BEFORE THE NATIONAL GREEN TRIBUNAL
SOUTHERN ZONE, CHENNAI.

Original Application No. 16 of 2019(SZ)

K. Gemini,
Son of Kannupaiyan
Aged about 53 years
5/1-34, Rettaipulliyamaram
Raman Nagar Post, Mettur Dam
Salem District – 636 403.

....Applicant

Vs

Union of India & others

...Respondents

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Filed by
Thiru. S. Sai Sathya Jith,
Advocate, Chennai.

Report of the Joint Committee on M/s. Chemplast Sanmar Limited, Plant-I, M/s. Chemplast Sanmar Limited, Plant-II, on M/s. Chemplast Sanmar Limited, Plant-III, M/s. Chemplast Sanmar Limited, Plant-IV, M/s. Cabot Sanmar Limited, Plant-V, M/s. Chemplast Sanmar Limited (Power) Plant, Mettur, Salem District as per the direction of the Hon'ble National Green Tribunal order dated30/09/2021.

1. Back Ground

In compliance with the Hon'ble NGT (SZ) orders dated 13.04.2021 and 31/05/2021, a virtual meeting was organized with the members of committee constituted by Hon'ble NGT in the matter of O.A No. 16 of 2019 on 22.06.2021 due to COVID -19 pandemic. The Committee reviewed the status of compliance made w.r.t recommendations of the joint committee based on the documents produced and requested to grant 8 weeks' timeto submit a compliance report after completion of physical verification of measures taken by the unit. The above-mentioned report of the committee was filed before Hon'ble NGT on 14.07.2021, the Hon'ble NGT considered the report of committee and passed an order dated 30.09.2021**(Annexure- 1)** that;

> ***5. "As regards the larger study is concerned, the committee can take its own time, but as regards the compliance of recommendation is concerned, the committee is directed to file an interim report regarding the compliance of the recommendations made by the committee on or before 22.10.2021 by e-filing in the form of Searchable PDF/OCR Supportable PDF and not in the form of Image PDF along with necessary hardcopies to be produced as per Rules".***

2. Inspection of the Joint Committee

In compliance with the Hon'ble NGT (SZ) order dated 31/05/2021 and as committed in the earlier report dated 14.07.2021, the joint committee members inspected the units of M/s. Chemplast Sanmar Ltd, Mettur, Salem District during 26.08.2021 and 27.08.2021.

Joint committee members discussing with the unit authorities.

The unit presented the status of measures taken w.r.t recommendations of Committee, modifications made to control VOCs in Plant IV and also presented the internal monitoring reports before the committee. The committee reviewed in detail and made following physical verifications;

2.1 The status of compliance w.r.t recommendationsof committee which were not complied in the previous reports;

<table>
<tr><th>Sl. No</th><th>Committee Recommendation</th><th>Unit's Reply</th><th>Joint Committee remarks.</th></tr>
<tr><td>1.</td><td>The unit has already provided STP for domestic effluent arising from Plant II & III. Now the Unit has installed one new STP w.r.t Plant IV & V and it is in operation. The Unit has not provided STP for domestic effluent w.r.t. Plant I & its colony and still sending domestic effluent into soak pit/septic tank.</td><td>The STP at plant-I was commissioned on 30.01.2021 and is in operational. TNPCB is collecting the treated sewage sample on monthly basis for analysis to ensure the operational integrity.</td><td>The committee inspected the STP located at Plant I and observed that it is under operation.
Complied.</td></tr>
<tr><td>2.</td><td>The unit has installed adequate number of flow meter and web camera for monitoring at ZLD but no water auditing report made available to committee to verify the adequacy</td><td>A comprehensive water audit has been carried out by M/s Chennai Testing Laboratory Private limited (NABL and NABET accredited agency) for all Sanmar units of Mettur. The report covers the water balance & usage for the last 5 years period.
A copy of the report titled "Assessment of Water Management" was submitted. The report covers the following aspects on the water audit related to Mettur Plants:
- Facilities available to capture the water flow data of each plant
- Water goes along with product(s)
- Water loss due to cooling tower evaporation, steam generation, by-product and drying of PVC</td><td>The unit submitted a third party report titled "Assessment of Water Management". The report comprises and highlights the water data of Chemplast Mettur for a period of 5 years (2014-2019) and gauges the adequacy of the ZLD and the water balance of the individual plants.
As per the study;
<table>
<tr><th>Name of the Plant</th><th>Reduction in Specific Water Consumptionin M^3/ ton of product during 2017-21</th><th>Reduction of Effluent generation during 2014 -19</th></tr>
<tr><td>Plant -I</td><td>11.04</td><td>61.4</td></tr>
<tr><td>Plant II</td><td>4.12</td><td rowspan="4">No reduction observed</td></tr>
<tr><td>Plant - III</td><td>0.5</td></tr>
<tr><td>Plant IV</td><td>4.11</td></tr>
<tr><td>Plant V</td><td>12.95</td></tr>
</table>
From the above, it is observed that marginal reduction in specific water consumption per ton of product</td></tr>
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<td>slurry etc.,
- Water balance of the individual plants in terms of process usage, cooling tower make-up, domestic usage, green belt and village supply (Page# 16)
- Quantum of water recycled back to the process
- Treatment at ZLD & adequacy of ZLD system
Robustness of the water treatment system during maintenance</td>
<td>produced but no reduction in effluent generation

<table><tr><th>Name of the Plant</th><th>Water loss in KLD</th><th>% treated water recycled</th></tr><tr><td>Plant -I</td><td>47-52</td><td>31 - 62</td></tr><tr><td>Plant II</td><td rowspan="4">2041 - 3202</td><td rowspan="4">16 - 26</td></tr><tr><td>Plant - III</td></tr><tr><td>Plant IV</td></tr><tr><td>Plant V</td></tr></table>
From the above, it is observed that increase in water loss through evaporation and product. In plant I percentage of treated water re-used found in declined in course of time but in other plants marginal increase is observed.

Complied.</td>
</tr>
<tr>
<td>3.</td>
<td>To stop disposing their hazardous waste in captive SLFs and to direct to sent to Common TSDF or Co-processing depending on the quality of Hazardous waste. The hazardous waste generated from Plant I, II & III is being disposed in captive SLF itself. Only the hazardous waste from Plant V is being sent to TSDF</td>
<td>➢ Among the Sanmar plants of Mettur, Plant-III generates around 70% of the total waste generated from Mettur plants
➢ Plant-III has already disposing its waste to TSDF facility at Virudhunagar since March 2019
➢ Currently all Sanmar plants of Mettur have obtained authorization from TNPCB to dispose their wastes to TSDF/ co-processing
All plants currently disposing the waste to TSDF /co-processing instead of disposing in captive landfill. Annual is around Rs.184 Lacs.</td>
<td>The unit has stopped disposal of hazardous waste into the SLF's in all the plants in Mettur and they are disposingthe same to the TSDF or co-processing.
The unit has analyzed the spent alumina samples through M/s. Glens Innovation Labs Pvt Ltd, Chennai. The analysis report is attached as Annexure-II.

The unit has obtained authorization of the TNPC Board to dispose this waste (as Hazardous waste category 36.2 – Spent carbon or filter medium) to M/s. Dalmia cement (Bharat) Ltd, Ariyalur] for co-processing in Cement Kiln as auxiliary raw material since it is good source of Alumina .

As per the analytical report, no traces of heavy metals found, it contains silica, SO_3 and Alumina.

Complied.</td>
</tr>
<tr>
<td>4.</td>
<td>To take immediate steps to provide proper storm water management system to collect - roof top water separately, surface</td>
<td>a. <u>Roof Top Water Collection</u>
All roof top water collections schemes were completed in all the Sanmar plants of Mettur with the</td>
<td>The unit has provided the roof top water collection schemes in all plants.

Complied.</td>
</tr>
</table>

	runoff from plant area separately and Surface run off from vacant land separately in all plants and to construct separate storage system so that these waters shall be utilized for industrial purpose with suitable treatment if required. No Storm water shall be let it out in public drains/Odai	potential of saving 20000 m^3 of water annually.	
		b. <u>Plant Process Area Storm Water :</u> The rain water in the uncovered process area & raw material storage area and utilities of each plant to their respective ETP are being diverted and recycled back after treatment at ZLD. During the heavy rains, the surplus water collected at ETP is stored in the spare effluent storage tank (Capacity at Plant-II: 5712 KL and Plant-III :2517 KL) for treatment at ETP/ ZLD for recycle.	Process area storm water is diverted to the ETP. **Complied.**
		C. <u>Surface Runoff water collection- Non-process & other areas:</u> The rain water from the non- process area, green belt, roads & housing colony are being routed through the storm water gutter into a collection tank of 450 KL capacity at Plant-II and 200KL capacity at Plant-III and will be pumped to the 25000 KL storage tank of the respective plants. In the event of heavy rains, the surplus water will flow through the designated Public Nullah supported by water quality monitoring in the gutters using online pH , TDS , COD and BOD analyzers.	The unit has provided On-line monitoring system for the storm water drain. **Complied.**
5.	The industry shall explore the possibility of diversion of storm water drains which are passing inside the premises in consultation with local administration. In	The diversion of storm water drains which are passing inside the premises involves various Government Authorities including such approvals as may be required and the views of such Government	The unit has installed online monitoring system for pH, TDS, BOD and COD in three places of storm water drains passing through plant II, III& IV The unit has also made provision to collect the ground water seepage at

	extreme circumstances of non diversion of existing storm water drains (Odai), the unit required to install online monitoring system for pH, TDS, BOD and COD to ensure the natural quality of storm water/ surface water runoff.	Authorities in permitting the diversion of storm water outside the plant premises and it is beyond our control. Therefore as suggested by the Joint Committee, we have installed 3 sets of online monitoring system for pH, TDS, BOD and COD at the outlet of the storm water runoff for monitoring at Plant-II, III & Plant-IV respectively.	plant-IV during drizzling time. **Complied.**
6.	To provide Continuous Ambient Air Quality monitoring stations (CAAQM) in four directions around the Plant-II, III, IV, V and Power Plant. The Plant shall monitor PM10, SOx, NOx, Chlorine and VOC	We are in the process of carrying out the ground level concentration of the pollutants as per the predominant wind direction of the Mettur Plant using an external competent agency, which is the first step to identify the location for positioning of the continuous air quality monitors. Only after carrying out this study, the assessment will be made on housing of the monitors and data connectivity aspects and requirement of the supporting system. As agreed during the meeting with the NGT Joint committee, We will provide 2 Nos of online Continuous Ambient Air Quality Monitors (One at upstream & another at downstream as per the predominant wind direction). We have conducted a dispersion modelling of ground level concentration by M/s. Glens, Chennai and finalized the location of CAAQM stations. The ordering process is in progress and these two stations will be installed within 6 months.	The civil work for installing CAAQM is under process. The unit has assured to complete by Dec'21. **Not Complied**

