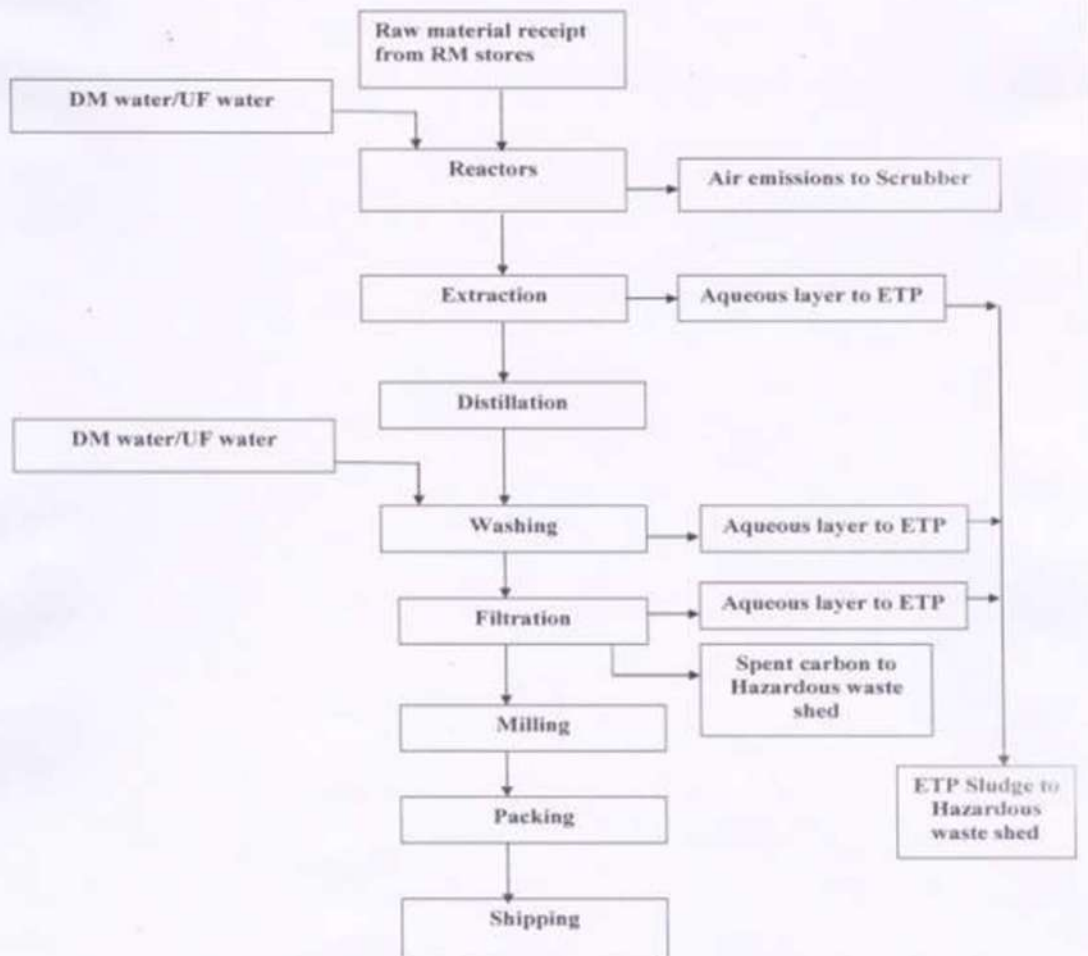
This Cuddalore site involves in manufacturing of Generic APIs and Crams. At present, we have consented 32 APIs with Zero effluent discharge.

The Products manufactured at this Cuddalore site are exported to various countries across the world.

Solara Active Pharma Sciences Limited, Cuddalore Facility is committed to protect Human life and the Environment and the site is periodically inspected and approved by various regulatory agencies for the compliance of Current Good Manufacturing Practices.

The regulatory agencies which inspected the Cuddalore site are CDSCO and SLA, TGA,USFDA, EDQM, Danish Medicine Authority, WHO-Geneva, MFDS, COFEPRIS, HPRA,MHRA and PMDA.

**PROCESS FLOW DIAGRAM**



### Interlocks across the Reactor

S.No	Reactor No	Activities that will be performed by DCS/SCADA with the triggering of the Interlock	Reactor Interlock Description	Brief Explanations
1	CUMSSR0103 , CUMSSR0084 , CUMSSR0142 , CUMSSR0083	Alarm with pop up message	High temperature Agitator trip, Utility failure, Hydrogen gas leak detection & Door opening during hydrogenation process, Alarm will be generated in SCADA system	<ol style="list-style-type: none"> <li>1. If the temperature in the Hydrogenator exceeds the 'set point' high temperature alarm will be raised followed by ON/OFF valve, Control valve in the Hydrogen feed line and steam control valve will get closed. ON/OFF valve in the Cooling Tower water line to the Hydrogenator will get opened.</li> <li>2. If agitator fails during the process, agitator trip alarm will be raised followed by ON/OFF valve &amp; Control valve in the Hydrogen feed line and steam control valve will get closed</li> <li>3. In case of Hydrogen gas leaks in the Hydrogenator area, hydrogen detection system alarm will be raised followed by ON/OFF valve &amp; Control valve in the Hydrogen feed line and steam control valve will get closed</li> <li>4. In case of any Utilities failure, Utility failure alarm will be raised followed by ON/OFF valve &amp; Control valve in the Hydrogen feed line and steam control valve will get closed</li> <li>5. During Hydrogenation process, if the door is opened, door interlock alarm will be raised followed by ON/OFF valve &amp; Control valve in the Hydrogen feed line and steam control valve will get closed</li> </ol>

### Details of the Safety Appliances across the Reactor

S. No	Description	Value
1	Hydrogenator - CUMSSR0103	<b>SRV Set Pressure:</b> 31.5 Kg/Cm <sup>2</sup> <b>Rupture Disc Set Pressure:</b> 35 Kg/Cm <sup>2</sup> @ 22°C
2	Hydrogenator - CUMSSR0084	<b>SRV Set Pressure:</b> 35.7 Kg/Cm <sup>2</sup> <b>Rupture Disc Set Pressure:</b> 33.50Kg/Cm <sup>2</sup> @ 22°C
3	Hydrogenator - CUMSSR0142	<b>SRV Set Pressure:</b> 14.2 Kg/Cm <sup>2</sup> <b>Rupture Disc Set Pressure:</b> 15.50 Kg/Cm <sup>2</sup> @ 80°C
4	Hydrogenator - CUMSSR0083	<b>SRV Set Pressure:</b> 25 Kg/Cm <sup>2</sup> <b>Rupture Disc Set Pressure:</b> 33.5 Kg/Cm <sup>2</sup> @ 80°C

### Pressure vessels

S.No	PV No.	PV description	Last test date	Next due date	Remarks
1	PV 03	Multigrade filter, vertical	-	-	Water transfer from centrifugal pump through Multi grade filter (interconnecting vessel) to storage tank. The storage tank vent is atmospheric vent.
2	PV 06	Activated Carbon Vertical	-	-	Water transfer from centrifugal pump through activated carbon filter (interconnecting vessel) to storage tank. The storage tank vent is atmospheric vent.
3	PV 07	Wet air receiver	13/10/2020	13/10/2022	-
4	PV 013	Nitrogen storage tank	14/03/2021	14/03/2022	-
5	PV 015	Multi grade filter	-	-	Water transfer from centrifugal pump through Multi grade filter (interconnecting vessel) to storage tank. The storage tank vent is atmospheric vent.
6	PV 022	Brine Chiller	11/10/2020	11/10/2022	-
7	PV 028	Sand filter	-	-	Water transfer from centrifugal pump through sand filter (interconnecting vessel) to storage tank. The storage tank vent is atmospheric vent.
8	PV 029	Sand filter	-	-	Water transfer from centrifugal pump through sand filter

					(interconnecting vessel) to storage tank. The storage tank vent is atmospheric vent.
9	PV 030	ROCHEM R.O cartridge filter	-	-	Water transfer from centrifugal pump through cartridge filter (interconnecting vessel) to storage tank. The storage tank vent is atmospheric vent.
10	PV 031	PP Cartridge Bag Filter	-	-	Water transfer from centrifugal pump through cartridge filter (interconnecting vessel) to storage tank. The storage tank vent is atmospheric vent.
11	PV 032	Reactor 0.6 KL, Hydrogenation plant	25/06/2021	25/12/2021	-
12	PV 033	Reactor 2 KL, Hydrogenation plant	17/04/2021	14/10/2021	-
13	PV 034	Reactor 5 KL, Hydrogenation plant	13/07/2021	13/01/2022	-
14	PV 035	Gas Induction Reactor 5KL	02/08/2021	02/02/2022	-
15	PV 036	Pre - Filter	-	-	Water transfer from centrifugal pump through pre- fitter (interconnecting vessel) to storage tank. The storage tank vent is having safety reliefvalve
<b>S.No</b>	<b>PV No.</b>	<b>PV description</b>	<b>Last test date</b>	<b>Next due date</b>	<b>Remarks</b>
16	PV 037	Surge vessel	12/04/2021	12/04/2022	-
17	PV 038	Air drying unit (Tower-1)	14/03/2021	14/03/2022	-
18	PV 039	Air drying unit (Tower-2)	14/03/2021	14/03/2022	-
19	PV 040	PSA Nitrogen adsorption tower-1	-	-	Nitrogen gas transfer from receiver through adsorption tower (interconnecting vessel) to storage tank. The storage tank vent is having safety relief valve
20	PV 041	PSA Nitrogen adsorption tower-2	-	-	Nitrogen gas transfer from receiver through adsorption tower (interconnecting vessel) to storage tank. The storage tank vent is having safety relief valve
21	PV 042	Inst. air pot	-	-	Nitrogen gas transfer from receiver through inst .air pot (interconnecting vessel) to storage tank. The storage tank vent is having safety relief

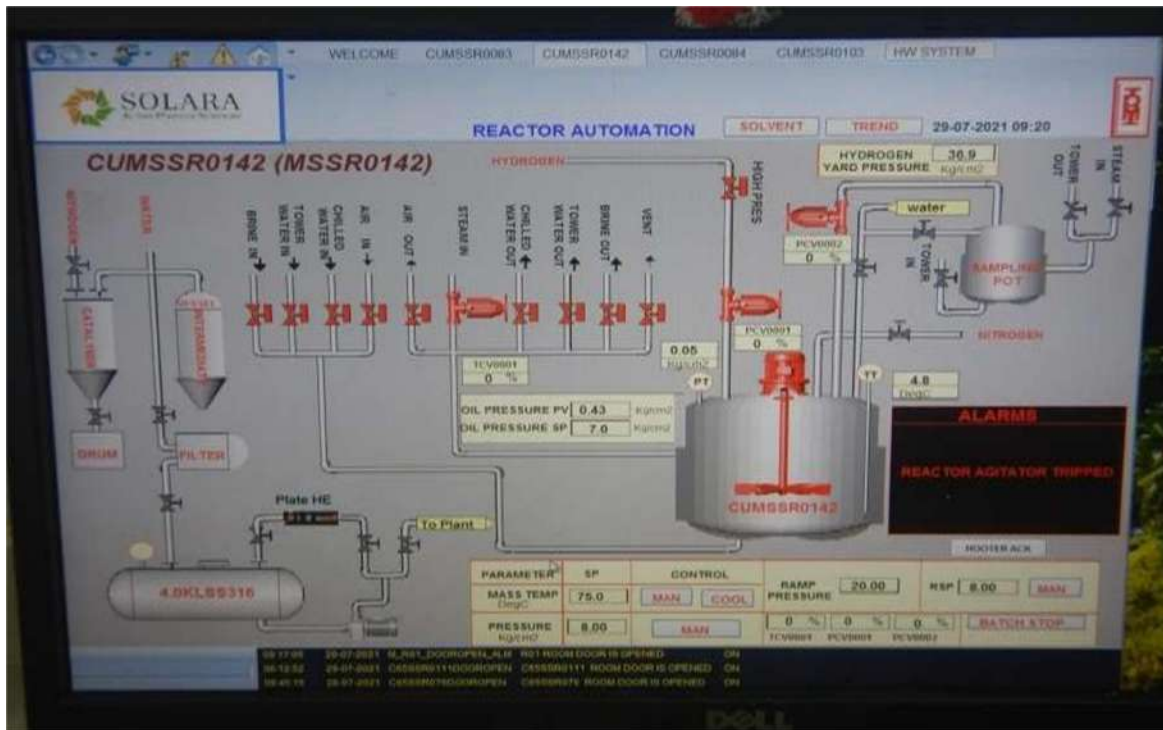
					valve
22	PV 043	Wet air receiver - 10000 lts	03/08/2021	03/08/2022	-
23	PV 044	Pre-filter	-	-	Compressed air transfer from receiver through pre-filter (interconnecting vessel) to storage tank. The storage tank vent is having safety relief valve
24	PV 045	Surge vessel	12/04/2021	12/04/2022	-
25	PV 046	ADU tower-1	-	-	Compressed air transfer from receiver through adsorption tower (interconnecting vessel) to storage tank. The storage tank having safety relief valve
26	PV 047	ADU tower-2	-	-	Compressed air transfer from receiver through adsorption tower-2 (interconnecting vessel) to storage tank. The storage tank vent is safety relief valve
27	PV 048	PSA adsorption tower-1	-	-	Compressed air transfer from receiver through adsorption tower-1 (interconnecting vessel) to storage tank. The storage tank vent is safety relief valve
28	PV 049	PSA adsorption tower-2	-	-	Compressed air transfer from receiver through adsorption tower-2 (interconnecting vessel) to storage tank. The storage tank vent is safety relief valve
29	PV 050	Air receiver	13/03/2021	13/03/2022	-
30	PV 052	Vertical cylindrical Air receiver	13/04/2021	13/04/2022	-
31	PV 053	Vertical cylindrical Air receiver	13/04/2021	13/04/2022	-
<b>S.No</b>	<b>PV No.</b>	<b>PV description</b>	<b>Last test date</b>	<b>Next due date</b>	<b>Remarks</b>
32	PV 066	LiquefiedCO <sub>2</sub> storage tank	08/09/2020	23/08/2021	-
33	PV 067	Pressure reactor	17/04/2021	17/04/2022	-
34	PV 068	Air drier (Tower-1)	14/03/2021	14/03/2022	-
35	PV 069	Air drier (Tower-1)	14/03/2021	14/03/2022	-
36	PV 070	Pre-filter - 35 lts	-	-	Compressed air transfer from receiver through pre-filter (interconnecting vessel) to storage tank. The storage tank vent is safety

					relief valve
37	PV 071	Carbon filter	-	-	Compressed air transfer from receiver through carbon filter (interconnecting vessel) to storage tank. The storage tank vent is safety relief valve
38	PV 072	After filter	-	-	Compressed air transfer from receiver through after filter (interconnecting vessel) to storage tank. The storage tank vent is safety relief valve
39	PV 073	Air receiver	14/03/2021	14/03/2022	-
40	PV 074	368 TR Condenser	15/04/2021	15/04/2022	-
41	PV 075	368 TR Chiller	15/12/2020	15/12/2022	-
42	PV 076	220 TR water cooled Chiller , condenser	27/10/2020	27/10/2022	-
43	PV 077	220 TR water cooled Chiller , Evaporator	27/10/2020	27/10/2022	-
44	PV 078	Vertical multi grade filter	-	-	Water transfer from centrifugal pump through Multi grade filter (interconnecting vessel) to storage tank. The storage tank vent is atmospheric vent.
45	PV 079	Air receiver (3000 lts)	27/10/2020	27/10/2022	-
46	PV 080	Dry air receiver 5000 lts	27/10/2020	27/10/2022	-
47	PV 081	Shell & tube condenser (49 TR)	27/03/2021	27/03/2023	-
48	PV 082	Evaporator, 49 TR	27/03/2021	27/03/2023	-
49	PV 083	Oil cooler, 49 TR	27/03/2021	27/03/2023	-
50	PV 084	Cascade condenser	27/03/2021	27/03/2023	-

S.No	PV No.	PV description	Last test date	Next due date	Remarks
51	PV 085	Canteen Boiler	27/10/2020	27/10/2022	-
52	PV 086	Oil separator, 49 TR high stage	27/03/2021	27/03/2023	-
53	PV 087	Oil separator, 49 TR, booster	27/03/2021	27/03/2023	-

		chiller			
54	PV 088	Oil separator, 79 TR	06/01/2021	06/01/2023	-
55	PV 089	Shell & tube condenser, 79 TR	06/01/2021	06/01/2023	-
56	PV 090	oil separator, 52 TR	06/01/2021	06/01/2023	-
57	PV 091	Shell & tube condenser, 52 TR	15/12/2020	15/12/2022	-
58	PV 092	Reactor, 4 kl, pb-2	28/06/2021	28/06/2022	-
59	PV 093	Oil separator - 60TR	15/12/2020	15/12/2022	-
60	PV 094	Shell & tube condenser - Trane Chiller	15/12/2020	15/12/2022	-

Photo of Hydrogenator with SCADA (Supervisor Control and Data Acquisition) System



## SCADA System of Hydrogenator



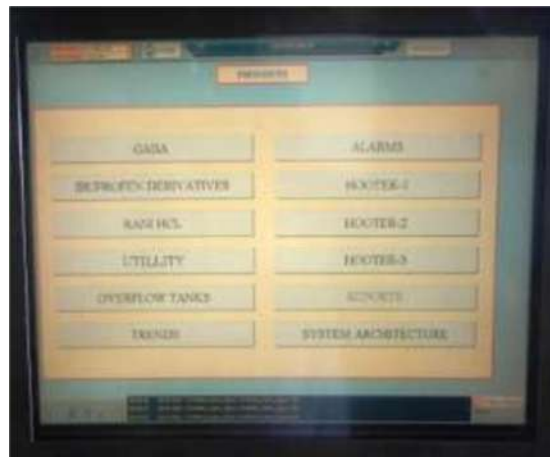
Alarm System with Hooter



### Temperature Indicator



### SCADA System of Reactor in Production Block-5C



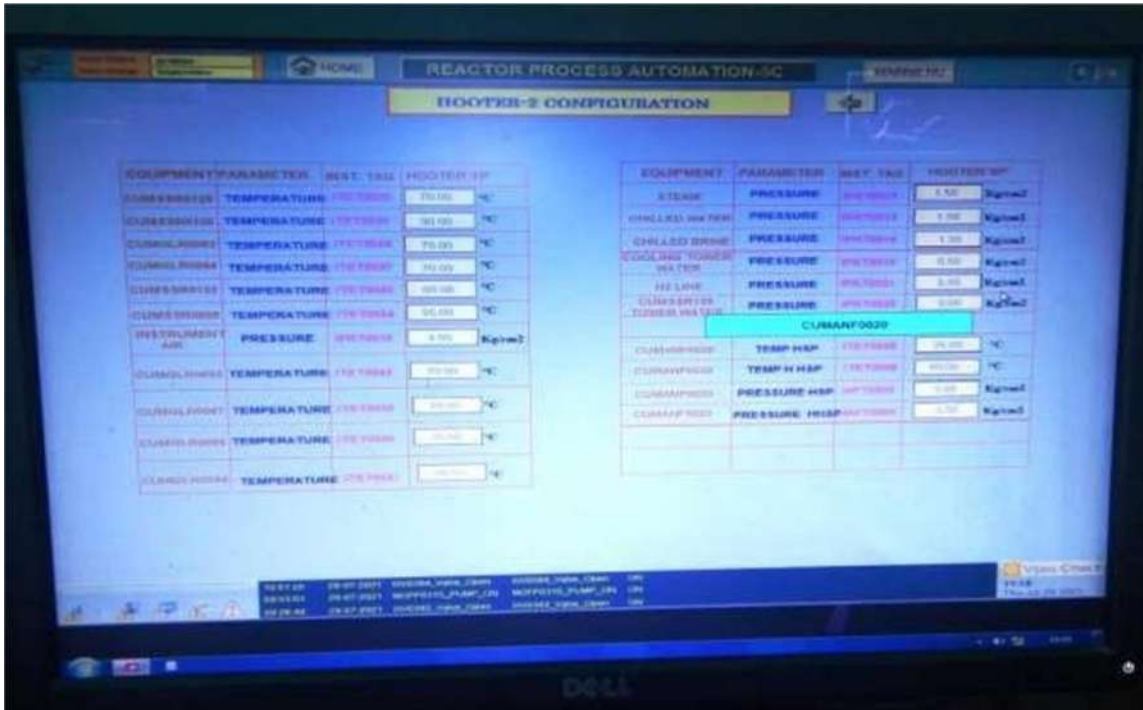
LEL Detector Panel

Utility system & Power

failure alarm annunciator



## Utility Hooter Configuration



### Details of Utility System and its safeguards for Reactors

**Location:** Production Block-III A

S. No	Location	Reactor No	Steam/ Hot Water	SR V	R D	Reactor Vent	Temp. Indicator	P G	Jacket Inlet (Pressure Gauge/ Temperature Gauge)	Jacket outlet (Pressure Gauge/ Temperature Gauge)	Safeguard	Critical/ Non Critical
1	Intermediate	CUMSR0110	Steam	✓	✗	✓	✓	✓	✓	✓	<b>Hot Water:</b> Temperature controller (set point) available in Hot	Non Critical
3		CUMSR0111	Steam / Hotwater	✓	✗	✓	✓	✓	✓	✓		Non Critical
2		CUMSR0108	Steam / Hotwater	✓	✗	✓	✓	✓	✓	✓		Non Critical

4		CUMS SR0109	Steam / Hotwater	✓	*	✓	✓	✓	✓	✓	water system, if temperat ure exceeds ON/OFF valve of steam line to the hot water receiver will get closed <b>Steam:</b> Manual Operatio n	Non Critical
5		CUMG LP0067	Steam / Hotwater	✓	*	✓	✓	✓	✓	✓		Non Critical
6		CUMG LR007 7	Steam / Hotwater	✓	*	✓	✓	✓	✓	✓		Non Critical
7		CUMG LR007 0	Steam / Hotwater	✓	*	✓	✓	✓	✓	✓		Non Critical
1 0	Clea n Roo m	CUMG LR006 8	Hot Water	✓	*	✓	✓	✓	✓	✓	Tempera ture controlle r (set point) availabl e in Hot water system, if temperat ure exceeds ON/OFF valve of steam line to the hot water receiver will get closed	Non Critical
1 2		CUMG LR006 6	Hot Water	✓	*	✓	✓	✓	✓	✓		Non Critical
1 3		CUMG LR006 9	Hot Water	✓	*	✓	✓	✓	✓	✓		Non Critical
1 4		CUMG LR007 1	Hot Water	✓	*	✓	✓	✓	✓	✓		Non Critical

## TANFAC INDUSTRIES LIMITED

### TANFAC- PROCESS CONTROL SAFETY SYSTEMS BY DISTRIBUTED CONTROL SYSTEMS(DCS)

Products-Anhydrous Hydrofluoric Acid, Aluminium Fluoride and Sulphuric Acid produced in TANFAC are Continuous Process Plants.

