#### <u>Compliance to the Environmental Clearance for 730 MTPM Pentaerythritol and 480 MTPM Sodium</u> <u>formate issued by SEIAA on 24.04.2018 – April -2022 – September 2022</u>

#### Reference Letter No. SEIAA/TN/F.6495/5(f)/EC-60/2018 dated 24.04.2018

We M/s Asian Paints Limited, Penta division, Cuddalore plant obtained Environment Clearance from SEIAA Tamil Nadu on 24<sup>th</sup> April 2018.We applied for consent to operate for expansion vide

Order no. 1807112849466 on 17<sup>th</sup> July 2018. The mandated requirements prior to increase in production to the revised consented quantity were fulfilled and then manufacturing to higher production was started.

#### Specific Conditions:

SI.No.	Condition	Compliance
2	It is Mandatory for the Project Proponent to furnish to the SEIAA, half yearly Compliance report in hard and soft copies on 1 <sup>st</sup> June and 1 <sup>st</sup> December of each calendar year in respect of the conditions stipulated in the prior Environmental Clearance issued. Consent for Establishment shall be obtained from Tamil Nadu pollution Control Board and a copy of the same shall be furnished to the SEIAA, Tamil Nadu before start	We here by confirm that, we have submitted half yearly compliance with respect of the conditions stipulated in the Environmental Clearance in hard and soft copy to the SEIAA on - 27.05.2022 for the year 2021-2022. We obtained Consent to operate for Expansion vide consent order No. 1807112849466 dated 17.07.2018. We have submitted a copy of the
3	The implementation of Environmental management plan in regard to the treatment and disposal of sewage & Effluent, Solid waste management, Hazardous – Waste Management, and CSR activities should be carried out, as proposed and committed. Regular monitoring should be carried out during operation phases.	We confirm that the implementation of Environmental management plan regarding the treatment and disposal of sewage & Effluent, Solid waste management, Hazardous Waste Management are being done as committed. The CSR activities were carried out and completed as per the commitment of not less than 33.60 Lakhs per annum. Details are enclosed in <b>Annexure -10</b> .Planned CSR expenses for 2022- 23– Rs 160 Lacs Sewage effluent water is treated in Sewage Treatment Plant within our unit. We have Hazardous waste authorization valid till April 2024 and Hazardous waste is sent to authorized agency. <b>Annexure 7</b> - Copy of Hazardous Waste Authorization& compliance. Regular monitoring is carried out during operational phases ,ROA is enclosed in
4.	The residue collected from the evaporator shall be documented by maintaining proper register and it should be made available at the time of inspection.	We here-by confirm, that the residue collected from the evaporator is documented and monitored with register. <b>Annexure-13</b>
5.	Adequate dust extraction system such as ducting with dust extracting arrangement wherever required shall be established to achieve occupational – health standards and ambient air quality standards.	Adequate dust extraction system such as ducting with dust extracting arrangement is already available in TECHPENTAERYTHRITOL, Mono PENTAERYTHRITOL, DI PENTAERYTHRITOL & Sodium Formate driers. PULMONARY FUNCTION

6.	The proponent shall carryout best housekeeping	TEST is being carried out regularly for the employees and health standards are being monitored. The unit is having Continuous Ambient Air Quality monitoring station for monitoring the ambient air quality standards, the online VOC monitors are installed and the same are connected to CARE AIR center. Pulmonary function test copy is enclosed. <b>Annexure-4</b> We carry best housekeeping practice and follow
	practices as spillage management for handling and maintenance of raw materials and products inside the unit premises.	Spill control management procedure. Photo is enclosed
7.	Nature of chemicals Handled, the Do and Don'ts shall be displayed at all vital locations as laid down in MSDS.	Work instructions with details of Nature of chemicals Handled, the Do and Don'ts has been displayed as laid down in MSDS at all vital locations like Raw material unloading area. Photo attached as <i>Annexure-21</i> .
8.	The proponent shall ensure that the quantity of Hazardous Waste handed over to the TSDF shall match with the quantity generated.	All Hazardous Waste generated are disposed to the TSDF and records are available. Proof is attached. Quantity of Hazardous waste generated is matching with the quantity disposed. <b>Annexure-24</b>
9.	The proponent shall provide a separate closed area earmarked for storing solid waste including Hazardous Waste as proposed.	We state that, a dedicated closed shed has been established for storing solid waste and Hazardous Waste. Photo attached as <i>Annexure</i> <i>20.</i>
10	The proponent shall dispose Hazardous Waste generated as per the Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016. Spent oil from D.G sets should be stored in HDPE drums in an isolated covered facility and disposed off through TNPCB registered recyclers.	All Hazardous Wastes have been disposed as per the Hazardous and other Wastes (Management and transboundary Movements) Rules. 2016 to M/s TNWMA & M/s GGEPIL. Spent oil from DG sets is being stored in drums in an isolated covered facility and disposed through TNPCB authorized recyclers (Lakshmi Oils,Arakonam).
11	The Plastic wastes shall be segregated and disposed as per the provisions of Plastic Waste (Management & Handling) Rules 2016	We state that, generated plastic wastes are being segregated and will be disposed as per the provisions of Plastic Waste (management & handling) rules 2016 to M/s Jeeva Plastics, Chennai.
12.	The e - waste generated should be collected and disposed to a nearby authorized e-waste center as per e waste (Management & Handling), Rules 2016 as amended.	We state that, generated e. waste so far was collected and disposed to authorized e-waste center (M/s TES AMM Pvt Limited) as per e waste (Management & Handling), Rules 2016.
13.	The Municipal solid waste generated shall be collected, segregated and disposed as per Solid Waste Management Rules,2016.	Generated municipal solid waste is being collected, segregated as biodegradable and non biodegradable waste and disposed as per Solid Waste Management Rules,2016.

14.	The industry shall conduct air sampling at least once in six months for the general core parameters (PM10, PM2.5,SOx, NOX) through TNPCB/NABL Accredited Laboratory and maintain records of the same and it should be made available at the time of inspection.	We confirm that, we are conducting Air sampling survey (PM10, PM2.5, SOx, NOX) by TNPCB Lab /NABL accredited Laboratory once in six months. The results are with-in the TNPCB permissible limit. <i>Annexures 3.</i>
15.	Regular monitoring on the air quality, water quality and noise on the selected locations in and around the project site as mentioned in the EMP report for creating base line data shall be continued and records shall be maintained.	We confirm that, we are carrying out air quality, water quality and noise monitoring on the selected locations of the factory premises once in six months through TNPCB and once in a quarter through external Lab. <i>Annexures 2,3,8,9.</i>
16.	A separate environment and safety management cell with qualified staff shall be set up before establishment of the facility and shall be retained throughout the lifetime of the industry, for implementation of the stipulated environmental safeguards.	A separate environment and safety management cell with Qualified Safety Officer, chemists and Managers has been established for the implementation of the stipulated environment safeguards. This team is continuously available.
17.	The Green belt area already developed within the project area shall be properly maintained.	We here by confirm that we have developed and maintaining a Green belt area of 4.5 hectare (More than 33%) within the premises.
18.	The industry shall promote tree plantation to neutralize their carbon foot print. The industry shall engage regularly in afforestation programme.	We confirm that we are maintaining 14000 trees inside the factory premises. The industry is engaging regularly in afforestation programme within and beyond the fence as per the SIPCOT requirements. Greeneries Photo attached as <i>Annexure No.14</i> .
19.	The proponent shall ensure effective risk management strategy regarding confined space management to avoid risk while handling raw materials, products in the process area and storage.	All the hazards and risks related to confined space management, handling of raw materials & products are identified. Systems and procedures have been established and followed for mitigating identified risks. Established systems are periodically assessed by competent person regarding Confined space management. The copy of the Risk assessment is enclosed as <i>Annexure No. 31.( risk report from M/s Chola</i> <i>MS is enclosed)</i>
20.	The industry shall conduct air sampling at least twice in a week (104 times in a year), as stipulated under EP Act 1986.	We confirm that air sampling survey is being carried out twice in a week (104 times in a year), as stipulated under EP Act 1986. <i>Details are enclosed as</i> <b>Annexure-16</b>
21.	Risk cum disaster management plan should be in place in the industry premises at all time.	We confirm that the Risk cum disaster management plan is available in the industry premises at all time in the Emergency control center. Copy attached as <i>Annexure 22</i> .
22.	Water conservation scheme including rain water harvesting measures to augment ground water	We state that water conservation scheme including rain water harvesting including roof

	resources shall be implemented so as to collect and reuse the entire rainwater harvested as a supplement to fresh water.	water has been implemented in the factory premises. Photo attached as <b>Annexure 11.</b>
23.	The natural drainage pattern in the project area shall be maintained and storm water drain along the boundary and appropriate -places shall be provided considering - the Catchment area and maximum intensity of rainfall to collect runoff water/rain water for proper disposal to avoid flooding around the premises.	We confirm that adequate and suitable storm water drains were provided in the factory premises considering the Catchment area and maximum intensity of rainfall and the runoff water/rain water collected for proper disposal to avoid flooding around the premises. Photo is enclosed. <b>Annexure-12</b>
24.	The Environmental Clearance is issued without prejudice to any order that may be passed by the Hon'ble NGT/ Hon'ble High Court of Madras.	We state that we abide by the said conditions.
25.	All the assurances given in EIA and EMP shall be adhered to strictly.	We state that we have been abiding by the said conditions.
26.	Detail study shall be carried out by engaging accredited agencies / reputed institutions for Risk management and detailed Disaster management plan prepared for compliance.	We confirm that Risk and Disaster management study has been carried out by accredited agency and suitable plan has been prepared and complied (Ref: <b>Annexure No. 31)</b> . (Latest risk management report from Chola MS is enclosed)
27.	Sufficient funds should be provided for Disaster management.	We assure that the dedicated budget is provided for Disaster management plan for every year. Public Liability Insurance is obtained from Iffco Tokio Insurance company. PLI copy attached as <i>Annexure 23.</i>
28.	The Project Proponent shall provide disinfection by UV system for the sewage treatment plant for treating the sewage before applying on land for gardening.	We state that UV disinfection system has been provided for our existing sewage treatment plant. Photo attached as <b>Annexure 28</b> .
29.	The project proponent must provide closed loop silo for ash handling and the same shall be installed before 30.05.2018 as committed-and submit the proof to SEIAA-TN,	We confirm that Closed loop silo for ash handling has been installed and it is operational. Photo attached as <i>Annexure 29.</i>
30.	The project proponent shall provide sufficient ventilation (air circulation) in the hazardous waste storage yard where the hazardous waste like spent carbon, Chemical sludge, used or spent oil are being kept.	We confirm that sufficient ventilation (air circulation – 1 no. of vent) has been provided in the hazardous waste storage yard where the hazardous waste like spent carbon, Chemical sludge, used or spent oil are being kept. Photo attached as <b>Annexure 30</b> .
31.	The industry should completely revamp fly ash collection from the source, conveyance, storage and disposal in a more scientific manner and to reduce the fugitive emissions in fly ash handling. The final disposal of the fly ash will be as per MoEF & CC Notification S.O. 254 (E)	The system has been revamped. We state that the generated fly ash is collected in a closed system (SILO) instead of manual collection. The fly ash is disposed as per MoEF & CC Notification S.O. 254 (E) dated: 25th January,2016.

	dated: 25th January,2016.	
32.	The Project Proponent shall carry out-safety audit in the	We confirm that the safety audit is being
	different operating zones of the plant at least once in a	conducted once in a year by competent
	year and the same shall be considered as base for	person.(Latest safety audit report is
	meeting	available)Alliexule-S1
33.	The Project Proponent shall prepare a code of practice	We confirm that we are having safety
	for safe operation for educating the safety standards to	manual/SOP for every process and training being
	the work force deployed in the plant through	imparted to all the employees for safe handling
	appropriate training by the concerned experts.	of chemicals as well as for safe operations.
		Sample of SOP is attached as Annexure 26.
34.	As the plant operation involves the sensitive processing,	We state that our factory medical officer Dr.
	the medical officer and the supporting staff involved in	Rudhan porunmozhy and the supporting staff (3
	the health centre activities shall be trained in	Nos.) is being involved in the occupational
	occupational contraining from the expects available in the	nealth center activities and has been trained in
	field of OHS for ensuring the health standard of persons	as per Tamil Nadu Eactories Rules 1950 Doctor
	employed	certificate is attached as <b>Annexure –27</b>
35.	The Activity of the industry should no way pollute water	We confirm that in no way the activity of the
	bodies such as Uppanar River, Perumal Lake & Bay of	industry pollute the nearby water bodies. All
	Bengal.	treated water is being reused.
36.	The Activity of the industry should not impact on	We confirm that we have provided and
	agricultural, irrigation system and mangroves	maintaining the air and water pollution
	surrounding the area.	control/prevention equipment's as per the
		condition of the INPCB consent order. Our
		agricultural irrigation system and mangroves
		surrounding the area.
37.	The EMP cost of Rs.576 lakhs and operation and	We confirm that we maintain a separate bank
	maintenance cost Rs. 23.6 lakhs shall be deposited in a	account (A/c no.: 37888950027, State Bank of
	nationalized bank by opening a separate account and	India, O.T, Cuddalore) for expenses related to
	the head wise expenses statement shall be submitted to	implementation of Environment Management
	TNPCB with a copy to SEIAA annually.	Plan. Our corporate office has approved
		dedicated budget for improvement of the
		existing Environment management programme.
		activities along with the expense details are
		submitted to TNPCB with a copy to SEIAA.
38.	There should be no threat to Bio diversity due to the	1. Bio diversity details include sparrows of
	operation of the industry.	different varieties, other birds are
		having habitat in the green belt
		maintained. Different tree varieties are
		planted (Calophylluminophyllum-
		Pungan 2 Suzugiumeumini Naval
		2. Syzygiunicullilli- NdVdi 3. Thespesianonulnes- Poovarasu
	1	J. IIIespesiapopulled-Poovalasu

		<ol> <li>Terminalia arjuna- Neermarudu</li> <li>Ficusbengalensis — Alamaram</li> <li>Ficusretusa- Atthi</li> <li>Ficusbengalensis- Arasamaram</li> <li>Alstoniascholaris- Palai</li> <li>Mimusopselengi - Mahilam</li> <li>Madhucalongifolia - Ihupai</li> </ol>
39.	The Flora & Fauna present in and around the project site should not get affected due to the activity as reported.	Butterfly garden is maintained. We confirm that the Flora & Fauna present in and around the factory premises are in good condition. They will not get affected due to our manufacturing operation. Sparrows (different kinds), Wood pecker, Parrot, Myna, king fisher and other native birds are available.
40.	The Project Proponent has to provide rain water harvesting collection tank to the capacity of 200 cu.m in order to recover and reuse the rain water during normal rains.	We state that we had provided rain water harvesting tank of 200 cu.m capacity.
41.	The operation of the activity should not Impact on the soil, micro flora & Fauna present in and around the project site.	We state that the operation of the activity has no Impact on the soil, micro flora & Fauna present in and around the Factory premises.
42.	The project proponent shall carry out' risk assessment process for all the operations involved in the plant and a suitable, risk; management plan showing the contours of sensitive zones should be prepared.	We confirm that we had carried out a detailed Quantitative Risk assessment showing the contours of sensitive zones by competent person for all the operations involved in the plant. The recommended points have been implemented.
43.	The industry shall develop green belt in the open areas by planting the following speciesin future: 11. Calophylluminophyllum-Pungan 12. Syzygiumcumini- Naval 13. Thespesiapopulnea- Poovarasu 14. Terminalia arjuna- Neermarudu 15. Ficusbengalensis — Alamaram 16. Ficusretusa- Atthi 17. Ficusbengalensis- Arasamaram 18. Alstoniascholaris- Palai 19. Mimusopselengi - Mahilam 20. Madhucalongifolia - Ihupai	We state that we had planted 14000 trees in 4.5 Hectares of the factory premises.
44.	The project proponent shall take up better housekeeping measures including scraps disposal and up keeping the machineries, pipes etc.	Asian Paints is adhering to good Housekeeping practices and as per scrap disposal is done accordingly done.
45.	The proponent should continuously monitor the VOC and ensure that VOC levels are within permissible limits.	We confirm that we had already installed online VOC monitoring system in our plant and the same is connected to CARE AIR CENTRE, TNPCB, GUINDY. We maintain VOC levels within the permissible limit.

46.	Air pollution control — there are four sources of air	We ensure that the air pollution control
	<ul> <li>emissions within the industry process-Tech PE drier,</li> <li>Sodium formate drier, Mono drier and Di PE drier.</li> <li>1. From the Tech PE drier, particulates of Pentaerythritol will be emanating which will be controlled in a bag filter and finally emitted to the environment through a stack. There will be increase in the pollutant load from 1.33 kgs/ day to 1.72 kgs/day and hence additional bag filter capacity should be created.</li> <li>2. From the Sodium formate drier, suspended particulate matter will be emitted which is sent to wet scrubber and then to the stack. The existing scrubber should be replaced with a new one.</li> <li>3. From both Mono PE drier and Di PE drier, SPM will be emitted which is sent to wet scrubber and then to stacks. There is an increase in the amount of pollutant, but the proponent should increase the efficiency of the scrubber to absorb the additional pollutant load.</li> </ul>	<ul> <li>system has been established in the following locations.</li> <li>1. The existing TECH PE Drier bag filter capacity has been increased from 74.30 m2 to 75.46 m2 thereby capable to handle pollution load to 1.72 Kgs / day</li> <li>2. The low capacity wet scrubber has been replaced with higher capacity wet Scrubber there by improving the scrubbing efficiency as recommended.</li> <li>3. The existing wet scrubber scrubbing liquid flow rate has been increased as mentioned below by which the scrubbing efficiency has got increased by which the emission levels got reduced.</li> <li>1. Mono PE Scrubber – 6 litres per minute (lpm) to 6.5 lpm</li> <li>2. Di PE Scrubber – 7.5 lpm to 8 lpm.</li> </ul>
47.	<ul> <li>The project proponent has to provide/ install the following -before 30.04.2018 as committed and furnish proof of the same to SETAA-TN :</li> <li>1. The Sewage sludge bed capacity should be increased from 5.27 m3 to 10.5 m3 .</li> <li>2. The sludge drying bed 2. Nos should be provided in additional to the existing Sludge drying bed for managing sludge .</li> <li>3. The agreement with hazardous waste management and disposal facilities shall be made including the quantum of hazardous waste and the life period.</li> </ul>	<ul> <li>We confirm that we have installed the below mentioned activities before 30.04.2018:</li> <li>1. We state that the sludge drying capacity by maintenance and repair. bed capacity has been increased from 5.27 m<sup>3</sup> to 10.5 m<sup>3</sup> as recommended.</li> <li>2. We state that the existing 2 nos. of open type sludge bed has been provided as closed type solar drying bed by covering with UV stabilized sheet there by the drying capacity/efficiency has got increased, which meets the said requirement. Photos enclosed as <i>Annexure-29.</i></li> <li>3. The agreement has been amended for the quantum of Hazardous waste with life period – copy enclosed as <i>Annexure 32&amp;33</i></li> </ul>

#### **General Conditions**

1	This Environment clearance shall not be cited to relax any other rules applicable to this project	Agreed upon.
2.	The project proponent should advertise at least in two local newspapers widely circulated. One of which shall be in the vernacular language of the locality concerned within 7 days of the issue of the Environmental clearance informing that the project has been accorded Environmental clearance and a copy of the clearance letter is available with TNPCB and also at the website of the SEIAA. TN at Http://www.seiaa.tn.gov.in	Information on accordance of the Environment clearance to the project has been published in two local newspapers. Copies are enclosed.
3	A copy of the Environmental clearance shall be sent by the project proponent to concern local body and local NGO, if any from whom suggestions/ representatives if any were received while processing the proposal.	A copy of the Environment clearance has been submitted to local body and local NGO(a copy of the same is enclosed).
4	The Environmental clearance shall also be put on the website of the company	The Environment clearance has been published in Company web site.
5	No expansion or modernization in the project shall be carried out without prior approval of the SEIAA – TN. In case of any deviations or alterations in the project proposal from those submitted to this authority for clearance, a fresh reference shall be made to the SEIAA – TN to assess the adequacy of conditions imposed and to add additional environmental protection measures required if any	Agreed upon and followed
6	All the environmental protection measures and safeguards as recommended in the EIA report shall be complied with	All Environmental protection measures and safe guards are complied with.
7	The implementation of the project vis a vis environmental action plans shall be monitored by the Regional office of MoEf & CC at Chennai TNPCB and CPCB six monthly compliance status report shall be submitted to monitoring agencies regularly	Half yearly compliance report is being submitted once in 6 months as per the time lines.
8	Data on ambient air, stack and fugitive emissions shall be regularly submitted online to the Regional office of MoEF & CC, GOI at Chennai TNPCB and central Pollution control board as well as hard copy once in six months and display data on RSPM, SO2 and Nox outside the premises at the appropriate place for the general Public	The datum on ambient air, stack and fugitive emissions are being submitted as per the time lines. Data on RSPM, SO2 and Nox are displayed near the factory gate for the general Public

9	Occupational health surveillance of the workers shall be done on a regular basis and record maintained as per the factories act	Occupational health surveillance of the workers is being carried out on regular basis and records are maintained as per the factories act.
10	Proper housekeeping and cleanliness must be maintained within and outside plant	Housekeeping is being done inside and outside the plant.
11	Occupational health surveillance programme shall be undertaken as regular excise for all the employees, especially for those engaged in handling hazardous substances. The first aid facilities in the occupational health center shall be strengthened and the medical records of each employee should be maintained separately.	Occupational health surveillance programme is being undertaken for all employees specifically for those engaged in handling hazardous substances. The occupational health center is equipped with full-fledged first aid facilities and the medical records of the employees are being maintained.
12	The overall noise levels in and around the plant area shall be kept well within the standards prescribed for by providing noise control measures including acoustic hoods, silencers, enclosures etc., on all the sources of noise generation. The ambient noise levels should conform to the standard prescribed under EPA rules, 1989 viz 75 dBA (Day time) and 70 dBA (Night time)	The Overall noise levels in and around the plant area are maintained well within the standards by providing required noise control measures such as acoustic enclosures, silencers on all sources of noise generation. Annexure 8.
13	The actual CSR funds utilized in future should at least be 2% of the annual profit but not less than Rs.33.60 Lakh per annum	The CSR activities were carried out and completed as per the commitment of not less than 33.60 Lakhs per annum . Details are enclosed. CSR expenses plan for 2022-23 – Rs 160 Lacs
14	A separate environmental Management cell equipped with full-fledged laboratory facilities to carry out the various environmental management and monitoring functions shall be set up under the control of a senior executive.	A separate environmental Management cell equipped with full-fledged laboratory facilities to carry out the various environmental management and monitoring functions is available.
15	The requisite amount earmarked towards capital cost and recurring cost / annum for implementing pollution control measures shall be used judiciously to implement the environment management plan as furnished in the EIA report. The funds so provided shall not be diverted for any other purpose.	Agreed upon & followed.
16	The project proponent shall upload the status of compliance of the stipulated environmental clearance conditions, including results of monitored data on their website and shall update the same periodically. It shall simultaneously be sent to the regional office of the MoEF, CC, GOI at Chennai the respective zonal office of CPCB and the SPCB. The criteria pollutant levels namely RSPM,So2 , Nox ( Ambient levels as well as stack	The status of compliance of the stipulated environmental clearance conditions, including the results of the monitored data are uploaded in the website and simultaneously sent to the regional office of MoEF & CC, respective zonal office. The pollutant levels namely RSPM,SOX,NOX (Ambient levels as well as stack emissions) are monitored and displayed near the

	emissions) or critical sector parameters, indicated for the projects shall be monitored and displayed at a convenient locations near the main gate of the company in the public domain.	main gate of the company in the public domain.
17	The environmental statement for each financial year ending 31 <sup>st</sup> march in form V as is mandated to be submitted by the project proponent to the concerned state pollution control Board as prescribed under the Environment (protection) Rules 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of environmental conditions and shall also be sent to the respective regional offices of the MoEF by e mail.	The environment statement for each financial year ending 31 <sup>st</sup> March in Form V is being submitted to the concerned state pollution control Board as prescribed under the Environment (Protection) Rules 1986, as amended subsequently and also published in the company website along with the compliance of environmental conditions and the same is being sent to the respective regional offices of the MoEF & CC.The CTO for Penta &CPP compliance reports are in <b>Anneure-15</b>
18	The environmental Clearance is valid for 7 years from the date of issue	Agreed upon.
19	Environmental clearance is being issued without prejudice to the action initiated under Environment (Protection) Act 1986 or any court case pending or any other court order shall prevail	Agreed upon.
20	The SEIAA TN may alter/modify the above conditions or stipulate any further condition in the interest of Environment protection	Agreed upon.
21	The SEIAA/SEAC or any competent authority may suitably add any further conditions on receiving reports from the project authority. The above condition shall be monitored by the Regional office of MoEF located at Chennai.	Agreed upon.
22	The SEIAA TN may revoke or suspend the Environmental clearance, if implementation of any other above conditions is not satisfactory	Agreed upon.
23	The SEIAA, TN may cancel the environmental clearance granted to this project under the provisions of EIA notification, 2006, if, at any stage of the validity of this Environmental Clearance, if it is found or if it comes to the knowledge of this SEIAAA, TN that the project proponent has deliberately concealed and or submitted false or misleading information or inadequate data or submitted misleading information or inadequate data for obtaining the Environmental clearance.	Agreed upon.
24.	Failure to comply with any of the conditions mentioned above may result in withdrawal of this clearance and attract action under the provisions of the Environment	Agreed upon.