7.	The Plant shall provide more effective chiller to the solvent recovery Plant for better recovery of the solvent	The new chiller which operates at 5 Deg C, was commissioned on 27.02.2021 and it is in continuous operation. After Commissioning, the average organic load to the adsorption bedis reduced more than 10%. (The plant is being operated at 40% load due to NGT committee recommendation). However, to evaluate the new Chiller performance at full load by engaging the third party, we seek the permission of the Joint committee to operate the plant to full capacity.	The unit has installed new chiller and the performance of the chiller was observed at 60% production capacity through NABL approved third party. The committee recommended for permitting the unit to enhance the production to 60% capacity of consented quantity for a month so as to assess the performance of the Air Pollution Control measures.
8.	The unit shall provide adequate number of additional adsorbent beds for better control of VOC emission further.	✓ Company has already installed a new Chiller with lower operating temperature of 5 Deg C, which makes a significant reduction of organic load to the adsorber. Thereby the TVOC load to the Solviron adsorption bed is dropped more than 10% ✓ Company has already installed the steam + solvent vent condensing chiller system at the vent of the solvent condenser in each Plant ✓ Under the current circumstances, the additional ✓ adsorbent bed installation will not be required in Plant-IV. Permission from the Joint Committee / Board isrequested to operate AO1 & AO2 together withfull capacity.	The unit reported that additional absorbent is not required since the new chiller will reduce the organic load to the adsorber. The performance of the chiller was observed at 60% of the production capacity through NABL approved third party and found the performance of the chiller is satisfactory. The committee recommended for permitting the unit to enhance the production to 60% capacity for a month is made to TNPCB so as to assess the performance of the Air Pollution Control measures. The additional adsorbent beds will be decided based on the emission measurement when the plant operates at 100% capacity.
9.	In addition to adsorbent beds, the unit shall be directed to install Regenerative Thermal Oxidizer (RTO) system to achieve the VOC	✓ The operating Solvent Recovering Unit is adequately designed to achieve the VOC emission level of less than 5 mg/nm3	The unit reported that RTO is not required since the new chiller will reduce organic load to the adsorber. The performance of the chiller was observed at 60% of the production

	emissions below 5 microgram /Nm3	✓ Company has validated the adequacy of the existing Chiller&adsorber efficiency through third party study ✓ Technologically, RTO's function with exit threshold limits similar to SRUs ✓ ie., RTO is an alternative technology to SRU's and not for use sequentially. ✓ Point source of emission is prescribed in milligram /NM^3. ✓ Ambient air quality standard is expressed in microgram/nm3. ✓ Under the prevailing circumstance , RTO is not required	capacity through NABL approved third party and found the performance of the chiller is satisfactory. The committee recommended for permitting the unit to enhance the production to 60% capacity for a month is made to TNPCB so as to assess the performance of the Air Pollution Control measures. The requirement of RTO system will be decided based on the emission measurement when the plant operates at 100% capacity.
10.	The unit shall be directed to implement all safety measures in Plant IV as suggested by Additional Director of Industrial Safety & Health	Complied with. ✓ All the 35 safety related recommendations pointed out by Additional Director of Industrial Safety &Health were implemented, which includes a safety audit by an external agency. Compliance status attached.	The report of the Director of Industrial Safety & Health is enclosed vide **Annexure -III.** **Complied.**
11.	To take action to reuse the storm water collected from seepage of the Plant during rainy time. The Plant shall take necessary steps to close the rain water inlet line to avoid the rain water entry into Plant IV	The origin of the storm water is from outside of Plant-IV &it is entering the Plant through a nullah due to geographical inclination and going outside. The water flow is continuous only during rainy season for about 3-4 months in a year If the inlet provision to the plant is closed, it may lead to collapsing of the wall at the northern side due to water stagnation.Hence we have laid two 8 inch PVC lines for the total diversion of water coming from northern side of the plant	The origin of the storm water is from outside of the plant-IV and it was entering the plant through an odai (nullah). Earlier the committee recommended to close the rain water inlet to avoid rain water entry into plant-IV and to take action to reuse the storm water from seepage of plant. But, the unit has provided 2 Nos. of 8 inch PVC line for conveying the water coming from northern side of the plant to the outside of the plant. The unit has provided seepage collection sump to collect the ground water seepage at plant-IV. **Complied**

		through the pipeline for the entire length of 370 m till the outside to remove any doubt of pickup in the stream from our plant area. A seepage collection sump is provided inside plant-IV premises tocollect the ground water seepage and re-use in the process.	
12.	No investigation has been carried out with respect to Type of Soil/ Permeability of Soil.	The investigation on soil type/quality and its permeability aspects have been done and covered in the Impact study carried out by Dr.Swaminathan, Ex NEERI Scientist in 2003 (at page # 24-26)	Committee recommended the NGRI study since NGRI study can provide information whether there is any seepage from the SLF. **Yet to Comply.**
13.	Single liner of 1.5 mm thickness is provided. Liner system was not provided as per CPCB criteria	✓ Based on the State Ground and Surface Water Resources Data Centre, Chennai, the data obtained for the ground water level in the nearest area to Chemplast Sanmar Plants indicate that the ground water level is in the range of 18.2 - 22.6 meters. ✓ As per the CPCB guidelines, if the ground water table is between 2 to 6 m, then the liner system shall be double composite liner. ✓ However, as per the above stated data, the ground water level is much deeper than the prescribed criteria. If the ground water level is more than 6 m from the base of the SLF, then a single liner would suffice. ✓ In addition to above, the SLF area is in highly impermeable rocky in nature and hence is adequate to have a single liner system for the SLFs at CSL plants. This is further corroborated	Committee recommended the NGRI study since NGRI study can provide information whether there is any seepage from the SLF due to inadequate liner. **Yet to Comply**

		with the findings made in the Impact Study carried out by Dr.Swaminathan, Ex NEERI Scientist in 2003 (at page #28).	
14.	The trench network is not provided and no Leachate collection system exists in any closed SLF.	✓ Company's Secured landfill areas are located in hilly terrain. All SLFs are below ground level. (ie., not stored above ground level). Hence the garland trench is not applicable to CSL captive SLFs. ✓ Chemplast Sanmar Plants SLFs are dedicated to each plant, thus the heterogeneity factor with respect to the material disposed is totally eliminated. ✓ In addition to above, SLFs which are in operation, are being covered with Tarpaulin to minimize the rain water entry/impact during monsoon. Thus the generation of Leachate is minimized as low as possible. ✓ Company has provided leachate collection system for all the active SLFs mainly to enable collection of the leachate during rainfall, which is pumped to ETP to complete the treatment & disposal. ✓ There is no collection of leachate water in any of the SLFs, which has been observed over a period of time, proves that leachate is collected only during the rains in the active SLFs. ✓ *There is no need for leachate collection from any of the capped / closed SLFs as these SLFs due to the following reasons*: ✓ capped/closed as per our closure plan involving the combination of 75mm of clay and 50 mm sand on both sides of 1.5 mm thickness of HDPE liner and finally	Committee recommended the NGRI study since NGRI study can provide information whether there is any seepage from the SLF due to absence of leachate collection 7 management system. **Yet to Comply.**

		a concrete capping (75mm) on top of it ✓ no stagnation of rain water on the top of the landfill because of its higher slope nature of the top concrete cover ✓ no scope for entry of rain water into the closed SLFs ✓ SLFs in each Plant are significantly very small in size and the quantity disposed in each cell is very minimal, which will not develop any self-weight to squeeze the hazardous waste to generate any leachate ✓ lower inherent moisture content in the sludge No organic content in the sludge resulting no possibility of water generation due to bio-degradation.	
15.	No phased operation of SLF.	✓ Medium and large size SLFs. Any SLFs less than 5 Hectares is considered as small SLF. (Medium = 5 -20 Hec; Large: above 20 Hec) ✓ Phased operation is applicable for the landfill of much higher size as this allows the *progressive use of the landfill area* such that at any given time , a part of the site may have a final cover, a part being actively filled, a part being *prepared to receive waste*, and a *part undisturbed, non-conforming waste storage* – the typical phases of operation of TSDF ✓ In case of Mettur plant landfills, the area of Plant-1 SLF (1-No) only 0.06 Hectares, in plant-2 (15 SLFs) - 0.921 Hectare, in Plant-3 (14 SLFs) - 2.3 Hectare and	These are the deviation of operational procedures practised by the unit, However, cumulative impact may be assessed based on the NGRI study in case of any environmental damages reported. **Yet to Comply.**