The Production processes of these plants and auxiliary plants process are controlled via Distributed Control System (DCS) for the automated Control and Safety Interlocks.

**TANFAC, has the latest State of art DCS from Yokogawa-Japanese Technology, Model CENTUM VP.**

The aim of a well-designed PCS is to achieve a maximum of safety, product quality and easy and comfortable operation of the plant.

#### Features in DCS

- 1. In order to further enhance Safety, TANFAC DCS has a redundant Architecture (Stand by Power Supply Units, Controllers & Communication System)**
2. There are Interfaces to Package Units which communicate via discrete I/O's (hard wired) or via NW communication.
3. The plant processes displayed schematically on the DCS screens. Each screen can be used for any part of the plant section. That represents a full redundancy of the operator Workstations.
4. The data of the Instruments and states of the actuators displayed dynamically.
5. Process values are permanently Controlled and regulated by the DCS.
- 6. All Process parameters are fixed with values for Low Low, Low, High, High, High limits. Any value for any parameter exceeding Low or High limit , DCS will give an alarm and if exceeds High High or LowLow limits, the DCS system will trip(stop) the plant.**

7. **All Critical process parameters are controlled by Pressure Control Valves, Steam Control Valves and Level Control Valves.**
8. Possible to interact to the process via Control elements on the DCS graphic pages.
9. Parameters like set points are changeable easily by the operating personnel. Nevertheless, the user is entitled to only limited process interventions that doesn't interfere the plant safety.
10. Each Intervention to the process by the operator will only be possible, if the operator is logged in to the DCS Workstation. There shall be several login levels with different accessibility.

The accessibility to control for each level shall be adaptable to the OEM standards as defined below.

**1. Operator level Access(S1)** to change pages, acknowledge alarms and modify very few process set points, switch valves and Controllers to auto / manual mode, open / close valves in manual mode, start / stop operation sequences, print trend curves and production log reports.

**2. Shift Incharge level(S2)** Access to all functions of level 1. Additional: Access to modify all the process set points. Able to over-ride some predefined interlocks in exceptional manual operation modes.

**3. Administrator level(S3)** Access to all functions of level 1 and 2 Additional: Altering Controller parameters, delay timers. Able to extend / modify DCS program codes.

The operating of the plant be carried out by using Key board and mouse clicks.

It is possible to start and shut down some plant sections automatically by DCS support.

Some plant sections will be started in manual mode. Motors are always manually started from local.

But the valves and Controllers can be operated either automatically or manually from the DCS.

At the occasion of process disturbances (alarms) the involved actuators (valves and/or motors) will automatically be switched to their safe position (even in manual mode).

Alarms have to be acknowledged by the operator and after their repair the user has to restart the actuator (No automatic restart after alarm reset).

### Details of Interlocks in the Pressure

S.NO	TAG No	Interlock Condition	DCS ACTION	Description
1.	Distillation Condensor-1 (PV 13)			
	PIC1101	Pressure PV (Hi)	Alarm	When pressure exceeds 2.5 kg/cm <sup>2</sup> , Alarm will be generated in DCS system
		Pressure PV (Hi Hi)	Alarm + FIC 1408 control valve close	Steam inlet valve to the Distillation Column will be Closed automatically
2.	Distillation Condenser-II (PV14)			
	PIC1103	Pressure PV (Hi)	Alarm	When pressure exceeds 1.5 kg/cm <sup>2</sup> , Alarm will be generated in DCS system
		Pressure PV (Hi Hi)	Alarm + FIC 1413 control valve close	Steam inlet valve to the Distillation Column will be Closed automatically
3	Distillation Condenser -III (PV 60)			
	PIC1106	Pressure PV (Hi)	Alarm	When pressure exceeds 1.5 kg/cm <sup>2</sup> , Alarm will be generated in DCS system
		Pressure PV (Hi Hi)	Alarm + FIC 1354 control valve close	Steam inlet valve to the Distillation Column will be Closed automatically

### Pressure Vessel Details in TANFAC

Sl. No.	Name of the Pressure Vessel	Location of the Vessel	Safety Valve Last Testing Date	Safety Valve Next Due Date
1	Service Air Receiver	Air Compressor House	09/11/2020	08/11/2021
2	Refrigerated Air Drier	Air Compressor House	09/11/2020	08/11/2021
3	Instrument air Receiver (Khosla)	Air Compressor House	09/11/2020	08/11/2021
4	HF Condenser I	Hydrofluoric Acid Plant	15/02/2021	14/02/2022
5	HF Condenser II	Hydrofluoric Acid Plant	15/02/2021	14/02/2022
6	Distillation Condenser I	Hydrofluoric Acid Plant	29/06/2021	28/06/2022
7	Distillation Condenser II	Hydrofluoric Acid Plant	29/06/2021	28/06/2022
8	Distillation Vessel I	Hydrofluoric Acid Plant	15/02/2021	14/02/2022
9	Distillation Vessel II	Hydrofluoric Acid Plant	15/02/2021	14/02/2022
10	AHF Evaporator	Aluminum Fluoride Plant	02/03/2021	01/03/2022
11	AHF Evaporator III	Aluminum Fluoride Plant	02/03/2021	01/03/2022
12	AHF Evaporator II	Aluminum Fluoride Plant	02/03/2021	01/03/2022
13	AHF Superheater	Aluminum Fluoride Plant	02/03/2021	01/03/2022
14	WTP Pressure filter I	Water Treatment Plant	02/02/2021	01/02/2022
15	WTP Pressure filter II	Water Treatment Plant	02/02/2021	01/02/2022
16	WTP Pressure filter III	Effluent Treatment Plant	02/02/2021	01/02/2022
17	Ammonia Condenser I	Chilling Plant	10/11/2020	09/11/2021
18	Ammonia Condenser II	Chilling Plant	20/11/2020	19/11/2021
19	Ammonia Condenser III	Chilling Plant	10/11/2020	09/11/2021
20	Ammonia Condenser IV	Chilling Plant	20/11/2020	19/11/2021

Sl. No.	Name of the Pressure Vessel	Location of the Vessel	Safety Valve Last Testing Date	Safety Valve Next Due Date
21	Ammonia Condenser V	Chilling Plant	10/11/2020	09/11/2021
22	Ammonia Receiver I	Chilling Plant	10/11/2020	09/11/2021
23	Ammonia Receiver II	Chilling Plant	10/11/2020	09/11/2021
24	Ammonia Receiver III	Chilling Plant	20/11/2020	19/11/2021
25	Ammonia Receiver IV	Chilling Plant	10/11/2020	09/11/2021
26	Ammonia Receiver V	Chilling Plant	20/11/2020	19/11/2021
27	WTP Softner I	Water Treatment Plant	10/11/2020	09/11/2021
28	WTP Softner II	Water Treatment Plant	10/11/2020	09/11/2021
29	Inter Cooler Khosla	Air Compressor House	12/11/2020	11/11/2021
30	After Cooler Khosla	Air Compressor House	12/11/2020	11/11/2021
31	Inter Cooler Khosla	Air Compressor House	12/11/2020	11/11/2021
32	After Cooler Khosla	Air Compressor House	12/11/2020	11/11/2021
33	Dense Phaser	Air Compressor House	12/11/2020	11/11/2021
34	62.500B(500A) AHF Tank	Hydrofluoric Acid Plant	03/07/2021	02/07/2022
35	64.500B(500B) AHF Tank	Hydrofluoric Acid Plant	03/07/2021	02/07/2022
36	61.510A (510A) AHF Tank	Hydrofluoric Acid Plant	03/07/2021	02/07/2022
37	60.510B(510B) AHF Tank	Hydrofluoric Acid Plant	03/07/2021	02/07/2022
38	58.520(520) AHF Tank	Hydrofluoric Acid Plant	03/07/2021	02/07/2022
39	Dense Phase Air Receiver	SPAR drier	12/11/2020	11/11/2021
40	Additional air Receiver	Air Compressor House	12/11/2020	11/11/2021

<b>Sl. No.</b>	<b>Name of the Pressure Vessel</b>	<b>Location of the Vessel</b>	<b>Safety Valve Last Testing Date</b>	<b>Safety Valve Next Due Date</b>
41	AHF Superheater II	Aluminum Fluoride Plant	02/03/2021	01/03/2022
42	AHF Condenser III	Hydrofluoric Acid Plant	15/02/2021	14/02/2022
43	Inter Cooler KH2HA2TERT	Air Compressor House	20/11/2020	19/11/2021
44	After Cooler KH2HA2TERT	Air Compressor House	20/11/2020	19/11/2021
45	Air Drier I 575CuM	Air Compressor House	23/10/2020	22/10/2021
46	Air Drier II 575CuM	Air Compressor House	23/10/2020	22/10/2021
47	Pre Filter - Air Drier	Air Compressor House	23/10/2020	22/10/2021
48	After Filter - Air Drier	Air Compressor House	23/10/2020	22/10/2021
49	500C AHF Storage Tank	Hydrofluoric Acid Plant	03/07/2021	02/07/2022
50	Distillation Reboiler	Hydrofluoric Acid Plant	15/02/2021	14/02/2022
51	Distillation Condenser III	Hydrofluoric Acid Plant	29/06/2021	28/06/2022
52	Ammonia Oil Sump	Chilling Plant	10/11/2020	09/11/2021
53	510E(510F) AHF Storage Tank	Hydrofluoric Acid Plant	03/07/2021	02/07/2022
54	Air Bottle - 1150KVA	1150kVA DG set	10/11/2020	09/11/2021
55	WTP Weak Acid Column	Water Treatment Plant	10/11/2020	09/11/2021
56	Priority vessel-142TR	Chilling Plant	17/02/2021	16/02/2022
57	Priority vessel-152TR	Chilling Plant	17/02/2021	16/02/2022
58	Priority vessel-200TR	Chilling Plant	17/02/2021	16/02/2022
59	Ammonia Receiver-142TR	Chilling Plant	17/02/2021	16/02/2022
60	Ammonia Receiver-152TR	Chilling Plant	17/02/2021	16/02/2022

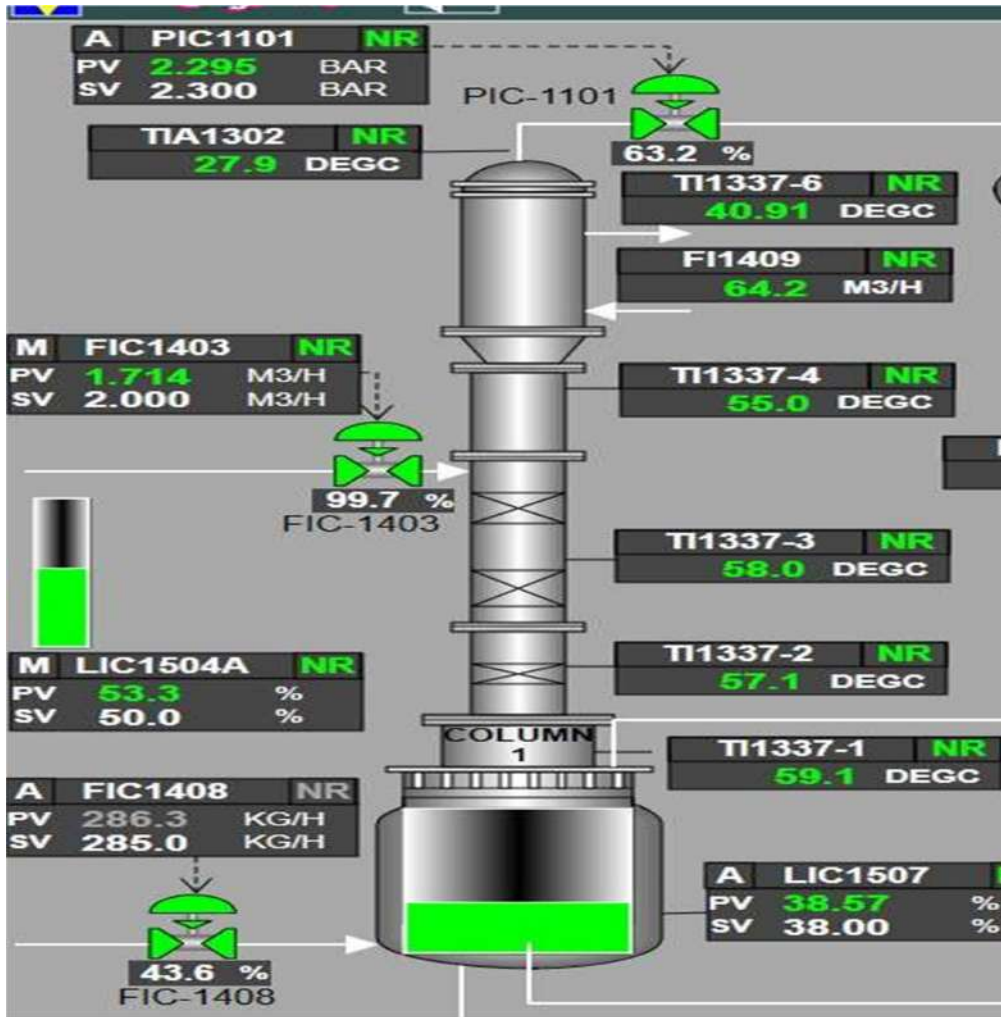
<b>Sl. No.</b>	<b>Name of the Pressure Vessel</b>	<b>Location of the Vessel</b>	<b>Safety Valve Last Testing Date</b>	<b>Safety Valve Next Due Date</b>
61	Ammonia Receiver-200TR	Chilling Plant	17/02/2021	16/02/2022
62	Air receiver - HFO genset	HFO Generator Set	24/12/2020	23/12/2021
63	Dump tank - HFL plant	Hydrofluoric Acid Plant	20/12/2020	19/12/2021
64	Ammonia receiver	Bi Fluoride Plant	10/11/2020	09/11/2021
65	Ammonia condenser	Bi Fluoride Plant	10/11/2020	09/11/2021
66	Reactor R2310A-Multipurpose plant	Multipurpose plant	11/11/2020	10/11/2021
67	Reactor R2310B-Multipurpose plant	Multipurpose plant	11/11/2020	10/11/2021
68	Dense Phase air cooler	Air Compressor House	20/11/2020	19/11/2021
69	MEG charging pump(vessel)	Chilling Plant	10/11/2020	09/11/2021
70	Reactor-R2401, IBAP.	IBAP plant	20/12/2020	19/12/2021
71	HF Evaporator-C2403, IBAP.	IBAP plant	20/12/2020	19/12/2021
72	HF removal column-E2401, IBAP	IBAP plant	20/12/2020	19/12/2021
73	AHF feed tank-F2401, IBAP	IBAP plant	20/12/2020	19/12/2021
74	Process Boiler	Process Boiler	29/06/2021	28/06/2022
75	SAP-1 WHR Boiler	Sulphuric Acid Plant-1	29/06/2021	28/06/2022
76	SAP-2 WHR Boiler	Sulphuric Acid Plant-2	29/06/2021	28/06/2022

**Control Systems in Critical Pressure Vessels & Reactors**

**HF Plant - DCS based Control System**



## AHF-Distillation column



### Process Safety Controls

Distillation column Pressure controlled by Pressure control valve (PIC-1101)

When pressure (PIC1101) process value (PV) is higher than set Set value (SV) pressure control valve open and allow the gas to flow into venturie srubber

AHF feed flow is controlled by feed control valve (FIC1403)

Steam flow is controlled by steam control valve (FIC1408)

## Process Safety Interlocks

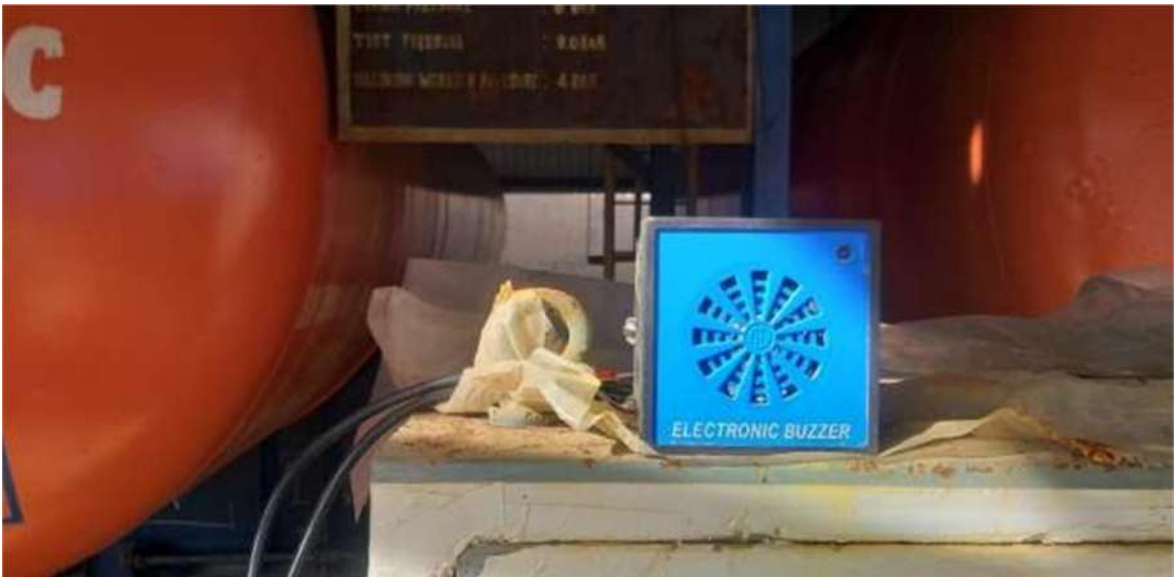
When Distillation column pressure (PIC-1101) goes high high 3.0 bar, steam control valve (FIC-1408) will shut off

All process values temperature, pressure and level are continuously monitored in DCS with alarm set point for High and low. Also for critical parameters plant will trip for high high and low low set points

## HOOTER ALARM



## Hooter alarm in Area (HF Storage Tank Farm)



## Sulphuric acid Plant - DCS based Control System



**TATA CHEMICALS LIMITED**

<b>NON CRITICAL EQUIPMENTS</b>	
<b>PRESSURE VESSEL -1</b>	
<b>Identification code</b>	PV1/Cdr1272
<b>Competent due date</b>	Dec-21
<b>Name Description</b>	Vertical Air Receiver -1
<b>Mode of Operation</b>	Through compressor Controller
<b>Capacity</b>	5.39 cubic meter
<b>Nature of process</b>	To store compressed air
<b>Input</b>	Air
<b>Out put</b>	Air
<b>Waste generation</b>	NA
<b>Permissible limit</b>	7.5 Kgf/sq.Cm
<b>Set point</b>	6.5 Kgf/sq.Cm
<b>safety measures</b>	Pressure relief valve
<b>Operating tempature</b>	Atmospheric temperature
<b>safety measures</b>	Not required
<b>PRESSURE VESSEL -2</b>	
<b>Identification code</b>	PV2/Cdr1272
<b>Competent due date</b>	Dec-21
<b>Name Description</b>	Vertical Air Receiver - 2
<b>Mode of Operation</b>	Through compressor Controller
<b>Capacity</b>	5.39 cubic meter
<b>Nature of process</b>	To store compressed air
<b>Input</b>	Air
<b>Out put</b>	Air
<b>Waste generation</b>	NA
<b>Permissible limit</b>	7.5 Kgf/sq.Cm
<b>Set point</b>	6.5 Kgf/sq.Cm
<b>safety measures</b>	Pressure relief valve
<b>Operating tempature</b>	Atmospheric temperature
<b>safety measures</b>	Not required

