

**BEFORE HONOURABLE NATIONAL GREEN TRIBUNAL,  
PRINCIPAL BENCH, NEW DELHI.**

**SUO-MOTTO MATTER**

**Original Application No. 274 /2020**

**BETWEEN**

**Suo- Motto Matter**

News in Indian Express 23.11.2020

**VERSUS**

Maharashtra Pollution Control Board  
and others.

----- **Respondent.**

**MOST RESPECTFULLY SUBMITTED :**

1. I, Dr. Mahendra Kalyankar (IAS), working as Labour Commissioner, Maharashtra State, holding the additional charge of Director, Industrial Safety and Health, Maharashtra State, Respondent No. 4, am filing this reply in this Suo-Motto matter Application No. 274/2020.
2. The factory is registered in the name of Loknete Baburao Patil Agro Industries Ltd., Laxmi Nagar, Angar, Tal. Mohol, Dist. Solapur. The factory is involved in manufacturing of sugar and ethanol in the distillery section. The license issued under The Factories, Act, 1948, and license number is 10014458 is renewed upto 31<sup>st</sup> December, 2020 for 500 workers and above 2000 HP.

The accident took place due to leakage of spent wash from joints of the welding of bottom plate of the Bio digester tank. Within fraction of second, due to heavy pressure and weight of the spent wash inside the tank, the entire bottom plate abruptly got sheared off and bio digester fell on the ground, which resulted into spillage of spent wash in the premises. Due to heavy flow/ flash flood of spent wash, 3 workers working in that area were thrown away along spent wash. Out of these workers one worker survived as he caught branch of tree & saved him from drowning. Other two workers flown with spent wash and collided with factory structures and sustained severe head

injuries resulted in to death. As it is also mentioned in the Post Mortem report of these workers.

Shri P.V. Surse, Deputy Director, Industrial Safety and Health, Solapur, who is Inspector under Sec. 8 of the Factories Act, 1948, visited the premises of the factory on dtd. 22/11/2020 to carry out the enquiry about accident. I have sought the detailed report of Joint Director, Industrial Safety and Health, Pune is attached herewith.

3. The Deputy Director, Industrial Safety and Health, Solapur has filed case before the Honorable Chief Judicial Magistrate, Solapur against the occupier of the factory under the provision of Sec. 7-A(2)(a) of factories Act, 1948, and under Rule 65(2)(b)(c), 65(4)(a)(b)(c), 65(6)(ii) of Maharashtra Factories Rules, 1963.

4. **Steps taken by Directorate of Industrial Safety and Health, Maharashtra State for avoiding the accidents in hazardous and chemical factories :-**

- Factory Managements in the State of Maharashtra are directed to conduct the Mock Drills to prevent accidents in hazardous and chemical factories.
- For avoiding the accidents in hazardous and chemical factories, the Directorate of Industrial Safety and Health in co-ordination with Maharashtra Institute of Labor Studies Parel, Mumbai conduct training programme of "Chem-safety". For this training 1028 operators and supervisors were trained through 19 programs.
- To prevent accidents in hazardous and chemical factories, a circular has been issued on 4<sup>th</sup> December, 2020, stating that the minimum educational qualification of a person working as an operator should be graduate in science.
- For avoiding the accidents on Reactor in hazardous and chemical factories, the Directorate of Industrial Safety and Health in co-ordination with Maharashtra Institute of Labor Studies Parel, Mumbai planned to conduct training programme namely, "ACTSAFE" (Reactor Safety).

*'with respect'*

Place : Mumbai

Date : 16/12/2020.



**Dr. Mahendra Kalyankar**  
**Director I/C,**  
**Industrial Safety and Health,**  
**Maharashtra State, Mumbai.**

Report/Say from Joint Director, Industrial Safety & Health, Pune -2 in respect of Suo-Moto matter filed before Hon. National Green Tribunal, Principal branch, New Delhi.