		in Cabot Sanmar (4 SLFs) - 0.36 Hectares. (Total: 3.641 Hec) ✓ Therefore, it is clear that the *SLFs in each plant are significantly very small* in size .Also these landfills were constructed one by one ✓ After total establishment of each of the SLF, the SLF was put into operation ✓ During the operation, the waste is being dumped from one side and moved further till it the SLF gets filled. The filled area is covered with Tarpaulin.	
16.	No closure plan was observed in all 30 closed SLFs.	As per clause 7.2 of CPCB criteria for Secured Landfills, the cover system shall be designed, constructed and installed to satisfy the following: ✓ Prevent infiltration of precipitation into the closed landfill ✓ Promote drainage of surface water accumulated on the cover ✓ Minimize erosion of the cover ✓ Withstand or accommodate settlement of the cover to maintain its integrity ✓ Have permeability less than or equal to the liner system ✓ Function with minimum maintenance of the post-closure period of 30 years. Hence All SLFs are capped with six layers of protection as follows to prevent any infiltration of precipitation into the closed landfill and to avoid erosion of the top soil cover. ✓ 75 mm thickness clay	These are the deviation of operational procedures practised by the unit, However, cumulative impact may be assessed based on the NGRI study in case of any environmental damages reported **Yet to Comply.**

		layer ✓ 50 mm thickness sand layer ✓ 1.5 mm thickness HDPE liner (Geomembrane) ✓ 75 mm thickness clay layer ✓ 50 mm thickness sand layer ✓ 75 mm thickness concrete layer. ✓ Since the plants at Mettur and its SLFs are located at higher elevation (approx. 250m from mean sea level) in a hilly terrain, the chance of soil erosion is very high. Hence establishing vegetative top soil cover may lead to soil erosion/sliding. The capping system is in compliance with the CPCB criteria for capping SLFs except the vegetative top soil cover. Instead of soil cover, Sanmar units are provided with a concrete cover with sloping at all sides (to prevent water stagnation at the top), which is more efficient and costlier than the soil cover. ✓ In order to fulfill all of the above criteria, we have designed and installed a more suitable concrete capping system instead of vegetative soil cover	
17.	No gas collection system provided to extract gas if any from SLF	❖ The waste stored in all the Mettur plants contain 100% inorganic constituents. No bio-degradable organic material is disposed in any of the SLFs. ❖ The comprehensive analysis report of these samples reveals that there is no organic matter present in any of	These are the deviation of operational procedures practised by the unit. However, cumulative impact may be assessed based on the NGRI study in case of any environmental damages reported **Yet to Comply.**

		these wastes, hence there is no possibility of generation of any gas, including CO2, from the SLF. Hence, gas collection system is not applicable at all for ChemplastSanmar units' landfills.	
18.	No monitoring carried out as per the post closure criteria	Monitoring of secured landfills after closure, is being carried out in the following ways: 1) Monitoring of Piezometric Wells through third party lab (QCI/NABL accredited) as well as through TNPCB for any deviation or sudden raise in active ingredient migration to the wells. 2) Inspection of the secured landfills for any breakage/ defects for rectification and abnormality around the landfills including wild growth. The closed SLFs are being inspected as per the checklist once in 2 weeks. ✓ Annexure – Well analysis Inspection of SLF Checklist used.	On inception of committee, the unit installed additional piezometric wells and started monitoring.However, cumulative impact may be assessed based on the NGRI study in case of any environmental damages reported **Yet to Comply**.

As per the joint committee visit for physical verification the unit has taken complete measures w.r.t seven recommendations of committee, three recommendations of the committee required to be verify on operation of plant -IV at 100 % capacity. Seven recommendations of the committee required to ensure on completion of Ground water study by NGRI and One recommendation i.e installation of CAAQM station is assured to complete by December 2021.

2.2 STP installation in Plant – I

The joint committee inspected plant-I on 26.08.2021 and observed the operation of Sewage treatment plant. As committed by the unit, the STP was

commissioned and operated, TNPCB also informed about the monitoring carried out and compliance w.r.t achieving prescribed standards of TNPCB.

Joint committee members inspecting the operation of the STP located in Plant-I.

2.3. Online monitoring in Storm water

As per the recommendations of the committee, the unit installed online monitoring system at out let of storm water drain in Plant IV and the same was witnessed by the committee during field visit. This ensures the quality of water carries in the storm water drain passing through plant IV premises during monsoon as well as any other circumstances.

Joint committee members inspecting the online monitoring system for storm water drain located in Plant-IV.

2.4 VOC Emission Monitoring

The M/s. ChemplastSanmar Limited –Plant-IV, manufactures Hydrogen Peroxide (50%) throughAuto Oxidation (AO) process, the unit has 2 numbers of AO systems namely AO1 and AO2.

In this process, Oxidation of Hydrogenated Working Solution is carried out by passing the process air through the Working Solution to produce Hydrogen Peroxide. The working solution along with the peroxide formed during the oxidation reaction leaves the oxidizer to oxidizer degasser. The working solution along with the Hydrogen Peroxide is then pumped to Extractor for further separation.The process air leaving the Oxidiser will carry some trace solvents which has to be recovered by the unit before being vented out.

The process air leaving the Oxidiser at 50-52° C is first passed through a chiller followed by a demister to recover the solvents to the maximum. The solvents recovered is recycled back to the process. The residual uncondensed solvents in the process air leaving the chiller and demister is further treated in the Activated Carbon adsorption bed (Solviron Unit).

The Activated Carbon adsorption bed consists of three numbers adsorption beds filled with Activated Carbon. Two beds will be always on adsorption and one on regeneration. The adsorption and regeneration sequences are cyclic and fully automated. Each bed will be on adsorption for 60 minutes and regeneration for 30 minutes.

The process air leaving the chiller at 15 Deg C will be preheated with steam up to 40-45 Deg C before entering the adsorption bed. This is to ensure that relative humidity is low and water doesn't adsorb on carbon. The recommended temperature by the technology supplier at the inlet of preheater is 15 Deg C minimum, 20-25 Deg C normal and 40-45 Deg C at the heater outlet for better performance of the bed.

The solvents adsorbed on the carbon during the adsorption cycle will be recovered by steam stripping during the regeneration cycle. The solvent recovered during the regeneration cycle is condensed in cooler and is returned back to the system. The air after removal of traces of solvents leaves the adsorption bed through the vent. VOC at the outlet of the vent is continuously monitored by online VOC monitors (one each in AO 1&2).

The unit is currently restricted to manufacture at 40% of its production capacity, the unit has provide new chiller and the VOC emission at final stack is below detectable level (ie., below 0.1 mg/m^3) at 40 % production. The performance of the chiller was evaluated by NABL accredited third partly laboratory. Committee recommended thatthe unit to enhance its production to 60% capacity for one month period so as to assess the performance of the Air Pollution Control measure.

The joint committee inspected M/s. Chemplast Sanmar Limited, Plant-IV and carried out VOC emission monitoring during 26.08.2021 & 27.08.2021 at 60 % of production capacity.

The joint committee collected VOC samples at both AO 1 & AO2 systems, during the operation of two cycles in each system and VOC samples in the final outlet of the adsorption bed (AO1 & AO2), condenser inlet, outlet and also the regeneration bed outlet.The report of analysis shows that the VOC emission at final stack is below detectable level (ie., below 0.1 mg/m^3) and found satisfactory. Copy of the ROA is enclosed as **Annexure-IV**.

Joint committee members inspecting the operation of the chiller.

Joint committee members monitoring the VOC level through PID at the final stack.

Collection of samples for VOC analysis from the condenser.

3. **<u>Status of Compliance of the committee recommendations based on the previous visit i.e dated 21.12.2020</u>**

S.No	Recommendations of Committee	Status as on August 26 & 27, 2021
1.	The plant-I shall complete the STP works before January-2021 as reported.	The plant-I has commissioned the STP during January-2021 and the same is under operation. **Complied.**
2.	The plant-IV shall require to provide detailed analytical report of Alumina waste to decide the suitable pathway.	The unit has analyzed the spent alumina samples through M/s. Glens Innovation Labs Pvt Ltd, Chennai. The analysis report is attached as **Annexure-II.** The unit has obtained authorization of the TNPC Board to dispose this waste (as Hazardous waste category 36.2 – Spent carbon or filter medium) to M/s. M/s. Dalmia cement (Bharat) Ltd, Ariyalur] for co-processing in Cement Kiln. As per the analytical report, this not a persistent organic compound (POP). Hence this is used in cement industry for co processing. **Complied.**
3.	The unit shall make provision to collect ground water seepage at Plant-IV and to treat the same if required.	The unit has provided a collection sump to collect ground water seepage for meagre quantity and the unit has provided provision to reuse the same. **Complied.**

<table>
<tr><td>4.</td><td>The unit shall take effective steps to avoid oozing of high TDS water in the southern side of plant-II in future as it is done at present.</td><td>At present there is no oozing of water in the southern side of plant-II.

Complied.</td></tr>
<tr><td>5.</td><td>The unit shall collect the runoff water during heavy monsoon and store the same in the eastern reservoir/seepage pond to reduce the TDS level in the ground water in that area.</td><td>The unit has provided 2 No's (1 in Plant –II and another in Plant – III) of MS tanks of 25,000 m^3 capacity each for collection and usage of rain water.During heavy rain time, it will let out through online analyzer.