<b>PRESSURE VESSEL -3</b>	
<b>Identification code</b>	PV3/Cdr1272
<b>Competent due date</b>	Dec-21
<b>Name Description</b>	Vertical Air Receiver - 3
<b>Mode of Operation</b>	Through compressor Controller
<b>Capacity</b>	2.19 cubic meter
<b>Nature of process</b>	To store compressed air
<b>Input</b>	Air
<b>Out put</b>	Air
<b>Waste generation</b>	NA
<b>Permissible limit</b>	7.5 Kgf/sq.Cm
<b>Set point</b>	6.5 Kgf/sq.Cm
<b>safety measures</b>	Pressure relief valve
<b>Operating tempature</b>	Atmospheric temperature
<b>safety measures</b>	Not required
<b>PRESSURE VESSEL -4</b>	
<b>Identification code</b>	PV4/Cdr1272
<b>Competent due date</b>	Dec-21
<b>Name Description</b>	Vertical Air Receiver -4
<b>Mode of Operation</b>	Through compressor Controller
<b>Capacity</b>	4.03 cubic meter
<b>Nature of process</b>	To store compressed air
<b>Input</b>	Air
<b>Out put</b>	Air
<b>Waste generation</b>	NA
<b>Permissible limit</b>	7.5 Kgf/sq.Cm
<b>Set point</b>	6.5 Kgf/sq.Cm
<b>safety measures</b>	Pressure relief valve
<b>Operating tempature</b>	Atmospheric temperature
<b>safety measures</b>	Not required
<b>PRESSURE VESSEL -5</b>	
<b>Identification code</b>	PV5/Cdr1272
<b>Competent due date</b>	Dec-21
<b>Name Description</b>	Vertical Air Receiver - 5

<b>Mode of Operation</b>	Through compressor Controller
<b>Capacity</b>	4.03 cubic meter
<b>Nature of process</b>	To store compressed air
<b>Input</b>	Air
<b>Out put</b>	Air
<b>Waste generation</b>	NA
<b>Permissible limit</b>	7.5 Kgf/sq.Cm
<b>Set point</b>	6.5 Kgf/sq.Cm
<b>safety measures</b>	Pressure relief valve
<b>Operating tempature</b>	Atmospheric temperature
<b>safety measures</b>	Not required
<b>PRESSURE VESSEL -6</b>	
<b>Identification code</b>	PV6/Cdr1272
<b>Competent due date</b>	Jun-22
<b>Name Description</b>	Melter – 1
<b>Mode of Operation</b>	Through PLC
<b>Capacity</b>	35.75 cubic meter
<b>Nature of process</b>	For Melting purpose
<b>Input</b>	Steam+Sodium Silicate Cullet + Hot water
<b>Out put</b>	Melted silicate
<b>Waste generation</b>	Sludge
<b>Permissible limit</b>	6.0 Kgf/sq.Cm
<b>Set point</b>	4.5 Kgf/sq.Cm
<b>safety measures</b>	Pressure relief valve
<b>Operating tempature</b>	150 to 160°C
<b>safety measures</b>	ResistanceTempature Detector
<b>PRESSURE VESSEL -7</b>	
<b>Identification code</b>	PV7/Cdr1272
<b>Competent due date</b>	Jun-22
<b>Name Description</b>	Melter – 2
<b>Mode of Operation</b>	Through PLC
<b>Capacity</b>	35.75 cubic meter
<b>Nature of process</b>	For Melting purpose

<b>Input</b>	Steam+Sodium Silicate Cullet + Hot water
<b>Out put</b>	Melted silicate
<b>Waste generation</b>	Sludge
<b>Permissible limit</b>	6.0 Kgf/sq.Cm
<b>Set point</b>	4.5 Kgf/sq.Cm
<b>safety measures</b>	Pressure relief valve
<b>Operating tempature</b>	150 to 160°C
<b>safety measures</b>	ResistanceTempature Detector
<b>PRESSURE VESSEL -8</b>	
<b>Identification code</b>	PV8/Cdr1272
<b>Competent due date</b>	Jun-22
<b>Name Description</b>	Screw compressor -1 inside tank
<b>Mode of Operation</b>	Through compressor Controller
<b>Capacity</b>	110 liters
<b>Nature of process</b>	To store Air and oil under pressure
<b>Input</b>	Air/Oil
<b>Out put</b>	Air/Oil
<b>Waste generation</b>	NA
<b>Permissible limit</b>	232 Psi
<b>Set point</b>	87 Psi
<b>safety measures</b>	Pressure relief valve
<b>Operating tempature</b>	Atmospheric temperature
<b>safety measures</b>	Not required
<b>PRESSURE VESSEL -9</b>	
<b>Identification code</b>	PV9/Cdr1272
<b>Competent due date</b>	Jun-22
<b>Name Description</b>	Screw compressor -2 inside tank
<b>Mode of Operation</b>	Through compressor Controller
<b>Capacity</b>	110 liters
<b>Nature of process</b>	To store Air and oil under pressure
<b>Input</b>	Air/Oil
<b>Out put</b>	Air/Oil
<b>Waste generation</b>	NA

<b>Permissible limit</b>	232 Psi
<b>Set point</b>	87 Psi
<b>safety measures</b>	Pressure relief valve
<b>Operating tempature</b>	Atmospheric temperature
<b>safety measures</b>	Not required
<b>PRESSURE VESSEL -10</b>	
<b>Identification code</b>	PV10/Cdr1272
<b>Competent due date</b>	Jun-22
<b>Name Description</b>	Screw compressor -3 inside tank
<b>Mode of Operation</b>	Through compressor Controller
<b>Capacity</b>	55 Liters
<b>Nature of process</b>	To store Air and oil under pressure
<b>Input</b>	Air/Oil
<b>Out put</b>	Air/Oil
<b>Waste generation</b>	NA
<b>Permissible limit</b>	232 Psi
<b>Set point</b>	87 Psi
<b>safety measures</b>	Pressure relief valve
<b>Operating tempature</b>	Atmospheric temperature
<b>safety measures</b>	Not required

<b>CRITICAL EQUIPMENTS</b>	
<b>Reactor 1- Tyre grade</b>	
<b>Identification code</b>	RT-2107
<b>Competent due date</b>	Not applicable
<b>Name Description</b>	Reactor - Tyre grade
<b>Mode of Operation</b>	Through PLC
<b>Capacity</b>	50 m3
<b>Nature of process</b>	Precipitated silica formation
<b>Input</b>	Steam+Hot water+sodium silicate+H2So4
<b>Out put</b>	Precipeatated silica formation
<b>Waste generation</b>	NA
<b>Permissible limit</b>	Atmospheric pressure
<b>Set point</b>	Atmospheric pressure
<b>safety measures</b>	Vent Line
<b>Operating tempature</b>	80 to 92°C
<b>safety measures</b>	ResistanceTempature Detector
<b>Reactor 2- Tyre grade</b>	
<b>Identification code</b>	RT-2105
<b>Competent due date</b>	Not applicable
<b>Name Description</b>	Reactor - Tyre grade
<b>Mode of Operation</b>	Through PLC
<b>Capacity</b>	50 m3
<b>Nature of process</b>	Precipitated silica formation
<b>Input</b>	Steam+Hot water+sodium silicate+H2So4
<b>Out put</b>	Precipeatated silica formation
<b>Waste generation</b>	NA
<b>Permissible limit</b>	Atmospheric pressure
<b>Set point</b>	Atmospheric pressure
<b>safety measures</b>	Vent Line
<b>Operating tempature</b>	80 to 92°C
<b>safety measures</b>	ResistanceTempature Detector
<b>Reactor 3- Food grade</b>	
<b>Identification code</b>	RT-1307

<b>Competent due date</b>	Not applicable
<b>Name Description</b>	Reactor - Food grade
<b>Mode of Operation</b>	Through PLC
<b>Capacity</b>	30 m3
<b>Nature of process</b>	Precipitated silica formation
<b>Input</b>	Steam+Hot water+sodium silicate+H2So4+cold water
<b>Out put</b>	Precipeatated silica formation
<b>Waste generation</b>	NA
<b>Permissible limit</b>	Atmospheric pressure
<b>Set point</b>	Atmospheric pressure
<b>safety measures</b>	Vent Line
<b>Operating tempature</b>	76 to 86°C
<b>safety measures</b>	ResistanceTempature Detector
<b>Reactor 4- Food grade</b>	
<b>Identification code</b>	RT-1305
<b>Competent due date</b>	Not applicable
<b>Name Description</b>	Reactor - Food grade
<b>Mode of Operation</b>	Through PLC
<b>Capacity</b>	30 m3
<b>Nature of process</b>	Precipitated silica formation
<b>Input</b>	Steam+Hot water+sodium silicate+H2So4+cold water
<b>Out put</b>	Precipeatated silica formation
<b>Waste generation</b>	NA
<b>Permissible limit</b>	Atmospheric pressure
<b>Set point</b>	Atmospheric pressure
<b>safety measures</b>	Vent Line
<b>Operating tempature</b>	76 to 86°C
<b>safety measures</b>	ResistanceTempature Detector

### Interlocks across the Reactor

S. No	Inter Lock Tag No	Activities that will be performed by DCS/SCADA with the triggering of the Interlock	Reactor Interlock Description	Brief Explanations
1	TI_2107.02 TCV_2107.02 TI_2105.02 TCV_2105.02	Activates Visual Alarm in SCADA and Hooter	1) Reactor Temperature High 2) Reactor Temperature High High	1) Temperature control valve will close , process value reaches the set point 2) If the Temperature of the reactor crosses the High /High High set point, visual alarm and hooter will activate
2	LT_2107.01 LT_2105.01	Activates Visual Alarm in SCADA and Hooter	1) Reactor Level High 2) Reactor Level High High	If the level of the reactor reaches the septoint, visual alarm and hooter will activate
3	TI_1307.02 TCV_1307.02 TI_1305.02 TCV_1305.02	Activates Visual Alarm in SCADA and Hooter	1) Reactor Temperature High 2) Reactor Temperature High High	1) Temperature control valve will close once the process value reaches the set point 2) If the Temperature of the reactor crosses the High /High High set point, visual alarm and hooter will activate
4	LT_1305.01 & LT_1307.01	Activates Visual Alarm in SCADA and Hooter	1) Reactor Level High 2) Reactor Level High High	If the level of the reactor reaches the septoint, visual alarm and hooter will activate

### Details of the Safety Appliances Across the Reactor

S. No	Description	Value
1	2 No's of food Grade Reactor	NA ( Open to Atm)
2	2 No's of Tyre Grade Reactor	NA ( Open to Atm)

### Pressure Vessel Details

<b>S.No</b>	<b>Name of the Pressure Vessel</b>	<b>Location of the vessel</b>	<b>Last HT Testing Date</b>	<b>Next Due Date</b>
1	Vertical Air Receiver - 1	Compressor Area	16.07.2021	July-2023
2	Vertical Air Receiver - 2	Compressor Area	16.07.2021	July-2023
3	Vertical Air Receiver - 3	Compressor Area	16.07.2021	July-2023
4	Vertical Air Receiver - 4	Food grade filling Area	16.07.2021	July-2023
5	Vertical Air Receiver - 5	Tyre grade filling Area	16.07.2021	July-2023
6	Melter -1	Melter Area	18.06.2020	June-2022
7	Melter -2	Melter Area	18.06.2020	June-2022
8	Screw compressor -1 inside tank	Compressor inside	18.06.2020	June-2022
9	Screw compressor -2 inside tank	Compressor inside	18.06.2020	June-2022
10	Screw compressor -3 inside tank	Compressor inside	18.06.2020	June-2022

## PRESSURE RELIEF VALVE



## REACTOR LEVEL INDICATOR



## RESISTANCE TEMPERATURE DETECTOR



## SCADA OPERATION SYSTEM

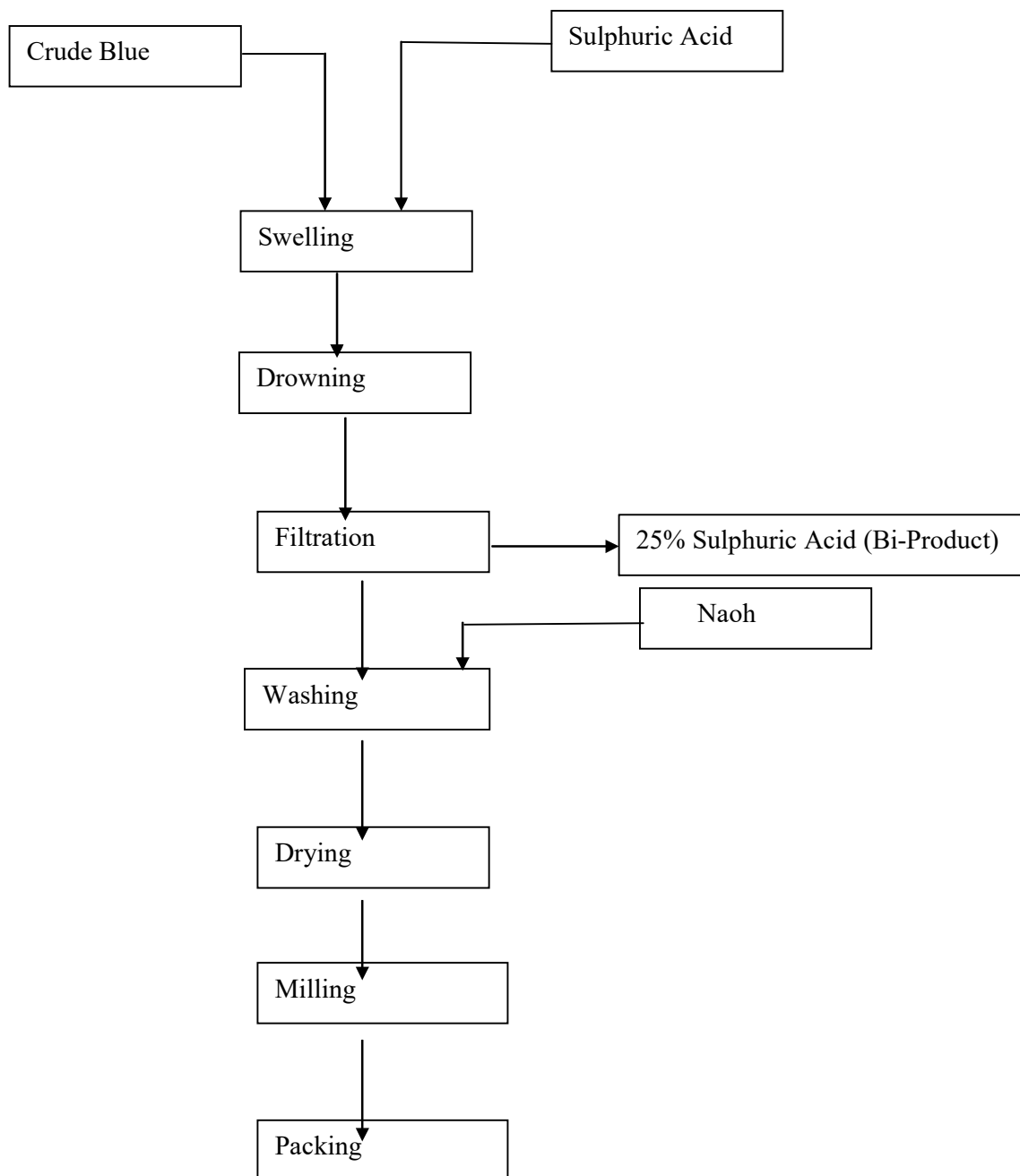


**CLARIANT CHEMICALS (INDIA) LIMITED**



# CLARIANT CHEMICALS (INDIA) LIMITED CUDDALORE

## 1. Blue pigments: Process Flow chart



### Interlocks Across the Reactor – R 1336

S.N O	Inter Lock TAG No	Activities that will be performed by DCS/SCADA with the triggering of the Interlock	Reactor Interlock Description	Brief Explanations
1	PIC-1336	Vessel High Pressure Interlock & Alarm  Vessel High / High Pressure Alarm	Pressure Increases, Alarm will be generated in DCS, following with	1. Steam Inlet Control Valve to the Reactor Closes fully immediately ( TIC 1336 ) 2. Vessel High Pressure Alarm generates ( $\geq 3.5$ Kg/Cm <sup>2</sup> ) 3. Vessel High High-Pressure Alarm generates ( $\geq 3.8$ Kg/Cm <sup>2</sup> )
Popup Message				High Pressure Alarm High High Pressure Alarm
2		Mechanical Seal Pressure Low Alarm	Pressure Low	1. Mechanical Seal Pressure reaches Low Alarm Generates ( $\leq 4.5$ Kg/Cm <sup>2</sup> )
3	PI- STEAM	Plant Header Steam Pressure Low	Steam Pressure Low following with	1. Steam Inlet Control Valve to the Reactor Closes fully immediately ( TIC 1336 ) Steam Low Pressure ( $\leq 3.5$ Kg/Cm <sup>2</sup> )
4	TIC - 1336	Vessel High Temperature Interlock & Alarm	Temperature Increases, Alarm will be generated in DCS, following with	1. Steam Inlet Control Valve to the Reactor Closes fully immediately ( TIC 1336 ) 2. Vessel High Temperature Alarm generates ( $\geq 130^{\circ}\text{C}$ ) 3. Vessel High High- Temperature Alarm generates ( $\geq 135^{\circ}\text{C}$ )
Popup Message				High Temperature Alarm High High Temperature Alarm

### Details of the Safety Appliances Across the Reactor – R 1336

S. No	Description	Value
1	R1336 Reactor SV/R1336	<b>Set Pressure :4.5 KG/CM<sup>2</sup> g</b>

### Interlocks Across the Reactor – R 1210

S. NO	Inter Lock TAG No	Activities that will be performed by DCS/SCADA with the triggering of the Interlock	Reactor Interlock Description	Brief Explanations
1	PI-1210	Vessel High Pressure Interlock & Alarm  Vessel High / High Pressure Alarm	Pressure Increases, Alarm will be generated in DCS, following with	1. Steam Inlet Control Valve to the Reactor Closes fully immediately ( TIC 1210 1 ) 2. Vessel High Pressure Alarm generates ( $\geq 2.0$ Kg/Cm2 ) 3. Vessel High High-Pressure Alarm generates ( $\geq 2.5$ Kg/Cm2 )
2	TIC – 1210 -1	Vessel High Temperature Interlock & Alarm	Temperature Increases, Alarm will be generated in DCS, following with	1. Steam Inlet Control Valve to the Reactor Closes fully immediately ( TIC 1210 1 ) 2. Vessel High Temperature Alarm generates ( $\geq 135^{\circ}\text{C}$ ) 3. Vessel High High-Temperature Alarm generates ( $\geq 140^{\circ}\text{C}$ )

### Details of the Safety Appliances Across the Reactor – R 1210

S. No	Description	Value
1	R1210 Reactor SV/R1210-1 SV/R1210-2	<b>Set Pressure : 2.6 KG/CM<sup>2</sup> g</b> <b>Set Pressure : 2.8 KG/CM<sup>2</sup> g</b>
2	Rupture Disc R1210 Reactor	<b>Set Pressure :3.0 KG/CM<sup>2</sup> g</b>

**Clariant Chemicals (India) Limited, Cuddalore**

**Safety Valve Calibration Due Details**

<b>SL NO</b>	<b>Name of the Pressure Vessel</b>	<b>Location of the Vessel</b>	<b>Last Testing date</b>	<b>Next DUE Date</b>
1	AIR BOTTLE	Electrical	18.04.2021	17.10.2021
2	AIR RECEIVER	compressor shed	10.04.2021	09.10.2021
3	AIR RECEIVER	compressor shed	10.04.2021	09.10.2021
4	SAND FILTER	Water Plant	19.04.2021	18.10.2021
5	CHLORINE SURGE VESSEL	Cl <sub>2</sub> Shed	22.05.2021	21.11.2021
6	AFTER COOLER -250 M3/HR -V3767	compressor shed	10.04.2021	09.10.2021
7	AFTER COOLER -250 M3/HR -V3691	compressor shed	10.04.2021	09.10.2021
8	AIR RECEIVER <CYCLE SHED>	Cycle Shed	05.04.2021	04.10.2021
9	8.5 M3 AIR RECEIVER	compressor shed	11.03.2021	10.09.2021
10	AFTER COOLER -800M3/HR	compressor shed	11.03.2021	10.09.2021
11	AIR BUFFER TANK - 300 LIT.	compressor shed	01.04.2021	30.09.2021
12	CHLORINE EVAPORATOR -500 KG/HR	Cl <sub>2</sub> shed	22.05.2021	21.11.2021
13	INTER COOLER V3620	compressor shed	01.04.2021	30.09.2021
14	8.3 M3 AIR RECEIVER	compressor shed	01.04.2021	30.09.2021
15	8.3 M3 AIR RECEIVER	compressor shed	01.04.2021	30.09.2021
16	IRON REMOVAL PLANT	Water Plant	19.04.2021	18.10.2021
17	4 M3 SS Vessel( limpet)	Intermediate	20.05.2021	19.11.2021
18	4 M3 SS Vessel( limpett)	Intermediate	24.05.2021	23.11.2021
19	4 M3 SS Vessel( limpet)	Intermediate	23.05.2021	22.11.2021
20	6.3 M3 MSGL Vessel(jacket)	Intermediate	07.06.2021	06.06.2022