(Original Appl. No. 274/2020)

- Name & address of factory: M/s Loknete Baburao Patil Agro Industries Ltd.,  
Laxmi Nagar, Angar, Tal. Mohol, Dist. Solapur - 413214.
- Mfg. Activity: Mfg. of sugar & allied products.
- No. of workers: 370
- Occupier: Prakash Janardan Chavare
- Email : loknetesugar@gmail.com

1. The Deputy Director, Industrial Safety and Health, Solapur received telephonic information from the management of factory on 22/11/2020 at 9.30 a.m. about fatal accident which was occurred on 21/11/2020 at 11.45 p.m.
2. The fatal accident took place in the factory & two workers died in it.
3. **Actual cause of Accident:** The above said accident took place due to some leakage of spent wash from cracks of the welded joint of bottom plate of the Bio digester tank. Within fraction of second, due to heavy pressure and weight of the spent wash inside the tank, the entire bottom plate abruptly got sheared off and bio digester fell on the ground, which resulted into spillage of spent wash in the premises. Due to heavy flow/ flash flood of spent wash, 3 workers working in that area were thrown away along spent wash. Out of these workers one worker survived as he caught branch of tree & saved him from drowning. Other two workers flown with spent wash & collided with factory structures & sustained severe head injuries resulted in to death. As it is also mentioned in the Post Mortem report of these workers.

**Methane gas generation process:** The raw spent wash is received from the distillery & fed to the Bio Digester of having capacity of 96 Lakh Ltrs. When the tank is filled with full capacity, the culture for fermentation process is added in this digester tank. Then after methane gas generation starts after 6 to 8 weeks and at this time it is required to close top manhole & exhaust vent closed. The methane gas is having specific gravity of 0.554 and it is lighter than air hence, if the vent & manhole is open the methane gas would escape in the upward direction & flow away in the atmosphere. Also, it would not accumulate in the breathing zone of the workers on the ground level. At the time of

accident the level of spent wash in the bio digester was 65 Lakh Ltrs. out of 96 Lakh Ltrs. & spent wash was started storing in the tank from 02/11/2020. Also, at the time of accident the exhaust vent & top manhole were open. Thus period required for the methane gas generation process does not completed, therefore there was no methane gas in the bio digester.

4. This fatal accident took place in the Bio gas generation plant of the factory. The fatalities did not take place due to methane gas leakage in the factory.
5. The factory is registered in the name of Loknete Baburao Patil Agro Industries Ltd., Laxmi Nagar, Angar, Tal. Mohol, Dist. Solapur. The factory is involved in manufacturing of sugar and ethanol in the distillery section. The license issued under The Factories Act, 1948, and license number is 10014458 is renewed upto 31<sup>st</sup> December, 2020 for 500 workers and above 2000 HP.
6. Deputy Director, Industrial Safety and Health, Solapur, Shri P.V. Surse who is Inspector under Sec. 8 of the Factories Act, 1948, , visited the premises of the factory on dtd. 22/11/2020 for carried out the enquiry about accident occurred into the above said factory and recorded the statement of the workers. I have gone through the report prepared by Shri P.V. Surse, Deputy Director, Industrial Safety and Health, Solapur.
7. It seems that, the above factory is engaged in manufacturing of white sugar, power generation of 17 MW using fuel as bagasse of sugarcane, Biogas (Methane). The factory is also engaged in manufacturing of ethanol & alcohol from sugar molasses by distillation process. In distillery division of the factory, there is one distillery for manufacturing of ethanol (30 KLPD). The sugar molasses produced in the sugar plant of the factory is used as raw material in the distillery where Ethanol & Alcohol are manufactured. In this distillation process, the unwanted residual liquid waste i.e. Distillery Spent Wash is generated. This Distillery Spent Wash is sent to the Biogas Digester Tank as a raw material.

In this Factory, Biogas plant installed in the year 2009 is situated outside the distillery section & The East side of the factory. Biogas (Methane) is generated from biogas plant. Biogas plant includes Biogas Digester, Lamella Clarifier. Biogas Holder, Gas flare unit, Laboratory, feed pump & sludge recycle pump. Spent wash i.e. effluent from distillery unit is received in to R.C.C. receiving tank (sludge settling tank, five day holding capacity). Suspended solids settled in this tank are removed after stoppage of distillery.