However not meeting the purpose.</td></tr>
<tr><td>6.</td><td>The unit shall provide online continuous monitoring in the upstream and downstream side as agreed during the meeting with committee in consultation with TNPCB. The remaining two directions shall be covered in due course of time.</td><td>The unit has proposed to provide 2 No's of CAAQM stations. In this regard, the unit has carried out air modelling study to fix location of the CAAQM stations and issued purchase order in this regard it has reported that it will be completed within two months.

Yet to comply.</td></tr>
<tr><td>7.</td><td>The unit shall provide chiller to control the VOC emission as reported.</td><td>The unit has provided a new chiller and it is in operation.

Complied.</td></tr>
<tr><td>8.</td><td>The additional adsorbent bed requirement for VOC emission control and also addition safety measures will be decided by conducting emission audit by the committee for two days through a suitable accredited agency after installation of chiller, since residents are located in the nearby area. During audit time, the unit shall operate the plant with consented quantity.</td><td>The report of analysis shows that the Total VOC in the final stack outlet is below detectable level. Consolidated ROA of the
<table>
<tr><th rowspan="2">Sl. No</th><th rowspan="2">Cycle</th><th colspan="3">Emission points TVOC in PPM</th></tr>
<tr><th>Condenser Inlet</th><th>Condenser Outlet</th><th>Final Adsorption Bed Outlet</th></tr>
<tr><td>1</td><td>AO-I-AB</td><td>8750</td><td>485</td><td>Below detectable limit</td></tr>
<tr><td>2</td><td>AO-II-AB</td><td>9105</td><td>435</td><td>Below detectable limit</td></tr>
<tr><td>3</td><td>AO-II-BC</td><td>8680</td><td>440</td><td>Below detectable limit</td></tr>
</table>
</td></tr>
</table>

9.	The additional safety measures such as RTO requirement for VOC emission control and also additional safety measures will be decided by conducting emission audit by the committee for two days through a suitable accredited agency after installation of chiller since residences are located in the nearby area.	<table><tr><td>4</td><td>AO-I-AC</td><td>8800</td><td>400</td><td>Below detectable limit</td></tr></table> To be verified at 100% capacity production.
10.	Effective steps to conduct NGRI study needs to be undertaken for the allegation of ground water pollution in the vicinity of the M/s. ChemplastSanmar group of units and safety of the SLF located in the plant-I, II, III & V.	Hon'ble NGT (SZ), in its order dated 13.04.2021 in RA No. 1 of 2021 in OA no. 16 of 2019 has disposed the review petition filed by the Board against the Hon'ble NGT order dated 06.10.2020 directing the Tamil Nadu Pollution Control Board to meet the expenses for conducting the study and recover the amount later from the persons who are found responsible for the contamination, if any, in that area. The TNPC Board is yet to take a final decision in this regard.
11.	The director of Industrial Safety and Health (OSD), Directorate of Industrial Safety and Health, Chennai recommended to carry out the following measures. (i) For Hydrogenerator, temperature and pressure gauges shall be fixed at upper, middle and lower level for physical measurement and maximum permissible level marking in colour if necessary. Hence temperature and pressure gauges shall be fixed at upper, middle and lower level for physical measurement and maximum	The director of Industrial Safety and Health (OSD), Directorate of Industrial Safety and Health, Chennai has submitted the compliance status (Copy attached as Annexure-III). **All the points are complied.**

	permissible level marking in colour. (ii) The electrical cable tray & hydrogen storage tank shall be separated by a fire resistant barrier. (iii) The purity of Hydrogen before entering hydrogenerator shall be checked for impurities (i.e) to avoid carbon steel particles. (iv) VOC (Volatile Organic Compounds) Monitor shall be provided near the final product outlet or process completion area. (v) As the compatible raw materials are stored in the ground floor in case of fire/explosion the buildings, its structure including the roof sheet will collapse. Hence such storage shall be shifted to safe place. Also, Electrical connections shall be removed or flame proof smoke detectors shall be provided.	

As per the joint committee visit for physical verification the unit has taken measuresw.r.t seven recommendations of committee, one recommendation i.e installation of CAAQM station is assured to be complete by December 2021, one recommendation regarding collection of surface runoff in seepage pond to reduce the TDS level in ground water the unit has made arrangement to collect and store in MS tanks.The recommendation of committee regarding ground water study by NGRI is yet to take a final decision by TNPCB.

3.1 **Further, the members of the joint committee had meeting during field visit and recorded the discussion held as below;**

1. The committee discussed the modifications carried out in condenser & adsorption beds to control VOCs in Plant IV ie., Hydrogen Peroxide production unit(which was restricted to operate at 40 % production capacity prior to the visit of the Joint committee and 60% during the visit of the joint committee).
2. The committee decided to carry out VOC monitoring in the final outlet of the adsorption bed (A1 & A2), condenser inlet, outlet and also the regeneration bed outlet.
3. The VOC levelsat inlet and out let of the condenser & adsorptions were measured by using thePID (Photo ionization detector) in the presence of the joint committee members during 26.08.2021 -27.08.2021.
4. Based on the result of the VOC monitoring so far, the committee opined to let the unit to operate at 60% production capacity for a period of one month as a trail run to ascertain the performance and to monitor the adequacy of control measures while continuous operation.
5. The committee collectively decided to monitor the VOC emissions by collecting two set of samples twice a month through accredited laboratory. One set of samples is to be analyzed at an accredited laboratory and another set of samples at IIT Madras for cross verification.
6. Also recommend that, if the VOC emissions found within acceptable limit during trail run of unit at 60 %production, the unit may be allowed to operate at 80% capacity after submission of the report before the Hon'ble NGT.
7. The committee suggested that the unit shall take all steps to control VOC emissions by adopting best practices and safety measures without any deviation.
8. It suggested that the unit shall submit the production details, Real time monitoring data on VOC emissions on daily basis to the O/o DEE, TNPCB, Salem through E-mail.
9. The Committee advised that the safety and Environment in charges to be present all the time in the unit during trail run at 60% production to respond immediately in case of any unavoidable circumstances of VOC emissions.
10. As per the earlier recommendations of the Committee ground water study has to be taken at the earliest to ascertain the ground water quality in the area and to identify the sources of pollution if any.

The Minutes of the meeting is enclosed vide **Annexure- V**.

4. **Conclusion**

1. As per the joint committee visit for physical verification the unit has taken complete measures w.r.t seven recommendations of committee. three recommendations of the committee required to be verify on operation of plant -IV at 100 % capacity. Seven recommendations of the committee required to ensure on completion of Ground water study by NGRI and One recommendation i.e installation of CAAQM station is assured to complete by December 2021
2. At the rate of 60 % production during trial run. the VOC emission level was below detectable level. Hence. the committee proposed to conduct trial run of the unit at 60% production capacity for a month period to ascertain the consistency of the VOC emission level.
3. In case the emission level is satisfactory. the unit may be allowed to operate at 80% production capacity after obtaining opinion from the joint committee.
4. TNPCB shall make arrangement to conduct ground water study at the earliest as per the Hon'ble NGT direction.
5. The concern officer of the Directorate of Industrial safety and Health shall monitor the safety aspect of the unit.

M.T. Jowin Joseph.
Member
Scientist.
NEERI. Chennai

Dr.Mathava Kumar.
Member.
Associate Professor.
IIT Madras. Chennai.

K.Jagadeesan.
Member.
Officer on Special Duty /
(Director of Industrial Safety
and Health). Chennai.

H.D.Varalakshmi.
Member.
Sc.E/AD. CPCB.
Bangalore

Dr.Devender Kumar.
Member.
Senior Principal Scientist.
CSIR-NGRI. Hyderabad.

R.Sarasavani.
Member/Convener. JCEE.
Tamil Nadu Pollution Control
Board. Chennai.

Annexure - I

Item No.18:

BEFORE THE NATIONAL GREEN TRIBUNAL
SOUTHERN ZONE, CHENNAI

Original Application No.16 of 2019 (SZ)

(Through Video Conference)

IN THE MATTER OF:

K. Gemini,
S/o. Kannupaiyan
Aged about 53 years,
5/1-34, Rettaipulliyamaram
Raman Nagar Post, Mettur Dam
Salem District – 636 403.

...Applicant(s)

Versus

The Union of India
Rep. by the Secretary to Government
Ministry of Environment, Forests &
Climate Change, III Floor, Pritvi Wing,
India Paryavaran Bhavan
Jor Bagh, New Delhi – 110 003 and Ors.

...Respondent(s)

Date of hearing: 30.09.2021.

CORAM:

HON'BLE MR. JUSTICE K. RAMAKRISHNAN, JUDICIAL MEMBER
HON'BLE Dr. K. SATYAGOPAL, EXPERT MEMBER

For Applicant(s): Ms. J. Dayana represented
Mr. T. Sai Krishnan.

For Respondent(s): Mr. Suryaprabhu represented
Mr. G.M. Syed Nurullah Sheriff for R1.
Dr. D. Shanmuganathan for R2.
Mr. S. Sai Sathya Jith for R3.
Mr. T. Ravichandran for R4.

ORDER

1. The above case has been posted today for consideration of further report and also for hearing.

2. The Joint Committee has filed a report of compliance dated Nil, e-filed on 14.07.2021 and received on 15.07.2021 which reads as follows:-

Report of the Joint Committee on M/s. Chemplast Sanmar Limited, Plant-I, M/s. Chemplast Sanmar Limited, Plant-II, on M/s. Chemplast Sanmar Limited, Plant-III, M/s. Chemplast Sanmar Limited, Plant-IV, M/s. Cabot Sanmar Limited, Plant-V, M/s. Chemplast Sanmar Limited (Power) Plant, Mettur, Salem District as per the direction of the Hon'ble National Green Tribunal order dated 13/04/2021 and 31/05/2021.