<b>SL NO</b>	<b>Name of the Pressure Vessel</b>	<b>Location of the Vessel</b>	<b>Last Testing date</b>	<b>Next DUE Date</b>
21	6.3 M3 MSGL Vessel(jacket)	Intermediate	07.06.2021	06.06.2022
22	6.3 M3 MSGL Vessel(jacket)	Intermediate	07.06.2021	06.06.2022
23	10 M3 MS Vessel(limpet)	Intermediate	21.05.2021	20.11.2021
24	2 M2 SS Venulath drier(jacket)	Intermediate	07.06.2021	06.06.2022
25	2 M2 SS Venulath drier(jacket)	Intermediate	07.06.2021	06.06.2022
26	1 M3 AIR RECEIVER	Intermediate	19.05.2021	18.11.2021
27	2 M2 SS Venulath drier(jacket)	Intermediate	07.06.2021	06.06.2022
28	8 M3 MSGL Vessel(jacket)	Intermediate	07.06.2021	06.06.2022
29	21 M2 SS Shell & tube Condenser	Intermediate	07.06.2021	06.06.2022
30	11 M2 SS Shell & tube Condenser	Intermediate	07.06.2021	06.06.2022
31	11 M2 SS Shell & tube Condenser	Intermediate	07.06.2021	06.06.2022
32	11 M2 SS Shell & tube Condenser	Intermediate	07.06.2021	06.06.2022
33	21 M2 SS Shell & tube Condenser	Intermediate	07.06.2021	06.06.2022
34	11 M2 MS Shell & tube condenser	Intermediate	07.06.2021	06.06.2022
35	12.5 M3 MSRLBL VESSEL	Alpha blue	04.07.2021	03.01.2022
36	8 M3 SS Vessel(limpet)	Beta Blue	10.07.2021	09.01.2022
37	8 M3 SS Vessel(limpet)	Beta blue	08.07.2021	07.01.2022
38	8 M3 SS Vessel(limpet)	Beta blue	09.07.2021	08.01.2022
39	8 M3 SS Vessel(limpet)	Beta blue	09.07.2021	08.01.2022
40	4 M3 MSGL Vessel(jacket)	Alpha Blue	08.06.2021	07.06.2022

<b>SL NO</b>	<b>Name of the Pressure Vessel</b>	<b>Location of the Vessel</b>	<b>Last Testing date</b>	<b>Next DUE Date</b>
41	21 M2 SS Condenser	Beta blue	08.06.2021	07.06.2022
42	5 M2 SS Condenser	Beta blue	08.06.2021	07.06.2022
43	21 M2 SS Condenser	Beta blue	08.06.2021	07.06.2022
44	21 M2 SS Condenser	Beta blue	08.06.2021	07.06.2022
45	5 M2 SS Condenser	Beta blue	08.06.2021	07.06.2022
46	5 M2 SS Condenser	Beta blue	08.06.2021	07.06.2022
47	5 M2 SS Condenser	Beta blue	08.06.2021	07.06.2022
48	21 M2 SS Condenser	Beta blue	08.06.2021	07.06.2022
49	Dense flow vessel	Beta blue	05.07.2021	04.01.2022
50	Dense flow vessel	Beta blue	04.07.2021	03.01.2022
51	Dense flow vessel	Beta blue	05.07.2021	04.01.2022
52	Water cooler in power house	ELECTRICAL	19.04.2021	18.10.2021
53	Oil Cooler in Power House	ELECTRICAL	19.04.2021	18.10.2021
54	6.3M3 MSGL vessel	Intermediate	07.06.2021	06.06.2022
55	6.3M3 MSGL vessel	Intermediate	07.06.2021	06.06.2022
56	Air compressor receiver	Blue milling	12.04.2021	11.10.2021
57	Air compressor receiver	Intermediate	12.04.2021	11.10.2021
58	RF Chiller -I	Compressor shed	19.04.2021	18.10.2021
59	RF Chiller -II	Compressor shed	19.04.2021	18.10.2021
60	RF Evaporator -I	Compressor shed	14.05.2021	13.11.2021

<b>SL NO</b>	<b>Name of the Pressure Vessel</b>	<b>Location of the Vessel</b>	<b>Last Testing date</b>	<b>Next DUE Date</b>
61	RF Evaporator -II	Compressor shed	14.05.2021	13.11.2021
62	8 M3 MS Vessel(jacket)	Intermediate	21.05.2021	20.11.2021
63	30 KL SS 316 Vessel	Alpha blue	04.07.2021	03.01.2022
64	30 KL SS 316 Vessel	Beta Blue	09.07.2021	08.01.2022
65	Dense flow vessel - I	Alpha blue	04.07.2021	03.01.2022
66	Dense flow vessel - II	Alpha blue	04.07.2021	03.01.2022
67	6.3M3 MSGL vessel	Intermediate	07.06.2021	06.06.2022
68	12.5M3 MSGL vessel	Alpha blue	08.06.2021	07.06.2022
69	6.3M3 MSGL vessel	Alpha blue	08.06.2021	07.06.2022
70	Fluid air separator	Compressor shed	18.05.2021	17.11.2021
71	8KL MSGL Vessel	TCCPC PLANT	27.06.2021	26.12.2021
72	10KL SS Reactor-Limpet coil	TCCPC PLANT	17.06.2021	16.12.2021
73	Dense phase SS pressure pot	TCCPC PLANT	28.06.2021	27.12.2021
74	8.9KL MS Air receiver	TCCPC PLANT	27.06.2021	26.12.2021
75	8KL SS304 Rotary Vacuum Dryer	TCCPC PLANT	29.06.2021	28.12.2021
76	2KL MS Air receiver	TCCPC PLANT	24.06.2021	23.12.2021
77	50m2 SS Main Condenser	TCCPC PLANT	24.06.2021	23.12.2021
78	10m2 SS Vent Condenser	TCCPC PLANT	24.06.2021	23.12.2021
79	20m2 SS Main Condenser	TCCPC PLANT	24.06.2021	23.12.2021
80	10m2 SS Vent Condenser	TCCPC PLANT	24.06.2021	23.12.2021

<b>SL NO</b>	<b>Name of the Pressure Vessel</b>	<b>Location of the Vessel</b>	<b>Last Testing date</b>	<b>Next DUE Date</b>
81	15m2 SS Cooler	TCCPC PLANT	22.06.2021	21.12.2021
82	10m2 SS Cooler	TCCPC PLANT	22.06.2021	21.12.2021
83	10m2 Graphite Cooler	TCCPC PLANT	22.06.2021	21.12.2021
84	20m2 SS Pre-Heater	TCCPC PLANT	22.06.2021	21.12.2021
85	15m2 SS Condenser	TCCPC PLANT	26.06.2021	25.12.2021
86	20m2 SS Condenser	TCCPC PLANT	26.06.2021	25.12.2021
87	30m2 SS Heat exchanger	TCCPC PLANT	26.06.2021	25.12.2021
88	SS Circulation Cooler	TCCPC PLANT	26.06.2021	25.12.2021
89	8.9 M3 AIR RECEIVER	compressor shed	12.05.2021	11.11.2021
90	6.3 M3 MSGL Vessel(jacket)	Intermediate	07.06.2021	06.06.2022
91	6.3 M3 MSGL Vessel(jacket)	Intermediate	07.06.2021	06.06.2022
92	11 M2 Vent Condensor for R8585	Intermediate	07.06.2021	06.06.2022
93	22 M2 Main Condensor for R8540	Intermediate	07.06.2021	06.06.2022
94	11 M2 Vent Condensor for R8540 & R8531	Intermediate	07.06.2021	06.06.2022
95	After Cooler for R-8540	Intermediate	07.06.2021	06.06.2022
96	11 M2 Vent Condensor for R8614	Intermediate	07.06.2021	06.06.2022
97	After Cooler for R8531	Intermediate	07.06.2021	06.06.2022
98	Oil Seperator - V3784	Compressor shed	10.04.2021	09.10.2021

## CHEMPLAST CUDDLAORE VINYLs LIMITED

### Reaction safety – High temperature / pressure protocol

PVC is manufactured using VCM as a raw material. VCM is polymerized in a batch process by dispersing it in de-mineralized (DM) water under its own pressure.

Polymerization is conducted batch wise in stainless steel clad reactors, each equipped with bottom entry variable speed agitators, limpet coil jacket and reflux condensers.

Agitation of reaction mass is essential for dispersion of VCM in Hot /cold DM water and determination of product grain size, as well as removal of polymerization heat through the water phase. Hot DM water is used to get the required temperature to start the reaction. The reaction is exothermic the excess reaction heat is removed through circulation of cooling water in the reactor jacket and overhead condenser.

As the reaction proceeds, these particles agglomerate. At about 70% conversion, there is no free liquid monomer left, as the remaining monomer would be contained in the polymer particles resulting in falling of the reaction pressure. At the required conversion, a stabilizer is injected to destroy free radicals and improve polymer heat stability and color.

Distributed control system (DCS) controls the polymerization sequence in a batch. DCS checks all key parameters before and during the processing of batch to ensure safe operation. There is a provision of an independent hardwired interlock system to prevent unsafe operation of critical valves.

The DCS controls reaction temperature and pressure by altering the cooling water flow in jacket and condenser. If the temperature and pressure increases above the set points the following safety levels are initiated by the DCS

**First level** : The emergency cooling will be activated by DCS programme In which cooling water flow to overhead condenser & Jacket (Limpet coils) is increased to maximum to reduce temperature and pressure.

**Second level** : if the temperature or pressure cannot be controlled by first level, then DCS will initiate control transfer of VCM from reactor to Recovery section to reduce pressure inside the reactor this operation will be carried out by the control room operator

**Third level** : if the temperature or pressure cannot be controlled by second level , then DCS will initiate emergency stabilizer injection to reduce rate of reaction and kill the reaction partially inside the reactor this operation will be carried out by the control room operator

**Fourth level** : if the temperature or pressure cannot be controlled by third level then DCS will inject **ESS ( emergency short stop to completely kill the catalyst and stop the reaction , subsequently pressure will reduce below the set reaction pressure .**

ESS will be injected inside the reactor after Level 3 with following conditions

- a) Reaction maximum content temperature is more than 75 Deg C.
- b) Reactor pressure is more than + 3.0 bar of set pressure point
- c) Combination of temperature 70 Deg C & Pressure + 2.5 bar of set pressure point.

**Level 5** : if the temperature or pressure cannot be controlled by fourth level and if the pressure reaches 16 barg , the Rupture disc 1 will burst at 16 bar and Pressure will be released into the pipe line between, Rupture disc 1 and rupture disc 2

**Level 6:** The rupture disc 2 is connected with automatic on/off valve if the temperature or pressure cannot be controlled by fifth level , the rupture disc 2 will open and release the VCM gas to atmosphere through the automatic on/off valve

Note : ESS will also be injected inside the reactor is agitator fails due to tripping or motor failure or coupling failure.

Interlocks across the reactors				
Sl. No	Inter Lock TAG No	Activities that will be performed by DCS/PLC with the triggering of the Interlock	Reactor Interlock Action	Brief Explanations
		PB-3n-36 Pressed <b>or</b> T-3n-55 <b>or</b> T-3n56 (3 °C) greater than Set point	Emergency Cooling is enabled	Alarm & Message in DCS Cooling water circulation to reactor & condenser will open.
		PB-3n-36 is not ON (Emergency Cooling Off) & TV-3n-32 is 0% Open	➤ XV-3n-31 can be Opened (Permissive )	Alarm & Message in DCS Jacket heating allowed only when emergency cooling program is in off condition.
		PB-3n-36 is on (Emergency. Cooling) <b>or</b> (1029 => External Position>=150) & P301n Fails <b>or</b> IP>=300 & Emergency Cooling Enabled_Timer>=300 Sec.& XV-3n-31 is closed <b>or</b> F-3n-34 <200 m3/hr	➤ XV-3n-31 Closed ➤ TV-3n-32 is fully Closed ➤ FV-3n-91 is fully Opened	Alarm & Message in DCS  If cooling water circulation pump fails cooling water line control valve will open fully and same time, steam valves will be closed automatically.

		XV-3n-41 of the other 3 reactors are closed	➤ XV-3n-41 can be Opened	Alarm & Message in DCS Out of 4 reactor, only one reactor VCM valve will open at a time and remaining valves closed condition..	
		XV-3n-06 of all 3 reactors are closed & XV-3n-27 of the other 3 reactors are closed	➤ XV-3n-27 can be Opened	Alarm & Message in DCS Out of 4 reactor, only one reactor De-mineralized water valve will open at a time and remaining valves closed condition	
2		<b>Unit-101/102/103 Reactor</b>	ESS is disabled (B1019n)	➤ XV-3n-17 can be opened	Alarm & Message in DCS When emergency short stop(ESS) is disabled condition, then only reactor vent to compressor system will be opened

		<p>Manual <b>or</b> the Reactor going to use it pressure is P-3n-44 <math>\leq</math>6 barg</p>	<p>➤ P501A could be started</p>	<p>Alarm &amp; Message in DCS After reactor completion BD pump will "On" when reactor pressure reaches less than 6.0 bar only.</p>
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		<p><b>Emergency Cooling</b></p> <p>If PB-3n-36 is pressed or T-3n-55 or T-3n-56 is more than the recipe number, R1803n (usually 1-2<sup>0</sup>C) above its set point &amp; Emergency Cooling is enabled (B1030n)</p>	<ul style="list-style-type: none"> <li>➤ Close XV-3n-31</li> <li>➤ Set TIC-3n-32 to manual &amp; TV-3n-32 fully closed</li> <li>➤ Set FIC-3n-91 to manual &amp; FV-3n-91 fully open</li> <li>➤ Ramp FIC-3n-33 from its existing set point to maximum set point over 300 seconds</li> </ul>	<p>Alarm &amp; Message in DCS</p> <p>When reaction temperature goes above the set point, emergency cooling program will be activated and same time steam control valve will be closed. Cooling water control valve will open 100%</p>
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		<p><b>Emergency Cooling</b></p> <p>If PB-3n-36 is released &amp; reaction temp. return below this criterion <b>or</b> Emergency cooling is disabled (B1030n) then</p>	<p>➤ Reset the temp. &amp; flow controllers to their previous modes.</p>	<p>Alarm &amp; Message in DCS</p> <p>If reactor temperature reaches below the set point emergency cooling program is disabled and cooling water controller is reset to normal.</p>
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PB-- Push Button; XV--ON-OFF valve; RD--Rupture disc; ESS-- Emergency Short Stop

	<p><b>Unit-104/105/106 Emergency Short Stop</b></p>	<p>PB-3m-83 or 84 is pressed <b>or</b> Main plant power is lost (conditions) <b>or</b> But not de-energized when computer control is lost <b>or</b> Reactor Temp. &gt; R1801n &amp; Reactor Pres. &gt; (R1504n +2.5) for 5Secs.</p>	<ul style="list-style-type: none"> <li>➤ XV-3n-48 is Opened</li> <li>➤ XV-3n-49 is Opened</li> <li>➤ XV-3m-71 is Opened</li> <li>➤ XV-3m-74 is Opened</li> <li>➤ XV-3m-82 is Opened</li> <li>➤ XV-3m-48 is Opened</li> <li>➤ XV-3m-49 is Opened</li> </ul>	<p>Alarm &amp; Message in DCS</p> <p>Emergency short stop system will be injected during the following scenario.</p> <ol style="list-style-type: none"> <li>1. Local push button activated.</li> <li>2. Electrical power failure and emergency</li> </ol>
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3		<p><b>or</b> Reactor Pressure&gt;(R1504n +3.0 bar) for 5 Secs. <b>or</b> Reactor Pressure&gt;(R1801n +5.0 Deg.c) for 5 Secs. <b>or</b></p> <p>Two out Three Logic</p> <ol style="list-style-type: none"> <li>1. ZL-3n-68 off for 5Secs</li> <li>2. SIC-3n-66 &lt; 20 rpm for 3Secs</li> <li>3. KW-3n-67 &lt; 30 KW for 3Secs.</li> </ol>	➤ Enables Injection	<p>Diesel generator power not energized with in 5 seconds.</p> <p>3.Reactor temperature and pressure reaches above its set point.</p> <p>4. Agitator stop/ failure.</p> <p>5. Agitator RPM low</p> <p>6. Agitator load is low.</p>
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### Details of the Safety Appliances Across the Reactor

TAG NO.	SERVICE	DISC SIZE (mm)	RATED RUPTURE(BAR)	TEMPREATURE Deg C	REMARKS
RD-31-51	ReactorA Vent	14" 150# RF	16	83	
RD-31-59	ReactorA Vent	14" 150# RF	16	83	

RD-31-60	ReactorA Vent	14" 150# RF	16	83	
RD-32-51	ReactorB Vent	14" 150# RF	16	83	
RD-32-59	ReactorB Vent	14" 150# RF	16	83	
RD-32-60	ReactorB Vent	14" 150# RF	16	83	
RD-33-51	ReactorC Vent	14" 150# RF	16	83	
RD-33-59	ReactorC Vent	14" 150# RF	16	83	
RD-33-60	ReactorC Vent	14" 150# RF	16	83	
RD-34-51	ReactorD Vent	14" 150# RF	16	83	
RD-34-59	ReactorD Vent	14" 150# RF	16	83	
RD-34-60	ReactorD Vent	14" 150# RF	16	83	

### Pressure Vessel Details

S.No	Name of the Pressure Vessel	Location of the vessel	Last Testing Date	Next Due Date
1	Ro pressure tube - I pass - Desal	Desalination plant	29.04.2021	28.10.2021
2	Ro pressure tube - I pass - Desal	Desalination plant	29.04.2021	28.10.2021
3	Ro pressure tube - I pass - Desal	Desalination plant	29.04.2021	28.10.2021
4	Ro pressure tube - I pass - Desal	Desalination plant	29.04.2021	28.10.2021
5	Ro pressure tube - I pass - Desal	Desalination plant	29.04.2021	28.10.2021
6	Ro pressure tube - I pass - Desal	Desalination plant	29.04.2021	28.10.2021
7	Ro pressure tube - I pass - Desal	Desalination plant	29.04.2021	28.10.2021
8	Ro pressure tube - I pass - Desal	Desalination plant	29.04.2021	28.10.2021
9	Ro pressure tube - I pass - Desal	Desalination plant	29.04.2021	28.10.2021
10	Ro pressure tube - I pass - Desal	Desalination plant	29.04.2021	28.10.2021
11	Ro pressure tube - I pass - Desal	Desalination plant	29.04.2021	28.10.2021
12	Ro pressure tube - I pass - Desal	Desalination plant	29.04.2021	28.10.2021
13	Ro pressure tube - I pass - Desal	Desalination plant	29.04.2021	28.10.2021
14	Ro pressure tube - I pass - Desal	Desalination plant	29.04.2021	28.10.2021
15	Ro pressure tube - I pass - Desal	Desalination plant	29.04.2021	28.10.2021
16	Ro pressure tube - I pass - Desal	Desalination plant	29.04.2021	28.10.2021
17	Ro pressure tube - I pass - Desal	Desalination plant	29.04.2021	28.10.2021
18	Ro pressure tube - I pass - Desal	Desalination plant	29.04.2021	28.10.2021
19	Ro pressure tube - I pass - Desal	Desalination plant	29.04.2021	28.10.2021
20	Ro pressure tube - I pass - Desal	Desalination plant	29.04.2021	28.10.2021
21	Ro pressure tube - I pass - Desal	Desalination plant	29.04.2021	28.10.2021
23	Ro pressure tube - I pass - Desal	Desalination plant	29.04.2021	28.10.2021
24	Ro pressure tube - I pass - Desal	Desalination plant	29.04.2021	28.10.2021
25	Ro pressure tube - I pass - Desal	Desalination plant	29.04.2021	28.10.2021
26	Ro pressure tube - I pass - Desal	Desalination plant	29.04.2021	28.10.2021
27	Ro pressure tube - I pass - Desal	Desalination plant	29.04.2021	28.10.2021
28	Ro pressure tube - I pass - Desal	Desalination plant	29.04.2021	28.10.2021
29	Ro pressure tube - I pass - Desal	Desalination plant	29.04.2021	28.10.2021
30	Ro pressure tube - I pass - Desal	Desalination plant	29.04.2021	28.10.2021
31	Ro pressure tube - II pass stage 1 - Desal	Desalination plant	29.04.2021	28.10.2021
32	Ro pressure tube - II pass stage 1 - Desal	Desalination plant	29.04.2021	28.10.2021
33	Ro pressure tube - II pass stage 1 - Desal	Desalination plant	29.04.2021	28.10.2021
34	Ro pressure tube - II pass stage 1 - Desal	Desalination plant	29.04.2021	28.10.2021
35	Ro pressure tube - II pass stage 1 - Desal	Desalination plant	29.04.2021	28.10.2021
36	Ro pressure tube - II pass stage 1 - Desal	Desalination plant	29.04.2021	28.10.2021
37	Ro pressure tube - II pass stage 1 - Desal	Desalination plant	29.04.2021	28.10.2021

