

OA No. 168/2020

<u>SHAKTI BIO SCIENCE LTD.-ACCIDENT REPORT</u>			Remarks
1	Name & Address of the factory	Shakti Bio Science Ltd. Plot No. 411/1, LIC Sector, GIDC, Vapi, District: valsad Gujarat.	
2	Accident date & timing	08/08/2020, 11:30 AM	
3	Date of visits	08/08/2020 10/08/2020 14/08/2020	
4	Factory license details	Lic. No. 2744 for worker upto 100 & 250 H.P. valid up to 2023.	
5	Plan & stability details	Plan No. 936 dated : 27/02/2008, Stability Certificate Date: 09/01/2017	
6	Raw material	Ethylene Dichloride, Aluminum Chloride, Bromine Benzaldehyde, , Chlorine, Phenol, Potassium Hydroxide Sulfuric Acid, , Caustic Lye, Methanol, Toluene, Hydro chloric acid, Ethylene glycol	
7	Process	<p>Manufacturing of Meta Phenoxy Benzaldehyde (MPBD) is carried out in six stage reaction:</p> <ol style="list-style-type: none"> 1. In first stage reaction, Benzaldehyde Reacts with Bromine in Presence of Aluminum Chloride as Catalyst and Ethylene Dichloride as solvent to obtain M-bromo Benzaldehyde. 2. In second stage Reaction, M-bromo Benzaldehyde reacts with Mono ethylene glycol to get Acetal of M-bromo Benzaldehyde 3. In Third stage Reaction, Acetal of M-bromo Benzaldehyde reacts With Phenol in Presence of KOH to obtain Acetal of M-Phenoxy Benzaldehyde 4. In Fourth stage Reaction, M-phenoxy Benzaldehyde is Obtained by the Hydrolysis of Acetal of M-Phenoxy Benzaldehyde. 5. Distillation of MPBD to recover toluene 6. Distillation of MPBD done to recover intercut (impurities) and MPBD. 	
8	Products	Distilled MPBD at the time of Incident	
9	Brief of Incident & Observation	As per the information gathered, Shakti Bio Science Ltd., has Stopped its Manufacturing activity in 2013. At the time of stoppage, they have completed the 5 th	

		<p>stage of manufacturing of MPBD Products i.e. completed the stage of crude MPBD manufacturing & stored in apx.150 nos. of HDPE Drums of 200 Liters. On investigation, it is come to know that they have restarted operation before 8th August 2020 to recover fifth stage crude M.P.B.D. to get distilled M.P.B.D. (Finish Product)</p> <p>On 8th Aug 2020 unit has started operation to recover MPBD with 4 reactors (3 reactors of 6 KL, 1 reactor of 10 KL capacity) in 4 columns. At around 11:30 A.M during the manufacturing process, one Jr. Operator was going to third floor to check utilities line he observed fire near goods lift on third floor in thermocol plastic/rubber/paper waste which spread towards toluene and other solvents drums & subsequently fire has been spread out on whole building-2 (block- A) Pharma Division than in building - 1 (Block-B) API building & building-C office building and near Raw Material & finished goods area. Due to Intense VOC and blast of material storage drums and reactor drum, it is not possible to enter unit premises. The fire was Controlled by 15:00 p.m. & has been extinguished completely by 17.45 Hrs on the same day.</p> <ul style="list-style-type: none"> ➤ Approximately 9 nos. of firefighting tenders already reached from nearby industries, Vapi, Valsad Nagar Palika, Sarigam, Daman, Selvasa at the incident site & they were used to combat fire by multiple trips with water and foam. ➤ Member of LCG, was at help & fire tenders from different industries like Bayer Vapi Pvt. Ltd., Huber group India Pvt. Ltd., Alok Industries, Atul Ltd., Welspun India Ltd., Damanganga Industrial Park came for help to combat fire. 	
10	Injury & Fatality	There was no fatality or injury during this incident as all employees and workers (43 nos.) are evacuated from pharma plant immediately at the time of incident.	
11	Property / Plant damaged	Pharma plant and its machinery (4 distillation assembly, tray dryer-2 nos., F.B.D. -1 no., V.T.D.-1 no., cooling tower-1 no., centrifuge -5 nos., Receivers -10 nos., Electric panel) and reactors are completely burnt during fire. In API plant, 2 reactors, 2 no of centrifuged, 1-A.H.U. are burnt. There was no major damage to boiler. Also there is damage to office building. There was damage to ETP units and laboratory during inspection.	

12	Chemical Involved in Incident	<ul style="list-style-type: none"> ➤ Recovered solvents storage tanks (3nos) which are partly filled with toluene, EDC and Benzaldehyde ➤ Approx. 150 drums 200 liters each filled with in-process materials stored in storage area ➤ Materials taken into distillation 4 assembly which are in operation before fire. 	
13	Probable Cause of Incident	On inquired with the plant people preliminary it seems that fire incident might have occurred due to short circuit in electric panel or cable in Pharma plant followed by fire in common storage area used for recovered solvents, in process materials and then in API plant. Actual Cause may be known after FSL, Electrical Inspector & other concern agencies' report.	
14	ACTION TAKEN	Prohibitory Order has been issued to factory under section 40(2) of The Factories Act 1948 on Dt. 10/08/2020 to stop the manufacturing activities for the compliance of various safety provisions.	
15	NOTE	<ul style="list-style-type: none"> • Before this Incident, Officer has visited the Factory on 24/11/2016 & 11/09/2019. During both visit it was found that there were no manufacturing activities carried out so remarks has been given for intimation of starting & stoppage of manufacturing activities in prescribed format as per Rule 113 of Gujarat Factories Rules-1963 but they didn't intimate the district office. 	