1. Back Ground

The Hon'ble National Green Tribunal (NGT), Southern Zone in the matter of original application No. 16/2019 & Shri.K.Gemini Vs Union of India & others passed an order dated 13/04/2021(**Annexure – I**) and directed that (as in point 3);

3. "The committee is directed to submit a report to this Tribunal on or before 31.05.2021 by e-filing in the form of Searchable PDF/OCR Supportable PDF and not in the form of Image PDF along with necessary hardcopies to be produced as per Rules".

Further, The Hon'ble National Green Tribunal (NGT), Southern Zone in the matter of original application No. 16/2019 & Shri.K.Gemini Vs Union of India & others passed an order dated 31/05/2021(**Annexure – II**) and directed that (as in point 10);

10. "Considering the circumstances, we feel it appropriate to grant some more time to the committee to file a report as directed. They are directed to file the report on or before 16.07.2021 by e-filing in the form of Searchable PDF/OCR Supportable PDF and not in the form of Image PDF along with necessary hardcopies to be produced as per Rules".

2. Meeting of the Joint Committee

In compliance with the Hon'ble NGT (SZ) order dated 31/05/2021, a virtual meeting was organized with the members of committee constituted by Hon'ble NGT in the matter of O.A No. 16 of 2019 on 22.06.2021 due to the prevailing COVID -19 pandemic. Copy of the Minutes of the meeting is enclosed at **Annexure -III.**

The discussion held and the decision of committee is reproduced as below;

The unit presented the following compliance status w.r.t recommendation of Joint committee

Sl.No	Observation of the Joint committee	Compliance status / Remarks by the Industry

25

1.	The unit has already provided STP for domestic effluent arising from Plant II & III. Now the Unit has installed one new STP w.r.t Plant IV & V and it is in operation. The Unit has not provided STP for domestic effluent w.r.t. Plant I & its colony and still sending domestic effluent into soak pit/septic tank. Observation on 21.12.2020 STP Civil works were in progress.	Status : Complied The STP at plant-I was commissioned on 30.01.2021 and is in operational. TNPCB is collecting the treated sewage sample on monthly basis for analysis to ensure the operational integrity.
2.	The unit has installed adequate number of flow meter and web camera for monitoring at ZLD but no water auditing report made available to committee to verify the adequacy. Observation on 21.12.2020 The unit submitted a third party report filed "Assessment of Water Management". The report comprises and highlight the water data of Chemplast Mettur for a period of 5 year (2014-2019) and gauges the adequacy of the ZLD, however does not show the water balance.	Status : Complied A comprehensive water audit has been carried out by M/s Chennai Testing Laboratory Private limited (NABL and NABET accredited agency) for all Sanmar units of Mettur. The NGT committee had asked us to submit the adequacy of ZLD which was covered in the report. The report also covers the water balance & usage for the last 5 years period. The report has been submitted in August 2020. However a revised audit was conducted by M/s. Chennai Testing Laboratory and submitted the report detailing plant wise water balance.
3.	To stop disposing their hazardous waste in captive SLFs and to direct to sent to Common TSDF or Co-processing depending on the quality of Hazardous waste. The hazardous waste generated from Plant I, II & III is being disposed in captive SLF itself. Only the hazardous waste from Plant V is being sent to TSDF Observation on 21.12.2020 The unit requires to provide detailed analytical report of the Alumina waste to decide suitable disposal path way.	Status : Complied We have stopped disposing the hazardous wastes of all Mettur Plants to onsite SLF and being sent either to common TSDF or for co-processing in cement industry based on the composition of the waste. As recommended, We have analyzed the spent alumina samples through M/s.Glens Innovation Labs Pvt Ltd, Chennai for its composition. The analysis report was already submitted to the Board. It may be noted from the analysis report of the spent alumina that there is no significance presence of any heavy metals and any other constituents which affects co-processing. The plant trial was carried out by M/s Dalmia Cements & concluded that the waste is suitable for their cement processing.

4.	To take immediate steps to provide proper storm water management system to collect - roof top water separately, surface runoff from plant area separately and Surface run off from vacant land separately in all plants and to construct separate storage system so that these water shall be utilized for industrial purpose with suitable treatment if required. No Storm water shall be let it out in public drains/Odai	Surface run off -Plant Process Area : ✓ The rain water in the uncovered process area & raw material storage area/ utilities of each Plant diverted to their respective ETP ✓ Only during the heavy rains (around 45 days spread over 3 months/year), the water is routed to ETP. Surplus water will be stored in the spare storage tank for treatment and subsequently gets processed at ETP/ZLD(Capacity at Plant-II: 5824 KL and Plant-III: 2517 KL)
5.	Observation on 21.12.2020 In plant-II, the unit has proposed 5 roof top water collection schemes and 3 schemes were completed and works for the remaining two schemes were in progress. In Plant-III out of 5 schemes, 4 schemes have been completed and the remaining one was in progress. In plant-IV all the 4 schemes were completed. In Cabot plant all 2 schemes were completed. In coal power plant all 4 schemes were completed	Status : Complied. Rain water collection from the roof top & reuse: Plant-II : 12000 SqM -→ 25000KL storage & reuse . All 5 schemes were completed Plant-III: 3600 Sq.M→ 25000KL storage (Tank-1) & reuse All 5 schemes were completed Plant-IV : 2000 Sq.M.- → 160KL tank - reuse for make up for Cooling Tower All 4 schemes completed Cabot : 1230 Sq.M→ 25000 KL Raw water storage tank & reuse. All 2 Schemes-Completed Coal Power: 5400 Sq.M→ 4000 KL - Raw water storage tanks & reuse - All 4 Schemes-Completed
6.	Observation on 21.12.2020 Though the unit has taken several steps to collect the roof water and surface runoff, the unit shall explore the possibility to provide earthen reservoir / seepage pond to collect surface runoff from non-process area and to recharge the ground water (all the storage tanks are above ground level) and to reduce the water intake from the reservoir. By this means, there is a possibility for reduction of TDS levels present in the ground water.	The general topography of Mettur is hilly terrain. Our Plants at Mettur are located in a hilly terrain with the lowest elevation of the complex at the western end of Plant-II from where all the storm water in the whole area goes out to a lower gradient. Hence, the establishment of large size earthen reservoir/ pond to collect the storm water during heavy monsoon is a huge challenging task, possesses inherent safety risks such as breaching, continuous seepage to next lower gradient area etc. Continuous seepage or leaching of water is an undesirable feature to the habitants at the lower gradient area. Based on this context, we have established all the large water

		storages facilities above ground level and only smaller sumps with pumping arrangements are at ground level.
7.	The industry shall explore the possibility of diversion of storm water drains which are passing inside the premises in consultation with local administration. In extreme circumstances of non diversion of existing storm water drains (Odai), the unit required to install online monitoring system for pH, TDS, BOD and COD to ensure the natural quality of storm water/ surface water runoff. Observation on 21.12.2020 No storm water analyzer is provided for plant-IV	Status : Complied. • Storm water channel is a natural one. • Only Government authorities can divert the channel & diversion of storm water outside the plant premises is beyond company's control. • As suggested by the Joint Committee, the company has installed 2 sets of online monitoring system for pH, TDS, BOD and COD at the outlet of the storm water runoff at Plant-II & Plant-III with an investment of Rs.20 Lacs. • We have also installed pH, TDS, BOD & COD analyzers for plant-IV and was verified by TNPCB.
8.	To provide Continuous Ambient Air Quality monitoring stations (CAAQM) in four directions around the Plant-II, III, IV, V and Power Plant. The Plant shall monitor PM10, SOx,. NOx, Chlorine and VOC. Observation on 21.12.2020 During the meeting on 21/12/2020 the authorities of the unit agreed to provide two continuous AAQ monitoring stations in the upstream and downstream directions. The committee recommended the same.	We have conducted a dispersion modeling of ground level concentration by engaging of M/s. Glens, Chennai and finalized the locations of CAAQM stations & got concurrence with DEE. As agreed during the meeting with the NGT Joint committee, We have placed purchase order to M/s. Thermo Fisher Scientific India Private Limited, Nasik for purchasing of 2 Nos of online Continuous Ambient Air Quality Monitors (One at upstream & another at downstream in the predominant wind direction). The two stations will be installed in Nov-2021.

9.	The Plant shall provide more effective chiller to the solvent recovery Plant for better recovery of the solvent	Status : Complied. • The new chiller which operates at 5 Deg C, was commissioned on 27.02.2021 and it is in continuous operation. After commissioning, the average organic load to the adsorption bed is reduced more than 10% . (The plant is being operated at 40% load due to NGT committee recommendation). However, to evaluate the new chiller chiller performance at full load by engaging the third party, we seek the permission of the Joint committee to operate the plant to full capacity.
10.	The unit shall provide adequate number of additional adsorbent beds for better control of VOC emission further. Observation on 21.12.2020 It is submitted that the emission level of the adsorber will be monitored by the committee through a NABL approved third party auditing continuously for two days with the consented quantity of production rate. Therefore, the committee will report on the requirement of the additional air pollution control system to control VOC emission.	Status : Complied. ✓ Company has already installed a new Chiller with lower operating temperature of 5 Deg C, which makes a significant reduction of organic load to the adsorber. Thereby the TVOC load to the Solviron adsorption bed is dropped more than 10% ✓ Company has already installed the steam + solvent vent condensing chiller system at the vent of the solvent condenser in each Plant ✓ Under the current circumstances, the additional adsorbent bed installation will not be required in Plant-IV. ✓ Permission from the Joint Committee / Board is requested to operate AO1 & AO2 together with full capacity .