38	Ro pressure tube - II pass stage 1 - Desal	Desalination plant	29.04.2021	28.10.2021
39	RO pressure tube II pass - stage 2 - Desal	Desalination plant	29.04.2021	28.10.2021
40	RO pressure tube - II pass - stage 2 - Desal	Desalination plant	29.04.2021	28.10.2021
41	RO pressure tube - II pass - stage 2- Desal	Desalination plant	29.04.2021	28.10.2021
42	RO pressure tube - II pass - stage 2- Desal	Desalination plant	29.04.2021	28.10.2021
43	Ro pressure tube I pass - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
44	Ro pressure tube I pass - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
45	Ro pressure tube I pass - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
46	Ro pressure tube I pass - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
47	Ro pressure tube I pass - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
48	Ro pressure tube I pass - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
49	Ro pressure tube I pass - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
50	Ro pressure tube I pass - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
51	Ro pressure tube I pass - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
52	Ro pressure tube I pass - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
53	Ro pressure tube I pass - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
54	Ro pressure tube I pass - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
55	Ro pressure tube I pass - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
56	Ro pressure tube I pass - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
57	Ro pressure tube I pass - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
58	Ro pressure tube I pass - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
59	Ro pressure tube I pass - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
60	Ro pressure tube I pass - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
61	Ro pressure tube I pass - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
62	Ro pressure tube I pass - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021

63	Ro pressure tube I pass - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
64	Ro pressure tube I pass - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
65	Ro pressure tube I pass - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
66	Ro pressure tube I pass - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
67	Ro pressure tube I pass - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
68	Ro pressure tube I pass - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
69	Ro pressure tube I pass - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
70	Ro pressure tube I pass - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
71	Ro pressure tube I pass - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
72	Ro pressure tube I pass - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
73	Ro pressure tube I pass - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
74	Ro pressure tube I pass - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
75	RO pressure tube II pass - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
76	RO pressure tube II pass - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
77	RO pressure tube II pass - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
78	RO pressure tube II pass - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
79	RO pressure tube II pass - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
80	RO pressure tube II pass - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
81	RO pressure tube II pass - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
82	RO pressure tube II pass - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
83	RO pressure tube - UF - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
84	RO pressure tube - UF - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
85	RO pressure tube - UF - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
86	RO pressure tube - UF - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
87	RO pressure tube - UF - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021

88	RO pressure tube - UF - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
89	RO pressure tube - UF - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
90	RO pressure tube - UF - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
91	RO pressure tube - UF - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
92	RO pressure tube - UF - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
93	RO pressure tube - UF - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
94	RO pressure tube - UF - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
95	RO pressure tube - UF - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
96	RO pressure tube - UF - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
97	RO pressure tube - UF - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
98	RO pressure tube - UF - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
99	RO pressure tube - UF - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
100	RO pressure tube - UF - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
101	RO pressure tube - UF - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
102	RO pressure tube - UF - ZLD	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
103	pressure sand filter -ZLD - PSF 3101 A	Desalination plant	29.04.2021	28.10.2021
104	pressure sand filter -ZLD- PSF 3101 B	Desalination plant	29.04.2021	28.10.2021
105	pressure sand filter -ZLD- PSF 3101 C	Desalination plant	29.04.2021	28.10.2021
106	Dual media Filter - DMF	Desalination plant	29.04.2021	28.10.2021
107	Dual media Filter - DMF	Desalination plant	29.04.2021	28.10.2021
108	Dual media Filter - DMF	Desalination plant	29.04.2021	28.10.2021
109	Mixed bed	Desalination plant	29.04.2021	28.10.2021
110	Mixed bed	Desalination plant	29.04.2021	28.10.2021
111	Mixed bed	Desalination plant	29.04.2021	28.10.2021
112	Mixed bed	Desalination plant	29.04.2021	28.10.2021
113	Micron cartridge filter -MCF 3101 A	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
114	Micron cartridge filter -MCF 3101 B	Zero Liquid Discharge Plant	29.04.2021	28.10.2021

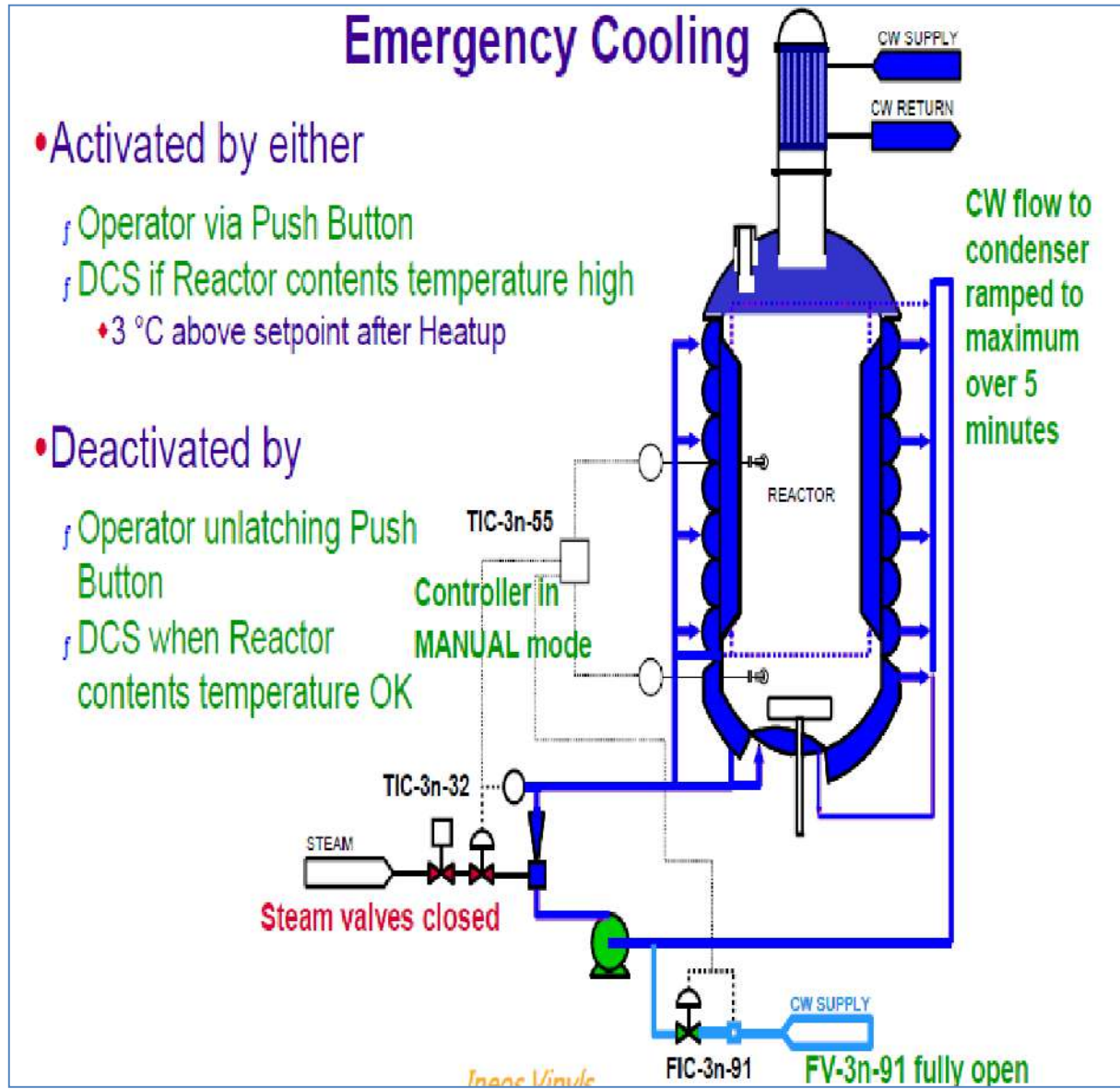
		Plant		
115	Pressure sand filter - U1071-PSF 3101A	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
116	Pressure sand filter - U 1071 PSF 3101 B	Zero Liquid Discharge Plant	29.04.2021	28.10.2021
117	Plant air reciver - V 1031	Compressor house	29.04.2021	28.10.2021
118	Instrument air receiver -V 1032	Compressor house	29.04.2021	28.10.2021
119	Air receiver - N2 plant	Compressor house	29.04.2021	28.10.2021
120	ESS instrument air receiver V 302	Reactor building	29.04.2021	28.10.2021
121	Nitrogen receiver - VCM	VCM storage tank	29.04.2021	28.10.2021
122	Nitogen receiver - ISBL	Reactor building	29.04.2021	28.10.2021
123	Air dryer - AD 101	Compressor house	29.04.2021	28.10.2021
124	Air dryet - AD 102	Compressor house	29.04.2021	28.10.2021
125	pre filter PF 101	Compressor house	29.04.2021	28.10.2021
126	After filter AF 101	Compressor house	29.04.2021	28.10.2021
127	After filter AF 102	Compressor house	29.04.2021	28.10.2021
128	Activated carbon filter ACF 101	Compressor house	29.04.2021	28.10.2021
129	Air heater RAH 101	Compressor house	29.04.2021	28.10.2021
130	Fresh VCM tank - V 410	VCM Day tank	29.04.2021	28.10.2021
131	Recovery VCM tank - V405	RVCM tank	29.04.2021	28.10.2021
132	Reactor R 301 A	Reactor building	29.04.2021	28.10.2021
133	Reactor R 301 B	Reactor building	29.04.2021	28.10.2021
134	Reactor R 301 C	Reactor building	29.04.2021	28.10.2021
135	Reactor R 301 D	Reactor building	29.04.2021	28.10.2021
136	Blow down Vessel	Reactor building	29.04.2021	28.10.2021
137	LP VC compressor separator V 407	Near VCM day tank	29.04.2021	28.10.2021
138	HP VC compressor separator V 408	Near VCM day tank	29.04.2021	28.10.2021
139	Solvent stripper C-803	Reactor building	29.04.2021	28.10.2021
140	Absorber C 802	Vent Gas Absorber	29.04.2021	28.10.2021
141	short stop vessel V301 A	Reactor building-I floor	29.04.2021	28.10.2021
142	short stop vessel V301 B	Reactor building-I floor	29.04.2021	28.10.2021
143	short stop vessel V301 C	Reactor building-I floor	29.04.2021	28.10.2021
144	short stop vessel V301 D	Reactor building-I floor	29.04.2021	28.10.2021

145	Air receiver - Boiler	Boiler	29.04.2021	28.10.2021
146	Liquid nitrogen receiver 1	Liquid nitrogen storage	29.04.2021	28.10.2021
147	Plant air receiver	Compressor house	New Pressure vessel	
148	Nitrogen receiver V 1041	Compressor house	29.04.2021	28.10.2021
149	UF RO pressure tube 1 stage - ZLD	Zero liquid discharge	29.04.2021	28.10.2021
150	CAT C vessel V115	Additive plant	29.04.2021	28.10.2021
151	CAT D vessel V116	Additive plant	29.04.2021	28.10.2021
152	Seal water accumulator V202	Rec. building near BD vessel	29.04.2021	28.10.2021
153	VC knockout vessel V412	RVCM plant	29.04.2021	28.10.2021
154	HP VC catch pot V401	RVCM plant	29.04.2021	28.10.2021
155	Air oil filter	Compressor house	29.04.2021	28.10.2021
156	Air oil filter	Compressor house	29.04.2021	28.10.2021
157	Air oil filter	Compressor house	29.04.2021	28.10.2021
158	Air oil filter	Compressor house	29.04.2021	28.10.2021
159	Air oil filter	Compressor house	29.04.2021	28.10.2021
160	Air oil filter	Compressor house	29.04.2021	28.10.2021
161	Air receiver(Nitrogen plant)	Nitrogen plant	29.04.2021	28.10.2021
162	Air receiver(Nitrogen plant)	Nitrogen plant	29.04.2021	28.10.2021
163	Air receiver(Nitrogen plant)	Nitrogen plant	29.04.2021	28.10.2021
164	Surge vessel(Nitrogen storage)	Nitrogen plant	29.04.2021	28.10.2021
165	Air receiver	Near compressor house	29.04.2021	28.10.2021
166	Air receiver(Instrument)	Near compressor house	29.04.2021	28.10.2021
167	Instrument air receiver -V 602 A	Bagging section	29.04.2021	28.10.2021
168	Instrument air receiver -V 602 B	Bagging section	29.04.2021	28.10.2021
169	Instrument air receiver -V 602 C	Bagging section	29.04.2021	28.10.2021
170	Instrument air receiver -V 602 D	Bagging section	29.04.2021	28.10.2021
171	Instrument air receiver -V 605	Bagging sec.-Dedusting unit	29.04.2021	28.10.2021
172	Condenser Holding E 1051 A	VCM compressor	29.04.2021	28.10.2021
173	Receiver - Holding V 1051 A	VCM Compressor	29.04.2021	28.10.2021
174	Oil cooler -Holding E 1051 B	VCM Compressor	29.04.2021	28.10.2021
175	Knock out drum - Holding duty V	VCM Compressor	29.04.2021	28.10.2021

	1051 B			
176	Primary oil separator - Holding V 1051 DA	VCM Compressor	29.04.2021	28.10.2021
177	Primary oil separator - Holding V 1051 DB	VCM Compressor	29.04.2021	28.10.2021
178	Secondary oil separator - Holding V 1052 CA	VCM Compressor	29.04.2021	28.10.2021
179	Secondary oil separator - V 1052 CB	VCM Compressor	29.04.2021	28.10.2021
180	Condenser - Unloading duty E 1052A	VCM Compressor	29.04.2021	28.10.2021
181	Receiver - Unloading duty V 1052 A	VCM Compressor	29.04.2021	28.10.2021
182	Oil Cooler unloading E 1052 B	VCM Compressor	29.04.2021	28.10.2021
183	Primary oil separator V 1052 D	VCM Compressor	29.04.2021	28.10.2021
184	Secondary oil separator V 1052 C	VCM Compressor	29.04.2021	28.10.2021
185	Knock out drum - unloading duty V 1052 B	VCM Compressor	29.04.2021	28.10.2021
186	Micron cartridge filter Desal 3101 CF-A	Desalination plant	29.04.2021	28.10.2021
187	Micron cartridge filter Desal 3101 CF-B	Desalination plant	29.04.2021	28.10.2021
188	Micron cartridge filter ZLD 3101 A	Zero liquid discharge plant	29.04.2021	28.10.2021
189	Micron cartridge filter ZLD 3101 B	Zero liquid discharge plant	29.04.2021	28.10.2021
190	Micron cartridge filter ZLD 4101	Zero liquid discharge plant	29.04.2021	28.10.2021
191	Micron cartridge filter RMS	Zero liquid discharge plant	New vessel	
192	Knock out drum - V 1053 A	New VCM compressor	New vessel	
193	Knock out drum - V 1053 B	New VCM compressor	New vessel	
194	Primary oil separator – V 1053 DA, Horizontal	New VCM compressor	New vessel	
195	Secondary oil separator –,V 1053 CA, Vertical	New VCM compressor	New vessel	
196	Primary oil separator – V 1053 DB, Horizontal	New VCM compressor	New vessel	
197	Primary oil separator – V 1053 CB, Horizontal	New VCM compressor	New vessel	

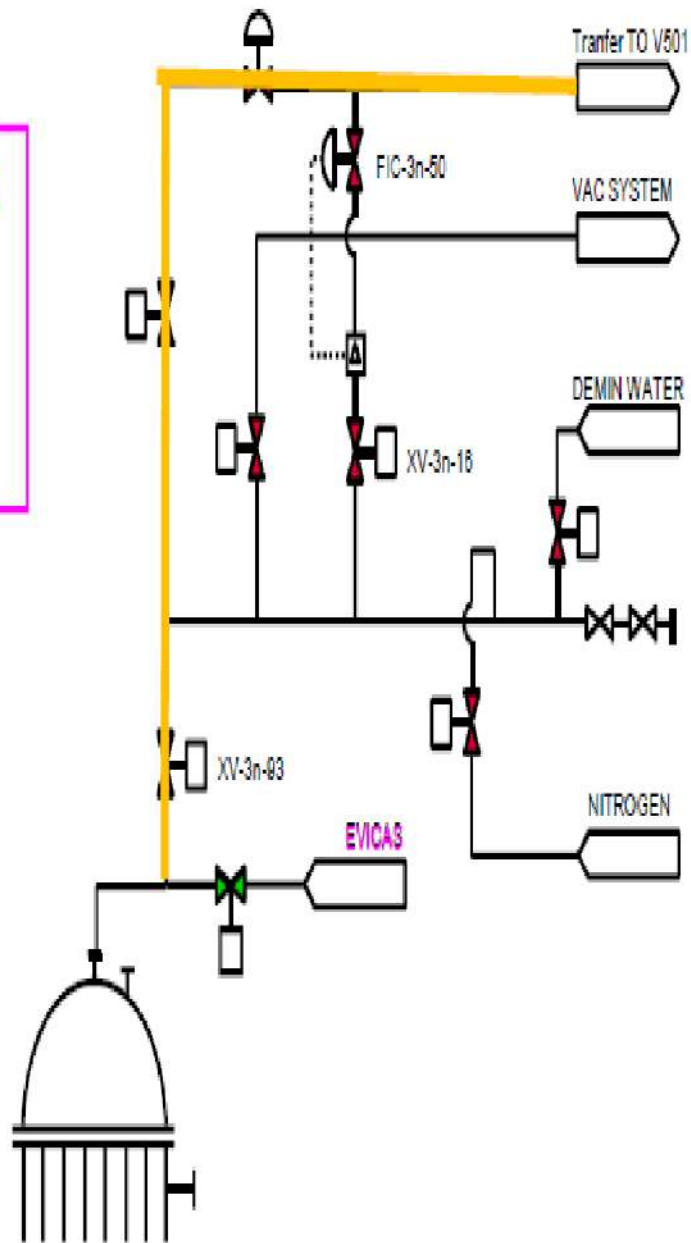
198	Oil cooler, E1053 A, Horizontal	New VCM compressor	New vessel	
199	Oil cooler, E1053 B, Horizontal	New VCM compressor	New vessel	

**Level 1- Emergency Cooling**

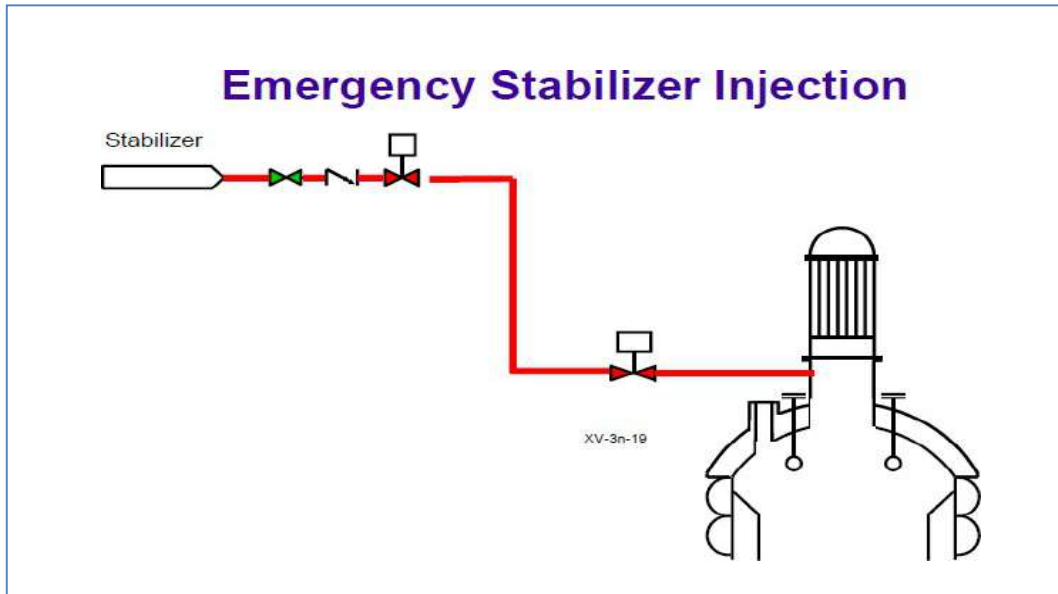


# VCM Controlled Transfer

Controlled transfer of VCM  
to recovery



**Level-3 Emergency stabilizer injection**

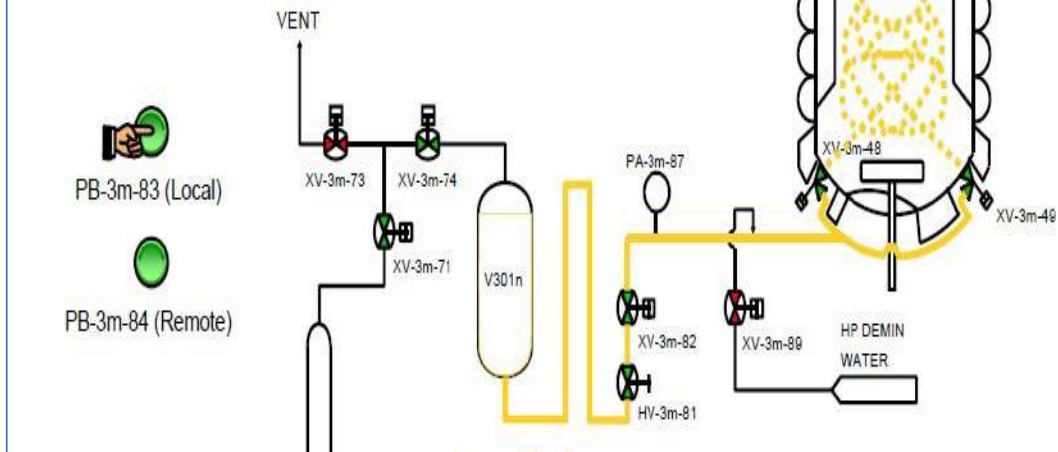


## Level -4- Emergency Short stop Injection

# EMERGENCY SHORT STOP SYSTEM

## Description

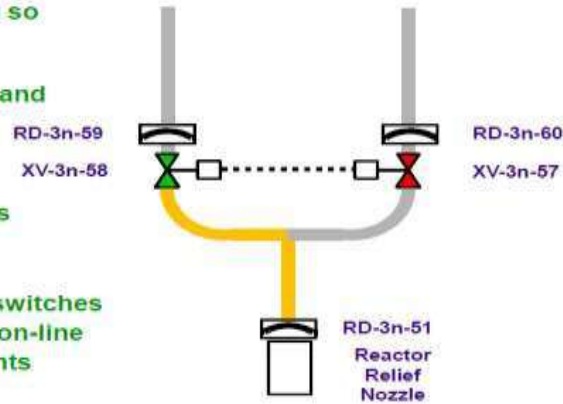
- Operators can initiate injection of AMS either from the Control Room, or locally. This is "hard-wired", and therefore does not use the DCS.
- The DCS "exercises" and checks the system regularly to make sure that all the valves operate, and that the Nitrogen pressure is available.