Clear effluent after getting mixed with recycled biomass from lamella clarifier to maintain a feed temperature of 36 to 38<sup>0</sup> C is pumped to the Digester. At about 14 m<sup>3</sup> Distillery Spent Wash is feed on per hr basis to the Biogas Digester Tank. The feed rate is controlled by manual control valve & a flow meter provided in the feed line and the sludge recycling line. Then approximately 30 kg/day lime and adequate water is added in the Distillery Spent Wash stored in the Digester Tank. Also cow dung as a culture is added in the mixture for generation of Biogas. In the digester, the effluent gets further mixed with content of the digester with the help of central & lateral agitators which provide homogeneous mixing in the digester. The digester has about 24-25 days retention capacity. Anaerobic digestion takes place in the digester, as a result of which Bio Chemical Oxygen Demand (BOD) / Chemical Oxygen Demand (COD) is reduced and biogas is evolved. The digested effluent/ biomass mixture overflow into degassing pond where entrapped gases are released. Degassed effluent flows to Lamella Clarifier for separation of active biomass from outgoing treated effluent. The clarified effluent leaves the lamella clarifier for disposal or to secondary effluent treatment plant, while the separated biomass is pumped back continuously in to the Digester. The excess biomass is removed from the bottom of digester regularly to sludge beds for disposal or to form manure. Due to anaerobic digestion, biogas which is the mixture of 65 % of Methane gas & 35 % of CO<sub>2</sub> gas produced in the digester accumulates in digester roof. The generated Biogas is transferred from the top of the Biogas Digester Tank to Biogas Holder Tank (Diameter- 8 m, Ht.- 6m, capacity- 300m<sup>3</sup>) which is installed at a distance of 20 ft. from the Biogas Digester Tank. The gas holder acts as intermediate gas storage as well as a Pressure control vessel. The biogas is pumped to the boiler house by biogas blower. Excess gas, if any, is burnt in gas flare unit whenever gas is not being utilized in the boiler. There was about 65 lakh liter spent wash in the Biogas Digester.

**The details of Biogas digester Tank as follows :-**

- Tank Shape – Cylindrical.
- Tank Capacity – 96,00,000 litre
- Height – 18 mtr.
- Diameter – 26 mtr.

One center Mounted Vertical Agitator is provided on the top of the Digester Tank, 3 lateral agitators are given at the bottom level of the tank. One manhole is provided

on the side shell wall of the tank at bottom level and two manhole is provided on top Dome of the tank.

8. From the enquiry and report submitted by Shri P.V. Surse, Deputy Director, Industrial Safety and Health, Solapur revealed as below :

On dated 21/11/2020, manufacturing process of making sugar from sugarcane was being carried out. Distillery section also started from 02/11/2020. On 07/11/2020, spent wash feeding @ 2 m<sup>3</sup>/hr was started to biodigester. Shri. Ravindra Kakde ( Biogas Plant Operator) joined duty at 8.00 pm in night shift ( 8.00pm to 4.00pm) along with his colleague Shri. Suresh Chavan (Helper). Both were working in Biogas plant. Shri. Kakde was looking after Bio Gas Plant Operation. Shri. Kakde took the charge of night shift from second shift Biogas Plant Operator Shri. Ram Tormal. As usual, Spent wash produced in distillery was transferred to Bio Digester. At early stage, Methane generation was not started. Manhole on the roof of Digester Tank & vent kept open. Hence pressure was not developed inside the Digester. When methane gas generation starts, Then Vent and manhole of the digester kept closed. This methane gas is stored in Gas Holder. Shri. Kakde took the sample of spent wash in the digester for analysis. Then at around 11.45 pm, Shri. Kakde & Shri. Chavan were sitting outside the lab. Shri. Kakde heard sound from Digester which is 10 ft away from him. He went towards the Digester Tank. He noticed Spent Wash was released from the welding joint of the base plate of the Tank & its wall. He turns around in fear. Within a fraction, welded bottom plate of the Digester Tank got sheared off and upper portion of tank fell on the ground. This resulted in heavy flow/ flash flood of spent wash (approx. 65 lac litres) in all over surrounding area i.e bagasse yard, cane yard, composter yard garden etc. Due to heavy flow of spent wash, the above two workers & Shri. Jyotiram Dada Vagare working in nearby area were thrown away. Shri. Kakde hold branch of tree while Shri. Chavan & Shri. Vagare were bombarded on factory structure / machinery resulting in serious head injuries & fractures. Also due to pungent smell of spread spent wash, 8 workers working in nearby area became unconscious. All 10 workers were immediately shifted to the Siddheshwar Hospital, Solapur through factory vehicle. Two workers declared dead in the Civil Hospital Tal. Mohol, Solapur during treatment on 21/11/2020. After giving necessary first aid treatment, other seven workers were discharged from the Siddheshwar Hospital, Solapur on dated 24/11/2020 & last one

worker Shri. Kakde was discharged from Siddheshwar Hospital, Solapur on dtd. 26/11/2020. As per Post Mortem reports, Shri. Chavan & Shri. Vagare died due to Head injuries.