11.	In addition to adsorbent beds, the unit shall be directed to install Regenerative Thermal Oxidizer (RTO) system to achieve the VOC emissions below 5 microgram /Nm3. Observation on 21.12.2020 It is submitted that the emission level of the adsorber will be monitored by the committee through a NABL approved third party auditing continuously for two days with the consented quantity of production rate. Therefore, the committee will report on the requirement of the additional air pollution control system to control VOC emission.	Status : Complied. ✓ The operating Solvent Recovering Unit is adequately designed to achieve the VOC emission level of less than 5 mg/nm3 ✓ Company has validated the adequacy of the existing chiller &adsorber efficiency through third party study ✓ Technologically, RTO's function with exit threshold limits similar to SRUs ✓ ie., RTO is an alternative technology to SRU's and not for use sequentially . ✓ Point source of emission is prescribed in milligram /NM3 . ✓ Ambient air quality standard is expressed in microgram/nm3. ✓ Under the prevailing circumstance , RTO is not required
12.	The concentration of VOC at outlet of adsorbent should be interlocked with production line. The Plant shall provide proper stack emission monitoring system (VOC monitoring) with suction motor. The Plant shall install alarm system to give caution in case of exceedance of VOC limit in the stack	Status : Complied The NGT committee verified the compliance
13.	The Plant shall provide Siren system coupled with ambient VOC monitoring system to give alert to public in case of exceedance of TVOC in ambient air	Status : Complied The NGT committee verified the compliance
14.	The Plant shall carry out automation in the adsorbent section to control emission	Status : Complied The NGT committee verified the compliance
15.	The unit shall regularly calibrate all the VOC monitors installed at the stacks attached to adsorbent beds and provide proper data to Care Air Centre of TNPCB, Guindy at all times	Status : Complied The NGT committee verified the compliance

16.	The unit shall be directed to implement all safety measures in Plant IV as suggested by Additional Director of Industrial Safety & Health Observation on 21.12.2020 The report of the Director of Industrial Safety & Health is enclosed vide Annexure-IV. The following 5 points are yet to be implemented.	Status : Complied. ✓ All the 35 safety related recommendations pointed out by Additional Director of Industrial Safety &Health were implemented, including the 5 pending points as mentioned in the report of Director of Industrial Safety & Health
17.	To take action to reuse the storm water collected from seepage of the Plant during rainy time. The Plant shall take necessary steps to close the rain water inlet line to avoid the rain water entry into Plant IV Observation on 21.12.2020 The unit has not made provision to collect the ground water seepage at plant-IV.	Status : Complied ➢ The origin of the storm water is from outside of Plant-IV & it is entering the Plant through a nullah due to geographical inclination and going outside ➢ There is no change in the characteristic of storm water entering inside the plant and the water going out of the plant . The water flow is continuous only during rainy season for about 3-4 months in a year ➢ If the inlet provision to the plant is closed, it may lead to collapsing of the wall at the northern side due to water stagnation ➢ Establishment of 8 inch PVC line for the total diversion of water coming from northern side of the plant through the pipeline for the entire length of 370 m till the outside to remove any doubt of pickup in the stream from our plant area • A seepage collection sump is provided inside plant-IV premises to collect the ground water seepage and re-use in the process.

The unit authorities of M/s. Chemplast Sanmar Ltd also requested the permission of the members to increase the production of the M/s. Chemplast Sanmar Limited, Plant –IV to 100% capacity from the existing recommended 40 % capacity.

After reviewing of the compliance made by unit, the committee members expressed the followings;

i. Thiru. Madhav Kumar and other committee members requested the unit to furnish the detailed water balance with respect to production and ZLD. The unit authority assured to modify the water balance and submit shortly.

ii. Thirumathi. H.D.Varalaxmi suggested that since there is no SOP for the Alumina waste for the utilization in cement industry, the composition report of Alumina waste may be refer to WM – II division, CPCB, Delhi for seeking suggestion on utilization of Alumina waste. Till such time the unit was asked to dispose the "Alumina waste' to TSDF. The committee members acknowledged the same.

iii. The committee members reported that the performance of the chiller installed by the unit shall be assessed through the NABL accredited laboratory in the presence of the committee members.

iv. The committee members asked TNPCB to conduct ground water study as directed by the Hon'ble NGT.

3.0 Conclusion of the Committee

Due to COVID- pandemic as well as pre- occupation of committee members, it was proposed to conduct field visit in 3rd week of the July for physical verification of the compliance status of the recommendations in the unit as discussed above.

4.0 Prayer

It is humbly prayed that a time period of 8 weeks may kindly be given to this joint committee to submit a compliance report after completion of physical verification of measures taken by the unit.

3. It is seen from the report that they have not conducted the physical verification of the compliance of status and recommendations, for that purpose, they want eight weeks time as they proposed to conduct the inspection by third week of July 2021.

4. The learned counsel appearing for the Tamil Nadu Pollution Control Board submitted that they have conducted the inspection on 26th and 27th August, 2021 and if some time is granted, they may be able to file the report.

5. As regards the larger study is concerned, the committee can take its own time, but as regards the compliance of recommendation is concerned, the committee is directed to file an interim report regarding the compliance of the recommendations made by the committee on or before 22.10.2021 by e-filing in the form of Searchable PDF/OCR Supportable PDF and not in the form of Image PDF along with necessary hardcopies to be produced as per Rules.

6. The learned counsel appearing for the applicant submitted that the applicant is no more and they want to implead their son who is interested in prosecuting the matter. The applicant is also directed to take steps to implead the legal heirs or any other interested person to prosecute the matter before the next hearing date.

7. The Registry is directed to communicate this order to the members of the committee and also to the official respondents by e-mail immediately so as to enable them to comply with the direction.

8. For taking steps to implead the legal heirs or other interested person in the place of the original applicant) and for consideration of interim report, post on 22.10.2021.

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

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

O.A. No.16/2019 (SZ),
30th September, 2021. Mn.

Annexure - II

GLens Innovation Labs Pvt Ltd.

NABL ACCREDITED AS PER ISO/IEC 17025 : 2017, CERTIFIED AS PER ISO 9001:2015 & ISO 45001 : 2018

TEST REPORT

Report No : EN21020045-01 **Report Date** : 02 Mar 2021

SAMPLE DRAWN BY LABORATORY

Customer Name : M/S. Chemplast Sanmar Limited,Plant-IV

Customer Address : Raman Nagar PO, Mettur Dam-636403

Sample Name : Hazardous waste

Sample Description Spent Alumina

Sample No : EN21020045-01

Sample Identification : NA **Sample Received on** : 22 Feb 2021

Sample Condition : Fit for Analysis **Test Started on** : 22 Feb 2021

Sample Quantity : 2 kg **Test Completed on** : 01 Mar 2021

Test result

S.No	Test Name	Test Method	Results	Units
1	Antimony as Sb	GL/EN-INS/SOP/22	BLQ(LOQ:2.0)	mg/kg
2	Arsenic as As	GL/EN-INS/SOP/22	BLQ(LOQ:2.0)	mg/kg
3	Cadmium as Cd	GL/EN-INS/SOP/22	BLQ(LOQ:2.0)	mg/kg
4	Calcium as Ca	GL/EN/SOP/100	BDL(DL:0.2)	mg/kg
5	Chromium as Cr	GL/EN-INS/SOP/22	BDL(DL:0.2)	mg/kg
6	Iron as Fe	GL/EN-INS/SOP/22	BDL(DL:0.2)	mg/kg
7	Lead as Pb	GL/EN-INS/SOP/22	BDL(DL:0.2)	mg/kg
8	Mercury as Hg	GL/EN-INS/SOP/22	BLQ(LOQ:2.0)	mg/kg
9	Nickel as Ni	GL/EN-INS/SOP/22	BDL(DL:0.2)	mg/kg
10	Selenium as Se	GL/EN-INS/SOP/22	BLQ(LOQ:2.0)	mg/kg
11	Tin as Sn	GL/EN-INS/SOP/22	BDL(DL:0.2)	mg/kg
12	Total Organic Carbon	GL/EN/SOP/86	0.24	%
13	Cobalt as Co	GL/EN-INS/SOP/22	BDL(DL:0.2)	mg/kg
14	Vanadium as V	GL/EN-INS/SOP/22	BDL(DL:0.2)	mg/kg
15	Chloride as Cl	GL/EN/SOP/097	BDL(DL:10.0)	mg/kg
16	Silica as SiO2	GL/EN/SOP/087	22.80	%

Authorized Signature
E. Prithivirajan
Manager - Lab

#.6/1, Ist Floor, Sri Jothi Complex, Murugesan Street, Balavinayagar Nagar, Arumbakkam, Chennai – 600 106.

GLens Innovation Labs Pvt Ltd.