	(Protection act 1986.	
25	This SEIAA – TN reserves the right to stipulate additional conditions if found necessary. The industry in a time bound manner shall implement these conditions	Agreed upon.
26	The above conditions will be enforced inter alia , under the provisions of the water (Prevention & Control of pollution) Act 1974, the air (Prevention and control of pollution) Act 1981, The Environment protection act 1986, the public Liability insurance Act 1991, along with their amendments draft minor mineral conservation & development rules – 2010 framed under MMDR Act 1957, national commission for protection of Child Right Rules 2006 and rules made there under and also any other orders passed by the hon'ble supreme court of India Hon'ble High Court of Madras and any other courts of law relating to the subject matter.	Agreed upon.
27	Any appeal against this environmental clearance shall lie with the Hon'ble national green tribunal, if preferred, with in a period of 30 days as prescribed under section 16 of the National Green Tribunal Act 2010.	Agreed upon.

# **Online stack analyzers connected to care air centre**



Online Boiler stack SPM analyzer.







Online Boiler flue gas SOx / NOx analyzer.



# **TEST REPORT**



ULR - TC611822000013358F	
Report No : QEN-22070314-02	2

Page 1 of 1 Report Date: 25 Jul 2022

Customer Name	:	M/s. Asian Paints Limited. (Penta Division)			
Customer Address	:	35 - B10, SIPCOT Industrial Complex, Kudikadu, Cuddalore - 607005.			
Sample Description Reference Sample Drawn By Sample Location Sample Procedure	::	Stack Emission Test Request Form Dated 20.07.2022 Laboratory 16 TPH Boiler IS 11255 & SMSL 4/EN/SOP/046	Sampling Date Sample Received on Test Started on Test Completed on	: 20 Jul 2022 : 22 Jul 2022 : 22 Jul 2022 : 25 Jul 2022 : 25 Jul 2022	
Diameter of Stack (m)	:	1.0 m	Ambient Temperature	:34°C	

#### TEST RESULTS

S.NO	Parameter	Test Method	Unit	Results	Limit of non CBCB
Chem	ical				
1	Carbon Dioxide as CO2	SMSLA/EN/SOP/046	%	7.8	
2	Carbon Monoxide as CO	SMSLA/EN/SOP/046	mg/Nm3	654	
3	Nitrogen Oxides as Nox	SMSLA/EN/SOP/046	mg/Nm3	221	
4	Oxygen as O2	SMSLA/EN/SOP/046	%	12.2	
5	Particulate Matter	IS 11255 (Part 01)	mg/Nm3	34.5	*
6	Stack temperature	IS 11255 (Part 03)	K	426	
7	Sulphur Dioxide as SO2	IS 11255 (Part 02)	mg/Nm3	64	
8	Velocity	EPA 1-3	m/s	12.3	
9	Volume of Gas Discharged	IS 11255 (Part 03)	Nm3/Hr	24284	

\*Note:Less than 2 (Ton/Hour):1200 mg/Nm3

2 to Less than 10 (Ton/Hour) : 800 mg/Nm3

10 to Less than 15 (Ton/Hour) :600 mg/Nm3

15 and Above (Ton/Hour) :150 mg/Nm3

**Conclusion:** The above tested sample conforms the CPCB standards for the above tested parameters.

/\*\*\*\*\*\*\*\*\*\*\*\*\* End of the Report \*\*\*\*\*\*\*\*\*\*/

K.PM R. PRABHU Senior Chemist

Laboratory Address : 39/6, Thiruvallur High Road, Puduchatram Post, Thirumazhisai Via, Poonamallee Taluk, Chennai - 600124. Certified By : ISO 9001 & ISO 45001.

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# **TEST REPORT**



ULR - TC611822000010740F Report No : QEN-22060028-01

Page 1 of 1 Report Date: 08 Jun 2022

Customer Name Customer Address	:	M/s. Asian Paints Limited. (Penta Division) B5 - B10, SIPCOT Industriał Complex, Kudikadu, Cuddalore - 607005.		
Sample Name	0 h	Air	Sampling Date & Tin	e : 30 to 31 May 2022 09.45 am to 09.45 am
Sample Description	•	Ambient Air Quality	Sample Received on	: 04 Jun 2022
Reference	;	Test Request Form Dated 31.05.2022	Test Started on	: 04 Jun 2022
Sample Drawn By	;	Laboratory	Test Completed on	: 08 Jun 2022
Sample Location	:	Near Weigh Bridge (Down Wind)	-	
Sample Procedure	:	IS 5182		
Relative Humidity	-	63%	Ambient Temperature	:33°C

**TEST RESULTS** 

S.NO	Parameter	Test Method	Results	Unit	Limit as per NAAQS Specification		
Chem	Chemical						
I	Ammonia as NH3	IS 5182 (Part 25)	BLQ(LOQ:20.0)	μg/m³	400 Max		
2	Carbon Monoxide as CO (8 hrs)	IS 5182 (Part 10)	BLQ(LOQ:1.14)	mg/m <sup>3</sup>	02 Max		
3	Nitrogen dioxide as NO2	IS 5182 (Part 06)	24.8	μg/m³	80 Max		
4	Ozone as O3	IS 5182 (Part 09)	BLQ(LOQ:20.0)	μg/m³	100 Max		
5	Particulate Matter (PM10)	IS 5182 (Part 23)	67.2	μg/m³	100 Max		
6	Particulate Matter (PM2.5)	1S 5182 (Part 24)	30.6	μg/m³	60 Max		
7	Sulphur Dioxide as SO2	IS 5182 (Part 02)	10.4	μg/m³	80 Max		
Polycy	yclic Aromatic Hydrocarbons						
8	Benzo(a)Pyrene (Particulate Phase)	SMSLA/GS/SOP/06	BLQ (LOQ:0.05)	ng/m³	01 Max		
Trace	Trace Metal Elements						
9	Arsenic	Compendium Method IO-3.4	BLQ(LOQ:0.1)	ng/m³	06 Max		
10	Lead	Compendium Method IO-3.4	BLQ(LOQ:0.001)	μg/m³	1.0 Max		
11	Nickel	Compendium Method IO-3.4	BLQ(LOQ:0.1)	ng/m³	20 Max		
Volati	Volatile Organic Compounds						
12	Benzene	SMSLA/GM/SOP/07	BLQ(LOQ:1.0)	μg/m³	05 Max		

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

Conclusion : The above tested sample conforms the NAAQ standards for the above tested parameters.

/\*\*\*\*\*\*\*\*\*\*\*\* End of the Report \*\*\*\*\*\*\*\*\*\*\*/

R.PM R. PRABHU Senior Chemist

Laboratory Address : 39/6, Thiruvallur High Road, Puduchatram Post, Thirumazhisai Via, Poonamallee Taluk, Chennai - 600124. Certified By : ISO 9001 & ISO 45001.

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# **TEST REPORT**



ULR - TC611822000010741F Report No: QEN-22060028-02

Page 1 of 1 Report Date: 08 Jun 2022

Customer Name Customer Address	4 9 8	M/s. Asian Paints Limited. (Penta Division) B5 - B10, SIPCOT Industrial Complex, Kudikadu, Cuddalore - 607005.		
Sample Name	i	Air	Sampling Date & Time	: 30 to 31 May 2022 10.10 am to 10.10 am
Sample Description	•	Ambient Air Quality	Sample Received on	: 04 Jun 2022
Reference	*	Test Request Form Dated 31.05.2022	Test Started on	: 04 Jun 2022
Sample Drawn By		Laboratory	Test Completed on	: 08 Jun 2022
Sample Location	4 8	Near Coal Yard (Up wind)		
Sample Procedure	:	IS 5182		
Relative Humidity		63%	Ambient Temperature	:33°C

**TEST RESULTS** 

S.NO	Parameter	Test Method	Results	Unit	Limit as per NAAQS Specification		
Chem	Chemical						
1	Ammonia as NH3	IS 5182 (Part 25)	BLQ(LOQ:20.0)	μg/m³	400 Max		
2	Carbon Monoxide as CO (8 hrs)	IS 5182 (Part 10)	BLQ(LOQ:1.14)	mg/m <sup>3</sup>	02 Max		
3	Nitrogen dioxide as NO2	IS 5182 (Part 06)	20.9	µg/m³	80 Max		
4	Ozone as O3	IS 5182 (Part 09)	BLQ(LOQ:20.0)	μg/m³	100 Max		
5	Particulate Matter (PM10)	IS 5182 (Part 23)	60.2	µg/m³	100 Max		
6	Particulate Matter (PM2.5)	IS 5182 (Part 24)	27.4	μg/m³	60 Max		
7	Sulphur Dioxide as SO2	IS 5182 (Part 02)	9.8	μg/m³	80 Max		
Polycy	velic Aromatic Hydrocarbons						
8	Benzo(a)Pyrene (Particulate Phase)	SMSLA/GS/SOP/06	BLQ (LOQ:0.05)	ng/m³	01 Max		
Trace	Trace Metal Elements						
9	Arsenic	Compendium Method 10-3.4	BLQ(LOQ:0.1)	ng/m³	06 Max		
10	Lead	Compendium Method IO-3.4	BLQ(LOQ:0.001)	μg/m³	1.0 Max		
-11	Nickel	Compendium Method 1O-3.4	BLQ(LOQ:0.1)	ng/m³	20 Max		
Volati	Volatile Organic Compounds						
12	Benzene	SMSLA/GM/SOP/07	BLQ(LOQ:1.0)	µg/m³	05 Max		

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

Conclusion : The above tested sample conforms the NAAQ standards for the above tested parameters.

/\*\*\*\*\*\*\*\*\*\*\*\* End of the Report \*\*\*\*\*\*\*\*\*\*\*/

R. PRABHU Senior Chemist

Laboratory Address : 39/6, Thiruvallur High Road, Puduchatram Post, Thirumazhisai Via, Poonamallee Taluk, Chennai - 600124. Certified By : ISO 9001 & ISO 45001.

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# **TEST REPORT**



#### ULR - TC611822000010742F Report No : QEN-22060028-03

Page 1 of 1 Report Date: 08 Jun 2022

Customer Name Customer Address	:	M/s. Asian Paints Limited. (Penta Division) B5 - B10, SIPCOT Industrial Complex, Kudikadu, Cuddalore - 607005.		
Sample Name	:	Air	Sampling Date	: 30 May 2022
Sample Description	:	Voc In Ambient Air	Sample Received on	: 04 Jun 2022
Reference	:	Test Request Form Dated 31.05.2022	Test Started on	: 04 Jun 2022
Sample Drawn By	:	Laboratory	Test Completed on	: 08 Jun 2022
Sample Location	:	Near Coal Yard (Down Wind)		

**TEST RESULTS** 

S.NO	Parameter	Test Method	Unit	Results
Chem	ical			
1	Formaldehyde	SMSLA/GM/SOP/11	μg/m³	BLQ(LOQ:0.003)
Other	s - Hydrocarbons			
2	Total Hydrocarbons	SMSLA/GM/SOP/08	μg/m³	BLQ (LOQ:0.0001)
Residu	ual Solvents	· · · · · · · · · · · · · · · · · · ·		
3	Acetaldehyde	SMSLA/GM/SOP/11	µg/m³	BLQ(LOQ:0.001)
4	Methanol	SMSLA/GM/SOP/11	μg/m³	BLQ(LOQ:0.001)

Note : BLQ: Below Limit of Quantification LOQ: Limit of Quantification.

/\*\*\*\*\*\*\*\*\*\*\*\* End of the Report \*\*\*\*\*\*\*\*\*\*/

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**K.PRAKASH** Senior Chemist

Laboratory Address : 39/6, Thiruvallur High Road, Puduchatram Post, Thirumazhisai Via, Poonamallee Taluk, Chennai - 600124. Certified By : ISO 9001 & ISO 45001.

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# **TEST REPORT**



ULR - TC611822000010743F Report No: QEN-22060028-04

Page 1 of 1 Report Date : 08 Jun 2022

Customer Name Customer Address	:	M/s. Asian Paints Limited. (Penta Division) B5 - B10, SIPCOT Industrial Complex, Kudik	adu, Cuddalore - 607005.	
Sample Name Sample Description Reference Sample Drawn By Sample Location	:::::::::::::::::::::::::::::::::::::::	Air Voc In Ambient Air Test Request Form Dated 31.05.2022 Laboratory Near Weigh Bridge (Up Wind)	Sampling Date Sample Received on Test Started on Test Completed on	: 30 May 2022 : 04 Jun 2022 : 04 Jun 2022 : 08 Jun 2022

**TEST RESULTS** 

S.NO	Parameter	Test Method	Unit	Results
Chemi	cal			
1	1 Formaldehyde SMSLA/GM/SOP/11 un/m <sup>3</sup>			
Others	- Hydrocarbons			BEQ(EOQ.003)
2	Total Hydrocarbons SMSLA/GM/SOP/08		ug/m <sup>3</sup>	PLO (100-0 0001)
Residu	al Solvents		<u> </u>	DLQ (LOQ.0.0001)
3	Acetaldehyde	SMSLA/GM/SOP/11	ug/m <sup>3</sup>	PLO(LOO & AND
4	Methanol	SMSL A/GM/SOB(11	<u>µg/ш</u>	BLQ(LUQ:0.001)
		J SWIDLAVOW/SUP/11	⊥µg/m³	BLQ(LOQ:0.001)

Note : BLQ: Below Limit of Quantification LOQ: Limit of Quantification.

/\*\*\*\*\*\*\*\*\*\*\*\*\* End of the Report \*\*\*\*\*\*\*\*\*\*/

Senior Chemist

Laboratory Address : 39/6, Thiruvallur High Road, Puduchatram Post, Thirumazhisai Via, Poonamallee Taluk, Chennai - 600124. Certified By : ISO 9001 & ISO 45001.

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# **Online VOC meter installed in Penta plant**





# Storage tank vent line connected to the Formaldehyde plant blower



# Storage tank vent line connected to the Formaldehyde plant blower



Month wise SIPCOT Water consumption Apr-2022 to September-2022				
Month	As Per SIPCOT Bill	No. Of Days	Average Water consumption	
	KL	No.	KL Per Day	
Apr-22	18138	30	605	
May-22	18957	31	612	
Jun-22	20226	30	674	
Jul-22	20103	31	648	
Aug-22	20152	31	650	
Sep-22	20197	30	673	
Average W	644			

#### HAZARDOUS WASTE AUTHORIZATION CONSENT CONDITIONS COMPLIANCE REPORT FOR

#### **ASIAN PAINTS, PENTA DIVISION**

Т

#### Reference: Authorization No.19 HFC 22083375 dt.19.07.2019 Proceedings No. T 2/TNPCB/F.0020CUD/HWA/RL/CUD/2019 dated. 19.07.2019 <u>GENERAL CONDITIONS</u>

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S.No.	Consent Conditions	Compliance Status.
01	The authorised person shall comply with the provisions of the Environment (Protection) Act, 1986 and the rules made there under.	We state that all the provisions of the Environment (Protection) Act, 1986 and the rules made there under are complied with
02	The authorization or its renewal shall be produced for inspection at the request of an officer authorized by Tamil Nadu Pollution Control Board.	The authorization or its renewal will be produced for inspection at the request of an officer authorized by Tamil Nadu Pollution Control Board.
03	The person authorized shall not rent, lend, sell, transfer or otherwise transport the hazardous and other wastes except what is permitted through this Authorisation.	Agreed upon.
04	Any unauthorized change in personnel, equipment or working conditions as mentioned in the application by the person authorized shall constitute a breach of his authorization.	Agreed upon
05	The person authorised shall implement Emergency Response procedure (ERP) for which this authorisation is being granted considering all site specific possible scenarios such as spillages, leakages, fire ,etc and their possible impacts and also carry out mock drill in this regard at regular interval of time.	We state that we had implemented Emergency Response procedure (ERP) for which this authorisation is being granted considering all site specific possible scenarios such as spillages, leakages, fire ,etc and their possible impacts and we are carrying out mock drill in this regard at regular interval of time.
06	The person authorised shall comply with the provisions outlined in the CPCB guidelines on "Implementing Liabilities for Environmental damages due to Handling and Disposal of Hazardous Wastes and Penalty".	We ensure that all the provisions outlined in the CPCB guidelines on "Implementing Liabilities for Environmental damages due to Handling and Disposal of Hazardous Wastes and Penalty" are being complied with.
07	It is the duty of the authorized person to take prior permission of Tamil Nadu Pollution Control Board to close down the facility.	Agreed upon.
08	The imported Hazardous and other wastes shall be fully insured for transit as well as the accidental occurrences and its clean-up operation.	The unit is not importing any hazardous wastes.
09	The record of consumption and fate of the imported hazardous and other wastes shall be maintained.	The unit is not importing any hazardous wastes.
10	The Hazardous and other wastes which gets	The unit is not importing any hazardous wastes.

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	generated during recycling or reuse or recovery or pre-processing or utilisation of imported hazardous or other wastes shall be treated and disposed of as per specific conditions of Authorisation.	
11	The importer or Exporter shall bear the cost of	The unit is not importing or exporting any
	Import or export or mitigation of damages if any.	Hazardous waste.
12	An application for the renewal of an authorization	Agreed upon.
	shall be made as laid down under these Rules.	
13	Any other conditions for compliance as per the	We state that we will comply with all guidelines
	Guidelines issued by the MoEF and CC or CPCB from	issued by the MoEF&CC or CPCB from time to
	time to time.	time.
14.	Annual returns shall be filed by June 30th for the	The annual returns are filed before 30th June of
	period ending 31st March of the previous financial	every year for the period ending with 31st
	year.	March of previous Financial year.