In this incident, Biogas Digester tank & it's accessories like feed pump, motor, sludge recycle pump, lamella clarifier shell, Gas holder, gas flare equipment, safety device, biogas blower etc. Also walls & panel of laboratory got damaged due to heavy flow of spent wash. Factory management reported that in this incident, Machinery/equipment, structure loss of Approx. Rs.3,10,000,00 took place. These machineries/equipments are covered under insurance policy.

<b>Details of Died workers</b>				
Sr. No.	Name of worker	Age about	Nature of work	Compensation & Ex-gratia given.
1.	Shri. Jyotiram Dada Vagare	45 yrs.	Pumpman	Rs. 10.0Lakh to his legal heirs + given service to his son.
2.	Shri. Suresh ankush Chavan	22 yrs.	Helper	Rs. 10.0Lakh to his legal heirs is given.
<b>Details of injured workers</b>				
Sr. No.	Name of worker	Age about	Nature of work	Date of discharge.
1.	Shri.Sajjan Balu Jogdand	20 yrs.	Pumpman	Discharged on 24/11/2020 from Siddheshwar Hospital, Solapur.
2.	Shri. Mangesh Namdeo Pachpund	24 yrs.	Helper	Discharged on 24/11/2020 from Siddheshwar Hospital, Solapur.
3.	Shri. Mahesh Dilip Bodke	20 yrs.	Helper	Discharged on 24/11/2020 from Siddheshwar Hospital, Solapur.
4.	Shri. Kalyan Kisan Gurav	29yrs.	Watchman	Discharged on 24/11/2020 from Siddheshwar Hospital, Solapur.
5.	Shri. Parmeshwar Madhukar Thite	25 yrs.	Helper	Discharged on 24/11/2020 from Siddheshwar Hospital, Solapur.
6.	Shri.Raju Dattatraya Gaikwad	20 yrs.	Helper	Discharged on 24/11/2020 from Siddheshwar Hospital, Solapur.

7.	Shri. Ravindra Gajendra Kakde	29 yrs.	Biogas Operator	Discharged on 26/11/2020 from Siddheshwar Hospital, Solapur.
8.	Shri. Sanjay Bajirao Panche	54 yrs.	Contractor	Discharged on 24/11/2020 from Siddheshwar Hospital, Solapur.

Medical expenditure of all the workers is borne by factory management.

9. After carrying out the enquiry of accident and spot examination of the accident and interrogation with the workers and recorded the statement of workers, Shri P.V. Surse, Deputy Director, Industrial Safety and Health, Solapur, concluded that;

**(i) As per provision of Sec. 7-A(2)(a) of factories Act, 1948** Every occupier shall ensure so far as reasonably practicable, the health, safety and welfare of all workers while they are at work in the factory. It shall include the provision of maintenance of plant and system of work in the factory that are safe & without risk to health.

From enquiry and statement of workers, it is revealed that, welded bottom plate of the Bio digester got sheared off and spent wash spill on the ground. This Bio digester was installed in year 2009 & is being used for production of biogas till date. Bio digester is of M.S. material having welded bottom plate. Spent wash stored in Biodigester is corrosive & acidic in nature. On the day of accident, worker working nearby noticed some leakage of spent wash from crack in welded joint of bottom plate of Bio digester. Within fraction of second, due to heavy pressure & weight of inside spent wash, the entire bottom plate abruptly got sheared off and bio digester fell on the floor resulting into spillage of spent wash in the premises. Due to heavy flow of spent wash, 3 workers working in that area were thrown away along spent wash. Therefore it appears that bottom plate of the Bio digester was not in sound condition. If welded bottom plate of the Bio digester was maintained in sound condition & was kept free from any corrosion, wear etc, spent wash would not have leaked from Bio digester and would have avoided the incident.

Thus Bio digester & it's welding were not properly maintained in safe working condition and was with risk to the safety of workers working there as such the provision of **Section 7- A(2)(a) of Factories Act,1948 has been contravened by the occupier.**

(ii) **As per provision of Rule 65(2)(b)(c) of Maharashtra Factories Rules, 1963:** Every pressure vessel used in any factory shall be (b) of sound construction & material and of adequate strength and shall be free from any defect; and (c) properly maintained in a safe working condition.

Bio digester which was operated at a pressure of 0.04 Kg/cm<sup>2</sup> (gauge pressure) i.e. greater than atmospheric pressure. This is a pressure vessel within the meaning of Rule 65 (1)(d) of MFR 1963 being used in the manufacturing process of biogas.