NABL ACCREDITED AS PER ISO/IEC 17025 : 2017, CERTIFIED AS PER ISO 9001:2015 & ISO 45001 : 2018

TEST REPORT

Report No : EN21020045-01 **Report Date** : 02 Mar 2021

S.No	Test Name	Test Method	Results	Units
17	Sulphur as SO3	GL/EN/SOP/087	55	mg/kg
18	Aluminium as Al	GL/EN-INS/SOP/21	66799	mg/kg
19	Thallium as Tl	GL/EN-INS/SOP/22	BDL(DL:0.2)	mg/kg
20	PCB/PCT	GL/EN-INS/SOP/34	BDL(DL:0.2)	µg/kg
21	Tellurium as Te	EPA Method 29	BDL(DL:2.0)	mg/kg
22	Volatile Organic Hydrocarbon	GL/EN-INS/SOP/34	BDL(DL:0.1)	mg/kg

Compound Detected: Screening

Cyclohexanol,2-Methyl,Acetate (1R Trans)
Benzene,2-ethyl-1,3-dimethyl-
Benzene,1,2,4,5-Tetramethyl
Benzene,1,2,3,5-Tetramethyl
1H-Indene,2,3-dihydro-4-methyl
Benzene,1,2,3,4-Tetramethyl
Naphthalene,1,2,3,4-Tetrahydro-
Urea,tetrabutyl-
Benzene,1,3,5-triethenyl-2,4,6-triethyl-
1H-Indene,2,3-dihydro-4-methyl
Benzene,1,3-diethyl-5-methyl
Benzene,(1,1-dimethylpropyl
Benzene 1,3-dimethyl-5-(-methylethyl)-

Note: BLQ-Below Limit of Quantification, LOQ-Limit of Quantification. NA-Not Applicable

.....End of Report.....

Authorized Signature
E. Prithivirajan
Manager - Lab

#.6/1, Ist Floor, Sri Jothi Complex, Murugesan Street, Balavinayagar Nagar, Arumbakkam, Chennai – 600 106.

Annexure-III

COMPLIANCE STATUS OF SAFETY RECOMMENDATIONS BY THE DIRECTORATE OF INDUSTRIAL SAFETY & HEALTH		
S.No.	**Joint Committee Remarks**	**Compliance status**
01	For Hydrogenator, temperature and pressure gauges shall be fixed at upper middle and lower level for physical measurement and maximum permissible level marking in color is necessary. Hence temperature and pressure gauges shall be fixed at upper, middle and lower level for physical measurement and maximum permissible level marking in color.	For Hydrogenator, temperature and pressure gauges fixed at upper, middle and lower level for physical measurement and maximum permissible level marked in colour.
02	The electrical cable tray & hydrogen storage tank shall be separated by a fire resistant barrier	All the cables, cable trays adjacent to the Hydrant buffer vessel are separated by providing fire resistant cladding for the cables, cable trays. Additionally a fire resistant painting has been done over the cladding.
03	The purity of hydrogen before entering Hydrogenator shall be checked for impurities (ie.,) to avoid carbon steel waste particles	Hydrogen Purity is being monitored regularly and recorded in Plant-IV. To avoid carbon steel waste particles entering in to the process, filters are available to capture the particles before entering in to the process located in AO1 & AO2. The materials of construction of the filters are SS 316. Also all the pipe lines and equipment at the downstream of the filters are Aluminum in AO1 and SS 316 in AO2.
04	VOC (Volatile Organic Compounds) monitor shall be provided near the final product outlet or process completion area	VOC monitor is provided in the final product storage tank area.
05	As the compatible raw materials are stored in the ground floor in case of fire/explosion the buildings, the structures including the roof sheet will collapse. Hence, such storages shall be shifted to safe place. Also, Electrical connections shall be removed (or) made flame proof. Smoke detectors shall be provided.	Now the compatible raw materials are shifted to a safe place. All the Electrical connections like light fittings & exhaust fan are made flame proof. Two numbers of Smoke detectors are provided. Also chemicals are placed on self containing pallets to avoid spillage.

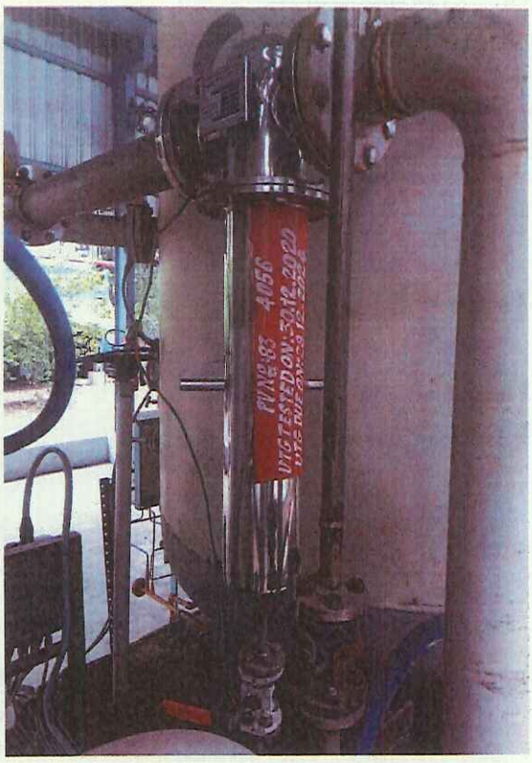
27/8/2021

Additional Director,
Industrial Safety and Health,
Salem.

01. Hydrogenator after installation of temperature & pressure gauges

02. Hydrogen Buffer vessel area after Cable Cladding

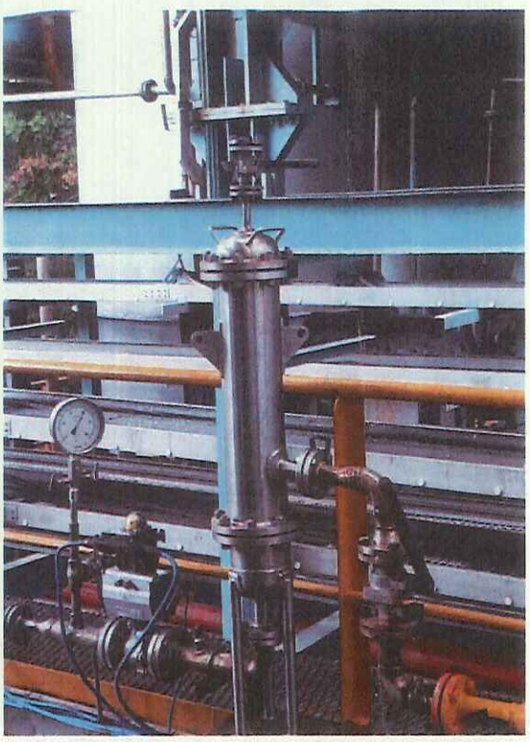
09. Hydrogen supply filters and Purity monitoring



Hydrogen Inlet Filter for Main Booster Unit

Hydrogen supply purity analyser

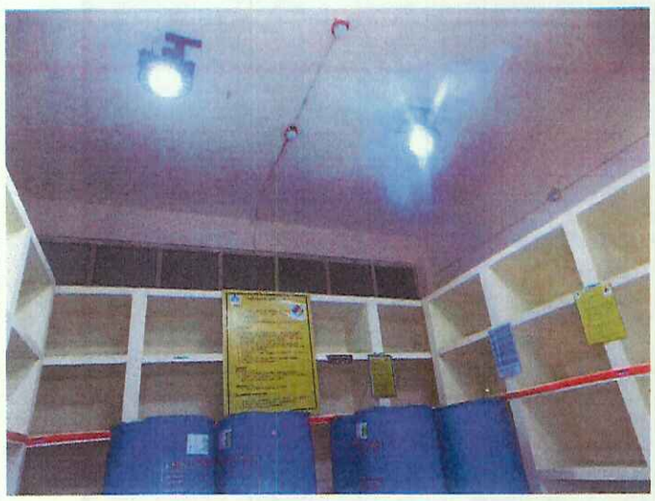
Hydrogen Inlet Filter for AO1.



Hydrogen Inlet Filter for AO2

04- Final product storage area VOC Meter

05. RAW MATERIAL STORAGE ROOM



27/8/2024

ADDITIONAL DIRECTOR
Industrial Safety & Health.
Salem.

Annexure - IV

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GLens Innovation Labs Pvt Ltd.

NABL ACCREDITED AS PER ISO/IEC 17025 : 2017, CERTIFIED AS PER ISO 9001:2015 & ISO 45001 : 2018

TC - 8582

TEST REPORT

ULR No : TC858221000003768P, 3769P, 3770P,

Report No : EN21080093-01 to 03 **Report Date** : 08 Sep 2021

SAMPLE DRAWN BY LABORATORY

Customer Name : M/S. Chemplast Sanmar Plant-IV

Customer Address : Raman Nagar, Mettur Dam, Salem, Tamil Nadu 636403

Sample Name : Stack-VOC Monitoring **Sampling Date** : 26 Aug 2021

Sample No : EN21080093-01 to 03 **Sample Received on** : 30 Aug 2021

Sample Identification : AO-I-AB **Test Started on** : 30 Aug 2021

Instrument Used : Personal Sampler **Test Completed on** : 08 Sep 2021

Test result

Parameter	AO-I - AB		
	Condenser Inlet	Condenser Outlet	Adsorption Bed-Outlet
TVOC*(by PID analyser) PPM	8750	485	BDL(DL:0.1)

Note: BLQ-Below Limit of Quantification, LOQ-Limit of Quantification

* Non NABL Parameter

.....End of Report.....

Authorized Signature

E. Prithivirajan

Manager - Lab

#.6/1, Ist Floor, Sri Jothi Complex, Murugesan Street, Balavinayagar Nagar, Arumbakkam, Chennai – 600 106.

GLens Innovation Labs Pvt Ltd.