### **B.Specific Conditions-HW Generator:**

1	The Occupier /generator shall be responsible for safe and environmentally sound management of hazardous and other wastes.	Agreed upon
2	The Occupier shall follow the following steps for the management of hazardous and other wastes(a)prevention (b) minimization (c) reuse (d) recycling € recovery, utilisation including co-processing and (f) safe disposal.	Agreed upon
3	The occupier shall take all the steps while managing hazardous and other wastes (a) To contain contaminants and prevent accidents and limit their consequences on human being and the environment, and (b) To provide persons working in the site with appropriate training, equipment and information necessary to ensure their safety.	We state that we had taken all the steps while managing hazardous and other wastes (a) To contain contaminants and prevent accidents and limit their consequences on human being and the environment, and (b) To provide persons working in the site with appropriate training, equipment and information necessary to ensure their safety
4	The occupier shall store the hazardous and other wastes for the period not exceeding ninety days and shall maintain a record of sale, transfer, storage, recycling, recovery, pre-processing, co-processing and utilisation of such wastes and make these records available for inspection.	We state that we had stored the hazardous and other wastes for the period not exceeding ninety days and we maintain a record of sale, transfer, storage, recycling, recovery, pre- processing, co-processing and utilisation of such wastes and make these records available for inspection.
5	The Hazardous and other wastes shall be stored temporally in an isolated area earmarked for the purpose within the occupier's premises (it shall not be accessible to rain water) till scientific disposal. The storage area shall be fenced properly and a sign of danger shall be placed at the storage site.	Agreed upon
6	The container holding the hazardous and other wastes shall be kept in good conditions and made of	Agreed upon

	materials which can withstand the physical and environmental conditions during storage and transportation. Only properly cleaned containers shall be used for storage of bazardous and other	
	wastes.	
7	The occupier handling hazardous or other wastes shall maintain records of such operations of generation handling storage and disposal as per Form-3.	Agreed upon
8	The hazardous and other wastes generated in the establishment of the occupier shall be sent or sold to an authorised actual user of shall be disposed of in an authorised disposal facility.	We state that the hazardous and other wastes generated in the establishment of the occupier is being sent/sold to an authorised actual user and disposed of in an authorised disposal facility.
9	The occupier handling hazardous or other wastes shall ensure that the hazardous and other wastes are packaged in a manner suitable for safe handling storage and transport as per the guidelines issued by the central Pollution Control Board from time to time.	We state that when handling hazardous or other wastes we ensure that the hazardous and other wastes are packaged in a manner suitable for safe handling storage and transport as per the guidelines issued by the central Pollution Control Board from time to time.
10	The labelling of package of hazardous or other wastes shall be done as per Form8. The label shall be of non-washable material, Weather proof and easily visible.	Agreed upon
11	The hazardous and other wastes shall be transported from the occupier's establishment to an authorised actual user or to an authorised disposal facility in accordance with the provisions of these rules	Agreed upon
12	The transport of the hazardous and other wastes shall be in accordance with the provisions of these rules and the rules made by the Central Government under the Motor Vehicles Act, 1988 and the guidelines issued by the central Pollution Central Board from time to time in this regard.	Agreed upon
13	The occupier shall provide the transporter with the relevant information in Form-9, regarding the hazardous nature of the wastes and measures to be taken in case of an emergency and shall label the hazardous and other wastes containers as per Form8.	We state that we had provided the transporter with the relevant information in Form-9, regarding the hazardous nature of the wastes and measures to be taken in case of an emergency and we label the hazardous and other wastes containers as per Form8.
14	The authorisation for transport shall be obtained either by the sender or the receiver on whose behalf the transport is being arranged.	Agreed upon
15	The transporter /sender of the hazardous and other wastes shall prepare and maintain manifest in Form 10.	Agreed upon
16	The occupier or the operator or the transporter shall immediately intimate TNPCB through telephone, e-mail about the accident and subsequently send a report in Form 11, where an	We state that we will immediately intimate the TNPCB through telephone, in case of any accident while handling hazardous or other wastes.

	accident occurs at the facility of the occupier	
	handling hazardous or other wastes and operator of	
	the disposal facility on during transportation	
	The occupier who intends to get its hazardous and	
	other wastes treated and disposed of by the	We state that all necessary specific
17	operator of a treatment storage and disposal facility	information's which is needed for safe storage
1/	shall give to the operator of that facility such	and disposal of the hazardous and other wastes
	specific information as may be needed for safe	has been given to the operator of the facility.
	storage and disposal.	
	The occupier shall be liable for all damages caused	
18	to the environment due to improper handling and	Agreed upon
	management of the hazardous and other wastes.	
	The occupier handling hazardous and other wastes	We state that we had submitted the annual
	shall submit annual returns containing the details	returns containing the details specified in Form
19	specified in Form 4 to TNPCB on or before the 30 <sup>th</sup>	A to TNPCB on or before the 30 <sup>th</sup> day of every
	day of every year for the proceeding period April to	year for the proceeding period April to March
	March	
	Any increase in quantity of handling of hazardous	
	and other wastes , any change in category of	
20	hazardous and other wastes and any change in	Agreed upon
20	method of handling operations shall be brought to	
	the notice of the TNPCB and fresh authorisation shall	
	be obtained.	

## **Additional Specific Conditions**

1	The Hazardous Waste Authorisation issued to the unit vide Board proceedings dt. 30.07.2018 is here by cancelled and recorded.	Agreed upon
2	The used/spent oil shall be disposed to such facilities that are authorized by and registered with TNPCBas actual user facilities adopting environmentally sound management practices for reclaiming used oil	The spent oil were disposed to the authorised recyclers
3	The hazardous waste shall be stored in a compatible container on an impervious platform in closed shed to prevent pollution of ground water and surface soil	The hazardous wastes are stored in compatible container on an impervious platform in closed shed with all safety systems.
4	The unit shall not store the hazardous waste outside the premises	We state that we are not storing any hazardous waste outside the premises
5	The unit shall provide display board showing hazardous waste details and update the same periodically	Agreed upon
6	Any increase in quantity change in category handling operation shall be brought to the notice of theBoard and fresh authorization is to be obtained	Agreed upon
7	Record pertaining to transportation of hazardous waste shall be maintained	Complied with

8	Complete record of collection, reception, treatment, storage and disposal of the hazardous waste shallbe maintained in Form-3. The record shall be produced to the inspecting officer of the Board as and when required	Complete record on hazardous waste is being maintained in Form 3
9	Annual returns for the facility shall be sent to the Board in Form-4	Complied with
10	Any occurrence of accident has to be communicated to the Board in Form-14	Agreed upon
11	Disposal of hazardous waste shall be carried out by operating the manifest in Form-13	The Hazardous wastes were disposed only with manifest.
12	All consignments of hazardous wastes shall be transported with transport emergency card as specified in Form-11	Complied with
13	The unit shall dispose the accumulated Hazardous Waste within thirty days after obtaining authorization from TNPC Board	Conditions were compiled with
14	The unit shall renew and have valid agreements with hazardous waste facilitators at all times	We state we have valid agreements with hazardous waste facilitators at all times
15	The unit shall possess valid consent of the Board under Water and Air Act at all times	We state that we have valid consent of the Board under Water and Air Act at all times
16	The unit shall store and dispose the hazardous waste then and there without any accumulation over the prescribed quantity and time period to the respective disposal points	We state that we are storing and disposing the hazardous waste then and there without any accumulation over the prescribed quantity and time period to the respective disposal points
17	The Hazardous wastes shall be stored in a compatible container on an impervious platform in closed shed which shall be provided with requisite fire protection system, personal protective equipment and safety system	The hazardous waste are stored in compatible containers on an impervious platform in closed shed with all safety systems.
18	The unit shall maintain Form 3 and submit Form 4 prescribed under the Hazardous and Other Wastes. (Management and Trans boundary Movement) Rules, 2016	All provisions of Hazardous wastes Rules 2016 are complied with
19	The Hazardous wastes shall be disposed only with manifest that shall be maintained in Form-10 of the Hazardous and Other Wastes (Management and Trans boundary Movement) Rules, 2016.	The hazardous wastes were disposed only with manifest.



## TAMIL NADU POLLUTION CONTROL BOARD Report of Analysis.

1 Name of t	he Industry	M/s. Asian Paints Ltd, (Captive Power Plant)				
2 Address of	of the Industry	B-5 To B-10 Sipcot Industrial Complex, Cuddalore – 5.				
3 Date of S	urvey	21.6.2022	21.6.2022			
Category	R-L	Land use Classification	Industrial			
Type of Survey Ambient		Time of Survey	Dav			
Meteorological conditions		Calm	Calm			

### Logging Parameters

Instrument Used		CASELLA No: 5007321			
Logging Interval		10 Minutes at each point	Measuring Range 50 - 110 dBA		
Weighting "A"		"A"	Time Weighting	FAST	
Sound Frontal Incidence		Time in hrs.	11.30 – 12.30 Hrs		

## Report of Noise Level Monitoring

SI. No.	Location	uration nin)	istance n)	irection	Sound Level –		dB(A)
				Lea	Min	Max	
1	Near Northern side Compound wall	10	100	N	55.4	54.0	63.6
2	Near North East side Compound wall	10	220	NE	56.0	53.6	65.6
3	Near Eastern side Compound wall	10	220	E	54.3	52.0	64.8
4	Near ETP	10	260	SE	53.9	50.4	63.0
5	Near Southern side Compound wall	10	160	S	54.0	49.6	62.6
6	Near Old gate	10	200	SW	53.9	48.9	61.3
7	Near Western side Compound wall	10	200	W	54.7	50.3	62.6
8	Near Vehicle shed	10	200	NW	52.6	50.1	64.0
9	Near – II Main Gate	10	200	NE	55.3	50.4	65.6
10	Near Eastern side Compound wall	10	200	NW	56.6	49.9	63.9

Deputy Chief Scientific Officer TNPCB / AEL/ Cuddalore.



## TAMIL NADU POLLUTION CONTROL BOARD Report of Analysis.

1 Name of t	he Industry	M/s. Asian Paints Ltd, (Captive Power Plant)				
2 Address of	of the Industry	B-5 To B-10 Sipcot Industrial Complex, Cuddalore – 5.				
3 Date of S	urvey	21.6.2022	21.6.2022			
Category	R-L	Land use Classification	Industrial			
Type of Survey Ambient		Time of Survey	Dav			
Meteorological conditions		Calm	Calm			

### Logging Parameters

Instrument Used		CASELLA No: 5007321			
Logging Interval		10 Minutes at each point	Measuring Range 50 - 110 dBA		
Weighting "A"		"A"	Time Weighting	FAST	
Sound Frontal Incidence		Time in hrs.	11.30 – 12.30 Hrs		

## Report of Noise Level Monitoring

SI. No.	Location	uration nin)	istance n)	irection	Sound Level –		dB(A)
				Lea	Min	Max	
1	Near Northern side Compound wall	10	100	N	55.4	54.0	63.6
2	Near North East side Compound wall	10	220	NE	56.0	53.6	65.6
3	Near Eastern side Compound wall	10	220	E	54.3	52.0	64.8
4	Near ETP	10	260	SE	53.9	50.4	63.0
5	Near Southern side Compound wall	10	160	S	54.0	49.6	62.6
6	Near Old gate	10	200	SW	53.9	48.9	61.3
7	Near Western side Compound wall	10	200	W	54.7	50.3	62.6
8	Near Vehicle shed	10	200	NW	52.6	50.1	64.0
9	Near – II Main Gate	10	200	NE	55.3	50.4	65.6
10	Near Eastern side Compound wall	10	200	NW	56.6	49.9	63.9

Deputy Chief Scientific Officer TNPCB / AEL/ Cuddalore.

# **RAIN WATER HARVESTING AT PENTA PLANT SITE**





# RAIN WATER HARVESTING AT BOILER PLANT SITE



## Annexure -15 Hazardous Waste and Solid Waste storage Shed.



#### Hazardous Waste Storage shed





# ATFD SALT HAZARDOUS WASTES REGISTER

and a

sale

-

	1				
DATE	OPENING STOCK IN KGS	GENER ATION IN KGS	SENT TO STORAGE YARD	CLOSING STOCK IN KGS	STORAGE YARD
912-22	O	195	195	U	Aaps
1 7 1 2022		148	148	Ð	
1 2022	0	202	7.02	Ø	0000
\$ 1 2022	0	138	138	0	10g
-1 2022	0	152	152		2 age
9/2022	υ	140	140	<u>ь</u>	TON
G / 2022	ę	158	158		SIM
a 122	C	219	219	p	agen -
a / 22	C	218	218	Ø	Thurs
9/22	c	\$1	.81	0	1 Contra
9/22		209	209	0	gange -
1/22		2.31	521	0	
5/22	D D	182	182		ncer
5/22	0	187	187	· 0	Aque
SIN	0	184	184	Q	Acce
-1 -2	· 0	133	123	0	000
1 - 24	D	102	102	Ø	0000
-1 1V	J	90	90	0	acep
21 12	Q	130	132	Ó	0.028
-1-22	2	186	186	O,	a certa
1 22	J	111	111	0	Neep-
-1 22	2	181	181	0	Jeop
= 1 22	Ũ	161	[6.]	0	Nor
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Aslan Paints Limited Aslan Paints Limited Perda Division AN ISO 14001 OHSAS 18001 & ISO 9001UNIT	ATFD SALT	HAZARI	DOUS W	ASTES	REGISTER
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## ATFD SALT HAZARDOUS WASTES REGISTER Limited

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ATFD SALT HAZARDOUS WASTES REGISTER							
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2014122	2	[7]	171	Ø	e. M
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## **GREEN BELT IN ASIAN PAINTS- PENTA DIVISION**

PENTA PLANT FRONT SIDE - Latitude: 11.6804 Longitude: 79.7523



PENTA PLANT FRONT SIDE OVERVIEW- Latitude: 11.6802 Longitude: 79.7525





#### METHANOL DAY TANK AREA - Latitude: 11.6793 Longitude: 79.7533



METHANOL MAIN TANK AREA- Latitude: 11.6788 Longitude: 79.7535





#### ACETALDEHYDE DAY TANK AREA – Latitude: 11.6791 Longitude:79.7532



ACETALDEHYDE BULLET AREA – Latitude: 11.6792 Longitude: 79.7530





#### ETP ENTRANCE ROAD-Latitiude:11.6787 Longitude:79.7539



ETP AERATOR SIDE- Latitude:11.6787 Longitude: 79.7542





# Consent Conditions Compliance Status – Captive Power plant – AIR ACTCONSENT ORDER NO. 2208243328691DATED: 25/05/2022.PROCEEDINGS NO.T3/TNPCB/F.0388CUD/RL/CUD/A/2022DATED: 25/05/2022

Compliance to Tamil Nadu Pollution Control Board - RENEWAL OF CONSENT –M/s. ASIAN PAINTS LIMITED (CAPTIVE POWER PLANT), S.F.No.129 & 137, KUDIKADU village, Cuddalore Taluk and Cuddalore District - Renewal of Consent for the operation of the plant and discharge of emissions under Section 21 of the **Air** (Prevention and Control of Pollution) Act, 1981 as amended in 1987 (Central Act 14 of 1981)

Steam – 16 TPH	April -22	15.878
	May – 22	15.891
	June -22	15.884
	July – 22	15.082
	August -22	15.962
	September-22	15.971
		<u>.</u>
Captive Power – 1.5 MW	April -22	1.05
	May - 22	1.10
	June -22	1.12
	July – 22	0.87
	August -22	1.11
	September-22	1.105
Special Additional Conditions		
The unit shall install the approved	We have ordered for ret	trofit emission control
retrofit emission control	device. After receipt of	the device, the same will
device/equipment with at least 70%	be fitted.	
Particulate matter reduction efficiency		
on all DG sets with capacity of 125		
KVA and above or otherwise the unit		
shall be shift to gas based generators		
within the time frame prescribed in the		
TNDCD/Labs/DD/L)02151/2010 dated		
10.06.2020 issued by TNPCB		
10.00.2020 issued by Three.		
The unit shall obtain No Objection	We are in notified indus	strial zone and hence No
Cartificate (NOC) from the Tamil Nadu	objection certificate (N	OC) from Tamilnadu Bio
Dia Diversity Poord	Diversity Board is not a	nolicable
National Bio Diversity Authority if the		PPrivate
unit is using any Biological resources		
or knowledgeassociated thereto as per		
the provisions of Biological Diversity		
Act 2002.		
Additional Conditions:		
1. The unit shall ensure and maintain the	Air Pollution Control m	easures like Rag filters
1. The unit shall operate and maintain the Air Pollution Control measures efficiently	fitted in Boiler are effic	iently and continuously
and continuouslyso as to achieve the	operated and maintained	d. National ambient air

National Ambient Air Quality/Emissions standards prescribed by the MoEF & CC.	quality / emissions standards as prescribed by Moef & CC are achieved.
2. The unit shall achieve the ambient noise level standards prescribed by the Board.	We are achieving the ambient noise level standards prescribed by the Board. <i>Details of analysis is enclosed</i> .
3. The unit shall conduct the Ambient Air Quality/Stack Emission/Fugitive Emission/Ambient TVOCsurvey through MoEF approved Laboratory once in three months and furnish the report to the Board	We are conducting the Ambient Air Quality/Stack Emission/Fugitive Emission/Ambient TVOCsurvey through MoEF approved Laboratory once in three months and we are furnishing the report to the Board. <i>Copy of quarterly analysis</i> <i>report is enclosed.</i>
4. The unit shall maintain and regularly calibrate the online sensors provided for the emission parameters PM, SOx and NOx and shall transmit quality data to the CAC of TNPCB, Chennai.	We maintain and regularly calibrate the online sensors provided for the emission parameters PM, SOx and NOx and <i>calibration details are</i> <i>enclosed</i> . Transmission of quality data to the CAC of TNPCB, Chennai is ensured.
5. The unit shall provide covered conveyors to the coal conveyor system to control fugitive emission	We have provided covered conveyors to the coal conveyor system to control fugitive emission. <i>Photo of the same is enclosed</i> .
6. The unit shall continue to develop more green belt in and around the premises.	We are having 14000 trees within the campus. We are maintaining nursery to develop more green belt within and around the premises. <i>Photo is enclosed</i>

#### Consent Conditions Compliance Status – Captive Power plant – Water ACT

# CONSENT ORDER NO. 2208243328691 DATED: 25/05/2022. PROCEEDINGS NO.T3/TNPCB/F.0388CUD/RL/CUD/W/2022 DATED: 25/05/2022

Compliance to consent for Tamil Nadu Pollution Control Board - RENEWAL OF CONSENT – M/s. ASIAN PAINTSLIMITED (CAPTIVE POWER PLANT), S.F.No. 129 & 137, KUDIKADU village, Cuddalore Taluk and Cuddalore District - Renewal of Consent for the operation of the plant and discharge of sewage and/or trade effluent under Section 25 of the **Water** (Prevention and Control of Pollution) Act, 1974 as amended in 1988 (Central Act 6 of 1974) – Issued- Reg.

Stoom 16 TDH	April 22	15 979
	April -22	15.0/0
	May - 22	15.891
	June -22	15.884
	July - 22	15.082
	August -22	15.962
	September	15.9/1
Captive Power – 1.5 MW	April -22	1.05
	May – 22	1.10
	June -22	1.12
	$\frac{\text{July} - 22}{\text{July} - 22}$	0.87
	August -22	1 11
	September	1 105
Effluent type: Sowage	September	1.105
Description of outlot	Maximum daily	Doint of disposal
Description of outlet		Point of disposal
	discharge in KLD	
Sewage	1.0	<1 KLD
Treated in Penta trade effluent treatment system		
Trade effluent	1 KLD	<1 KLD
Special Additional Conditions		
The unit shall obtain No Objection Certificate (NOC) from the Tamil Nadu Biod i v e r s i t y Board /National Biod iversity Authority if the unit is using any biological resources or knowledge associated thereto as per the provisions of Biological Diversity Act 2002.	Our unit is in notified in NOC is needed.	dustrial area. Hence, No
Additional Conditions		
1. The unit shall operate and maintain the	STP is well maintained a	and operated efficiently.

Sewage Treatment Plant provided in the main plant (M/s.Asian Paints Limited - Penta Division) efficiently and continuously to bring the quality of the treated sewage to satisfy the standards prescribed by the Board.	Quality of STP water is satisfying the standards prescribed by the Board.
2. The unit shall operate and maintain the Effluent Treatment Plant with Zero Liquid Discharge System provided in the main plant (M/s. Asian Paints Limited - Penta Division) efficiently and continuously to satisfy the standards prescribed by the Board.	We operate and maintain the ETO with Zero Liquid Discharge system.
3. The industry shall maintain and regularly calibrate the online effluent monitors to transmit qualitydata to WQW, TNPCB, Chennai.	We maintain and regularly calibrate the online effluent monitors to transmit quality data to WQW, TNPCB, Chennai. Calibration records are maintained.
4. The unit shall maintain the EMFM with computer recording arrangements provided in the ZeroLiquid Discharge plant and furnish the data to the Board.	EMFM readings are recorded in computer.
5. The unit shall ensure to maintain the online pH and TDS meter provided in the storm water drains soto ensure that no chemical contamination takes place during rains outside the premises.	pH & TDS meter is provided in storm water drain and monitored so that no chemical contamination is taking place
6. The unit shall dispose the boiler ash then and there without accumulation for further beneficial use	Boiler ash is disposed without accumulation.
7. The unit shall not use 'use and throwaway plastic' such as plastic sheets used for food wrapping,spreading on dining table etc., plastic plates, plastic coated tea cups, plastic tumbler, water pouches and packets, plastic straw, plastic carry bag and plastic flags irrespective of thickness, within theindustry premises. Instead, unit shall encourage use of eco- friendly alternative such as banana leaf, arecanut palm plate, stainless steel, glass, porcelain plates / cups, cloth bag, jute bag	We do not use "use and throwaway plastic". Banana leaf, Arecanut palm plate, stainless steel, glass porcelain plates / cups, cloth bag, jute bag will be used where it is applicable.

#### CONSENT CONDITIONS AND COMPLIANCE UNDER AIR ACT- 730 MT PENTA PRODUCTION FOR THE PERIOD APRIL-2022 TO SEPTEMBER-2022 CONSENT ORDER NO. 2208243075501, DATED: 08/08/2022. PROCEEDINGS NO.T3/TNPCB/F.0020CUD/RL/CUD/A/2022, DATED: 08/08/2022

SI No.	No.				Complian	ce Status			
1	1	Details of t	he products manufactured.	Quantity		Month/ Productio	Formald	Penta	Sodium
		51.110	Description	Quantity		n	(100%)	erytinitor	Tormate
		а	Main Products manufactur	ed:		(MT/mon th)			
		1.	Formaldehyde (100%)	675		Apr 22	653.79	729.77	429.93
		2	Pentaerythritol (nowder	730		May 22	617.49	729.56	428.47
		2.	and solution form)	MT/Month		Jun 22	674.52	729.80	476.19
		b	By products manufactured	:		Jul 22	400.48	590.67	345.59
		1.	Sodium Formate (powder	480		Aug 22	674.37	729.96	467.44
			and solution form)	MT/Month		Sep 22	674.36	729.85	479.58
This renewal of consent is valid for operating the facility for the manufacture of product (Col. 2) at the rate (Col. 3) mentioned below Any change in the products and its quantity ha to be brought to the notice of the Board and fresh consent has to be obtained.					ng ets w. as nd	of the pro notice	oducts wil	l be broug	ght to the
2	i	Point source emission with stack: This renewal of consent is valid for operating the facility with the below mentioned emission/noise sources along with the control measures and/or stack. Any change in the emission source/control measures/change in stack height must be brought to the notice of the Board and fresh consent/Amendment has to be obtained.				Emission i stack mer and do emission l	s permitte ationed in not exce evels. Bei	ed only th the Cons eed the ng Compli	rough the ent order standard ed.
	ii	Fugitive / M	ive / Noise emission sources.				missions I to Fo ction. A c	like Tank rmaldehyd opy of the	vents are de plant facility is

SI No.	No.	Special Additional Conditions	Compliance
1	1	The unit shall install the approved retrofit emission control device/equipment with at least 70% Particulate matter reduction efficiency on all DG sets with capacity of 125 KVA and above or otherwise the unit shall be shift to gas based generators within the time frame prescribed in the notification No. TNPCB/Labs/DD(L)02151/2019 dated 10.06.2020 issued by TNPCB.	Retrofit emission control is ordered and it is expected to be received soon before December 2022 for 600 KVA and 500 KVA.
	2	The unit shall obtain No Objection Certificate (NOC) from the Tamil Nate Biod i v e r s i t y Board /National Biodiversity Authority if the unit is using any biological resources or knowledgeassociated thereto as per the provisions of Biological Diversity Act 2002.	It is not applicable as our unit is in Sipcot Industrial Belt (notified industrial area).
		Additional Conditions	÷
SI.No.		Consent Conditions	Compliance Status
1.		The unit shall operate and maintain the Air Pollution Control measures efficiently and continuouslyso that the emission shall satisfy the Ambient Air Quality/Emission standards prescribed by the Board.	All the Air Pollution control measures are maintained efficiently and continuously by which the Ambient air quality /Stack Monitoring Emission parameters are maintained well within the limit prescribed by the Board. (Copy of the report is enclosed)
2.		The unit shall adhere to the Ambient Air Quality/Stack Emission/ Ambient Noise Level standardsprescribed by the Board.	The ambient air quality / stack emission/ambient noise level standards prescribed by the board are adhered to. Copy of the report is enclosed
3.		The unit shall conduct the Ambient Air Quality/Stack Emission/Fugitive Emission/Ambient TVOC/THC survey through MoEF approved Laboratory once in three months and furnish the report to the Board without fail.	Ambient air quality/Stack emission/Fugitive emission/Ambient TVOC/THC survey is conducted through MoEF & CC approved laboratory once in three months. A copy of the report is enclosed.
4.		The unit shall further continue to develop greenbelt inside/outside the premises of the unit.	The NAAQ station is continuously operated, and the mentioned parameters are continuously measured, monitored, and uplinked to CARE AIR center, TNPCB, Chennai.
5.		The unit shall operate and maintain the Continuous Ambient Air Quality Monitoring Station (PM2.5, PM10, SO2, NOx) continuously and ensure the connectivity without any interruption with CARE AIR	Continuous ambient air quality monitoring station (CAAQMS) with online sensors are maintained, and the values are transmitted to CARE AIR Center, Tamilnadu Pollution control Board, Chennai

	Centre, TNPC Board, Chennai.	
6	The unit shall maintain the online sensors connected with CARE AIR Centre, Tamilnadu Pollution Control Board, Chennai and upload the data without any interruption.	Online sensors are maintained, and the values are transmitted to CARE AIR Center, Tamilnadu Pollution control Board, Chennai without any interruption.
7	The unit shall operate the plant without attracting complaints from the nearby Public.	Will be complied with. Agreed upon.
8	This consent order does not absolve from obtaining necessary permission / clearance from other Authority or under other Statute as applicable.	Agreed upon.