### Level 5 – First RD Burst

#### Reactor Relief System – Rupture Disc-1

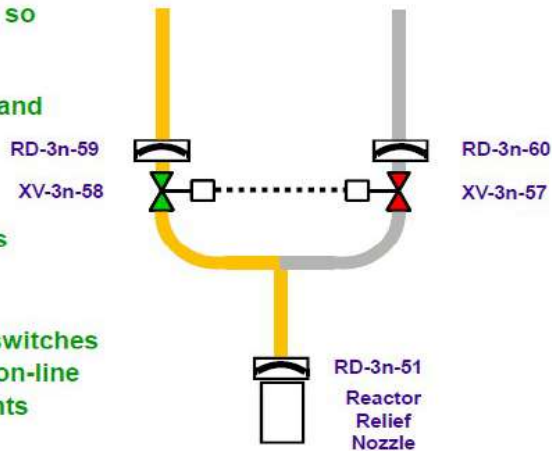
- Relief system is all 14 inch piping
- Rupture discs burst at 16 barg
- XV-3n-57 and 58 are interlocked so that one is open at all times
- High pressure bursts RD-3n-51 and on-line second disc
- Reactor pressure rapidly falls as contents are vented
- After pressure has fallen, DCS switches valves over to bring intact disc on-line to prevent entire Reactor contents being lost



### Level 6 – Second RD Burst

#### Reactor Relief System – Rupture Disc-2

- Relief system is all 14 inch piping
- Rupture discs burst at 16 barg
- XV-3n-57 and 58 are interlocked so that one is open at all times
- High pressure bursts RD-3n-51 and on-line second disc
- Reactor pressure rapidly falls as contents are vented
- After pressure has fallen, DCS switches valves over to bring intact disc on-line to prevent entire Reactor contents being lost



## **PANDIAN CHEMICALS LIMITED**

**PRODUCT : AMMONIUM PERCHLORATE**

**RAW MATERIALS : 1) SODIUM CHLORATE**

**2) AMMONIUM CHLORIDE.**

### **STAGE -I: PRODUCTION OF SODIUM PERCHLORATE SOLUTION**

Sodium chlorate solution is fed into a electrolytic tank. By passing DC Current to the solution through cathode and anodes, sodium chlorate is converted to sodium perchlorate solution. In this process Mild Hydrogen gas evolved is passed to a scrubber and it is neutralized by caustic soda solution.

Produced sodium perchlorate solution is stored in Sintex tanks.

**Hazards involved in stage 1: NIL**

### **STAGE -II: PRODUCTION OF AMMONIUM PERCHLORATE**

Ammonium chloride is dissolved in water in Open Reactor vessel by heating the solution to 65-85 deg centigrade by passing steam in a jacketed reactor vessel. Then to this solution sodium perchlorate solution is added to form Ammonium perchlorate solution. This mixture is cooled upto 5 deg centigrade to get crude ammonium perchlorate crystals.

This crude ammonium perchlorate is recrystallised by adding water and heated to 65-85 deg by passing steam. The solution is cooled upto 5 deg centigrade in a open reactor vessel to get pure ammonium perchlorate crystals. There is no usage of pressurized reactors in the above process.

### **CHILLING PLANTS:**

Chilling plants used are closed type chillers which are kept in canopy.

**Hazards involved in stage 2: NIL**

Purified ammonium perchlorate slurry is subjected to filtration by applying vacuum to separate Ammonium perchlorate from its mother liquor.

## **DRYING OF AMMONIUM PERCHLORATE**

Wet Ammonium Perchlorate is dried in Fluid bed drier by passing steam. Drying of Ammonium perchlorate in the drier is controlled by PLC so that excess temperature in the drying process is avoided.

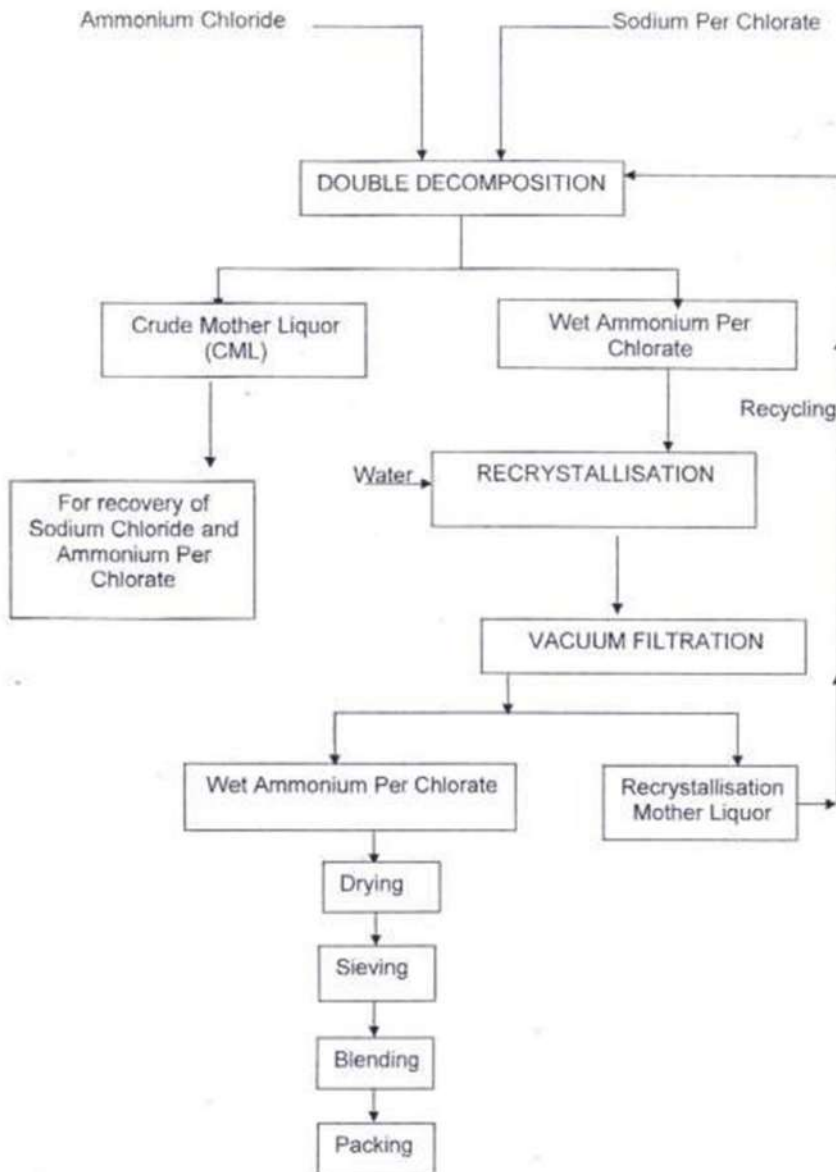
If the drying temperature exceeds the set value, steam supply will be cut off and machine will stop its drying process.

## **SIEVING, BLENDING AND PACKING**

Dried Ammonium perchlorate crystals are sieved in a Vibro Screen machine to get different size fractions and different size fractions are mixed in a Double cone Blender and packed for QC clearance.

- 1) Air compressors used are duly calibrated and certified by Deputy director of Safety and Health. Validity : JULY-2022
- 2) Material handling Hoists are calibrated and certified. Validity : JULY-2022

FIG. 2.4  
 STAGE – II: PROCESS  
 PROCESS FLOW – CHART



### Interlocks Across Fluid Bed Drier

S.No	Activities Performed By Plc With Trigservices Of Interlock	Interlock Description	Brief Explanation
1	Alarm	When product temperature crosses set temperature	'Temperature high' Alarm will be shown in the display and Fluid bed drier got tripped and drying operation got stopped.

### Pressure Vessel Details

Sl.No	Name of the Vessel	Location of the vessel	Test date of the valve	Next due date
1.	Horizontal Air receiver S.No0314	Drier area	05.05.2021	05.08.2021
2.	Horizontal Air receiver CC No: 70245659	Behind Recovery plant	05.05.2021	05.08.2021

**PIONEER JELLICE INDIA P. LIMITED**

**No Reaction Vessels  
Only Pressure Vessels as follows**

<b>S.No</b>	<b>Name of the Pressure Vessel</b>	<b>Location of the vessel</b>	<b>Last Testing Date</b>	<b>Next Due Date</b>
1	To Store Compressed Air	Bone Wash	03.06.2021	03.06.2022
2	To filter water	Acidulation Water Pump	03.06.2021	03.06.2022
3	To Store Compressed Air	Acidulation Utility	03.06.2021	03.06.2022
4	To Store Compressed Air	Acidulation Utility	10.06.2021	10.06.2022
5	To Store Compressed Air	Acidulation Utility	10.06.2021	10.06.2022
6	To store the Compressed Air	LOP Down	10.06.2021	10.06.2022
7	To cool the Compressed Air	LOP Down	17.06.2021	17.06.2022
8	To cool the Compressed Air	LOP Down	17.06.2021	17.06.2022
9	To Gas condensing and storing	LOP Down	17.06.2021	17.06.2022
10	To Gas condensing and storing	LOP Down	17.06.2021	17.06.2022
11	To filter water	LOP near Water sump	24.06.2021	24.06.2022
12	To convert hard water and process water into soft water	RO3	24.06.2021	24.06.2022
13	To convert hard water and process water into soft water	RO1	24.06.2021	24.06.2022
14	To convert hard water and process water into soft water	RO1	24.06.2021	24.06.2022
15	To convert hard water and process water into soft water	RO1	01.07.2021	01.07.2022
16	To convert hard water and process water into soft water	RO3	01.07.2021	01.07.2022
17	To convert hard water and process water into soft water	RO1	01.07.2021	01.07.2022
18	To convert hard water and process water into soft water	RO3	01.07.2021	01.07.2022
19	To convert hard water and process water into soft water	RO3	08.07.2021	08.07.2022

20	To convert hard water and process water into soft water	LOP Water sump	08.07.2021	08.07.2022
21	To convert hard water and process water into soft water	ETP Backside	08.07.2021	08.07.2022
22	To convert hard water and process water into soft water	Upside ETP	08.07.2021	08.07.2022
23	To convert hard water and process water into soft water	Upside ETP	15.07.2021	15.07.2022
24	To store compressed air	Boiler	15.07.2021	15.07.2022
25	To store compressed air	Boiler	15.07.2021	15.07.2022
26	To store compressed air	ETP DAF	15.07.2021	15.07.2022

## DFE PHARMA INDIA PVT LIMITED

Total No of Pressure vessel: **26 Nos**

Critical no of Pressure vessel :**4 Nos**

Non critical pressure vessel :**22 Nos**

Critical to Process: Temperature **and Pressure**. (Both are monitored by DCS System connected with alarm) As a Pharma Company we are monitoring and recording the same in Manufacturing batch record every 30 Min.

Control Measures:

- DCS connected with Alarm system.
- Safety valve with periodic calibration.
- Scheduled Preventive Maintenance.

### **Pressure and Temperature Sensors across the Reactor**

<b>S.NO</b>	<b>Pressure Transmitter and Temperature Sensor</b>	<b>Activities that will be performed by SCADA with the triggering of the Sensor</b>	<b>Reactor Sensor Description</b>	<b>Brief Explanations</b>
PV1/CDR1108	PI-1001 TI-1001	<ul style="list-style-type: none"><li>• Audio Hooter Alarm</li><li>• Light Indication</li></ul>	SCADA connected with Alarm system in Control room and Reactor area while abnormalities observed in set limit	<ul style="list-style-type: none"><li>• When Set Pressure limit reaches its predefined limit (above 3.5 kg/cm<sup>2</sup>), System triggers Alarm and blinking indication.</li><li>• When Set Temperature limit reaches its predefined limit (above 145° C First high limit, 155° C Second high limit),</li></ul>

				System triggers Alarm and blinking indication.
PV2/CDR1108	PI-1002 TI-1002	<ul style="list-style-type: none"> <li>• Audio Hooter Alarm</li> <li>• Light Indication</li> </ul>	SCADAconnected with Alarm system in Control room and Reactor area while abnormalities observed in set limit	<ul style="list-style-type: none"> <li>• When Set Pressure limit reaches its predefined limit (above 3.5 kg/cm<sup>2</sup>), System triggers Alarm and blinking indication.</li> <li>• When Set Temperature limit reaches its predefined limit (above 145° C First high limit, 155° C Second high limit), System triggers Alarm and blinking indication.</li> </ul>
PV3/CDR1108	PI-1003 TI-1003	<ul style="list-style-type: none"> <li>• Audio Hooter Alarm</li> <li>• Light Indication</li> </ul>	SCADAconnected with Alarm system in Control room and Reactor area while abnormalities observed in set limit	<ul style="list-style-type: none"> <li>• When Set Pressure limit reaches its predefined limit (above 3.5 kg/cm<sup>2</sup>), System triggers Alarm and blinking indication.</li> <li>• When Set Temperature limit reaches its predefined limit (above 145° C First high limit, 155° C Second high limit), System triggers Alarm and blinking indication.</li> </ul>
PV4/CDR1108	PI-1004 TI-1004	<ul style="list-style-type: none"> <li>• Audio Hooter Alarm</li> <li>• Light Indication</li> </ul>	SCADAconnected with Alarm system in Control room and Reactor area while abnormalities observed in set limit	<ul style="list-style-type: none"> <li>• When Set Pressure limit reaches its predefined limit (above 3.5 kg/cm<sup>2</sup>), System triggers Alarm and blinking indication.</li> <li>• When Set Temperature limit reaches its</li> </ul>

				predefined limit (above 145° C First high limit, 155° C Second high limit), System triggers Alarm and blinking indication.
Popup Message appeared in SCADA when abnormalities observed				Reactor name with Pressure or Temperature High with red highlight indication (ie., GLR 01 – Temperature High)

### Details of the Safety Appliances Across the Reactor

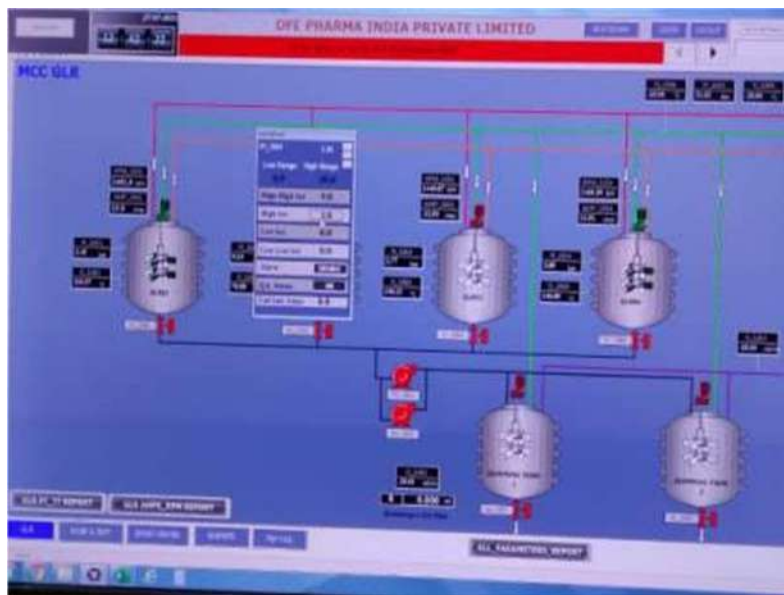
S. No	Description	Value
1	Glass Lined Reactor – 1 (PV1/CDR1108) Safety valve - DFE/INS/MCC/SRV/001	<b>Set Pressure:</b> 5.0 KG/CM <sup>2</sup> g
2	Glass Lined Reactor – 2 (PV2/CDR1108) Safety valve - DFE/INS/MCC/SRV/002	<b>Set Pressure:</b> 5.0 KG/CM <sup>2</sup> g
3	Glass Lined Reactor – 3 (PV3/CDR1108) Safety valve - DFE/INS/MCC/SRV/003	<b>Set Pressure:</b> 5.0 KG/CM <sup>2</sup> g
4	Glass Lined Reactor – 4 (PV4/CDR1108) Safety valve - DFE/INS/MCC/SRV/004	<b>Set Pressure:</b> 5.0 KG/CM <sup>2</sup> g
5	GLR Steam Header Safety valve - DFE/INS/MCC/SRV/005	<b>Set Pressure:</b> 6.0 KG/CM <sup>2</sup> g

### Pressure Vessel Details

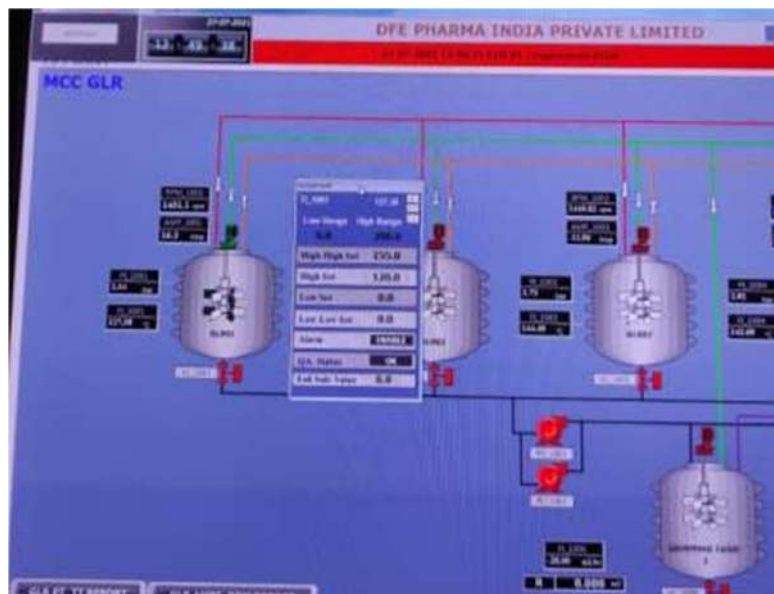
S.No	Name of the Pressure Vessel	Location of the vessel	Last Testing Date	Next Due Date
1	PV1/CDR1108	Vertical Glass Lined Reactor-01	24-Mar-21	23-Sep-21
2	PV2/CDR1108	Vertical Glass Lined Reactor-02	24-Mar-21	23-Sep-21
3	PV3/CDR1108	Vertical Glass Lined Reactor-03	24-Mar-21	23-Sep-21
4	PV4/CDR1108	Vertical Glass Lined Reactor-04	24-Mar-21	23-Sep-21
5	PV5/CDR1108	Vertical Glass Lined Reactor - Skimmer	24-Mar-21	23-Sep-21
6	PV6/CDR1108	Horizontal Air Receiver Tank	24-Mar-21	23-Sep-21
7	PV7/CDR1108	Horizontal Air Receiver Tank	24-Mar-21	23-Sep-21
8	PV8/CDR1108	Vertical Air Receiver Tank	24-Mar-21	23-Sep-21
9	PV9/CDR1108	Vertical Sand Filter	24-Mar-21	23-Sep-21
10	PV10/CDR1108	Vertical Cation Exchange Filter	24-Mar-21	23-Sep-21
11	PV11/CDR1108	Vertical Anion Exchange Filter	24-Mar-21	23-Sep-21
12	PV12/CDR1108	Horizontal Reverse Osmosis Membrane 01	24-Mar-21	23-Sep-21
13	PV13/CDR1108	Horizontal Reverse Osmosis Membrane 02	24-Mar-21	23-Sep-21
14	PV14/CDR1108	Horizontal Reverse Osmosis Membrane 03	24-Mar-21	23-Sep-21
15	PV15/CDR1108	Horizontal Reverse Osmosis Membrane 04	24-Mar-21	23-Sep-21
16	PV16/CDR1108	Horizontal Reverse Osmosis Membrane 05	24-Mar-21	23-Sep-21
17	PV17/CDR1108	Horizontal Reverse Osmosis Membrane 06	24-Mar-21	23-Sep-21
18	PV18/CDR1108	Autoclave	24-Mar-21	23-Sep-21
19	PV19/CDR1108	Horizontal Reverse Osmosis Membrane 01	24-Mar-21	23-Sep-21
20	PV20/CDR1108	Horizontal Reverse Osmosis Membrane 02	24-Mar-21	23-Sep-21
21	PV21/CDR1108	Horizontal Reverse Osmosis Membrane 03	24-Mar-21	23-Sep-21
22	PV22/CDR1108	Horizontal Reverse Osmosis Membrane 04	24-Mar-21	23-Sep-21