NABL ACCREDITED AS PER ISO/IEC 17025 : 2017, CERTIFIED AS PER ISO 9001:2015 & ISO 45001 : 2018

TC - 8582

TEST REPORT

ULR No : TC858221000003771P, 3773P, 3779P,

Report No	:	EN21080093-04,06,12	**Report Date**	:	08 Sep 2021

SAMPLE DRAWN BY LABORATORY

Customer Name	:	M/S. Chemplast Sanmar Plant-IV
Customer Address	:	Raman Nagar, Mettur Dam, Salem, Tamil Nadu 636403

Sample Name	:	Stack-VOC Monitoring	**Sampling Date**	:	26 Aug 2021
Sample No	:	EN21080093-04,06,12	**Sample Received on**	:	30 Aug 2021
Sample Identification	:	AO-II-AB	**Test Started on**	:	30 Aug 2021
Instrument Used	:	Personal Sampler	**Test Completed on**	:	08 Sep 2021

Test result

Parameter	AO-I - AB		
	Condenser Inlet	Condenser Outlet	Adsorption Bed-Outlet
TVOC*(by PID analyser) PPM	9105	435	BDL(DL:0.1)

Note: BLQ-Below Limit of Quantification, LOQ-Limit of Quantification

* Non NABL Parameter

.....End of Report.....

Authorized Signature

E. Prithivirajan

Manager - Lab

#.6/1, Ist Floor, Sri Jothi Complex, Murugesan Street, Balavinayagar Nagar, Arumbakkam, Chennai – 600 106.

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GLens Innovation Labs Pvt Ltd.

NABL ACCREDITED AS PER ISO/IEC 17025 : 2017, CERTIFIED AS PER ISO 9001:2015 & ISO 45001 : 2018

TC - 8582

TEST REPORT

ULR No : TC858221000003775P, 3777P, 3781P,

Report No : EN21080093-08,10,14 **Report Date** : 08 Sep 2021

SAMPLE DRAWN BY LABORATORY

Customer Name : M/S. Chemplast Sanmar Plant-IV

Customer Address : Raman Nagar, Mettur Dam, Salem, Tamil Nadu 636403

Sample Name : Stack-VOC Monitoring **Sampling Date** : 26 Aug 2021

Sample No : EN21080093-08,10,14 **Sample Received on** : 30 Aug 2021

Sample Identification : AO-II-BC **Test Started on** : 30 Aug 2021

Instrument Used : Personal Sampler **Test Completed on** : 08 Sep 2021

Test result

	AO-I - AB		
Parameter	Condenser Inlet	Condenser Outlet	Adsorption Bed-Outlet
TVOC*(by PID analyser) PPM	8680	440	BDL(DL:0.1)

Note: BLQ-Below Limit of Quantification, LOQ-Limit of Quantification

* Non NABL Parameter

.....End of Report.....

Authorized Signature

E. Prithivirajan

Manager - Lab

#.6/1, Ist Floor, Sri Jothi Complex, Murugesan Street, Balavinayagar Nagar, Arumbakkam, Chennai – 600 106.

GLens Innovation Labs Pvt Ltd.

NABL ACCREDITED AS PER ISO/IEC 17025 : 2017, CERTIFIED AS PER ISO 9001:2015 & ISO 45001 : 2018

TC - 8582

TEST REPORT

ULR No : TC858221000003785P, 3786P, 3788P,

Report No : EN21080093-18,19,21 **Report Date** : 08 Sep 2021

SAMPLE DRAWN BY LABORATORY

Customer Name : M/S. Chemplast Sanmar Plant-IV

Customer Address : Raman Nagar, Mettur Dam, Salem, Tamil Nadu 636403

Sample Name : Stack-VOC Monitoring **Sampling Date** : 26 Aug 2021

Sample No : EN21080093-18,19,21 **Sample Received on** : 30 Aug 2021

Sample Identification : AO-I-AC **Test Started on** : 30 Aug 2021

Instrument Used : Personal Sampler **Test Completed on** : 08 Sep 2021

Test result

	AO-I - AC		
Parameter	Condenser Inlet	Condenser Outlet	Adsorption Bed-Outlet
TVOC*(by PID analyser) PPM	6800	400	BDL(DL:0.1)

Note: BLQ-Below Limit of Quantification, LOQ-Limit of Quantification

* Non NABL Parameter

.....End of Report.....

Page 1 of 1

Authorized Signature

B. Prithivirajan

Manager - Lab

#.6/1, Ist Floor, Sri Jothi Complex, Murugesan Street, Balavinayagar Nagar, Arumbakkam, Chennai – 600 106.

Annexure-V

MINUTES OF THE MEETING HELD ON 27.08.2021 AT 9.00 AM WITH THE JOINT COMMITTEE MEMBERS OF THE HON'BLE NGT (SZ) IN O.A. NO. 16 OF 2019 ON THE COMPLIANCE STAUS OF THE RECOMMENDATIONS ISSUED TO THE UNIT OF M/S. CHEMPLAST SANMAR GROUP OF COMPANIES LOCATED AT METTUR, SALEM DISTRICT IN COMPLIANCE TO THE DIRECTION OF THE HON'BLE NATIONAL GREEN TRIBUNAL ORDER DATED 13/04/2021 AND 31/05/2021.

PRESENT:

Sl.No	Name and Designation of the Officer	Committee
1.	Thirumathi. R. Sarasavani, Joint Chief Environmental Engineer, TNPCB, Chennai	Member/Convener
2.	Thirumathi. H.D.Varalaxmi, Sc. E & Regional Director Regional Directorate, CPCB Chennai.	Member
3.	Dr. Devender Kumar, Senior Principal Scientist, CSIR-National Geophysical Research Institute, Hyderabad	Member
4.	Dr.S. Mathava Kumar, Associate Professor, Environment Engineering Division, IIT Chennai.	Member
5.	Thiru. M.T Jowin Joseph, Scientist, NEERI, Nagpur.	Member
6.	Thirumathi.G.Poongodi, Additional Director, Directorate of Industrial Safety and Health (DISH), Salem.	On behalf of ThiruK.Jagadeesan, Member, DISH.
7.	Thiru. V. Gopalakrishanan, District Environmental Engineer, TNPCB, Salem.	

At the outset, the District Environmental Engineer, TNPCB, Salem welcomed the members of the committee and the following discussions were carried out as detailed below;

1. The committee discussed the modifications carried out in condenser & adsorption beds to control VOCs in Plant IV i.e., Hydrogen Peroxide production unit(which was restricted to operate at 40 % production capacity prior to the visit of the Joint committee and 60% during the visit of the joint committee).

2. The committee decided to carry out VOC monitoring in the final outlet of the adsorption bed (A1 & A2), condenser inlet, outlet and also the regeneration bed outlet.

3. The VOC levelsat inlet and out let of the condenser & adsorptions were measured by using thePID (Photo ionization detector) in the presence of the joint committee members during 26.08.2021 -27.08.2021.

4. Based on the result of the VOC monitoring so far, the committee opined to let the unit to operate at 60% production capacity for a period of one month as a trail run to ascertain the performance and to monitor the adequacy of control measures while continuous operation.

5. The committee collectively decided to monitor the VOC emissions by collecting two set of samples twice a month through accredited laboratory. One set of samples is to be analyzed at an accredited laboratory and another set of samples at IIT Madras for cross verification.

6. Also recommend that, if the VOC emissions found within acceptable limit during trail run of unit at 60 %production, the unit may be allowed to operate at 80% capacity after submission of the report before the Hon'ble NGT.

7. The committee suggested that the unit shall take all steps to control VOC emissions by adopting best practices and safety measures without any deviation.

8. It suggested that the unit shall submit the production details, Real time monitoring data on VOC emissions on daily basis to the O/o DEE, TNPCB, Salem through E-mail.

9. The Committee advised that the safety and Environment in charges to be present all the time in the unit during trail run at 60% production to respond immediately in case of any unavoidable circumstances of VOC emissions.

10. As per the earlier recommendations of the Committee ground water study has to be taken at the earliest to ascertain the ground water quality in the area and to identify the sources of pollution if any.

The DEE concluded the meeting with the vote of thanks.

M.C. Jowin Joseph,
Member
Scientist,
NEERI, Nagpur.

G.Poongodi,
Additional Director,
DISH, Salem.
(On behalf of
ThiruK.Jagadeesan,
Member, DISH)

Dr. S. Mathava Kumar,
Member,
Associate Professor,
IIT Madras, Chennai.

Dr. Devender Kumar,
Member,
Senior Principal Scientist,
CSIR-NGRI, Hyderabad.

H.D.Varalakshmi,
Member,
Sc.E/RD, CPCB,
Chennai.

R.Sarasavani,
Member/Convener, JCEE
Tamil Nadu Pollution Control
Board, Chennai.

BEFORE THE NATIONAL GREEN TRIBUNAL SOUTHERN ZONE, CHENNAI.

Original Application No. 16 of 2019

K. Gemini,
5/1-34, Rettaipulliyamaram
Raman Nagar Post, Mettur Dam
Salem District – 636 403.

....Applicant

Vs

Union of India & others

...Respondents

REPORT OF THE JOINT COMMITTEE ON M/S. CHEMPLAST SANMAR LIMITED, PLANT-I, M/S. CHEMPLAST SANMAR LIMITED, PLANT-II, ON M/S. CHEMPLAST SANMAR LIMITED, PLANT-III, M/S. CHEMPLAST SANMAR LIMITED, PLANT-IV, M/S. CABOT SANMAR LIMITED, PLANT-V, M/S. CHEMPLAST SANMAR LIMITED (POWER) PLANT, METTUR, SALEM DISTRICT AS PER THE DIRECTION OF THE HON'BLE NATIONAL GREEN TRIBUNAL ORDER DATED:30.09.2021.

Advocate for Respondent: - TNPCB
Thiru.C. Kasirajan,
Advocate, Chennai.

Date:12.11.2021.

Hearing on :15.11.2021