## **GREEN BELT IN ASIAN PAINTS- PENTA DIVISION**

PENTA PLANT FRONT SIDE - Latitude: 11.6804 Longitude: 79.7523



PENTA PLANT FRONT SIDE OVERVIEW- Latitude: 11.6802 Longitude: 79.7525





#### METHANOL DAY TANK AREA - Latitude: 11.6793 Longitude: 79.7533



METHANOL MAIN TANK AREA- Latitude: 11.6788 Longitude: 79.7535





#### ACETALDEHYDE DAY TANK AREA – Latitude: 11.6791 Longitude:79.7532



ACETALDEHYDE BULLET AREA – Latitude: 11.6792 Longitude: 79.7530





#### ETP ENTRANCE ROAD-Latitiude:11.6787 Longitude:79.7539



ETP AERATOR SIDE- Latitude:11.6787 Longitude: 79.7542







உள்ள தமிழ்நாடு மாசுக்கட்டுப்பாட்டு வாரிய அலுவலகத்தில் கிடைக்கும் மற்றும் சுற்றுச்சூழல் அலுவலகத்தின் இணையதளத்திலும் இதனை பார்க்கலாம்.

இணையதள முகவரி:– http://www.seiaa.tn.gov.in தேதி:30.04.2018

THE NEW

K.Thulaseedharan Nair General Works Manager

MONDAY

UBLIC NOTIC

#### ASIAN PAINTS LIMITED, PENTA DIVISION,

B5-B10, Sipcot Industrial Complex, Kudikadu Village, Cuddalore, TamilNadu-607005

The Ministry of Environment and Forests, Government of India has accorded Environmental clearance for the expansion of existing Manufacturing capacity of Pentaerithrital and Sodium Formate vide Lr.No. SEIAA-TN/F.No.6495.5(f)/ EC-60/2018 Dated 24th April 2018.

The copy of the clearance letter is available with TNPCB, Cuddalore office and may also be seen at the website of Ministry of Environment and Forests at http://www.seiaa.tn.gov.in

K.Thulaseedharan Nair Date : 30th April 2018 General Works Manager





ிலாளர்கள் குறிஞ்சிப்பாடி தொகுதியில் ណាត់សារាតែណាត ខណ៌ពីលារាំ.

தொழிலாளர்கள் குறிஞ்சிப்பாடி தொகுதியில் பெண் வாக்காளர்களாக உள்ளனர்.

47,587

# விழிப்புணர்வு முகாம்

பல்லவன் மோட்டார்ஸ்

599. 04142

MAHINDRA TWO WHEELERS

கடலுார், மார்ச் 11-கடலுாரில், நேரு யுவ கேந்திரா, சி.பி.ஆர்., சுற் றுச்சூழல் கல்வி மையம், ரசி ராமதாஸ் துவக்கி இயற்கை இளையோர் மன் வைத்தார். இன்னர்வீல் றம் சார்பில் தேசிய சுற்றுச் குழல் முகாம் நடந்தது.

DURODZ

இயற்கை இளையோர் மன்ற தலைவர் சண்முகம் வரவேற்றார். நேரு யுவக் கேந்திரா மாவட்ட ஆலோ

சனைக்குழு உறுப்பினர் கனக சண்முகம் முன் னிலை வகித்தார். கலைய சங்க முன்னாள் தலைவி விழிப்புணர்வு சத்யா, குளோபல் டிரஸ்ட் தலைவர் குமுதம், ஜே.சி.ஐ., கடலூர் விடி யல் தலைவர் புவனேஸ் வரி ஆகியோர் வாழ்த்திப் பேசினர்.

RODEOR2

எஷியன் வயின்ட்ஸ் லிமிவடட், வபன்டா பிரிவு,

B5-B10, சிப்காட் இண்டஸ்டிரியல் காம்ப்ளக்ஸ், குடிகாடு, கடலூர். தமிழ்நாடு-607005.

இந்தீய அரசின் சுற்றுச்சூழல் அமைச்சகம் F.No: J-11011/345/2011-IAII(I) 24 பிப்ரவரி 2014 தேதீயிட்ட கடிதத்தின் வாயிலாக பென்டா எரித்தீரிட்டால் (Pentaerythritol) மற்றும் சோடியம் பார்மேட்டின் (SodiumFormate) தற்பொழுது உள்ள உற்பத்தி திறனை அதிகரிப்பதற்கு ஒப்புதல் வழங்கி உள்ளது.

ஒப்புதல் கடிதத்தின் நகல்கள் கடலூரில் உள்ள தமிழ்நாடு மாசுக்கட்டுப்பாட்டு வாரிய அலுவலகத்தில் கிடைக்கும் மற்றும் சுற்றுச்சூழல் அலுவலகத்தீன் இணையதளத்தீலும் இதனை பார்க்கலாம்.

இணையதளமுகவரி: http://environmentclearance.nic.in

T C N Sai Krishnan

in inconcitation Line

தேதி: 05-03-2014 General Works Manager

<u> விவசாயிகள்</u> **5கு நஷ்டம்** 

பயறு விலை போக வில்லை. ஒரே ஏக்கரில் பயறுகளுக்கு விளைந்த வெவ்வேறு லாட்டாக வைக்கப்பட்டதில் ஒவ் வொறு லாட்டிற்கும் 500 ரூபாய் விலை வித்தியா சம் உள்ளது. கடந்த ஆண்டை விட உரவிலை அதிகம், பூச்சிமருந்து விலை அதிகரித்துள்ளது.

வேர்க்கடலையை செடி யில் இருந்து பிரித்தெடுக்க பெண்கள் யாரும் ஆர்வ மாக வருவதில்லை. அறு வடைக்காக விவசாய கூலித் தொழிலாளிகளுக் காக அலைய வேண்டி யுள்ளது. பெரிய தொகை செலவாகிறது. கடைகளில் எண்ணெய் விலை குறை யாமல் ஏறி வருகிறது. ஆனால் மணிலா விலை குறைந்து வருகிறது. இவ்வாறு அவர் கூறி

சுத்திகரிக்கப்பட்ட Gyßi Quistri வழங்கும் விழா

கடலுார், மார்ச் 11-கடலார் ஐஸ் வர்யா மகளிர் சங்கம் சார்பில் மஞ்சக்குப் பம் அரசு பெண்கள் பள்ளியில் சுத்திகரிக் கபட்ட குடிகீர் இயக் திரம் வழங்கப் ULLSI.

விழாவிற்கு பள்ளி தலைமை ஆசிரியர் லியோனர்ட் ஜானி தாங்கி தலைமை னார். சங்கத்தின் துணை தலைவர் உமா சங்கர், செய லர் கலையரசி ராம தாஸ் ஆகியோர் சுத் திரிக்கபட்ட குடி நீர் இயர் திரத்தை வழங்கி சிறப்புரை யாற்றினார்.

சங்கத்தின் முன் னாள் பொறுப்பாளர் கள் சுஜாதா, ஜெயந்தி, அபர்ணா, எமெல்டா, சத்யா, மணிமாலா அம்பிகா, லதா உட்பட பலர் பங்கேற்றனர். பொருளாளர் கீதா

பிறையோன் நன்றி and .



#### Annexure 14 – Display of MSDS of Chemicals in Work Place



Andread I	MAT	EF	RIAL SAFETY DATA SHEET
	NAME OF THE CHEMICAL		ACETALDEHYDE Manufacturer : Godavari Bio refineries
	Nature	:	Highly Flammable Liquid
	Odour	:	Intense pungent fruity odour
	Appearance	:	Colourless and Watery
	Flammability	:	Flammable and combustible
	Boiling Point	:	20.4 deg C
	Flash Point	:	- 39 deg C
	Area Classificaion	:	Hazardous
Halla St. P	Vapor Density	:	1.52 deg C (Air=1)
Contraction of the second	HEALTH HAZARD		
F	Contact with Eyes	:	Causes burns and severe irritation
	Skin	:	Causes irritation can damage permanently
	Inhalation	1	irritation to throat nausea vomiting & headache
	PREVENTIVE MEASURE	:	Avoid contact with liquid and vapour, Use safety goggles Use rubber gloves
	FIRST AID MEASURE		
the state	Eye	:	Flush with water at least 15 minutes and seek medical help immediately
	Skin	:	Wash with soap water
	Inhalation	:	Remove from exposure area to fresh air
	FIRE	:	Can cause a highly dangerous exposure hazard when exposed to flame
- Aller	Fire Extinguisher	:	Extinguish with dry chemical powder or CO2
	A ANA		



# **PENTA DIVISION**

# ONSITE EMERGENCY PLAN

Op asianpaints PENTA DIVISION	ONS EMERGEN	SITE NCY PLAN	DOCUMENT NO : EHS-OEP-TC-01
ASIAN PAINTS LIMITED	<b>ISSUE NO :</b>	<b>ISSUE DATE :</b>	<b>REV.NO:</b>
Penta Division, Cuddalore.	05	18.06.2013	DATE

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7	Manufacturing Details	EHS-OEP-MD-04	2
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19	Procedures to be followed by Plant Personnel in the event of emergency	EHS-OEP-PPPE-16	4
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23	Details of fire protection system in Acetaldehyde and Methanol storage tanks	EHS - OEP – WSFP-20	1
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PREPARED BY	APPROVED BY	ISSUED BY
Manager-EHS	Sr.Manager-Production	MR



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PREPARED BY	APPROVED BY	ISSUED BY
Manager-EHS	Sr.Manager-Production	MR

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SL.	DOCUMENT	PAGE	NATURE OF	REVISI	ON / ISSUE
NO.	NO.	NO	REVISION	NO.	DATE
1	EHS-OEP-DOF-03	6	Name and Address of safety In charge	1	05.05.14
2	EHS-OEP-WSPF-03	45	System description for water spray in Methanol storage tanks	1	05.05.14
3	EHS-OEP-DOF-03	6	Change in Name and Address of Factory manager and safety In charge	2	20.07.15
4	EHS-OEP-RE-1528Responsibilities of the shift incharge revised on account of the Emergency siren switch		Responsibilities of the shift incharge revised on account of the Emergency siren switch	1	27-7-16
5	EHS-OEP-NGH-17	38	Operation during non general shift hours changed	1	27-7-16
6	EHS-OEP-DOF-03	6	Details of the key personnel revised. Name of GM removed. Details of safety officer included	3	10-3-2017
7	EHS-OEP-KPME-14	25	First aid team included	1	10-10-2016
8	EHS-OEP-RE-15	26	Changes made in Siren ON switch location and responsibility of the Process Engineer/Reaction operator included	1	10-10-2016
9	EHS-OEP-RE-15	34	Responsibility of First aid coordinator and First aid team added	1	10-10-2016
10	EHS-OEP-PPPE-16	36	Responsibility of process operators revised	1	10-10-2016
11	EHS-OEP-NGH-17	42	Actions to be taken in FG/Hazardous goods transportation revised	1	10-10-2016

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#### **4. INTRODUCTION**

This Onsite Emergency Plan gives the details about managing emergency situations in our factory. The details include key emergency management personnel, roles and responsibilities of employees during emergencies, details of emergency equipment / rescue facilities available and procedure for declaring, controlling and clearing emergencies.

This plan is prepared as per statutory guidelines of MSIHC rules and it is authorized for use as a comprehensive guide for managing emergencies in our Penta Division. A comprehensive emergency preparedness plan to combat and contain any emergency situation in our Factory has been in position since 1994.

As laid down in the plan, periodic mock drills are carried out to ascertain the effectiveness of various procedures envisaged in the plan. A thorough understanding of the potential hazards stemming from our plant operations and developing strategies in advance to avoid and combat them will greatly help in handling any untoward emergency situation with minimum loss.

I hereby authorize that this is our Company's authentic manual to be followed in letter and spirit for efficient management of any emergency.

PREPARED BY	APPROVED BY	ISSUED BY
Manager-QA	Sr.Manager-Production	MR

#### K.Thulasheedharan Nair GENERAL WORKS MANAGER

Op asianpaints	ONSITE EMERGENCY PLAN		DOCUMENT NO : EHS-OEP-DOF-03
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Penta Division, Cuddalo	re. 05	18.06.2013	DATE: 11.03.2017

#### **3. DETAILS OF THE FACTORY**

Asian PaintsLtd., Penta Division is located about 10 Kms from Cuddalore on Cuddalore – Chidambaram highways in the village Kudikadu, It is located in Cuddalore District and the factory comprises of a total area of 29 Acres of Land. The key personnel are as under:

 Shri. K.Thulaseedharan Nair

 Asian Paints Ltd.,
 Penta Division,
 B5- B10, SIPCOT Industrial complex,
 Cuddalore – 607 005.
 Phone no. (04142) 239247, 239248 (O) (04142) 221383 (R)
 Cell no. 8903136100
 Fax no. (04142) 239234

 General Works Manager

#### NAME AND ADDRESS OF THE SAFETY INCHARGE

Mr. P.Jayakanthan Sr.Manager-Production 48, Rajakavi Nagar, Kondur post Cuddalore-2 Phone no. (04142) 290844(R) Mobile No-9488026114

Mr.M.Bhuvanesh-Safety Officer No 25B, 4<sup>th</sup> cross street, Krishnasamy Nagar, Koothapaakm, Cuddalore-2. Mobile No-9487002988 Mr. S.Saravanan Manager-Production No 40, LIC nagar, Koothapakkam, Cuddalore-2 Phone no-(04142) 287799(R) Mobile No-9442209025

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#### NUMBER OF SHIFTS

There are four shifts in our Factory namely A Shift, B Shift, C Shift and General Shift. The timings of the Shifts are as follows:

<u>Sl.No</u>	Name of the Shift	Duration
1	A Shift	06.00 a.m. – 02.00 p.m.
2	B Shift	02.00 p.m. – 10.00 p.m.
3	C Shift	10.00 p.m. – 06.00a.m.
4	G Shift	09.00 a.m. – 05.30 p.m.

There are totally 34 Executives and 108 Workmen on the rolls of the company as on 10.9.2016.

#### EXIT AND ENTRY POINTS

There are two main gates available for exit and entry. The Penta plant, the Formaldehyde plants and administration block have two staircases for emergency exit and entry.

#### PLANT LAYOUT

The detailed layout of the Factory is given in Annexure – "III". The various blocks constructed, firefighting details, location of fire extinguishers, location of emergency control centers / alarms, emergency escape route, etc. are given in the same diagram.

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#### **<u>4. MANUFACTURING DETAILS</u>**

The company manufactures Pentaerythritol of three grades namely Tech, Mono & Di and Sodium Formate and solutions of Pentaerythritol and Sodium Formate as byproduct using Formaldehyde, Acetaldehyde and Caustic Soda Lye as the main raw materials. While Acetaldehyde and Caustic Soda is purchased from outside, Formaldehyde is produced in the plant itself which uses Methanol as Raw material.

The plant was commissioned on 29.03.1987.

#### **Finished Products**

- a) Technical Grade Pentaerythritol
- b) Mono Pentaerythritol
- c) Di Pentaerythritol
- d) Sodium Formate
- e) Formaldehyde &
- f) Pentaerythritol solution
- g)Sodium Formate solution

#### PROCESS DESCRIPTION

#### PENTAERYTHRITOL (TECHNICAL GRADE)

The reaction of Formaldehyde, Acetaldehyde and Caustic is carried out in water in the reactor.

The reaction mixture is fed to the stripper to strip off the excess Formaldehyde left after and the Methanol formed in the Cannizaro reaction. The Formaldehyde which has been stripped is used back in the reactor. The recovered methanol is used in the Formaldehyde Plant.

The Methanol Free and lean Formaldehyde reaction mixture is then filtered whereby small quantities of Poly Pentaerythritol (PE)s are removed. The filtrate is fed continuously to the five effect evaporator. The concentrated mixture is then fed to crude Vacuum crystallizer which causes the Pentaerythritol (PE) product to precipitate. Subsequent to filtration separates the precipitated PE from the filtrate Crude Mother Liquor (CML) containing the bulk of Sodium Formate. The PE cake is reslurried and redissolved. The PE solution is then passed through the deionizer in order to reduce ash content and through Carbon column for color control. The solution is then transferred either Pure Vacuum Crystallizer or to the Tech Dissolver in the Mono and Di PE section of the plant. After crystallization in PVC the Tech PE solids are further separated from their mother liquor (RCML) by filtration and are dried and packed

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#### **SODIUM FORMATE:**

The filtrate from Crude Belt Filter (CBF) is fed continuously to the Sodium Formate Evaporator cum Crystallizer. The Sodium Formate crystals are further separated from their mother liquor by centrifuging and are dried and packed.

A portion of the filtrate from the Centrifuge is purged and treated to recover additional PE for recycle before the balance of the stream is discarded as waste. The balance of the filtrate is recycled to the Sodium Formate Crystallizer for reprocessing.

#### **Sodium Formate solution**

A portion of the filtrate from the SF Crude Centrifuge is purged and treated to recover additional PE for recycle the mother liquor from the stream is further filtered and the clear liquid is adjusted for pH and packed in carbouys and sold as Sodium Formate solution..

#### MONO & DI PENTAERYTHRITOL:

Pure Pentaerythritol Solution, which has been processed through filtration and deionization in the Technical PE portion of the plant is transferred batch wise to Tech Dissolver where it is boiled till super saturation and transferred to the Mono Di Crystallizer which forms Mono and Di PE Crystals which are of different sizes. These are then separated in a wet screening process. The Mono PE Crystals are further separated from their mother liquor by centrifuging and are dried and packed.

The Di PE rich solution from the wet screening operation is heated to dissolve MonoPE and thickened by gravity sedimentation and then filtered and washed. The Di PE cake from the filtration is dried, ground and packaged.

The various mother liquors are cooled and / or filtered to recover cakes whose solids are recycled back to the process for further PE recovery. A portion of the filtrate is used as carrier liquor for selected slurries in the Mono - Di PE process. The balance is purged and mixed with RCML from the Technical PE plant for further treatment to separate Mono - Crystallizable organics. This stream on cooling and separation of any precipitated solids by centrifuging is disposed of as Pentaerythritol solution and stored in tanks and sold as Pentaerythritol solution.

#### FORMALDEHYDE:

The feed stock consists of Methanol, which is mixed with air and water and oxidized to Formaldehyde in a specially designed Reactor where pure Silver granules are used as Catalyst. The formaldehyde and unreacted methanol vapors are absorbed in water in Absorption column. The absorbate solution is removed as bottom product. The solution is then fed to Distillation column to separate Formaldehyde as Bottom product and Methanol as Top product. The bottom product of distillation column is stored in main storage tank from where it is used in Penta plant.

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Penta Division, Cuddalore.		05	18.06.2013		DATE	
5 TYDES OF EMEDCENCIES IN THE DIANT						

#### 5. TYPES OF EMERGENCIES IN THE PLANT

There are two types of Emergencies that can arise in Penta Division, Asian Paints Ltd. as follows.

- 1 ON-SITE Emergencies
- 2 ON-SITE Emergency that can lead to OFF-SITE Emergencies

#### 8.1. ON-SITE Emergencies

This category consists of events likely to endanger human lives, plants and equipment within the plant boundary. These events:-

a) Are beyond the control of Personnel within the department and beyond the facilities available in the section/ department.

And / or

b) Require mobilization of additional resources from other sections/ departments to handle the emergency.

#### And / or

- c) Required help from other neighboring industries under mutual aid arrangements and / or
- d) Require help from Tamil Nadu Fire Services and other Government agencies.

#### **8.2.ON-SITE Emergencies leading to OFF-SITE Emergencies**

The following Onsite Emergencies may lead into Offsite Emergencies

- a) FIRE / EXPLOSION The most serious emergencies that can be envisaged are Tank fires and Explosions.
- b) AIR POLLUTION
   Our plant stores Acetaldehyde a volatile chemical. Even though it is stored under Nitrogen blanketing, it is still possible to cause Air Pollution due to leakages and equipment failures. This could pose an Emergency Situation.

   c) CHEMICAL/ SOLVENT POLLUTION

#### c) CHEMICAL/SOLVENT POLLUTION The plant handles the liquid chemicals

The plant handles the liquid chemicals like Methanol, Formaldehyde, Acetaldehyde, Formic Acid, Sulphuric Acid and Hydrochloric Acid for its various processes. Only Methanol is stored in bulk quantities. Emergencies can arise in the form of fire leading to explosion of storage tanks if not quenched and leakage of chemicals from the storage tank due to collapse of the tanks.

(List of Potential Emergency Situations and Preventive actions to be taken is explained in the next page).