From on spot enquiry and statement of workers, it is revealed that, welded bottom plate of the Bio digester got sheared off and spent wash spill on the ground. This Bio digester was installed in year 2009 & is being used for production of biogas till date. Bio digester is of M.S. material having welded bottom plate. On the day of accident, worker working nearby noticed some leakage of spent wash from welded joint of bottom plate of Bio digester. Within fraction of second, the entire bottom plate got sheared off and bio digester fell on the floor resulting into spillage of spent wash in the premises. Due to heavy flow of spent wash, 3 workers working in that area were thrown away along spent wash. Therefore it appears that bottom plate of the Bio digester was not in sound construction & its welding is of not having adequate strength. If welded bottom plate of the Bio digester was maintained in sound condition & was kept free from any corrosion, wear etc, spent wash would not have leaked from Bio digester and would have avoided the incident. Thus workers could have been saved.

Thus Bio digester & its welding were not properly maintained in safe working condition and was with risk to the safety of workers working there as such the provision of **Rule 65(2)(b)(c) of Maharashtra Factories Rules, 1963 has been contravened by the occupier.**

(iii) Bio digester which was operated at a pressure of 0.04 Kg/cm<sup>2</sup> (gauge pressure) i.e. greater than atmospheric pressure. This is a pressure vessel within the meaning of Rule 65 (1) (d) of MFR, 1963 being used in the manufacturing process of biogas.

The pressure plant in service shall be thoroughly examined by a competent person

a) Externally once in every period of six months

- b) Internally ,once in every period of twelve months and
- c) Hydraulic test once in a period of four years.

He asked factory manager to show the pressure vessel test report in Form 13 as per **provision of Rule 65(4)(a)(b)(c) of the Maharashtra Factory Rule 1963**. On the day of incident dtd. 21/11/2020 & also on the day of his visit to above said factory on dtd. 22/11/2020, he found that biodigester did not got thoroughly examined from competent person as stated above & hence the Occupier of the factory hence contravened the provisions of **Rule 65(4)(a)(b)(c) of the Maharashtra Factory Rule 1963**.

During enquiry it is learnt that last crushing season of factory ended on 21/02/2018 and new season started from 21/10/2020. Plant was idle for this period i. e. 3 months & no manufacturing process was carried out during this period. Bio digester which was operated at a pressure of 0.04 Kg/cm<sup>2</sup> ( gauge pressure) continues a pressure vessel as define under rule 65 (1)(d) of MFR 1963 being used in the manufacturing process.

As per **provision of 65 (6) (ii)** , “No pressure plant or pressure vessel which has been previously used or has remain isolated or idle for period exceeding 6 months or which has undergone repairs or alternations shall be used in a factory unless it is examined and tested by a competent person. Hence it is mandatory on the part of occupier to carry out testing of this pressure vessel which was idle for a period exceeding 6 months.

It is observed at the time of visit of the Deputy Director that said pressure vessel i.e. Bio digester was not examined and tested by a competent person before taken into the use for current crushing season on dated 21/10/2020.

Hence by not getting examined and tested the above said Bio digester by a competent person before taken into the use which was idle for period exceeding 6 months, the **provision of rule 65(6)(ii) of Maharashtra Factories Rules, 1963** has been contravened.

10. The management of the factory issued a cheque No. 002647 dt. 03/12/2020, of Rs. 10,00,000/- to Shri Suresh Chavan and cheque No. 002648 dt. 03/12/2020, to Shri Jyotiram Dada Vagare as an compensation and ex-gratia to the legal heirs of deceased workers.

11. The Deputy Director, Industrial Safety and Health, Solapur has filed case before the Honorable Chief Judicial Magistrate, Solapur against the occupier of the factory under the provision of Sec. 7-A(2)(a) of factories Act, 1948, and under Rule 65(2)(b)(c), 65(4)(a)(b)(c), 65(6)(ii) of Maharashtra Factories Rules, 1963.
12. Following safety measures have been suggested to avoid such kind of accident in future.
  - i. All pressure plants/ vessels / tanks/ air compressor receivers etc shall be got examined and tested by the competent person.
  - ii. Safe Operating Procedures shall be prepared & followed in the factory.
  - iii. Frequent maintenance activities of tanks/ silos/ structures/ gas holders/ digesters etc. shall be carried out.
  - iv. Trained manpower shall be deployed in the factory.



**(Hemant Dhend)**  
**Joint Director,**  
**Industrial Safety and Health,**  
**Pune-2.**