23	PV23/CDR11 08	Horizontal Reverse Osmosis Membrane 05	24-Mar-21	23-Sep-21
24	PV24/CDR11 08	Horizontal Reverse Osmosis Membrane 06	24-Mar-21	23-Sep-21
25	PV25/CDR11 08	Horizontal Reverse Osmosis Membrane 07	24-Mar-21	23-Sep-21
26	PV26/CDR11 08	Horizontal Reverse Osmosis Membrane 08	24-Mar-21	23-Sep-21

**Pressure Alarm above 3.5 kg/cm2**



**Temperature Alarm above 145 deg Celsius**



## **ASIAN PAINTS LIMITED**

### **Critical operations in Pentaerythritol manufacturing process is as below**

1. Reaction
2. Stripping
3. Distillation
4. Evaporation
5. Crystallization

### **Reactor R101**

#### **Purpose of R101**

- Raw material Acetaldehyde, Formaldehyde and Caustic soda reacted in 11700 Kgs of water to form Pentaerythritol and Sodium Formate

#### **Safety Interlocks**

- Operating pressure of R101 is atmospheric.
- At High-High level alarm of 13800 kgs in R101 all raw material input pumps to R101 stops
- Operating temperature of R101 is 21 deg C to 45 deg C.
- At High temperature of 48 deg C alarm comes and High-High temperature of 50 deg C all raw material input pumps to R101 stops
- VOC detection system with High alarm of 20 ppm is available in control room to detect Acetaldehyde leaks

### **Stripper column**

#### **Purpose of Stripper column**

- Unreacted Formaldehyde in R101 is removed in Stripper column

#### **Safety Interlocks**

- Operating pressure is 3.3 bar G.
- At a High-High pressure of 3.5 bar G steam flow to stripper stops.
- Operating level is 30%.

- At a High level of 40% alarm comes.
- At a Low-Low level of less than or equal to 20% steam flow to stripper stops.
- Safety valve set pressure is 4.2 bar G and reset pressure 3.8 bar G

### **Safety system in Distillation column**

#### **Purpose of Distillation column**

- Formaldehyde and Methanol separated in Distillation column

#### **Safety Interlocks**

- Distillation column operating pressure is Atmospheric.
- Operating level of column is 40%
- At a High-High level of 79% steam flow to Distillation column stops
- Safety valve set pressure is 1.0 bar G and reset pressure 0.8 bar G

### **Evaporators**

#### **Purpose of Evaporators**

- To increase the concentration of Total solids from 26% to 58% by evaporating the water

#### **Safety Interlocks**

- Operating level of evaporators is 50% to 70%.
- At Low-Low level of less than or equal to 35% steam flow to Evaporator stops.
- Operating pressure of evaporators is 660 mm Hg.
- At vacuum of less than or equal to 450 mm Hg steam flow to Evaporator stops

### **Crystallizers**

#### **Purpose of Crystallizers**

- To cool the evaporator product from 90 deg C to 40 deg C.

#### **Safety Interlocks**

- Operating pressure of crystallizers is Atmospheric and Vacuum.
- When the Crystallizer level reaches the Level switch Feed pump to Crystallizer stops.

### Interlocks across the Reactors/Stripper/Evaporator/Crystallizer

S.No	Interlock Tag No	Activities that will be performed by DCS/SCADA with the triggering of the Interlock	Reactor Interlock description	Brief Explanations
1	WI-101	Alarm	At High-High level alarm of 13800 kgs in R101 all raw material input pumps to R101 stops	WI-101 High level alarm P2410 A/B trip alarm P100A/B trip alarm
2	TI-101	Alarm	At 48 deg C high temperature alarm At 50 deg C all raw material input pumps to R101 stops	TI-101-High alarm P2410 A/B trip alarm P100A/B trip alarm
3	TVOC	Alarm	At 20 PPM TVOC alarm pop up message	
4	PSTR	Alarm	At 3.5 bar G high pressure alarm pop up message	FSTMC-Steam flow to Stripper stops
5	LSTR	Alarm	At 40% of stripper level high level alarm pop up message	
6	LSTR	Alarm	At 40% of stripper level low level alarm pop up message	FSTMC- Steam flow to Stripper stops
7	LDIS	Alarm	At 79% of Distillation level high level alarm pop up message	FDCSC- Steam flow to Distillation stops
8	LI351/LI352	Alarm	At 35% of level low level alarm pop up message	Steam flow to Evaporator stops
9	PI355	Alarm	At vacuum of less than or equal to 450 mm Hg low vacuum alarm pop up message	Steam flow to Evaporator stops
10	LSH118	Alarm	When level reaches the set point alarm pop ups	P118 trips
11	TRX1/TRX2/TRX3/	Alarm	When Reaction temperature reaches	Air blower stops

	TRX4		675 deg C high temperature alarm pop up message	
12	PRS	Alarm	When the reactor pressure reaches 4000 mmwc high pressure alarm pop message	Air blower stops
13	PRS	Alarm	Atair blower back pressure of0.60 bar G high pressure alarm pop message	Air blower stops
14	LDCBC	Alarm	At level of 20% low level alarm pop up message	Steam flow to distillation column stops
15	DCSFC	Alarm	At vacuum of 250 mm Hg low vacuum alarm pop up message	Steam flow to distillation column stops

**Pressure Vessel Details**

<b>S.No</b>	<b>PV No</b>	<b>Name of the Pressure Vessel</b>	<b>Location of the vessel</b>	<b>Last Testing Date</b>	<b>Next Due Date</b>
1	PV-01	Air receiver-Vertical cylindrical vessel with dish ends,Make: Kirloskar Pneumatic Co.Ltd,Cap 4m3,S.no-0863-Ref.No.PV-01	PENTA	20-07-2021	20-01-2022
2	PV-06	Air receiver-Horizontal cylindrical vessel with dish ends,Make: Elgi Equipment Ltd,Coimbatore,Cap 250 Ltrs,S.no-0863-Ref.No.PV-06	Dust Collector	20-07-2021	20-01-2022
3	PV-12	Multigrade Filter(MGF) vertical cylindrical vessel with dish ends,Make: Ion Exchange India Ltd,Mumbai,cap:6 m3-Ref.No.PV-12	WTP	20-07-2021	20-01-2022
4	PV-13	Dealkaliser-Vertical Cylindrical vessel with dish ends,Make: Indian,capacity: 6m3-Ref.No.PV-13-weak Acid cation	WTP	20-07-2021	20-01-2022
5	PV-17	Air receiver-Horizontal cylindrical vessel with dish ends,Make: Elgi Equipment Ltd,Coimbatore,Cap 300 Ltrs,S.no-G.K 452-Ref.No.PV-17	Boiler	20-07-2021	20-01-2022
6	PV-18	Air receiver-Horizontal,Make:	Compressor	20-07-	20-01-2022

		IngressollRand,Cap 300 Ltrs,S.no.S.H-1425-Ref.No.PV-018	Unit	2021	
7	PV-19	Air receiver-Horizontal,Make: IngressollRand,Cap 300 Ltrs,Size: 1400mm X 500 mm dia)S.no.S.H-11017-Ref.No.PV-019	Compressor Unit	20-07-2021	20-01-2022
8	PV-21	Air oil Seperator Vertical Cylidrical vessel with dish end Screw Compressor(A), Make: IngressollRand,Cap: 50 Ltrs,S.NoNAR10217532-Ref.No.PV-021	Compressor Unit	20-07-2021	20-01-2022
9	PV-22	Air oil Seperator Vertical Cylidrical vessel with dish end Screw Compressor(B), Make: IngressollRand,Cap: 50 Ltrs,S.NoNAR10217533-Ref.No.PV-022	Compressor Unit	20-07-2021	20-01-2022
10	PV-23	Mixed Bed Unit-Vertical Cylindrical Vessel with end.(DM uit), Make: JB Nag Water Technologies Pvt.Ltd,Cap.1200 Ltrs-PV-023	WTP	20-07-2021	20-01-2022
11	PV-24	Acetaldehyde Storage Bullet-1-Horizontal Cylindrical Vessel with dish ends-Cap:75 m3,S.No:24001-PV-24	Acetaldehyde Bullet	20-07-2021	20-01-2022
12	PV-25	Acetaldehyde Storage Bullet-2-Horizontal Cylindrical Vessel with dish ends-Cap:75 m3,S.No:24001-PV-25	Acetaldehyde Bullet	20-07-2021	20-01-2022
13	PV-26	Air Receiver-Vertical Cylidrical vessel with dish end, Make: IngressollRand,Cap: 250 Ltrs,Ref.No-PV-026	Compressor Unit	20-07-2021	20-01-2022
14	PV-27	Air Receiver-Vertical Cylidrical vessel with dish end, Make: IngressollRand,Cap: 3000 Ltrs,Ref.No-PV-027	Compressor Unit	20-07-2021	20-01-2022
15	PV-28	Air Receiver-Vertical Cylidrical vessel with dish end, Make: IngressollRand,Cap: 50 Ltrs,Ref.No-PV-028	Compressor Unit	20-07-2021	20-01-2022
16	PV-29	Air Receiver-Vertical Cylidrical vessel with dish end, Make: IngressollRand,Cap: 50 Ltrs,Ref.No-PV-029	Compressor Unit	20-07-2021	20-01-2022
17	PV-30	Strong Acid cation-Vertical Cylindrical vessel with dish	WTP	20-07-2021	20-01-2022

		ends,Make: Indian,capacity: 6m3-Ref.No.PV-30			
18	PV-31	Weak base Anion Exchanger(WBA),Make: Indian,Cap: 6 m3-Ref.No.Pv-31	WTP	20-07- 2021	20-01-2022
19	PV-32	Strong base Anion Exchanger(SBA)-Vertical Cylindrical vessel with dish ends,Make: Indian,Dia: 1200 mm,Ht-1750 mm-Ref.No.PV-32	WTP	20-07- 2021	20-01-2022

### REACTOR 101





## CONTROL ROOM FIRE ALARM PANEL



## CONTROL ROOM FIRE EXTINGUISHER



## CONTROL ROOM SMOKE DETECTOR



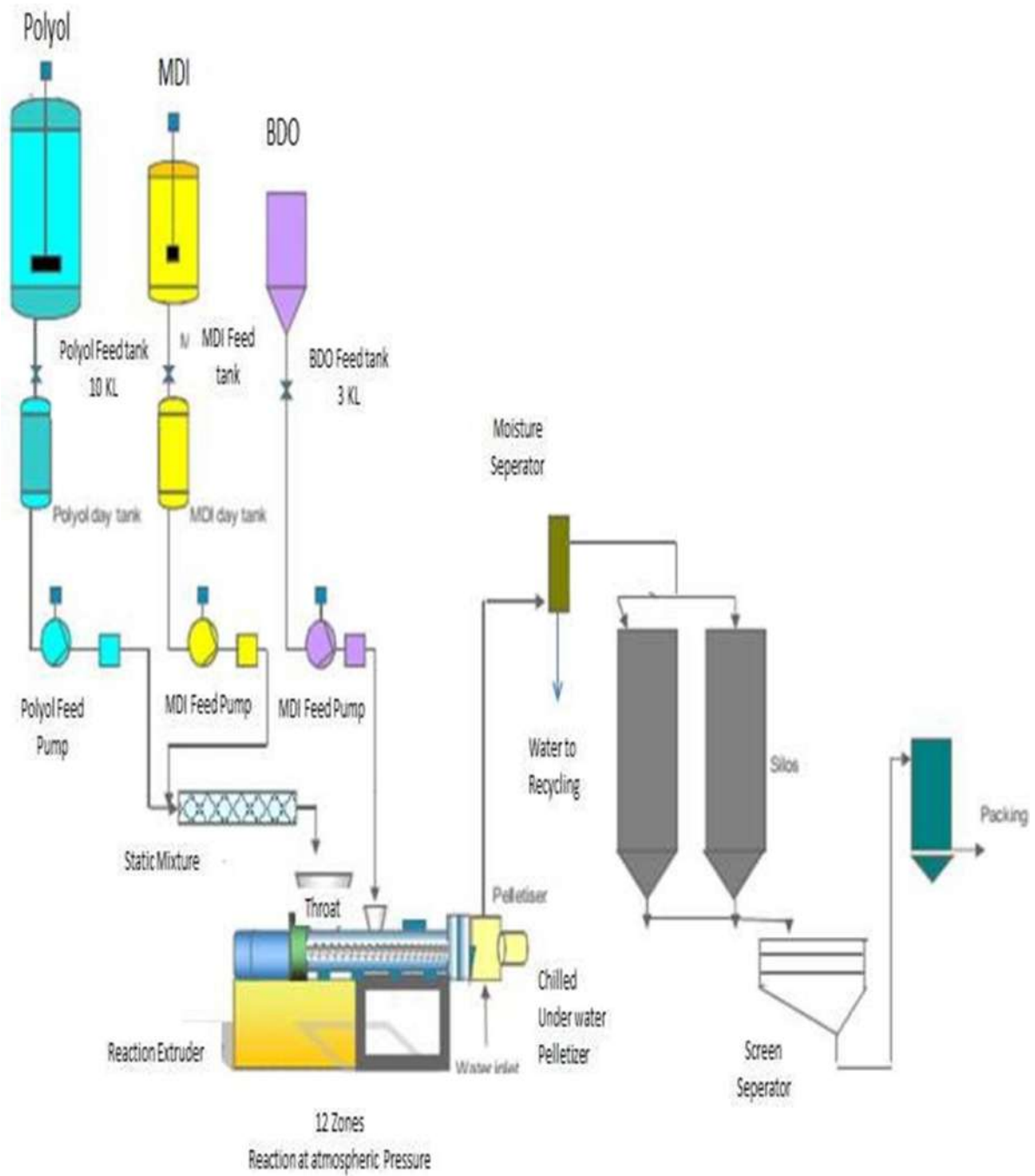
**COVESTRO INDIA PRIVATE LIMITED**

Description	Details
Plant Location	SF.No.135/1A, 135/2A, 135/1B2 Sipcot Phase -II, Semmankuppam Village, Cuddalore-607 005.
Main Products	Thermo Plastic Polyurethane Resins-500MT/Month
Total Plant Area	8.22 Acres
Built Up Area	2.48 Acres (30.2 %)
Green Belt Area	2.7 Acres (32.8 %)
Water Consumption	39 KLD; Source -Sipcot water
Sanctioned Demand	1125 KVA
Current Demand	750 –800 KVA
BackupPower Source	By Diesel Generator <input type="checkbox"/> 600 KVA –1 No <input type="checkbox"/> 400 KVA –1 No <input type="checkbox"/> 200 KVA –1 No

Main Chemicals used and Quantities

Sl. No.	Name of The Raw Material	Quantity/Month	Principal Use
1.	4,4 -Diphenyl methane Di Isocyanate- MDI	175 Tons	TPU Production
2	Polyol	275Tons	TPU Production
3	1,4-Butanediol	85 Tons	TPU Production
4	ADIPIC ACID	50 Tons	TPU Production

# Process Flow Diagram for the Manufacture of TPU



## Process Description –TPU manufacturing

- The first step in the manufacturing process is , the polyol is heated to 90°C and the MDI is heated till 65 °c , Diol at the room temperature are charged in the respective vessels before processing is started.
- MDI, Polyol and Diol are accurately pumped into a specially designed mixer and extruder wherein the reaction takes place. Individual Mass Flow Meters control the flow of the Raw Materials
- The Reaction takes place at atmospheric pressure and the temperature of the reaction is precisely controlled at the desired temperature by subjecting the Cooled DM water at the barrel of the extruder.
- The resultant TPU resin formed in the extruder is converted in the form of pellets by passing through the Die and the pellets are cooled, aged, size classified and packed in suitable bags.
- The important step in the process is the control of molecular weight of the TPU resin, which determines the physical and mechanical properties of the product.
- The resin, after drying and packing is sent to end-users where it is processed as in the case of other thermoplastic materials. Various safety measures and controls followed in the TPU Manufacturing Process Level control system (Non contact RADOR type) used in individual raw material tanks to trip the feed pump once the specified level is reached.
- Temperature controllers to maintain the temperature of MDI and Polyol at 90°C and 65°C respectively in their respective tanks and controls the flow of Hot Water to jackets of the tanks.
- Scrubbing system connected with suction hoods located at various places of the plant.
- Vents of all ageing silos are connected to Scrubber system.

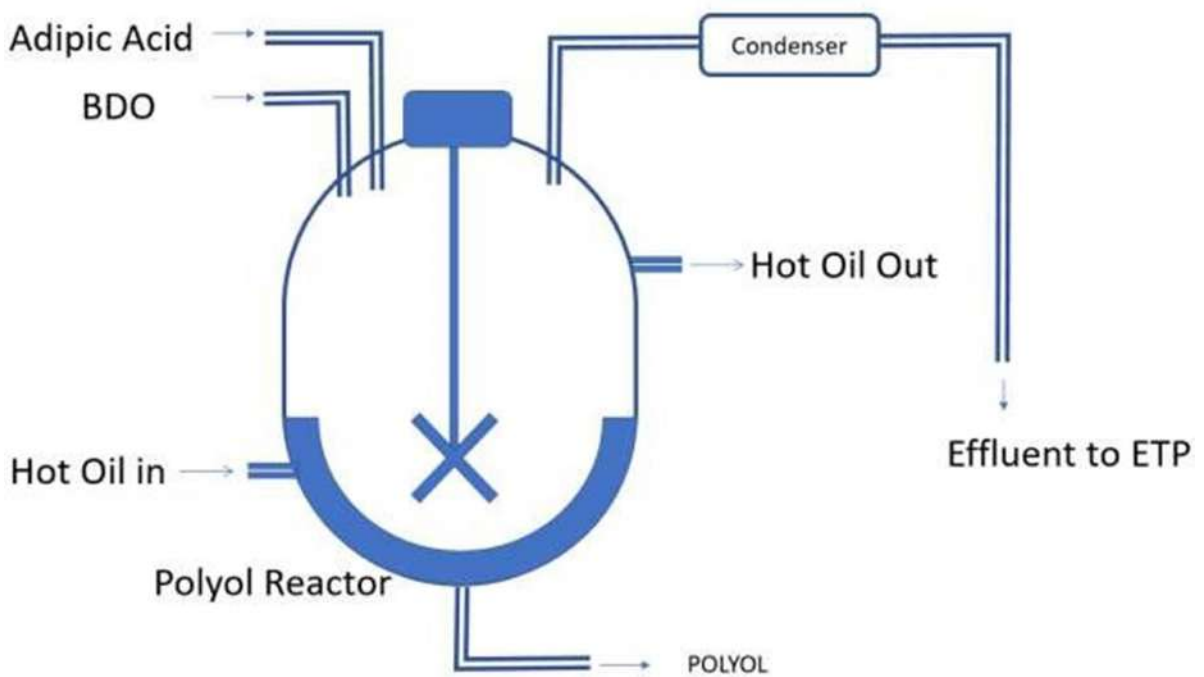
- Fugitive emission of MDI vapour monitoring system connected to JDISH office.
- TVOC Analyser at the plant to monitor the presence of organic chemicals available in plant atmosphere and its connected with TNPCB office.
- Pump dry run tripping mechanism.