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		<u>6. LIST</u>	OF POTENTIAL I	EMERGENCY	SITU	UATION	IS	
S.	Potential		Prevention	Actions			R	esponsibility
No	Emergency							1
	Situation							
Leal	k from Raw Mate	erial/ Fuel Sto	rage tanks					
1	Acetaldehyd e Bullets	<ol> <li>Acetaldeh in horizon</li> <li>Inert atmo</li> <li>High press provided i</li> <li>Automatic availa Temp</li> <li>Each tank</li> <li>An online location to alarm at th</li> <li>In case of the other a any time.</li> <li>Safety val</li> </ol>	yde is stored under j tal bullet. sphere prevents any sure sensor and High n the control room. Medium Velocity V able to quench in cas berature rise. is having capacity of VOC analyzer has b o identify leaks in Ad the Formaldehyde pla emergency, materia as we maintain an in	pressure with Ni leak/ accidents. n pressure alarm Water Sprinkler se of pressure bu of 75 M <sup>3</sup> each. been installed at cetaldehyde bull ant Control Roon l from one tank ventory of not n	has has syste iild u a stra a stra n can b nore t id et	en blanke been em is p and ategic nd raise a be pumpe than 35 N	an d to AT at	Production Department
		to pressure build up						
	Methanol	9. While attending leaks, breathing apparatus to be used						
		<ul> <li>each.</li> <li>2. These dyke leakage/ sp emergency</li> <li>3. An online location to Acetaldehy plant Cont</li> <li>4. Once the e pumped to</li> <li>5. Methanol n ETP throw</li> </ul>	e walls has provision pillage material to of y tank as the case ma VOC analyzer has b identify leaks in Ma yde bullets and raise rol Room. mergency is over, n the emergency tank remaining on the flo	n to collect and j her storage tank been installed at ethanol Storage an alarm at the naterial collected c. or is washed and	pump s or t a stra tanks Forn l in d d trar	o out the the ategic s & naldehydd lyke wall	e is o	Department

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ren	ta Division, Cuu	ualore.	05	10.00.2013	DATE	
S.No	Potential		Prevent	tion Actions		Responsibility
•	Emergency					
1	Formaldehyde	1 Forma	ldehvde is stored in	SS tanks and provi	ded with	Production
1	Tormandenyde	dvke w	vall.	55 tanks and provi		Department
		2. Any le	ak from tanks can b	e contained within	the dyke and	2 • • • • • • • • • • • • • • • • • • •
		pumpe	d out later.		5	
		3. An em	ergency tank 300 M	l <sup>3</sup> capacity is kept s	o as to pump	
		out the	material from leaki	ing tank.		
		Material	remaining on the flo	oor (after transferri	ng to the	
		ETD thro	sterred to			
2	Caustic soda	1 Caust	tic soda is stored	in main storage	tanks and is	Production
	Cuusiie souu	r. caus provi	ded with dyke wall.	in main storage	tunks und 15	Department
		2. These	e dyke walls has pr	ovision to collect	and pump out	
		the le				
		emer				
		3. Once				
		wall				
		4. Caust				
3	Formic	1 Form	Production			
5	acid/Sulphuri	1. Form	and is provided wit	h dyke wall	main storage	Department
	c acid	2. These	e dyke walls has pr	ovision to collect	and pump out	Department
		the le	akage/ spillage mat	erial to other storag	ge tanks or the	
		emer	gency tank as the ca	se may be.		
		3. Once	ected in dyke			
		wall	is pumped to the em	ergency tank.		
		4. Form	ic acid and Sulphur	TC acid remaining ( ETP through T 8)	on the floor is	
4	Diesel	1. Anv le	eak from furnace oi	l and diesel tanks	is collected in	Engineering
		the dy	ke around the storag	ge tanks. This leaka	ge material is	Department
	Furnace Oil	pumpe	*			
		2. Furna	ace Oil/ Diesel rema	aining on the floor	is wiped with	
		cotto				
		3. At an				
		turna	ce oil is stored in the	e tanks.		

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S.No.	Potential Emergency Situation		Prevention Actions		Responsibility
5	<ul> <li>Fire in</li> <li>a) Diesel/ Furnace oil tanks</li> <li>b) Methanol</li> <li>c) Acetaldehy de</li> <li>d) To electric short circuit</li> </ul>	1.Fire checks workir emerge installe and the alarm person are loc annexu fire ala 2.Foam near Die any eme	extinguishers/ Fire h are done routinely f ag condition and to t ency fire. Smoke De ed in all MCCs and b ey are connected to the system to alert the o nel in case of fire. N ated as per the detail ure- which is connect rum system. generator of type A esel tank. Same can ergency due to fire ru	ydrant system to keep it in ackle any tectors have been Control rooms the central fire perating fanual call points ls given in the ted to the central FFF is located be used to tackle elated to Diesel/	Safety In charge Safety In charge
6	Fire in a) LPG leak b)Major fire in coal yard with open flames	3. Foar water s Metha situatio 4. Fire within	m pouring and Medi sprinkler system is a nol Storage tanks to ons arising out of fir water run-off is to b factory premises.	um velocity vailable in tackle emergency e. be contained	HOD EMD HOD EMD
		5. Stor time of 6. The checked analysi 7. In ca probab situation onsite 8. The for ext within storm bags/C This w	m water outlet is to f fire fighting. accumulated fire wa ad and treated depen is and disposed. ase of major fire, du ilities indicated, the on that arises to be ta emergency plan. water used through inguishing the fire is the factory by way water drain with the ate kept in front of ater is routed to ET	be closed at the ater is to be ding on the e to the various emergency ackled as per hydrant system s contained of blocking the help of sand accounts office. P through T 802	HOD EMD GWM

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Penta Division, Cuddal		ldalore.	05	18.06.2013 DAT		DATE		
S.No.	Potential Emergency Situation		Pre	vention Actior	ıs		Respons ibility	
7	Radioactive elements in nucleonic gauges expose to atmosphere	1. Peoradianucle2. Befshouloffica3. Theverifi4. In cDurannoicordaBARDurannoiradiacontrthe coEmerDetaicomreitherby RiTELFAX	ple who are aware o tion is allowed to ca conic gauge. ore doing any mainte ld be (source) closed er. physical integrity o ied by the responsible ase of accidents, ing general shift hou unce emergency and on off the area with t C) keeping the RA s ing non-general shift unce emergency an s of 4 Mts keeping t tion emergency in P ol room should sit 3 ontrol room and sho regency door at the ot gencies. ils regarding accident nunicated to the Hea r by telex or telegrar SO / Maint. Manage : 91-22-25572993 to EGRAM : REGATC	f Design constr rry out any ma enance job nea with the help f the source ho e person. urs, the shift in inform RSO. I he radius of 4 I cource as centre t hours, the shi d he can cordo he RA source a VC sources, th Mts away fror uld close the fr her side should the should be in ad, RPAD, BAI n seeking their r/ General Wor o 95 DM mail : gen@ae	ruction intena r nucl- of rad using charg In turr Mts (2 e. ft in c m off as cent e worl n the f on ten l be us nmedi RC, an assist rks Ma	n on Hazard of ince job in eonic gauges it iation safety is routinely e should n RSO should 3 Mts as per charge shall the area with the tre. Incase of kmen in the front entrance of htrance. sed during such ately nd Mumbai – 85, cance in the matter anager.	HOD ENGG	
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S.No.	Potential Emergency Situation		Pre	vention Actions	;		Respons ibility	
8	Pentaerythrito Dust Explosio	d 1. earth (Pent 2. colle vent 3. follo 4. follo 4.1. Pr 4.2. Is 4.3. R the a 4.4 Er out h 4.5. K 4.6. E	<ol> <li>Can occur only if hot work is done without proper arthing or proper protection in the area filled with product (Pentaerythritol) dust.</li> <li>Dust prone equipments like Fluidised Bed dryer, dust collector are provided with rupture disc and exhaust pipes to vent out the material outside the building.</li> <li>To prevent the occurrence, hot work permit system is followed.</li> <li>Before Carrying out any hot work in the plant ensure the following :-</li> <li>Isolation of equipment/ pipelines.</li> <li>Removing the flammable materials from the area, covering the area around the weld spot with non-flammable material.</li> <li>Keep the fire extinguishers near the work spot.</li> </ol>				HOD ENGG	
9	Pressure vessels such a Boiler and Ai receiver explosion.	1.Cs2.1. Asyste2.2. Satop3.1. Band a3.2. Astop3.3. Asafer3.4. Sato avBoile	an occur only if exce ir compressor has be afety valve is in plac oressure buildup. oiler is provided wit alarm to caution the low level indicator the system in case of high level indicator operations. afety valves with ade oid explosion / emer er steam drum.	essive pressure b een provided wit sive pressure in a e to avoid explo- h a water drum 1 operating person and trip switch h f drum level is es and alarm/trip is equate relieving rgency due to pro-	ouildu h int air re sion ow l nnel. as be xtren s ava capa essur	up is allowed. erlock to trip the eceiver. / emergency due evel indicator een provided to nely low. ailable to ensure city are in place re buildup in the	HOD ENGG.	

		E	ONSITE EMERGENCY PLAN		DOCUMENT NO : EHS-OEP-LEP-06		O : -06
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10	Natural calamities: Flooding, Cyclone, Earthquake, Tsunami	1. Proc 2. List availab 3. A m establi 4. Plan update 5. Wel availab 6 Adee	<ul> <li>Procedure for emergency shutdown of the plant is in place.</li> <li>List of persons present inside the plant at any point of time is vailable with main gate to enable easy evacuation.</li> <li>A mobile phone and a WILL phone is available in the plant to stablish communication network.</li> <li>Plant has been provided with Internet facilities to get the news pdates.</li> <li>Well established OHC center with 24 hours attendant is vailable for giving first aid to the injured persons</li> </ul>				
11.	Hazardous waste handlin when an accident occu at factory or during transport	g 1. rs 2. 3.	Hazardous waste g non toxic. Hazardo concrete floor whic spillage. In case of accident transport condition appropriate correct undertaken. Comm PCB will be done t With the help of th disposal of Hazardo organized.	enerated by us ous wastes are ch will not allo occurring at th , the condition ive actions wil unicated about hrough Form V e operator of th ous waste area	is nor stored w leac will be l be in the in V. ne faci dispo	a flammable and in impervious th ate during any lity or during e assessed and amediately acident to the state lity for the sal will be	General Works Manager



ASIAN PAINTS LIMITED Penta Division, Cuddalore.

### 7. OBJECTIVES OF ONSITE EMERGENCY PLAN

- a. Safeguarding lives, both at site and in its neighbourhood.
- b. Containing the incident and bringing it under control.
- c. Minimising damages to property and to the environment.
- d. Rescuing and treating causalities.
- e. Evacuating people to safe areas.
- f. Identifying persons affected and to extend necessary welfare assistance to such persons.

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#### ONSITE EMERGENCY PLAN

DOCUMENT NO EHS-OEP-PS-8

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### 8. PLAN SUMMARY

- Person noticing the fire/leak.
- Person noticing the fire/leak will inform the shift in charge.
- Person noticing the fire/leak will activate the fire alarm through manual call points located near the affected area.
- Shift in charge will visit the emergency spot along with 2 to 3 operators.
- Shift in charge will raise emergency siren, if required.
- On hearing the siren,
  - > WTP operator and shift fitter will rush to the fire hydrant pump room.
  - Security officer / security supervisor along with security guards will rush to the site of emergency.
  - Contractor workmen / visitors will rush to any one of the emergency assembly point as notified by the Incident controller.
- Senior persons of the plant are identified with various responsibilities as coordinators for combating the emergency. Responsibilities of various coordinators and workmen are elaborated in the following pages.
- Any person injured in the accident will be taken to the occupational health center and required first aid will be given.
- If required, the injured person will be moved to the nearby hospital.
- General Works Manager, identified as the chief coordinator after ensuring that the emergency has been brought under control and after clearing the head count will close the emergency.

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#### 9. BASIS OF PLAN

The Prime function of the plan is to get the key personnel from the necessary disciplines who have the knowledge and experience to assess the situation and give directions as per objectives.

Initiation of action as per this plan will be done by shift in-charge.

The key personnel identified for Emergency operations are responsible for providing the necessary assistance expected of their discipline. The senior most person arriving on the scene first will automatically take charge as Chief Emergency Coordinator till the arrival of the designated Chief Emergency Coordinator.



### ONSITE EMERGENCY PLAN

DOCUMENT NO : EHS-OEP-ECC-10

ASIAN PAINTS LIMITED Penta Division, Cuddalore.

### 10. EMERGENCY CONTROL CENTRES (ECC)

### There are three Emergency Control Centers:-

SI.NO	CONTROL CENTRES	LOCATION	MANAGED BY
1	Plant Control Centre	Penta Plant Control	Plant Controller /
		Room	Shift In charge
2	Main Control Centre	General Works	Onsite Chief
		Manager's Cabin	Coordinator
3	Administration Centre	Personnel Manager's	Communication
		Cabin	Coordinator

# The following facilities / documents are available in all the three Emergency Control Centers:

- Emergency shutdown procedures.
- One copy of onsite emergency plan.
- Plant layout indicating location of firefighting facilities viz: fire extinguishers, fire hydrants.
- List of First Aid boxes and their location
- List of trained First Aides with their phone numbers
- MSDS of hazardous chemicals handled in the plant

In addition to the above in Main control Centre we have

- One copy of PPE Assessment Report including list of PPEs and their location
- Self-contained Breathing apparatus 2 nos.

### ECC No. 1: Plant Control Centre

- Shift in-charge and main plant operators are available in this center throughout the day
- Two Telephones are available and has access to contact person outside the factory
- This center has the facility to raise the siren on getting the communication from shift in-charge for declaring emergency

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#### ECC No. 2: Main Control Centre

- The Main Control Centre is equipped with all necessary arrangements like Telephone, Fax etc.
- It is located away from the main plant and it has easy approach to arrange transports, seek help from outside etc.
- First Aid Centre and Occupational Health Centre (OHC) are also available near this Main Control center for meeting emergencies.

#### ECC No. 3: Administration Control Centre

- The Main Control Centre is equipped with all necessary arrangements like Telephone, Fax etc.
- First Aid Centre and Occupational Health Centre (OHC) are also available near this Main Control center for meeting emergencies

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### **11. DECLARING AND CLEARING AN EMERGENCY**

DATE

Siren is provided to alert personnel of emergency situations and to take necessary steps to tackle the situations and also to inform that the emergency is controlled and it is clear of any danger so that employees can get back to their respective work place.

There are 4 nos. of Electrical powered Siren operated through a single switch at Time Office.

- 1. Administration Building
- 2. Fa Plant
- 3. Boiler
- 4. QA

#### **DECLARING AN EMERGENCY:**

A continuous siren for 1 minute to be raised for declaring an emergency.

#### **CLEARING AN EMERGENCY:**

A siren with a gap of 4 seconds will be sounded thrice for a period of 10 seconds each for announcing that the emergency is over and the employees can get back to their respective work places.

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#### **12. WIND DETAILS**

Three number of wind sacks are available in our factory premises to show the direction of the wind. One is at 19 mts height, the highest available point at Fa Plant which can be seen from a distance of 200 mts. It is also clearly visible from nearby industries. Another one is available at a height of 18 mts at SF Plant. This wind sack is visible from a distance of 150 mts. The third is at the top of coal crusher bucket elevator which is 16 mtr height.

These three wind sacks are always maintained in working condition to know the direction of wind at any given point of time. Periodic maintenance and changing of wind sack clothes is being followed to ensure that the wind sacks are always in working condition.

The importance of wind sack at the time of emergency is being taught to all employees regularly and training is ensured.



### 13. GENERAL GUIDELINES FOR EMPLOYEES, CONTRACT WORKMEN & VISITORS

- 1. Do not panic
- 2. Do not approach the scene as a spectator
- 3. Do not engage communication channels/ Telephones unnecessarily.
- 4. Do not move around unnecessarily.
- 5. All contract workmen and visitors should rush to the Emergency assemble point as per the instruction given while entering the plant.
- If the employees are advised, rush to the Emergency Assembly Point as per the instructions through public address system/ communication coordinator.
- Employees should perform the assigned responsibilities like communication carriers etc. without fail.

NOTE: Two assembly points have been identified inside the plant. In case of Emergency the detail of the assembly point will be communicated to all persons through Public address system / Communication carriers.



### ONSITE EMERGENCY PLAN

DOCUMENT NO : EHS-OEP-KPME-14

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### 14. KEY PERSONNEL IN MANAGEMENT OF EMERGENCY SITUATION

S.No.	Services	Name as mentioned in the plan	Person's Designation	Alternate
1	Overall Coordination	Chief Emergency Coordinator	General Works Manager	Sr.Manager- Production
2	Plant Operational Control	Plant Coordinator(Site Controller)	Sr.Manager- Production	Production Manager / Production Executive
3	Incident Control	Incident Controller	<ul> <li>Shift Incharge (Process)</li> <li>Mechanical / Electrical / Instrument Engineer (outside process and tank farm area)</li> </ul>	
4	Medical Services	Medical Coordinator	HOD Personnel	Personnel Executive
5	Fire & Safety	Fire & Safety Coordinator	Security Officer/ Supervisor	Safety Incharge
6	Engineering & Materials arrangement	Engineering Coordinator	Sr. Manager- Engineering	Manager- Engg/Executive - Engg.
7	Welfare & Public relation	Welfare & Media Coordinator	HOD Personnel	Personnel Executive
8	Communication	Communication Coordinator	HOD Personnel	Personnel Executive
9	Transport	Transport Coordinator	HOD Personnel	Personnel Executive
10	Plant & Personnel Security	Security Coordinator	HOD Personnel	Personnel Executive
11	First aid	First aid coordinator	Factory Medical Officer	Personnel Executive

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## **ONSITE EMERGENCY PLAN**

05

**DOCUMENT NO:** EHS-OEP-RE-15

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**ISSUE NO : ISSUE DATE :** 18.06.2013

**REV.NO:1** DATE27-7-16

### **15. RESPONDING TO AN EMERGENCY**

#### 15.1 RESPONSIBILITY OF THE PERSON NOTICING THE ONSITE **EMERGENCY**

Any person noticing fire or an explosion or the release of hazardous gases and chemicals should shout FIRE! or HELP! and attempt to extinguish using the extinguishers available in case of fire. If he is unable to control the incident, he must activate the fire alarm by activating the Manual call point if any located nearby and he must inform this to the shift in charge and report the location of fire/ explosion/ gas leak/ give a brief description of Emergency, identify himself and hold until the message is repeated back to him to ensure proper communication.

#### **15.2 RESPONSIBILITY OF SHIFT INCHARGE**

Shift In charge, in the context of an emergency is defined, as the person who has operational / overall control over the area in which the incident is happening. For the sake of better clarity the responsibility areas are demarcated as follows:

S.No.	EMERGENCY IN THE FOLLOWING AREAS	INCHARGE
1.	Penta Plant, Formaldehyde Plant, Tank form areas,	Shift process Engineer
	All raw material storage areas, Bagging areas, BSR	
	area, Raw material unloading area, Lab.	
2.	Boiler, LT/DG Room, MCC Rooms, Workshop,	Shift Process Engineer
	WTP, ETP, Cooling tower, Coal and Ash yard,	assisted by the concerned
	Diesel and Furnace Oil storage areas, Time Office/	technician in charge
	Administrative Block, Accounts Block and other	during shift hours.
	offsite areas.	• Respective department
		engineers during G shift

The shift in charge will immediately reach the site to assess and take immediate action required to control the emergency. If he feels the situation is likely to escalate and may lead to On-Site or Off-Site emergency, then he will inform the Process Engineer/Supervisor/Reaction Operator in Control Room about the incident and he will get back message repeated by them to ensure his understanding. He will also instruct unwanted personnel to rush to the nearest Emergency Assembly Point.

- Further ask the Process Engineer/Supervisor/Reaction Operator in Control a. Room to raise the emergency siren.
- He will inform the security in main gate. b.
- He will communicate the following information to the General Works c. Manager/ Senior. Production Manager
  - --- Brief Description of Incident
  - --- Status and seriousness of situation
  - --- Action immediately taken
  - --- Immediate -- assistance required

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On hearing the siren, Key personnel of respective services shall contact the Main control centre/ Time Office to know the place and shall arrive at the site to take charge of their respective positions. Key personnel in the management of Emergency are already indicated in Section 16. Key personnel will take instruction from Chief Emergency Coordinator and act accordingly.

The Chief Emergency Coordinator shall leave the main control centre only after arranging the person to receive any communication. The PA to General Works Manager shall receive the communications in the absence of Chief Emergency Coordinator.

Flow chart for executing Onsite Emergency is given in the next page.

#### **15.3 GENERAL GUIDELINES**

- a. In the event of fire/ emergency, employees shall stick to their jobs and shall not rush and crowd about the scene of fire, unless specifically called for assistance.
- b. Immediately after emergency siren is heard, WTP operator, shall rush towards the fire hydrant pump room to ensure that the pumps are functioning to the rated capacity. He shall seek the assistance of the shift engineering supervisor, who will also arrive at the pump room in the event of emergency.
- c. Persons arriving at the scene of fire/ emergency by motorized vehicles shall refrain from parking their vehicles within the 100 meters from the scene of fire. Ignition keys shall be left in the switch boards of the parked vehicles. Vehicles should not be locked.
- d. Any tapping from the fire water system shall be suspended during the fire emergency period.
- e. Operators of non-affected units must standby at their places, unless specifically instructed.
- f. All employees working in the Administration Building shall assemble at Emergency assembly point, unless directed otherwise by their department head.
- g. Ambulance will be made available at the scene of fire by the department of Administration to be used for emergency. The department will also arrange transport sending people home who had stayed for extended hours.

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### ONSITE EMERGENCY PLAN

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### **15.4 RESPONSIBILITIES OF CHIEF EMERGENCY COORDINATOR**

### (General Works Manager – Alternate:Senior. Production Manager)

- Assumes full responsibility from the emergency site.
- Liaise with various coordinators.
- Depute personal assistant to be stationed in his room to receive/ send all communications related to emergency.
- Assess the magnitude and decide for plant shutdown and evacuation.
- Checks the wind direction and decides the assembly point.
- Liaise with the emergency services.
- Informs about the emergency to the District Collector/Authorities.
- Fill in the incident information summary report.
- Check that fire, rescue and medical services have reached the spot.
- Check whether all key persons are informed about the incident.
- Keep track of status of the incident.
- Coordinate the activities of all the required services.
- Inform the top management about the problem and indicate the action required.
- Initiate action to raise the emergency off siren after assessing of the situation with other co-coordinators.

### 15.5 RESPONSIBILITIES OF PLANT CO-ORDINATOR (SITE CONTROLLER)

(Sr. Production Manager – Alternate: Production Manager/Executive)

- Rush to the site of incident and take immediate action to control and contain the emergency.
- Provide help, advice and information as required to the Security In charge
- Guide the required people to assemble at a proper point for controlling the emergency.
- Direct others to assemble at Onsite Emergency assembling point (i.e. near in front of Stores or Accounts).
- If required arrange for further evacuation.
- Preserve all possible evidence that would facilitate any subsequent enquiry in identifying the cause and circumstances leading to the emergency.
- Intimate the HOD Personnel for arranging head count.
- Intimate the medical co-ordinator for necessary first aid.
- Liaise between the plant personnel.
- Report all the significant development to the chief coordinator
- Supervise the emergency shutdown procedures.
- Liaise with other coordinators and identifies the missing person. Communicates the details of the missing person to chief coordinator.

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### **15.6 RESPONSIBILITIES OF FIRE & SAFETY COORDINATOR**

(Security Officer/Security Supervisor- Alternate –Safety Incharge(Manager-QA/Safety officer))

- On receipt of the fire call, note down the location of the fire.
- Do not allow visitors into the factory.
- Arrange for opening the gate.
- Proceed to the scene of emergency along with security guards, two numbers of nozzles and personal protective equipments for assistance/ fire fighting.
- Arrange to control traffic and prevent parking of vehicles (other than those used in fire fighting within 100 meters of the scene of fire and near hydrant points).
- Prevent crowding of people around the scene of emergency.
- Liaise with fire chief for effective control.
- Organise relieving groups for fire fighting.
- Direct press reporters to the HOD Personnel.

#### **15.7 RESPONSIBILITIES OF ENGINEERING CO-ORDINATOR**

(Plant Engineering Sr.Manager – Alternate: Plant Engineering Manager/Executive)

- Isolate live electrical lines as required by Plant Coordinator.
- Ensure uninterrupted power supply wherever required the most.
- Ensure that the fire water motors and pumps are functioning with the fullest capacity.
- Provide required support to the plant coordinator.
- Mobilise a team from maintenance to assist fire and safety coordinator.

### **15.8 RESPONSIBILITIES OF WELFARE & MEDIA CO-ORDINATOR**

(HOD Personnel – Alternate: Personnel Executive)

- Inform and advise to all the persons who are likely to be affected (such as personnel of near by plants, other industries and residents in the locality) by the emergency on what they must do.
- Collect the latest information from the incident controller.
- Inform the District Authorities, Factory Inspectorate, Police Authorities, Other relevant State Government Authorities about the emergency after getting the approval from main controller.
- Liaise with various press media.
- Release written statement to the press after the approval of chief coordinator.
- Make arrangements for televising the incident (if public interest warrants).
- Arrange for refreshments and food to the emergency duty staff and personnel helping in the emergency operations.
- Look after the welfare of affected people.

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#### **15.9RESPONSIBILITIES OF COMMUNICATION COORDINATOR**

(HOD Personnel – Alternate: Personnel Executive)

- Take charges of communication through telephone, fax, messengers, etc.
- Supervise communication between Chief Emergency Coordinator and other coordinators.
- Checks the wind direction and communicates the assembly point to the contract workmen / visitors through communication carriers / public address system.
- Keep the residential addresses of all employees updated.
- Collect required information from various coordinators.
- To ensure communication carriers (Lab chemists/ Instrument Technician) are available near the site of emergency for Intra communication among various coordinators.
- Operate mutual aid scheme on getting authorisation from chief coordinator.
- Call fire service/ fire tender on getting instruction from chief coordinator.
- Arrange for the messengers to convey in case of any telephone failure.
- Telephone No. of Fire stations and nearby Industries

S.No.	Place	Phone No.
1	SIPCOT Fire Station	239242
2	Cuddalore Fire Station	220101
3	Nellikuppam Fire Station	272399
4	Clariant Chemicals	239100
5	Tanfac Industries Ltd.	239001-4

• Arrange for transport to pickup as many employees as possible.

• Organize head count. If any persons found missing the details will be informed to site controller.



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### **15.10. RESPONSIBILITIES OF MEDICAL COORDINATOR**

(HOD Personnel – Alternate: Personnel Executive)

- Send the Ambulance to site
- Ensures occupational health centre is readily available for first aid of affected people.
- Organize first aid team to treat the affected.
- Liaise with transport coordinator for sending the victims to the hospital.
- Get more information from the plant about the incident to arrange for treatment.
- Inform the GovernmentHospital and the nearest medical centres, giving full details so that proper prior arrangement can be made for treating the affected.
- Organize ambulance from other industries by the Mutual aid scheme if required.

Contact Phone Nos.

S.No.	Place	Phone No.
1	GovernmentHospital	230052
2	Surendra hospital, Cuddalore O.T.	237333
3	KrishnaHospital, Manjakuppam	231711
4	KannanHospital, Manjakuppam	231712
5	Company's Medical Practitioner	94432 - 37615 04142 - 237615

• Make a list of causalities for reference.

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### **15.11.RESPONSIBILITIES OF TRANSPORT COORDINATOR**

(HOD Personnel- Alternate: Personnel Executive)

Mobilize all available vehicles for emergency use.

- Intimates the drivers on wind direction and proposes the route of transportation.
- Transport the victims to hospital. Arrange for additional vehicles as per requirements.
- Agencies operate tourist taxies are

S.No.	Place	Phone No.
1	S S Travels, Cuddalore N.T.	Cell : 9443439341,9345653885
2	T.S.T Travels , Cuddalore O.T.	Cell 9443338372,9486222549

#### **18.12. RESPONSIBILITIES OF SECURITY COORDINATOR**

(HOD Personnel – Alternate: Personnel Executive)

- Prevent entry of unauthorized personnel.
- Release personnel to assist fire and safety coordinator.
- Liaise with local police authorities.
- Direct local authorities/ press to reception.

### 18.13. RESPONSIBILITIES OF COMMUNICATION CARRIERS

(Lab Chemists/ Instrument Technicians)

- 1. They will assemble/ go to the emergency site, based on instruction of communication coordinator.
- 2. Take instruction from chief coordinator/ Plant Coordinator (Site Controller) and effectively communicate as instructed.
- 3. They will serve as a link between various coordinators.

### **18.14. RESPONSIBILITIES OF PROCESS OPERATORS**

- 1. They will assemble at the Control room to take instruction from the Shift In charge
- 2. They will arrive at the scene of emergency to act as fire fighters/first aiders based on instructions from Chief controller.

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### **18.15. RESPONSIBILITIES OF FIRST AID COORDINATOR**

- 1. Assemble all Trained First aiders at the Emergency control centre
- 2. Instruct the First aid team to assemble at the scene of emergency or any other location based on instruction from Chief Emergency controller..

### **18.16. RESPONSIBILITIES OF FIRST AIDERS**

- 1. Assemble at the Emergency control centre
- 2. They will arrive at the scene of emergency to act as first aiders based on instructions from First aid coordinator.

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### **16.PROCEDURES TO BE FOLLOWED BY PLANT PERSONNEL IN THE EVENT OF EMERGENCY**

DATE

This section outlines in detail the basic duties and responsibilities of all employees in the event of fire and any other emergencies. It is impossible to list every contingency in the Operational Procedure. Therefore, basic steps outlined here should be supplemented by good judgement and common sense.

#### **16.1. ACTION TO BE TAKENBY THE INCIDENT CONTROLLER**

#### D MINOR FIRE

Extinguishing fire by shutting off source of fuel by using Water, Steam or Extinguisher available at site. Inform immediate superior.

#### II) MORE SERIOUS FIRE

Initiate the actions as explained as responsibility. Inform the fire station immediately and report the location of fire. Identify yourself, give brief description of fire, and hold on until the message is repeated back to you to ensure proper communication.

#### III) LEAKAGE OF CHEMICALS

Take action to transfer the contents of the leaking tank to other storage facilities/ Emergency tank. Convey the message to superior. Mobilize required resources to arrest the leak. Transfer the material collected in dyke wall to the storage facility/ Emergency tank as specified in the list of prevention action in Chapter 4.

#### **16.2. ACTION TO BE TAKEN BY THE LABORATORY PERSONNEL**

On hearing the emergency siren he will take the following steps:

- a. Inform the Incharge (Quality Control) and all Laboratory Personnel
- b. Suspend laboratory tests temporarily.
- c. Quality Control Incharge shall assemble in front of the laboratory to be ready to proceed to the scene of emergency with additional manpower support, if feasible.
- d. Chemists should report to communication coordinator immediately and on his instructions, go to emergency site to report to chief coordinator, to act as communication carriers.

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### **16.3 ACTION TO BE TAKEN BY THE OPERATORS OF THE PROCESS SECTION**

- a. On the receipt of the fire/ emergency message, note down the location of fire/ emergency and inform the shift incharge.
- b. Under the instruction of the shift incharge, the operators shall take necessary precautionary measures.
- c. WTP operator should immediately rush towards Fire Hydrant Pump room and Diesel Engine pump area and ensure that the pumps are functioning to the capacity.
- d. Process operators who are all trained in First aid will assemble at the Emergency control centre near Personnel Manager Cabin and upon instruction from First aid coordinator act as First aiders

### **16.4. ACTION TO BE TAKEN BY THE SHIFT INCHARGE OF PROCESSING UNIT**

- a. The shift in charge shall immediately send 2 to 3 operators in their respective sections to the scene of fire/ emergency and assist in containment of emergency.
- b. He shall then alert operators crew and be prepared for undertaking any Emergency Operating instructions as the situation warrants.

### **16.5. ACTION BY ELECTRICIAN**

- a. On hearing the fire/ emergency call, note down the location of the fire/ emergency and contact the shift incharge for further action.
- b. He shall ensure uninterrupted power supply wherever it is required the most.
- c. He shall cut the power supply wherever necessary as a precautionary measure.

### 16.6. ACTION BY THE SHIFT SUPERVISOR (Maintenance)

- a. He shall rush to the Fire Hydrant pump room and Diesel Engine pump area on hearing the siren and shall ensure that the Fire water pumps and Diesel Engine pump are functioning with the fullest capacity.
- b. He shall contact the shift in charge for further instructions and coordinate accordingly.

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#### **16.7. ACTION BY THE ENGINEERING PERSONNEL**

- a. Maintenance Personnel present near the scene of Fire/ Emergency will straight- away report to Fire/ Security officer and act as per his instruction.
- b. He shall contact the shift in charge for further instructions and coordinate accordingly.
- c. Other Maintenance Personnel, wherever they are working, will immediately report to the Emergency assembly point and wait for the instructions from his superior.

#### **16.8. ACTION BY STORES DEPARTMENT**

The stores in charge will remain at stores and issue materials and safety equipment required for combating the emergency.

#### <u>16.9. ACTION BY SECURITY GUARDIN THEMAIN ENTRANCE HEARING SIREN/</u> ON GETTING THE INFORMATION ON EMERGENCY

- a. On receipt of the fire/ emergency call, note down the location of the Fire/ Emergency.
- b. Do not allow visitors.
- c. Arrange for opening the Gate.
- d. Stay near Telephone for further instructions.

#### 16.10. ACTION BY SECURITY OFFICER

- a. Proceed to the scene of fire/ emergency along with security personnel and assist for firefighting/ controlling the emergency.
- b. Arrange to control traffic and prevent parking of vehicles within 100 Mts of scene of fire/ emergency (other than those used in fire fighting).
- c. Arrange not to allow visitors or spectators.
- d. Prevent crowding of people around the scene of fire.
- e. When authorized by the Chief Emergency Coordinator arrange for Mutual AID Scheme with other units. Also call fire brigade.
- f. Arrange to Direct Press reporters to the Personnel Manager.
- g. Conduct head count.
- h. If any person is missing in the head count report the same to communication coordinator.

#### **16.11. ACTION BY ACCOUNTS OFFICER**

- a. On hearing the Emergency Siren assemble at the Emergency control centre at the Personnel manager's cabin.
- b. Arrive at the scene of emergency based on the instruction from Chief controller and First aid coordinator

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### **16.12. ACTION BY HR OFFICER**

- a) On hearing the Emergency Siren assemble at the Emergency control centre at the Personnel manager's cabin.
- b) Receive the phone calls coming to GWM at his cabin.
- c) Arrive at Emergency assembly point and assist in head count.

### 16.11. MUTUAL AID SCHEME

We have liaison with the neighboring companies for assistance in case of situations of major emergencies. Apart from the same, we also have contact with the local fire station which is hardly 100 yards away.

The names of the neighboring industries and their Telephone numbers are given as under to contact them in case of Emergency.

- 1. M/s. Clariant Chemical Ltd. Phone: 04142- 239101-103(O)
- 2. M/S Tagros Chemicals India Ltd., Phone : 04142-239373

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#### 17. ONSITE EMERGENCY PLAN TO BE FOLLOWED DURING NON GENERAL SHIFT HOURS AND HOLIDAYS

The emergency preparedness plan during Non general shift hours and Holidays is indicated as under with the responsibilities reallocated to the available personnel available during that period. They will perform the responsibilities till the designated personnel / Senior most personnel arrive at site, to take charge of the proceedings.

## 17.1 KEY PERSONNEL IN MANAGEMENT OF EMERGENCY SITUATION DURING NON-GENERAL SHIFT HOURS AND HOLIDAYS

S.No.	Services	Name as mentioned in the plan	Person's Designation
1	Overall Coordination	Chief Emergency Coordinator	Shift Process Engineer
2	Plant Operational Control	Plant Coordinator (Site Controller)	Shift Process Engineer
3	Incident Control	Incident Controller	Shift Process Engineer
4	Medical Services	Medical Coordinators	OHC/Security Guard & Operator
5	Fire & Safety	Fire & Security Coordinator	Security Supervisor
6	Materials arrangement	Materials Coordinator	Shift Boiler Operator
7	Communication	Communication Coordinator	Shift Lab chemist
8	Transport	Transport Coordinator	Shift Lab chemist
9	Head Count	Security Coordinator	Shift Lab chemist

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#### **17.2 EMERGENCY CONTROL CENTRES (ECC)**

#### There is 1 Emergency Control Centers:-

S.NO	CONTROL CENTRES	LOCATION	MANAGED BY
1	Main Control Centre	Penta Plant Control Room	Shift In charge

#### **17.3 ACTION BY THE ETP OPERATOR**

ETP operator will rush to the spot of emergency and will assist in combating operations.

#### **17.4 ACTION BY THE BOILER OPERATOR**

One of the boiler operators shall rush to stores and will keep it open so assist easy movement of material to the spot of emergency.

#### **17.5 ACTION BY THE SECURITY INCHARGE**

- a. Inform all members of Security Department.
- b. Arrange to Open the gate and post a guard.
- c. Arrange to call/ pick up as many employees as possible.
- d. Rush to the scene of emergency and act according to Shift in charge instruction

#### **17.6 ACTION BY THE SHIFT INSTRUMENT TECHNICIAN**

- a. Report to the shift in charge immediately on hearing the emergency siren.
- b. Act as the communication carrier.
- c. Act as a communication link between Shift incharge and other coordinators

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#### **17.6 ACTION BY THE SHIFT LAB CHEMIST**

Shift Lab chemist after consultations with the Shift in charge will call the following key personnel from their residence. He will call for the fire fighting service of SIPCOT / TANFAC/CLARIANTetc. on getting specific instructions from shift engineer, who will assess the situation and decide on the need.

S.No.	Contact Person	Phone No.
1	General Works ManagerMr. K.Thulasheedharan Nair	221383 8903136100
2	Manager- PersonnelMr.Manickavasagam Valliappan	9940199849
3	Sr.Manager-ProductionMr.P.Jayakanthan	295844 9488026114
4	Sr.Manager-EngineeringMr. Sameer Johri	9825669163
5	Production ManagerMr .S.Sampathkumar	224331 94452-06652
6	Manager-Quality AssuranceMr. S.Saravanan	224325 9442209025
7	Production ManagerMr .S.Senthilkumaran	299033 9894469040
8	Engineering ExecutiveMr.D.Senthil Kumar	9367722750
9	Production ExecutiveMr.M.Arunkumar	9942842483
10	Engineering ManagerMr. C.Varun Kumar	9442462534
11	Executive-Personnel Mr.S.Karthikeyan	8754666560
11	Company's Medical Practitioner	9940405617
12	SIPCOT FIRE STATION	239242

#### **IMPORTANT**

The employees on arrival shall report to the Security in charge who will organize different teams. Updated residential address of all employees shall be kept ready at the Time Office for this purpose.

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#### 17.7 ONSITE EMERGENCY PLAN TO BE FOLLOWED DURING NON GENERAL SHIFT HOURS AND HOLIDAYS IN CASE VEHICLE CARRYING OUR FINISHED GOODS OR HAZARDOUS WASTE FROM ETP HAS MET WITH ACCIDENT

The emergency preparedness plan during Non-general shift hours and Holidays in case of message received from driver of the vehicle carrying our finished goods or Hazardous waste from ETP has met with an accident.

1. The person receiving the message diverts it to the shift in charge/ shift process engineer.

2. The shift in charge /shift process engineer collects the following details to assess the Situation:

- a. Location of the accident
- b. Condition of the material
- c. Extent of damage
- 3. Based on his assessment he instructs the driver to carryout mitigation activities.
- 4. Informs the General Works Manager / Chief Emergency Coordinator

5. The General Works Manager/ Chief Emergency Coordinator depending on the extent of damage deputes concerned personnel to the spot for investigation and remains in touch with the lorry driver

6. The General Works Manager/ Chief Emergency Coordinator seek the help of the Asian Paints representative in the nearby depot in combating emergency situations.

#### Note :

During working hours the above emergency will be handled by GWM/ Sr.Manager Production who will take the necessary steps depending on the nature of emergency,

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#### **18DETAILS OF SAFETY& FIRST AID EQUIPMENTS**

#### AVAILABILITY OF PERSONAL PROTECTIVE EQUIPMENTS (PPE)

Safety gadgets such as goggles, aprons, protective clothes, gasmasks, nose masks, earplugs, earmuffs, hand gloves of various types safety shoes, safety helmets etc are provided to workmen. Eye wash is provided at various locations. The details are given in Annexure "VI"

#### I. <u>DETAILS OF FIRE FIGHTING FACILITIES</u>

The following materials are available at our Factory for the purpose of Fire fighting: (Refer Annexure "IV" & "V")

Fire Hydrant Points	32 Nos.
Fire Hydrant Monitors (3 x 3)	9 Nos.
DCP 5 KG	16 Nos
DCP 10 KG	23 Nos.
CO <sub>2</sub> 6.8 KG	13 Nos.
Foam	3 Nos.
Form Generator	1 No.
Water Type	3 No.
FH Tank	3 Nos/220 KL X 2,620X1
FH Pump	2 Nos / 15 HP & 75 HP
Clear water tank	1 Nos/500 KL.
Medium velocity sprinkler system for	1 set
Acetaldehyde bullets	
Medium velocity sprinkler system and	1 set
Foam pouring system for Methanol storage	
tanks	
Diesel engine driven pump	273 M3/hr

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### <u>19. DETAILS OF FIRST AID FACILITIES & OCCUPATIONAL</u> <u>HEALTHCENTER</u>

#### I. First Aid Facility:

First Aid boxes have been placed at 7 different locations inside the plant. The locations are listed below.

- 1. Lab
- 2. Penta control room
- 3. Formaldehyde control room
- 4. Boiler control room
- 5. Workshop
- 6. Time office.
- 7. ETP

The List of first trained persons has been attached as separate attachment in Annexure No.VIII. The list is also made available at Time office for quick reference.

### **II. DETAILS OF OHC**

<u>Doctor</u>: A doctor with a diploma in industrial health is available in the OHC in G shift hours. Medical records of workmen & Contract work men have been made available with the doctor. Medicines are also made available in the OHC.

Nurse: Trained Nurses are available in the OHC round the clock.

<u>Ambulance:</u> An Ambulance with stretcher and first aid medicine is made available in the plant round the clock.

Facilities available in OHC:

- a. Bed, Pillow & Bed Spread
- b. Table of required size
- c. Toilet with wash arrangement
- d. Oxygen cylinder with required arrangements
- e. One Blood pressure apparatus.
- f. Stethoscope.
- g. Stretcher
- h. One Suction Equipment
- i. All prescribed / Required medicines
- j. Other equipment's like Drip Stand, trays etc.

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### 20.Details of fire protection system in Acetaldehyde and Methanol storage tanks

### Fire protection system available for Methanol storage tanks

The following systems are provided for the protection of Methanol storage tanks:

a. Manually operated Medium velocity water spray system (MVWS) system for storage of Methanol in tanks.

b. Manually operated semi-fixed foam system for methanol storage tanks.

#### Medium velocity water spray system (MVWS SYSTEM)

#### CODES AND STANDARDS

The following codes and standards are referred to while designing the system design:

- 1. Fire protection manual published by Tariff Advisory committee (TAC).
- 2. Rules for Water spray system Published by Tariff Advisory Committee (TAC)
- 3. Indian Standards (IS).

### AREAS COVERED

The following tanks and vessels are protected with water spray system: a) Methanol Storage tanks -4 Nos.

### WATER DESIGN requirement

As per the TAC guidelines following design water density is planned for the above product storage tanks/vessels.

• 3LPM/Sq.M of shell surface area for Methanol storage tanks.



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### WATER SUPPLY AND PUMPING ARRANGEMENT

Independent fire water reservoir and pumping arrangement is proposed for MVWS system. The details of water storage and pumping arrangements are elaborated in successive chapters.

### SYSTEM DESCRIPTION FOR METHANOL STORAGE TANKS

Manually operated water spray system is provided for Methanol storage tanks. Water required for MVWS system is tapped from the proposed pressurized underground watery spray system header. Medium velocity water spray system consists of spray nozzles, spray piping network and isolation valves.

In case of fire in any one of the tanks, the respective isolation butterfly valve normally kept in closed condition is to be opened manually so that the water will gush through the water spray piping and sprayed on to the tank shell for cooling the tank shell. The inlet butterfly valves of the adjacent tank also are to be opened for cooling its surface. The piping pressure will rapidly fall resulting in to operation of the fire pump. Once the fire is totally extinguished, the pumps shall be switched 'OFF' manually.

### Manually operated semi-fixed foam system for methanol storage tanks.

### FOAM SYSTEM

A sufficient volume of foam, on a burning substance, arrests the movement of air and prevents entry of oxygen. Heat converts the water-content in foam into steam and reduces the oxygen-content in the air. Water converted into steam helps absorb heat from the burning material meant to be protected. Foam System is employed to protect storage tanks containing flammable/ combustible liquids.

### CODES AND STANDARDS

The following codes and standards are referred to while designing the system design: □Fire Protection Manual of Tariff Advisory Committee (TAC) □NFPA 11 □Indian Standards(IS).

### AREAS COVERED

Four numbers of Methanol storage tanks are protected with semi-fixed foam system.

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### WATER SUPPLY AND PUMPING ARRANGEMENT

Water required for foam system shall be drawn from the underground water spray system header.