### MDI Vapour Sensor





**Process flow for manufacturing Polyol**



**Around 25% of the Polyol required for the manufacturing of TPU is produced in-house and consumed captively.**

**Details of the Safety Appliances Across the Polyol Reactor**

S.No	Description	Value
1	Polyol reactor Safety valve 'PSV0202	<b>Set Pressure : 3.9 KG/CM<sup>2</sup> g</b>
2	Polyol reactor Reflux condensor safety valve 'PSV0208	<b>Set Pressure :4.5 KG/CM<sup>2</sup> g</b>
3	Rupture Disc	<b>Set Pressure :1.4 KG/CM<sup>2</sup> g @ 120°c1.6 KG/CM<sup>2</sup> g @ Atmtemp</b>

**RUPTURE DISC**





### **Process Safety and interlocking system**

- DCS control system-Alarms, temperature variation alarms(H,HH,HHH), pressure control, auto flow cut off.
- Process Vent scrubber connected with DCS.

### **Description of Internal Safety Systems at the Plant**

- Spot the Hazard
- Safety Safe Guard
- Lifesaving principles
- Near Miss Reporting
- Management of Change
- Safety Trainings
- PPEs Management
- On site emergency preparedness plan
- Work Permit system
- Safety walk through system
- Safety Audit System
- 5S audit System
- Statutory Legal Matrix
- Job Safety inspection

### **EMERGENCY CONTROL CENTER**

### **Personnel protective equipment's available in ECC**

- Safety helmets
- Danger signal stand
- Gum boots
- Protective overalls
- Safety gloves
- Shovel

- Organic vapor mask
- Chemical sorbent
- SCABA
- Safety goggles
- Fire suite

**Other Essential Facilities ;-**

- Emergency escape route map
- Telephone
- Emergency contact persons with telephone numbers
- First aid boxes
- Public address system

<b>SL. NO</b>	<b>TAG.NO</b>	<b>LOCATION</b>	<b>CHECKED ON</b>	<b>DUE On</b>
1	PSV 0301	Polyol blend tank pump	20-04-2021	19-04-2022
2	PSV 0202	Polyol reactor	20-04-2021	19-04-2022
3	PSV 0303	Polyol run tank pump	20-04-2021	19-04-2022
4	PSV 0204	Polyol hold tank pump	20-04-2021	19-04-2022
5	PSV 0205	Polyol hold tank cooling water	20-04-2021	19-04-2022

6	PSV 0206	Polyol hold tank	20-04-2021	19-04-2022
7	PSV 0207	E 202&E 203 condensor c.wtr	19-04-2021	18-04-2022
8	PSV 0208	Polyol reflex condensor c.wtr	19-04-2021	18-04-2022
9	PSV 0609	N2 header	20-04-2021	19-04-2022
10	PSV 0710	M1 blower	22-04-2021	21-04-2022
11	PSV 0711	M4A blower	22-04-2021	21-04-2022
12	PSV 0712	M4B blower	22-04-2021	21-04-2022
13	PSV 0613	Pnumatic siran receiver	20-04-2021	19-04-2022
14	PSV 0714	Dehumidifier receiver	20-04-2021	19-04-2022
15	PSV 0734	Bdo tank	20-04-2021	19-04-2022
16	PSV 0733	M4c blower	22-04-2021	21-04-2022
17	PSV 0737	M3 blower	22-04-2021	21-04-2022
18	PSV-701	Polyol blend tank pump	20-04-2021	19-04-2022
19	PSV-702	Polyol blend tank pump	20-04-2021	19-04-2022
20	PSV-1001	701 BLOWER	22-04-2021	21-04-2022
21	PSV-1001	702 BLOWER	22-04-2021	21-04-2022
22	PRV 0401	MDI hold tank	22-04-2021	21-04-2022

23	PRV 0302	Polyol blend tank	20-04-2021	19-04-2022
24	PRV 0303	Polyol run tank	20-04-2021	19-04-2022
25	PRV 0604	Hot oil expansion tank	22-04-2021	21-04-2022
26	PRV-1001	Polyol blend tank-2	20-04-2021	19-04-2022
27	PRV-1002	Polyol blend tank-2	20-04-2021	19-04-2022

<b>SL. NO</b>	<b>TAG.NO</b>	<b>LOCATION</b>	<b>CHECKED ON</b>	<b>DUE On</b>
1	PSV 0816	Air receiver inlet	22-04-2021	21-04-2022
2	PSV 0817	Air dryer filter inlet  Dryer out  let	22-04-2021	21-04-2022
3	PSV 0818	Air receiver	22-04-2021	21-04-2022
4	PSV 0819	40TR discharge to  suction	23-04-2021	22-04-2022
5	PSV 0820	40TR condensor	23-04-2021	22-04-2022
6	PSV 0821	40TR condensor	23-04-2021	22-04-2022
7	PSV 0822	40TR evaporator	23-04-2021	22-04-2022

8	PSV 0823	40TR evaporator	23-04-2021	22-04-2022
9	PSV 0824	40TR receiver	23-04-2021	22-04-2022
10	PSV 0825	40TR receiver	23-04-2021	22-04-2022
11	PSV 1326	9.5TR comp.1 dis.to suction	27-04-2021	26-04-2022
12	PSV 1327	9.5TR comp.2 dis.to suction	27-04-2021	26-04-2022
13	PSV 1328	9.5TR condensor	27-04-2021	26-04-2022
14	PSV 1329	9.5TR condensor	27-04-2021	26-04-2022
15	PSV 1330	9.5TR receiver	27-04-2021	26-04-2022
16	PSV 1331	9.5 TR receiver	27-04-2021	26-04-2022
17	PSV 0832	Sand filter	22-04-2021	26-04-2022
18	PSV 1435	ETP blower north	22-04-2021	26-04-2022
19	PSV 1436	Softner tank	22-04-2021	26-04-2022

## **ARKEMA PEROXIDES (INDIA) LIMITED**

### About Arkema Peroxides India Pvt Ltd:

Arkema is French based Multi Nation Company. We make various grades of organic peroxides, which are used as “initiators” in the production of PVC, LDPE, Polystyrene etc.

The manufacture of organic peroxides is a batch process. The general reaction involved is ‘the reaction of the respective chloroformates, acid chlorides etc., with hydrogen peroxides to produce organic peroxides’. The required controlled temperature conditions are maintained through chilled brine circulation. Organic Peroxide reaction is done in atmospheric vessel with necessary safe guards as explained below. Hence, Arkema don’t have any pressure vessel.

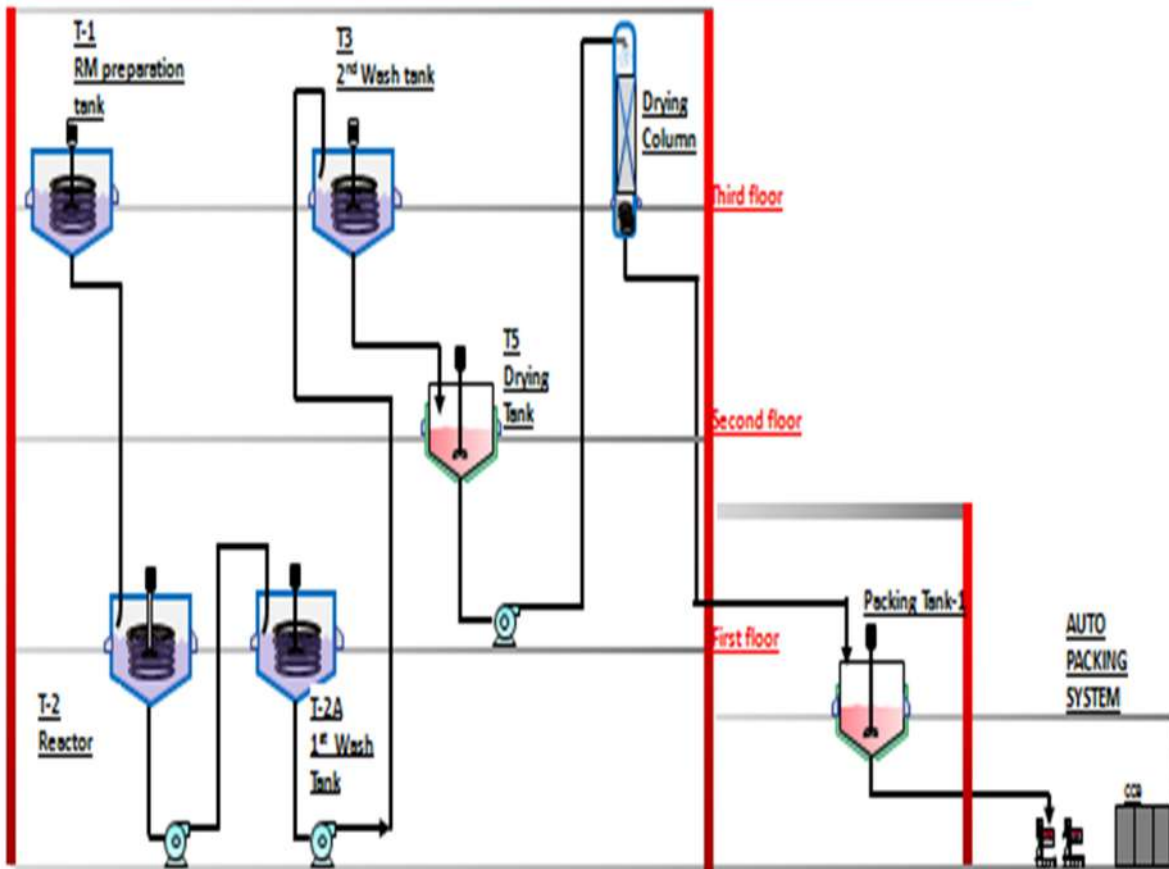
## **PRODUCTION CAPACITY & RAW MATERIALS:-**

<b>S.no</b>	<b>Product Details</b>	<b>Quantity</b>	<b>Unit</b>
<b>1</b>	<b>Speciality chemicals as Organic Peroxides</b>	<b>400</b>	<b>Tons/ Month</b>
<b>2</b>	<b>Cross linking agent formulation</b>	<b>16</b>	<b>Tons/ Month</b>
<b>3</b>	<b>Lauryl chloride</b>	<b>50</b>	<b>Tons/ Month</b>
<b>By - Product Details</b>			
<b>1</b>	<b>Benzoic Acid</b>	<b>0.83</b>	<b>Tons/Month</b>
<b>2</b>	<b>Phosphoric Acid</b>	<b>60</b>	<b>Tons/Annum</b>
<b>2</b>	<b>Sulphuric Acid</b>	<b>80</b>	<b>Tons/Month</b>

## **List of Raw material:-**

<b>S.no</b>	<b>Raw Material</b>
<b>1</b>	<b>2 EHCF</b>
<b>2</b>	<b>HEXYLENE GLYCOL</b>
<b>3</b>	<b>HYDROGEN PEROXIDE 50%</b>
<b>4</b>	<b>LUPEROX F</b>
<b>5</b>	<b>PIVALOYL CHLORIDE</b>
<b>6</b>	<b>NEO DECONOYL CHLORIDE</b>
<b>7</b>	<b>TBHP 70 X</b>
<b>8</b>	<b>CYCLOHEXANE</b>
<b>9</b>	<b>SODIUM HYDROXIDE 100 %</b>
<b>10</b>	<b>POTASSIUM HYDROXIDE 100%</b>
<b>11</b>	<b>BENZOYL CHLORIDE</b>

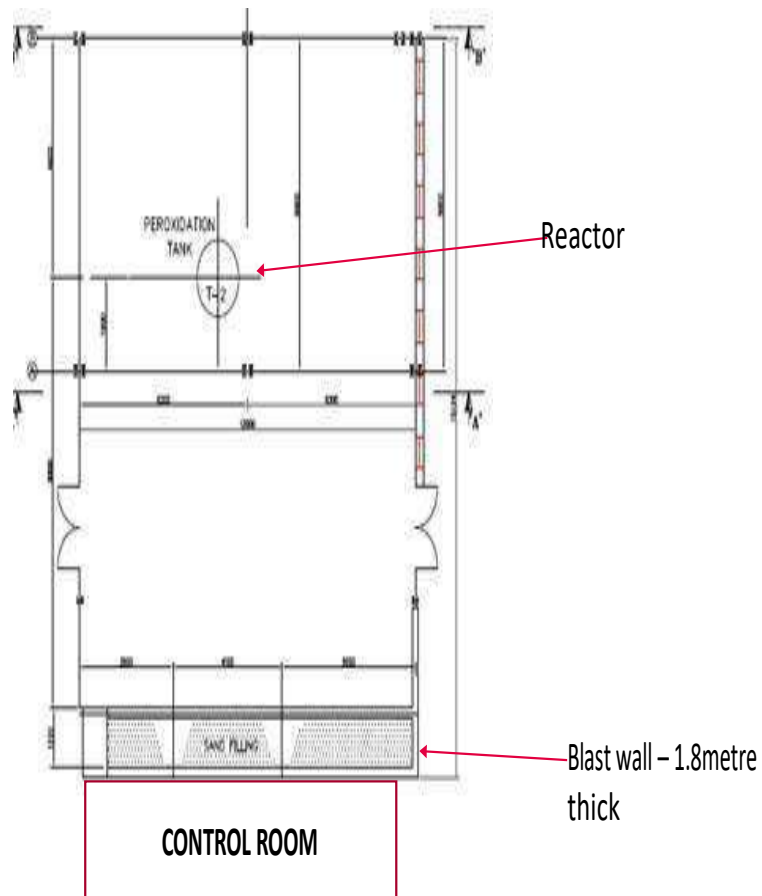
## PROCESS FLOW DIAGRAM



## LIST OF PRODUCTS

COLD STORAGE (-18 to -15 °C)		SADT °C	CONTROL STORAGE (+10 to +15 °C)		SADT °C
Luperox 223E40/EN60/M75		5	Luperox DP40		53
Luperox 610EN50		15	Luperox P98		60
Luperox 10		15	Luperox P75		60
Luperox 11M75 / M70		20	Luperox 270		60
Luperox 10M75		20	Luperox 270M30		60
Luperox 11M25		25	Luperox DP10		70
Luperox 219M75		25	Luperox DTAP		75
Luperox 26		35	<b>INTERMEDIATE</b>		
Luperox 575		35	Luperox TAH85		58
Luperox 26M30		40	HGHP		90
<b>AMBIENT STORAGE ( &lt;30°C )</b>					
LIQUIDS		SADT, °C	SOLIDS		SADT, °C
Luperox 231M90		50	Luperox LP / LW85		50
Luperox K3		54	Luperox 231XL40		57
Luperox TBICM75		60	Luperox DCBP		60
Luperox 331M50		60	Luperox A75		65
Luperox 331M70		65	Luperox 331XL40		65
Luperox 331EB70		65	Luperox Vulcup R		70
Luperox TBEC		65	Luperox 101XL45		75
Luperox CU80		80	Luperox DC40 Grades		80
Luperox DI		80	Luperox F40 Grades		80
Luperox DIM50		80	Luperox 500R		90
Luperox H70X		81	Luperox F		90
Luperox 101		82	Luperox 101PP10		90
Luperox 130M085		90	Luperox 130XL45		90

## CONTROL ROOM PROTECTED WITH BLAST WALL



### Interlocks across the Reactors

S.N O	Inter Lock TAG No	Activities that will be performed by DCS/SCADA with the triggering of the Interlock	Reactor Interlock Description	Brief Explanations
1	XS-T2-5	Alarm with Popup Message	T2 Reactor temp high (H) – If reaches 33 degC	<b><u>Feed Cut</u></b> All feed pump will stop & its discharge valves to Reactor(T2) will close
2	XS-T2-6	Alarm with Popup Message	T2 Reactor temp high high (HH) - If reaches 35 degC	<b><u>Feed Cut &amp; Cooling</u></b> All feed pump will stop & its discharge valves to Reactor(T2) will close Cooling valve-TCV 3015 will open 100% to reactor (T2) to cool the batch.
3	XS-T2-2B	Alarm with Popup Message	T2 Reactor temp high highhigh(HHH) - If reaches 40 degC	<b><u>Dump &amp; Deluge</u></b> ROV 212 Deluge water valve open to reactor, T2 bottom valve ROV 200 open, HCV 201-T2 bottom valve open, ROV 202 & 203 -T2 bottom 3 way open toward WastewaterTreatment Plan
4	Emergency Shut down System	Alarm with Popup Message	Control Room - Local console desk manual push button (Activation in case of Emergency)	<b><u>Dump &amp; Deluge</u></b> ROV 212 Deluge water valve open to reactor, T2 bottom valve ROV 200 open, HCV 201-T2 bottom valve open, ROV 202 & 203 -T2 bottom 3 way open toward Wastewater Treatment Plan

## Details of the Safety Appliances Across the Reactor – **No Pressure Reactor**

### Other Utilities Pressure Vessel

S. No	Description	Value
1	<b>Air Receiver-1</b> Safety valve SV-06	<b>Set Pressure</b> : 8.5 KG/CM <sup>2</sup> g
2	<b>Air Receiver-2</b> Safety valve SV-11	<b>Set Pressure</b> :8.5 KG/CM <sup>2</sup> g
3	<b>Nitrogen Tank</b> Safety valve SV-07 & SV-08 SV-09 & SV-10	<b>Set Pressure</b> : 16.0 KG/CM <sup>2</sup> g 16.5 KG/CM <sup>2</sup> g
4	<b>Nitrogen Tank</b> Rupture Disc RD-101 & 102	<b>Set Pressure</b> :15 KG/CM <sup>2</sup> g

### Pressure Vessel Details

S.No	Name of the Pressure Vessel	Location of the vessel	Last Testing Date	Next Due Date
1	Air Receiver 1	Air compressor Area	16-10-20	
	SV06	Safety valve	26-12-20	26-12-21
2	Air Receiver 2	Air compressor Area	16-10-20	
	SV11	Safety valve	26-12-20	26-12-21
3	Liquid Nitrogen Receiver	Nitrogen Tank farm	16-10-20	
	SV07	Safety valve	26-12-20	26-12-21
	SV08	Safety valve	26-12-20	26-12-21
	SV09	Safety valve	26-12-20	26-12-21
	SV10	Safety valve	26-12-20	26-12-21

# **REACTOR PROCESS SAFETY**

In Arkema Peroxides India Pvt Ltd reactor is an atmospheric tank. The plant comprises of following safety features.

- ❖ Process plant is protected with thickest Blast wall (1800mm) on one side and other sides are protected with compound wall following restricted area entry (Human entry prohibited during operation)
- ❖ Plant is operated completely in remote control room through DCS and critical parameters are controlled by advanced SIS (Safety Integrated system)
- ❖ Automatic & manual sprinkler system for each tank and each floor with dual sensor concept (100% redundant heat detector – All sprinklers will open on single detection and entire plant gets flooded).



**DCS- Automatic Operation station**



**Reactor**

- ❖ Three level protection available for each reactors and wash tanks with five temperature sensors,
  1. SIS based automatic interlocks on high temperature for each products Ex: For LUPEROX 26
    - H –High – 33 deg C – Action: Reactor feed cut

- HH – High High – 35 deg C – Action: 100% cooling open for reactor
  - HHH –High HighHigh – 40 deg C – Action: dump & deluge (The reactor bottom will get automatically open all the material will go to ETP at the same time fire water will open inside the reactor)
2. Emergency shut down ( Dump and deluge)
  3. Manual deluge
- ❖ 100% Compliance of all GLOBAL ORGANIC PEROXIDE STANDARDS ( Reactor, pump & restricted area entry )
  - ❖ Separate sewer pit and collection sump for plant connected with dump pit (emergency collection tank).
  - ❖ 100% redundancy for DCS main controller for both Line 1 & Line 2 and 100% redundancy for SIS cards. All barriers and relay SIL 2 rated.
  - ❖ Three source of power (Grid, 1500 KVA DG, 500 KVA DG) available in case of emergency along with 20 minutes UPS power supply for instrumentation & DCS.
  - ❖ Plant is protected with Automatic Fire hydrant system with 910 m3 fire water reservoir comprising of three stages - Jockey pump, electrical driven pump also diesel operated fire hydrant pump

**FIRE DETECTION SYSTEM ARRANGEMENTS:-**

**Heat Detector & Smoke Detectors in Process buildings and Storage godowns**



# Heat Detector & Smoke Detectors Storage Buildings



**FIRE FIGHTING FACILITY ARRANGEMENTS:-**



**Full automatic Fire Hydrant station – Capacity**



**Dedicated Water Reservoir Capacity – 910 KL**



**Centralized Hose station & Nozzles- 6 Locations**



**Foam Trolley -250 liters – 5 Nos**



**Portable Fire extinguishers – different types 80 Nos**



OTHER SAFETY SYSTEM:

Plant entry Hooter call point



Fire alarm panel



CCTV monitor – To watch process



CCTV monitor – Reactor



## Sprinklers and detection system