#### SYSTEM DESCRIPTION

Foam system consists of foam making chamber, inline inductor, and foam solution storage tank. The schematic arrangement of foam system for product storage tanks are shown below.

#### SYSTEM OPERATION

Under normal condition, all the inlet and outlet valves are kept in closed position. In case of fire in any one of the tanks, the main inlet butterfly valve and the respective isolation butterfly valve of the tank under fire are to be opened. Also the foam inlet valve normally closed is to be opened. Water will gush through the piping and inline inductor to the foam making chamber. Simultaneously, due to venturi effect in the inline inductor, foam at the required proportion is drawn from the foam tank. The water and foam mixture will enter into the foam maker and then will be discharged on to the burning surface.

Methanol storage tank contaminated with Foam is isolated from other storage tanks. Based on the Chief emergency controller's instructions the material in the contaminated storage tank can be transferred to one of the other storage tanks through bottom line equalization up to certain level from the top surface. This is to utilize the non contaminated methanol as such in the process. The contaminated methanol remaining on the surface will processed in the Formaldehyde plant distillation column in the next available opportunity and purified from contamination. Final contaminated product from the distillation column will be discarded to ETP through T-802.

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#### SYSTEM DESCRIPTION FOR WATER SPRAY FOR ACETALDEHYDE **STORAGE BULLETS**

Automatic medium velocity water spray system is proposed for Acetaldehyde storage bullets.

A typical MVWS Spray shall consist of sprayers, QB detectors, detection piping, spray piping and deluge valve. Water required for MVWS system is tapped from the proposed pressurized underground watery spray system header. The schematic arrangement of MVWS system for storage tanks is shown in fig. two numbers of product storage bullets and associated piping shall be combined and covered by one deluge valve which will be operated automatically. In case heat rises above 69°C. OB detectors installed around the protected area on the detection line, which will be laid along the spray piping will detect the rise in Temperature and shatters at 69°C thus releasing the pressure in detection line. Due to drop in pressure deluge valve operates automatically. The entire protected area is sprayed with water. The pressure switch located in the pump house detects the pressure drop and starts the pumps.

Another mechanism by which the Automatic water sprinkling system can operate is explained below. If the pressure in any one of the Bullets exceeds 2.0 Kg/cm2, then SOV in the detection line will open to drain the water in the line. By this pressure in the line drops and Deluge valve operates automatically and the entire Bullet is sprayed with water.

Pressure in the detection line can also be reduced by opening a manual valve located in the line to drain the water and inurn the pressure is reduced and the deluge valve is operated automatically to spray the water.

Op asianpaints	]	ONSITE EMERGENCY	PLAN	DOCUMENT NO : EHS-OEP-WSFP-24
ASIAN PAINTS LIMITED		<b>ISSUE NO :</b>	<b>ISSUE DATE</b> :	REV.NO:
Penta Division, Cudo	lalore.	05	18.06.2013	DATE

### WATER DESIGN REQUIREMENT

As per the TAC guidelines following design water density is planned for the above product storage tanks/vessels.

• 10.2 LPM/Esq. of shell surface area for Acetaldehyde storage Bullets.



Op asianpaints	ONSITE EMERGENCY PLAN			DOCUMENT NO : EHS-OEP-FAS-25	
ASIAN PAINTS LIMI	TED	<b>ISSUE NO :</b>	ISSUE DATE	: REV.NO:	
Penta Division, Cuddalore.		05 18.06.2013		DATE	
FIDE ALADM SVSTEM					

FIRE ALARM SYSTEM

Fire Alarm System comprising of a Main Annunciation panel located at Penta Control room, 5 Nos. of Zonal panels with sub zone circuits located in penta control room, Fa control room, LT room, 16 TPH Boiler control room and Time office of Administration block.

Smoke detectors and Manual call points are installed and distributed in various plant areas of the corresponding Zones.

The below mentioned architecture shows the detailed location of each sub zones and its no. of smoke detectors and Manual call points.


op asianpaints	ONSITE EMERGENCY PLAN				DOCUMENT NO : EHS-OEP-FAS-25
ASIAN PAINTS LIMITED		<b>ISSUE NO :</b>	ISSUE DATE	:	<b>REV.NO:</b>
Penta Division, Cuddalore.		05 18.06.2013			DATE

#### Procedure to be followed for use of Fire Alarm System.

#### In the case of any Fire Emergency in the following area,

- 1. Penta Control room, MCC 1A &1B, MCC 2
- 2. Fa control room, Acetaldehyde day tank
- 3. LT MCC room, DG room, HT room,
- 4. 16 TPH Boiler control room, MCC-8, 14 TPH Boiler control room, 1.5MW TG room, 500 KW TG room
- 5. Administration block

Fire will be detected automatically through the **Smoke detectors** installed in various points of these locations and an audible alarm will be coming in the respective control room and also to the main Penta control room.

Location of the actual fire area can be seen visually in the corresponding zonal panel and can locate the sub zone area and he can immediately rush to the spot.

In the spot, the corresponding smoke detector indication will be glowing continuously with red colour.

In penta control room along with the audible alarm the respective zone LED will be glowing in red colour.

#### In case of any fire identified in the following and nearby areas,

- 1. Penta plant area, MCC -1A&1B nearby area, MCC-2 nearby area
- 2. Fa plant area, Methanol storage tanks farm, Acetaldehyde storage tank farm, Formaldehyde storage tank farm, Acetaldehyde Day tank area, MCC-6 nearby area
- 3. LT room and HT room nearby area,
- 4. 16 TPH boiler area, 14 TPH boiler area, TG area

Anyone can break the glass with the help of a small hammer provided in each **Manual call points (MCP)** which are located in the above said areas.

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It will be automatically alerted through an audible alarm in the corresponding control room and also to the main Penta control room.

Location of the manual call point area can be seen visually in the corresponding zonal panel and can locate the sub zone area and he can immediately rush to spot.

In the spot, the corresponding the manual call point indication will be glowing continuously with red colour.

In penta control room along with the audible alarm the respective zone LED will be glowing in red colour.

#### Maintenance of Fire Alarm system:

Fire Alarm system is being maintained by competent personnel.

Healthiness of the system is ensured periodically.

Annual Maintenance contract is provided with M/s. Aswin Engineers, Chennai, and the system preventive maintenance is carried out once in 3 months.

#### ANNEXURE – I

### DETAILS TO BE FURNISHED IN THE ON-SITE EMERGENCY PLAN AS PER RULE 13(1) OF THE MANUFACTURER OF HAZARDOUS CHEMICALS RULES <u>1989</u>

SL.NO	DESCRIPTION	DETAILS
1.	Name and address of the person furnishing the information.	K.Thulasheedharan Nair General Works Manager, APIL, B5-B10, SIPCOT Industrial Complex, Kudikadu, Cuddalore - 607 005
2	Key Personnel of the organization and responsibilities assigned to them in case of an emergency.	Provided in chapter No.17 of this plan
3	Outside organization in involved in assisting during on-site emergency.	<ul> <li>Major fire &amp; heavy leakage of raw material / collapse of chemical storage tanks.</li> <li>Fire fighting</li> <li>Providing assistance to evacuate the victims.</li> <li>Providing any other resources victims.</li> </ul>
4	Details of liaison arrangements between the organization.	• The safety in charge / the head of the organization are contacted at the time of emergency to get necessary help.
5	Information on the preliminary hazard analysis: (a) Types of accidents	• Given in chapter no.5 of this plan
	(b) System elements or events that can lead to a major accident	• Given in chapter no.5 of this plan
	(c) Hazards	• Given in chapter no.5 of this plan
	(d) Safety relevant components	• Give in chapter no.5 of this plan
6	Details about this site: (b) Location of dangerous substances	• Details are shown in a layout and enclosed as Annexure III
	(b) Site key personnel	• Details are shown in a layout and enclosed as Annexure III
	(c) Emergency Control Room	• Details are shown in a layout and enclosed as Annexure III

SL.NO	DESCRIPTION	DETAILS
7	Description of hazardous chemicals at plant site	
	(a) Chemicals (Quantities and toxicological data)	• Details are provided as Annexure II
	(b) Transformation if any which could occur	• Details are provided as Annexure
		Π
	© Purity of hazardous chemicals	• Details are provided as Annexure
		II
8	Likely dangers to the plant	• The plant could be totally
		damaged by fire if not
		extinguished immediately
9	Enumerate effects of	
	(1) Stress and strain caused during normal operation	• Stress & strain not caused during normal operation
	(ii) Fire and explosion inside the plant and	• Fire inside the plant can damage
	effect if	the plant machinery
	any, of fire explosion outside	• Fire outside the plant can cause
		facilities & can lead to offsite
10	Details regarding	emorgeney
	(i) Warning alarm and safety and security systems	• Details are given in chapter no. of this plan
	(ii) Alarm and hazard control plans in live	• System is checked once in a
	with disaster control and hazard control	week.
	technical and organizational precautions	
	(iii) Reliable measuring instruments, control	• Periodically serviced through
	units and servicing of such equipments	preventive maintenance schedule
	(iv) Precautions in designing of the	<ul> <li>Adequate care has been taken.</li> </ul>
	foundation and load bearing parts of the building	
	(v) Continuous surveillance of operations	• Operations are monitored by the
		concerned operations / shift in
	() Maintenance and much models	charges all 24 hours of the day.
	to the generally reorganized rules of	• Being ensured.
11	good engineering practices	• Four external telephone lines are
11	during emergency and those required for an off -	available with battery backup.
	site emergency.	Additional Email & Fax facilities
		are available.
12	Details of fire fighting and other facilities	• Details are given in chapter
	emergency.	no.15 of this plan.
13	Details of first aid and hospital services	• Adequate facilities are available
	available and its adequacy.	and details are given in chapter
		no.19 of this plan.

#### ANNEXURE – II

#### **DESCRIPTION OF HAZARDOUS CHEMICALS AT PLANT SITE**

S.No	Name of the Chemical	Purity of Chemical	Storage Capacity	Transformation if any which could occur	Nature
1	Methanol	99.9%	800 KL	On heating it evaporates to vapor	Highly Flammable Liquid
2	Acetaldehyde	99.0%	2*35KL =70 KL * Both bullets put together, the storage quantity of Acetaldehyde is limited to 35 KL max.at any	Under pressure remains as liquid and at atmospheric temperature and pressure, it vaporizes.	Flammable Liquid
3	Formaldehvde	37 %	400 KL	NA	Toxic Liquid
		01 /0			10.110 214000
4	Hydrochloric Acid	33 %	15 KL	NA	Fuming Liquid
5	Sulphuric Acid	98 %	15 KL	NA	Corrosive Liquid
6	Formic Acid	85 %	25 KL	NA	Corrosive Liquid
7	Caustic Soda Lye	48 %	200 KL	NA	Corrosive Liquid



# **EXECUTION OF ONSITE EMERGENCY PLAN**



#### ANNEXURE-IV

#### FIRE EXTINGUISHER DETAILS OF OUR PLANT

Sl.No	Description	Description Extinguisher I		Details	
	•	Туре	Capacity	Qty/Nos	
1	Security cabin				
2	Weighbridge				
3	Cycle stand				
4	Canteen	Water Type	9 Kgs	1	
		DCP	5 Kgs	1	
5	Workshop and	DCP	5 Kgs	2	
	Engineering Stores	Water Type	9 Kgs	1	
6	LT Sub station	DCP	10 Kgs	2	
7	HT Substation /	DCP	10 Kgs	4	
	DG Room	$CO_2$	6.8 Kgs	2	
		Foam	9 Kgs	1	
8	Warehouse &	DCP	5 Kgs	6	
	Bagging area	DCP	5 Kgs	2	
9	Penta plant	DCP	10 Kgs	8	
		DCP	5 Kgs	1	
1.0			6.8 Kgs	5	
10	Quality control lab	DCP	5 Kgs	1	
11	Diesel, Furnace oil storage tank	Foam	9 Ltrs	2	
12	Fire hydrant pump room	DCP	10 Kgs	1	
13	Cooling tower				
14	Water Treatment Plant				
15	Water storage tank				
16	Lignite Storage shed				
1/	Coal / Lignite bunker				
18	Boiler House, Turbine house		6.8 Kgs	3	
19	Methanol storage tanks	DCP	10 Kgs	3	
20	Effluent Treatment Plant	DCP	5 Kgs	1	
21	Formaldahyda nlant		0.8 Kgs	1	
21	Formaldenyde plant		0.8 Kgs	2	
22	Mathanal day tank	DCF	10 Kgs	5	
22	Formaldahyda storaga tanks				
23	A cataldabyda storaga bullat	DCP	10 Kgs	2	
24	Accounts office	Water Type	9 K gs	1	
25	Caustic soda tank		5 Kgs	1	
20	Fuel handling system	Dei	5 Kgs		
27	Foam generator	FFF	100 I trs		
20	RO plant	CO2	68 K gs	1	
30	MFE/ATED	<u> </u>	68 Kgs	1	
50		DCP	5 Kgs	1	
31	16 TPH BOILER	CO2	6.8	1	
		DCP	10	2	
32	16 TPH TURBINE	CO2	6.8	2	
		DCP	10	2	
33	ADMNBUILDING	WATER	5 L	1	

#### ANNEXURE – V

#### **DETAILS OF FIRE HYDRANT IN OUR PLANT**

Hydrant No	Location
FH-1	Opposite to Warehouse (North side)
FH-2	Opposite to Warehouse (North east corner)
FH-3	Rear side of Workshop and Engineering Stores (North side)
FH-4	Opposite to SF Off-site area (Near T-217)
FH-5	Penta Plant Entrance fire escape hydrant
FH-6	Opposite to Penta Plant (Near H <sub>2</sub> SO <sub>4</sub>
FH-7, 8 & 9	South side of Penta Plant (Near T-802 tank) Monitor
FH-10	West side of Caustic main tank
FH-11, 12 & 13	Rear side of Formaldehyde plant (South side) Monitor
FH-14	Rear side of Methanol tank (South side)
FH-15	Entrance to Methanol tank (North side)
FH-16	Formaldehyde Plant fire escape hydrant at Second floor
FH-17	Formaldehyde Plant fire escape hydrant at First floor
FH-18	Opposite to Formaldehyde Plant (North side)
FH-19	East side of Penta Plant (Near T-148)
FH-20	Penta Plant Fire escape hydrant (Near NCO Centrifuge)
FH-21	East side of warehouse (Between QA Lab & Warehouse)
FH-22	In between Coal yard and Raw water storage tank
FH-23	In between Boiler and Coal Bunker
FH-24	South side of Boiler House (Near Turbine)
FH-25	Rear side of 16 TPH Boiler (East side)
FH-26	Fire escape hydrant in 16 TPH Boiler
FH-27	Rear side of Lignite side (North side)
FH-28	Entrance of Lignite side (North side)
FH-29, 30 & 31	Coal yard Monitor (North side of Coal yard) Monitor
FH-32	In between LT Sub Station & Furnace Oil tank area (East side)
FH-33	Rear side of LT Sub Station (North side)
FH-34	Rear side of QA Building (South side)
FH-35	Near Acetaldehyde Bullet area (West side)
FH-36	East side of Acetaldehyde Day tank
FH-37	South side of FBC Boiler
FH-38	West side of FBC Boiler
FH-39	Near Furnace Oil day tank (North side of 8 TPH Boiler)
FH-40	In between Coal Crusher and Lignite Shed
FH-41	Fire escape hydrant in FBC Boiler
FH 42,43,44	Near Coal Crusher

#### ANNEXURE – VI

### **DETAILS OF PERSONAL PROTECTIVE EQUIPMENT**

Sl.No.	Description	Place of Availability				
	NON-RESPIRATORY PROTECTIVE EQUIPMENT					
1	Ear Plug	Issued to all workmen				
2	Ear Muff	At work spots				
3	Safety Goggles	Issued to all workmen				
4	Welding Shield	At work spots				
5	Face Shield	At work spots				
6	Hand Gloves – Cotton	Available at stores				
7	Leather Hand Gloves	Available at stores				
8	Asbestos Gloves	At work spots				
9	PVC / Rubber Hand Gloves	At work spots				
10	Rubber Hand Gloves (Electrical)	Available at LT Room				
11	Apron (PVC)	Available at stores				
12	Safety Belt	Available at stores				
	RESPIRATORY PROTECTIVE EQUIPMENT					
13	Nose Mask	Issued to workmen as per requirement				
14	Breathing Aspirator	Available at stores				

List of areas where eye wash has been provided:

Penta Plant		Near T-133,Near Caustic day tank,Near SF centrifuge
Fa Plant		Near Distillation column bottom, first floor
WTP		Near SAC
ETP		Near Control room
Raw Material S	torage area -	- Near Fa Main Tanks, Caustic Main tank ,Formic acid
		/Sulphuric acid main tank , Methanol main tank
		HCL storage tank
Boiler		Near 16 TPH boiler pocket feeder in the 1 st floor
	Ne	ear 16 TPH PA fan in the ground floor

#### ANNEXURE – VII

### DETAILS OF SAFETY DEVICES / SYSTEMS ATTACHED AT EACH PROCESSING STAGE.

#### List of Safety devices at individual processing stages:

S. No:	Safety device	Equipment
Materia	l Storage	
1	Safety valves/Rupture discs	Acetaldehyde storage tank.
2	Pressure sensor & high Pressure alarm	Acetaldehyde storage tank.
3	Level transmitter & Local level gauges	Acetaldehyde storage tank.
4	Ultrasonic level gauges & local level gauges &	Formaldehyde & Methanol
	high level alarms.	storage tanks.
5	Gas sensors	Acetaldehyde/Methanol main
		tanks.
Formald	lehyde Plant	
6	Safety valves, Rupture discs, level controllers	Carburettor, Reactor
	& Temperature controllers.	
Penta Pl	ant	
7	Safety valves,	Stripper distillation column,
		Evaporator.
	Level Sensors & controllers	Pure crystallizer
	Flow Sensors & controllers	Crude crystallizer
	Temperature Sensors & controllers.	Oslo crystallizer.
8	Explosion vent	Fluidized Bed dryer.
Boiler		
9	Safety valve, load controllers & pressure	Steam drum.
	controllers.	
Air Con	pressors	
10	Safety valves	Air receiver.
Plant-Fi	re Alarm system	
11	Smoke Detectors	Administration Block, All control
		rooms, All MCC rooms, Process
		areas
12	Manual Call Points	All Raw Material Storage tank
		areas, Process areas

#### ANNEXURE – VIII

LIST OF FIRST AID TRAINED PERSONS CONDUCTED BY ST .JOHN AMBULANCE						
			CERTIFICATE	VALIDITY		
S.NO.	Emp.No	NAME	FROM	UP TO		
1	402786	K.Prathab	25.07.2014	24.07.2017		
2	402378	P.Venkatachalapathy	25.07.2014	24.07.2017		
3	402377	R.Shanmugam	25.07.2014	24.07.2017		
4	402577	V.Jaganathan	25.07.2014	24.07.2017		
5	402023	P.Soundararajan	25.07.2014	24.07.2017		
6	402531	S.Purushothaman	25.07.2014	24.07.2017		
7	402290	J.Vinoth	25.07.2014	24.07.2017		
8	112844	V.Velmurugan	25.07.2014	24.07.2017		
9	402578	R.Saravanan(new)	25.07.2014	24.07.2017		
10	402501	K.Silambarasan	25.07.2014	24.07.2017		
11	401089	S.Somasundaram	25.07.2014	24.07.2017		
12	402094	M.Sadeesh	25.07.2014	24.07.2017		
13	402425	A.Anbarasan	25.07.2014	24.07.2017		
14	401126	G.S.Velayutham	25.07.2014	24.07.2017		
15	103265	N.S.Palaniyappan	25.07.2014	24.07.2017		
16	401608	K.Sakthivel	25.07.2014	24.07.2017		
17	111677	V.Baskaran	25.07.2014	24.07.2017		
18	105816	K.Ramesh	25.07.2014	24.07.2017		
19	401904	E.Isravel reegan	25.07.2014	24.07.2017		
20	108967	A.Idhayadullah	25.07.2014	24.07.2017		
21	111878	J.Karthik	25.07.2014	24.07.2017		
22	110950	A.Nishanth	25.07.2014	24.07.2017		
23	113884	C.H.Ranjith	25.07.2014	24.07.2017		
24	103275	K.Kamaraj	25.07.2014	24.07.2017		
25	403157	N.Parasuraman	25.07.2014	24.07.2017		
26	403202	S.Senthil	25.07.2014	24.07.2017		
27	401077	S.Parivallal	07.03.2016	06.03.2017		
28	111971	K.Dhanasekaran	07.03.2016	06.03.2017		
29	402378	P.Venkatachalapathy	07.03.2016	06.03.2017		
30	403224	A.Deepathkumar	07.03.2016	06.03.2017		
31	108691	D.Raveendran	07.03.2016	06.03.2017		
32	403226	M.Manikandan	07.03.2016	06.03.2017		
33	107741	N.Raja	07.03.2016	06.03.2017		
34	402580	S.Sathish	07.03.2016	06.03.2017		
35	113848	K.Vishnu	07.03.2016	06.03.2017		
36	114438	V.Surendar raj	07.03.2016	06.03.2017		
37	402577	V.Jaganathan	07.03.2016	06.03.2017		
38	402023	P.Soundararajan	07.03.2016	06.03.2017		

#### ANNEXURE – IX ASIAN PAINTS LIMITED, PENTA DIVISION, CUDDALORE

### WORK ODDED

NO							
FROM		TO: Mechanical/Electrical/Instruments/Civil/Process/					
Utilities/ Safety							
DESCRIPTION OF	JOB TO BE	DONE					
DEDMIT DEALIDI	MENT · Uo	t work / Confined a	nooo ontru/Worling	at haights/Excepted	on/Hoz		
Work / NIL		t work / Commed s	space entry/ working	at nergints/ Excavati	on/ haz.		
PPE REQUIREME	NT: Helmet/ C	Goggles/ Face shield	d/ Hand gloves/ Apro	on/ Gum boots/ Safe	ty belt/		
Cartridge mask/Airlin	ne / SCBA	00	0 1		•		
	PROCESS	ELECTRICAL	INSTRUMENTS	MECHANICAL	UTILITY		
ISOLATION							
REQUIREMENTS							
	Sign	Sign	Sign	Sign	Sign		
	JIZII				JIJII		
Permits as above chee	cked and found	d in order YE	ES/NO/NA				
PPEs as above checked	ed and found i	n order YI	ES/NO/NA				
Isolations as above at	alad and for	und in order VI					
Isolations as above ci	lecked and for	ind morder 11	ES/INO/INA				
The equipment is cert	ified as safe to	o work and released	l to carry out the job	mentioned above			
Signature of the use	r of the equip	ment	Date	Time			
	E	QUIPMENT REQ	QUALIFICATION				
The above job is carri	ied out and co	mpleted					
		inprotod					
Site cleared of materi	als and tools						
		_					
Permits as mentioned	above are clo	sed					
Signature of the serv	vice departme	ent	Date	Time			
<u><u> </u></u>	PROCESS	ELECTRICAL	INSTRUMENTS	MECHANICAL	UTILITY		
ISOLATIONS							
RESTORED							
	Sign	Sign	Sign	Sign	Sign		
	51511	51511	51511	51511	Jigii		
Equipment checked a	nd taken into	use					
Signature of the use	r department		Date	Time			

First copy to service department Second copy (Book copy) for user department

#### **ANNEXURE – IX** ASIAN PAINTS LIMITED, PENTA DIVISION, CUDDALORE

do W	ORK I	PERMIT User?	Service Department Cop
And the second s		No. /	49
	WORK	ORDER	
Date: Time: From	His 10	Paperd by : Motherical / Electrical / Instrume	et, I Chill / Process / Utilitie
Epipment / Pipe lines Involved		[PROCESS] BLECTRICAL [INSTRUMENTS]	HECHANICAL UTUTY
lob Description			
Permit required : Height work / Hot Work / Hau PPE'S Required: Heimet / Goggles / Face Sh	cardous Work / Cort éeld / Hand gioves / /	ined space enty / Eccavation work / NA Apron / Gam boots / Safety belt / Catridge	mask / Airline / SCBA
	GENERAL (	CHECK LIST	
Equipment isolated process wise/Nechanically	(robaling-reciprocation	ig parts) / Electrically and suitable blinds pr	ovided YES / ND / NA
Equipment / Line Depressuraed / Cooled			YES/NO/NA
Equipment / pipelines drained and flushed, do	suble blocked / dums	neo-preeded and ensured mee of maters	N. TESTNOTING
Presence of Raminable material / products checked removed from the surrounding area			VER/NO/NA
Area barricaded and sign posted	D		YES/ND/NA
Proper ventiliation (Fan/Air hose) and Lighting	provided Namp bel	w 24 V in case of confined space entryl.	YES / ND / NV
Insteament connections isolated ( Radia active sources isolated			YES (ND / N
Personnel assigned the job-(standby parson als	o, for confined space)	has been explained about the safe working	method YES / ND / N/
PRECAUT	IONS BY THE	SERVICE DEPARTMENT	5-5-5-260-3
Security personnel available at the spot with adeq	uate Files headrand hose	s & Fire extinguishere (CO2, DCP, M.Fsen)	YES/ND/NA
Sale access to the work place provided (ladder, scallolding, Platform)			YES (ND / NA
Working personnel provided with required PP	ES		YES/NO/NA
·	<b>IEIGHT WORI</b>	C - CHECK LIST	
Condition of Laddes' scattolding / Platform is	checked and found is	n order	YES/ND/N/
Condition of the safety belt is checked and if	te hook is property a	nchored to a fixed if rigid support	YES / NO / N
Safety net provided	fromt in order		YES / NO / N
WOT WORK - CHECK LE	CT.	CONTINED SPACE ENT	DY CHECK LICT
INOT WORK - CHECK LL	UTO CHOUCHA	CONFINED SPACE ENT	NTO AND AND
sperk taking area werseo	TES/ NU/ NH	Calify but and the interprovided.	VER UND UND
Adjacent equipment covered / protected / der	Hed YES/NO/NA	Packated with proper entry / dot	TEB/NU/NA
Weiding cables, Gas hoeks are properly route	d TESTNUTNA	Ensures pocket are emploid	TES/NJ/NA
Area: checked with approarvemater	ALEL / NA	space checked for oxygen content : Hea	ang
HAZARDOUS WORK C	HECK LIST	L EXCAVATION WORK - CHECK LIST	
Wind direction noted	YES/NO/NA	Precautions against damaging underground cableYES / NO / N/ (Informed to Instrument / Electrical Department)	
Escape route / Exit clear	YES / NO / NA	Preceditions against damaging underground pipe YES/ NO / NA	
Spark proof tools provided.	YES / NO / NA	(Informed to Mechanical department job)	
Name of the Contract :			
Name of the personnal involved on the Job:		3	
	2	4	
The Above precautions are checked and four	in order. The wor	k place is petilled safe to carryout the job	mentioned.
Maintenance Engineer / Service Dept.	Process Engineer/	User Dept. Manager / Esecut	lva - Saluty Incharge
Job Completion Status :	0.0000000000000000000000000000000000000	tecomple	tion each setting and

Site cleared of material and tools 1

Complete In Complete

Process Engineer / User Dopt

Maintenance Engineer / Service Dept.

Date :

Time :

# Material Safety Data Sheet- Acetaldehyde



### Section 1: Chemical Product and Company Identification

Product Name: Acetaldehyde CAS#: 75-07-0 **RTECS:** AB1925000 TSCA: TSCA 8(b) inventory: Acetaldehyde **CI#:** Not applicable. Synonym: Ethyl Aldehyde; Ethanal; Acetic Aldehyde Chemical Name: Acetaldehyde **Chemical Formula:** CH3CHO **Contact Information: Asian Paints Limited B5-B10**, Sipcot Industrial Complex Kudikadu, Cuddalore-607005. 24HR Emergency Telephone, call: +91 4142-239247.239248. 239423 Fax:+91 4142 239234

### Section 2: Composition and Information on Ingredients

**Composition:** 

Name	CAS #	% by Weight
Acetaldehyde	75-07-0	100

**Toxicological Data on Ingredients:** Acetaldehyde: ORAL (LD50): Acute: 661 mg/kg [Rat.]. 900 mg/kg [Mouse].DERMAL;(LD50): Acute: 3540 mg/kg [Rabbit]. VAPOR (LC50): Acute: 13300 ppm 4 hours [Rat]. 23000 mg/m 4 hours [Mouse].

### Section 3: Hazards Identification

#### **Potential Acute Health Effects:**

Hazardous in case of eye contact (irritant), of ingestion, of inhalation (lung irritant). Slightly hazardous in case of skin contact (irritant, permeator).

#### **Potential Chronic Health Effects:**

Hazardous in case of skin contact (irritant). Slightly hazardous in case of skin contact (sensitizer). CARCINOGENIC EFFECTS: Classified 2B (Possible for human.) by IARC. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells.Mutagenic for bacteria and/or yeast. TERATOGENIC EFFECTS: Classified POSSIBLE for human. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to liver. Repeated or prolonged exposure to the substance can produce target organs damage.

### Section 4: First Aid Measures

#### Eye Contact:

Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Get medical attention.

#### Skin Contact:

In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

#### Serious Skin Contact: Not available.

#### Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

#### Serious Inhalation:

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. Seek medical attention.

#### **Ingestion:**

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband. **Serious Ingestion:** Not available.

### Section 5: Fire and Explosion Data

#### Flammability of the Product: Flammable.

Auto-Ignition Temperature: 175°C (347°F) (ACGIH, 1996; Lewis, 1996; NFPA, 1994); 185 deg. C (ILO, 1998)

#### Flash Points:

CLOSED CUP: -38°C (-36.4°F) (Buvardi (1996); Clayton and Clayton, 1993; Lewis, 1996); -38.89 deg. C (American Conference of Governmental Industrial Hygienests) OPEN CUP: -40°C (-40°F) (Lewis, 1997; ACGIH, 1996 (Cleveland).

#### Flammable Limits:

LOWER: 4% UPPER: 55% (Clayton; Patty's Industrial Hygiene and Toxicology); 57% (American Conference of Governmental Industrial Hygiensts); 60% (National Fire Protection Association)

Products of Combustion: These products are carbon oxides (CO, CO2).

#### Fire Hazards in Presence of Various Substances:

Extremely flammable in presence of open flames and sparks, of heat. Non-flammable in presence of shocks.

#### **Explosion Hazards in Presence of Various Substances:**

Risks of explosion of the product in presence of static discharge: Not available. Explosive in presence of heat, of acids, of alkalis. Non-explosive in presence of shocks.

#### **Fire Fighting Media and Instructions:**

Flammable liquid, soluble or dispersed in water. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, auto ignition or explosion.

Special Remarks on Fire Hazards: When heated to decomposition it emits acrid smoke and fumes.

#### Special Remarks on Explosion Hazards:

Hazardous or explosive polymerization may occur with acids, alkaline materials, heat, strong bases, trace metals. Forms explosive peroxides on exposure to air, heat or sunlight.

### Section 6: Accidental Release Measures

#### Small Spill:

Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

#### Large Spill:

Flammable liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not touch spilled material. Prevent entry into sewers, basements or confined areas; dike if needed. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

### Section 7: Handling and Storage

#### **Precautions:**

Keep locked up.. Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Avoid contact with eyes. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Keep away from incompatibles such as oxidizing agents, combustible materials, organic materials, metals, acids, alkalis.

#### **Storage:**

Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

### Section 8: Exposure Controls/Personal Protection

#### **Engineering Controls:**

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

#### **Personal Protection:**

Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves (impervious).

#### Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

#### **Exposure Limits:**

TWA: 25 (ppm) from ACGIH (TLV) [United States] TWA: 200 STEL: 150 (ppm) from OSHA (PEL) [United States] TWA: 360 STEL: 270 (mg/m3) from OSHA (PEL) [United States] Consult local authorities for acceptable exposure limits.

### Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid. (Fuming liquid.) Odor: Fruity. Pungent. (Strong.) Taste: Leafy green Molecular Weight: 44.05 g/mole Color: Colorless. pH (1% soln/water): Not available. Boiling Point: 21°C (69.8°F) Melting Point: -123.5°C (-190.3°F) Critical Temperature: 188°C (370.4°F) Specific Gravity: 0.78 (Water = 1) Vapor Pressure: 101.3 kPa (@ 20°C) Vapor Density: 1.52 (Air = 1) Volatility: Not available. Odor Threshold: 0.21 ppm

Water/Oil Dist. Coeff.: Not available.

Ionicity (in Water): Not available.

Dispersion Properties: See solubility in water, diethyl ether, acetone.

#### Solubility:

Easily soluble in cold water, hot water. Soluble in diethyl ether, acetone. Miscible with benzene, gasoline, solvent naphtha, toluene, xylene, turpentine. Solubility in water: 1000 g/l @ 25 deg. C.

### Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Heat, igition sources (flames, sparks), incompatible materials

#### Incompatibility with various substances:

Highly reactive with metals, acids, alkalis. Reactive with oxidizing agents, combustible materials, organic materials.

**Corrosivity:** Non-corrosive in presence of glass.

#### **Special Remarks on Reactivity:**

Reacts with oxidizing materials, halogens, amines, strong alkalies (bases), and acids, cobalt acetate, phenols, ketones, ammonia, hydrogen cyanide, hydrogen sulfide, hydrogen peroxide, mercury (II) salts (chlorate or perchlorate), acid anhydrides, alcohols, iodine, isocyanates, phosphorus, phosphorus isocyanate, tris(2-chlorobutyl)amine. It can slowly polymerize to paraldehyde. Polymerization may occur in presence of acid traces causing exothermic reaction, increased vessel pressure, fire, and explosion. Impure material polymerizes readily in presence of traces of metals (iron) or acids. Acetaldehyde is polymerized violently by concentrated sulfuric acid. Acetaldehyde can dissolve rubber.

Special Remarks on Corrosivity: Not available.

Polymerization: Not available.

### Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Eye contact. Inhalation. Ingestion.

#### **Toxicity to Animals:**

WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 661 mg/kg [Rat.]. Acute dermal toxicity (LD50): 3540 mg/kg [Rabbit]. Acute toxicity of the vapor (LC50): 23000 mg/m3 4 hours [Mouse].

#### **Chronic Effects on Humans:**

CARCINOGENIC EFFECTS: Classified 2B (Possible for human.) by IARC. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast. TERATOGENIC EFFECTS: Classified POSSIBLE for human. May cause damage to the following organs: liver.

#### **Other Toxic Effects on Humans:**

Hazardous in case of ingestion, of inhalation (lung irritant). Slightly hazardous in case of skin contact (irritant, permeator).

Special Remarks on Toxicity to Animals: Not available.

#### **Special Remarks on Chronic Effects on Humans:**

May cause adverse reproductive effects and birth defects (teratogenic) based on animal test data May affect genetic material (mutagenic). May cause cancer based on animal test data

#### Special Remarks on other Toxic Effects on Humans:

Acute Potential Health Effects: Skin: Causes mild skin irritation. It can be absorbed through intact skin. Eyes: Causes severe eye irritation. Eye splashes produce painful but superficial corneal injuries which heal rapidly. Inhalation: It causes upper respiratory tract and mucous membrane irritation. It decreases the amount of pulmonary macrophages. It may cause bronchitis. It may cause pulmonary edema, often the cause of delayed death. It may affect respiration (dyspnoea) and respiratory arrest and death may

occur. It may affect behaviour/central nervous and cause central nervous system depression. Irritation usually prevents voluntary exposure to airborne concentrations high enough to cause CNS depression, although this effect has occurred in experimental animals. It may also affect the peripheral nervous system and cardiovascular system (hypotension or hypertension, tachycardia, bradycardia), kidneys (albuminuria) Chronic Potential Health Effects: Skin: Prolonged direct skin contact causes erythema and burns. Repeated exposure may cause dermatitis secondary to primary irritation or sensitization. Ingestion: Symptoms of chronic Acetaldehyde exposure may resemble those of chronic alcoholism. Acetaldehyde is the a metabolite of ethanol in humans and has been implicated as the active agent damaging the liver in ethanol-induced liver disease.

### Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

#### **Products of Biodegradation:**

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

### Section 13: Disposal Considerations

#### Waste Disposal:

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

### Section 14: Transport Information

**DOT Classification:** CLASS 3: Flammable liquid. **Identification:** : Acetaldehyde UNNA: 1089 PG: I **Special Provisions for Transport:** Marine Pollutant

### Section 15: Other Regulatory Information

#### **Other Regulations:**

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

#### **Other Classifications:**

#### WHMIS (Canada):

CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F). CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

#### DSCL (EEC):

R12- Extremely flammable. R36/37/38- Irritating to eyes, respiratory system and skin. R40- Possible risks of irreversible effects. S16- Keep away from sources of ignition - No smoking. S33- Take precautionary measures against static discharges. S36/37/39- Wear suitable protective clothing, gloves and eye/face protection.

HMIS (U.S.A.): Health Hazard: 2 Fire Hazard: 4 Reactivity: 0 Personal Protection: j National Fire Protection Association (U.S.A.): Health: 3 Flammability: 4 Reactivity: 2

#### Specific hazard: Protective Equipment:

Gloves (impervious). Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

### Section 16: Other Information

Other Special Considerations: Not available. Created: 10/09/2005 03:35 PM Last Updated: 05/21/2013 12:00 PM

# **Material Safety Data Sheet-** Formaldehyde solution



### Section 1: Chemical Product and Company Identification

Product Name: Formaldehyde 37% solution CAS#: Mixture. **RTECS:** LP8925000 TSCA: TSCA 8(b) inventory: Formaldehyde; Methyl alcohol; Water **CI#:** Not applicable. Synonym: Formalin Chemical Name: Formaldehyde **Chemical Formula: HCHO Contact Information:** Asian Paints Limited **B5-B10, Sipcot Industrial Complex** Kudikadu. Cuddalore-607005. 24HR Emergency Telephone, call: +91 4142-239247,239248, 239423 Fax:+91 4142 239234

#### Section 2: Composition and Information on Ingredients Composition:

Name	CAS #	% by Weight
Formaldehyde	50-00-0	25-38
Methyl alcohol	67-56-1	0-15
Water	7732-18-5	47-75

**Toxicological Data on Ingredients:** Formaldehyde: ORAL (LD50): Acute: 100 mg/kg [Rat]. 42 mg/kg [Mouse]. 260 mg/kg [Guinea pig]. MIST (LC50): Acute: 454000 mg/m 4 hours [Mouse]. Methyl alcohol: ORAL (LD50): Acute: 5628 mg/kg [Rat]. DERMAL (LD50): Acute: 15800 mg/kg [Rabbit]. VAPOR (LC50): Acute: 64000 ppm 4 hours [Rat].

#### Section 3: Hazards Identification

#### **Potential Acute Health Effects:**

Very hazardous in case of eye contact (irritant), of ingestion, . Hazardous in case of skin contact (irritant, sensitizer,per meator), of eye contact (corrosive). Slightly hazardous in case of skin contact (corrosive). Severe over-exposure can result in death. Inflammation of the eye is characterized by redness, watering, and itching.

#### **Potential Chronic Health Effects:**

Hazardous in case of skin contact (sensitizer). CARCINOGENIC EFFECTS: Classified A2 (Suspected for human.) by ACGIH, 2A (Probable for human.) by IARC [Formaldehyde]. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. [Formaldehyde]. Mutagenic for bacteria and/or yeast. [Formaldehyde]. Mutagenic for mammalian somatic cells. [Methyl alcohol]. Mutagenic for bacteria and/or yeast. [Methyl alcohol]. TERATOGENIC EFFECTS: Classified POSSIBLE for human [Methyl alcohol]. DEVELOPMENTAL TOXICITY: Not available The substance may be toxic to kidneys, liver, skin, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

### Section 4: First Aid Measures

#### **Eye Contact:**

Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Get medical attention immediately.

#### Skin Contact:

In case of contact, immediately flush skin with plenty of water. Cover the irritated skin with an emollient. Remove contaminated clothing and shoes. Cold water may be used. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention.

#### Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

#### Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

#### **Serious Inhalation:**

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

#### Ingestion:

If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Serious Ingestion: Not available.

### Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

Auto-Ignition Temperature: 430°C (806°F)

Flash Points: CLOSED CUP: 50°C (122°F). OPEN CUP: 60°C (140°F).

Flammable Limits: The greatest known range is LOWER: 6% UPPER: 36.5% (Methyl alcohol)

Products of Combustion: These products are carbon oxides (CO, CO2).

#### Fire Hazards in Presence of Various Substances:

Flammable in presence of open flames and sparks, of heat. Non-flammable in presence of shocks, of oxidizing materials, of reducing materials, of combustible materials, of organic materials, of metals, of acids, of alkalis.

**Explosion Hazards in Presence of Various Substances:** Non-explosive in presence of open flames and sparks, of shocks.

#### Fire Fighting Media and Instructions:

Flammable liquid, soluble or dispersed in water. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog. Cool containing vessels with water jet in order to prevent pressure build-up, autoignition or explosion.

#### **Special Remarks on Fire Hazards:**

Explosive in the form of vapor when exposed to heat or flame. Vapor may travel considerable distance to source of ignition and flash back. When heated to decomposition, it emits acrid smoke and irritating fumes. CAUTION: MAY BURN WITH NEAR INVISIBLE FLAME (Methyl alcohol)

#### **Special Remarks on Explosion Hazards:**

Reaction with peroxide, nitrogen dioxide, and permformic acid can cause an explosion. (Formaldehyde gas)

### Section 6: Accidental Release Measures

#### Small Spill:

Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. If necessary: Neutralize the residue with a dilute solution of sodium carbonate.

#### Large Spill:

Flammable liquid. Poisonous liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Neutralize the residue with a dilute solution of sodium carbonate. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

### Section 7: Handling and Storage

#### **Precautions:**

Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, reducing agents, acids, alkalis, moisture.

#### **Storage:**

Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

#### Section 8: Exposure Controls/Personal Protection

#### **Engineering Controls:**

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

#### **Personal Protection:**

Safety glasses. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves (impervious).

#### Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

#### **Exposure Limits:**

Formaldehyde gas STEL: 0.3 (ppm) from ACGIH (TLV) [United States] STEL: 0.37 (mg/m3) from ACGIH (TLV) [United States] TWA: 0.75 STEL: 2 (ppm) from OSHA (PEL) [United States] TWA: 2 STEL: 2 (ppm) [United Kingdom (UK)] TWA: 2.5 STEL: 2.5 (mg/m3) [United Kingdom (UK)] Methyl alcohol TWA: 200 from OSHA (PEL) [United States] TWA: 200 STEL: 250 (ppm) from ACGIH (TLV) [United States] [1999] STEL: 250 from NIOSH [United States] TWA: 200 STEL: 250 (ppm) from NIOSH SKIN TWA: 200 STEL: 250 (ppm) [Canada] Consult local authorities for acceptable exposure limits.

### Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid. Odor: Pungent. Suffocating. (Strong.) Taste: Not available. Molecular Weight: 30.02 Color: Clear Colorless. pH (1% soln/water): 3 [Acidic.] pH of the solution as is. **Boiling Point:** 98°C (208.4°F) **Melting Point:** -15°C (5°F) **Critical Temperature:** The lowest known value is 240°C (464°F) (Methyl alcohol). **Specific Gravity:** 1.08 (Water = 1) Vapor Pressure: 2.4 kPa (@ 20°C) Vapor Density: 1.03 (Air = 1) Volatility: 100% (w/w). **Odor Threshold:** The highest known value is 100 ppm (Methyl alcohol) Water/Oil Dist. Coeff.: Not available. Ionicity (in Water): Non-ionic. **Dispersion Properties:** See solubility in water, diethyl ether, acetone. Solubility: Easily soluble in cold water, hot water. Soluble in diethyl ether, acetone, alcohol

### Section 10: Stability and Reactivity Data

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Heat, ignition sources (flames, sparks), incompatible materials

#### Incompatibility with various substances:

Reactive with oxidizing agents, reducing agents, acids, alkalis. Slightly reactive to reactive with metals. **Corrosivity:** Non-corrosive in presence of glass.

#### Special Remarks on Reactivity:

Also incompatible with urea, phenol, isocyanates, anhydrides, amines, AZO compounds, carbonyl compounds, oxides(e.g. nitrogen dioxide), performic acid, dithiocarbmates, or peroxides. Polymerization can be inhibited by the addition of methanol or stabilizers such as hydorxypropyl methyl cellulose, methyl ethyl celluloses, or isophthalobisguanamine.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

### Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation.

#### **Toxicity to Animals:**

Acute oral toxicity (LD50): 42 mg/kg [Mouse]. (Formaldehyde) Acute dermal toxicity (LD50): 15800 mg/kg [Rabbit]. (Methyl alcohol). Acute toxicity of the mist(LC50): 454000 mg/m 4 hours [Mouse]. (Formaldehyde) 3

#### **Chronic Effects on Humans:**

CARCINOGENIC EFFECTS: Classified A2 (Suspected for human.) by ACGIH, 2A (Probable for human.) by IARC [Formaldehyde]. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. [Formaldehyde]. Mutagenic for bacteria and/or yeast. [Formaldehyde]. Mutagenic for mammalian somatic cells. [Methyl alcohol]. Mutagenic for bacteria and/or yeast. [Methyl alcohol]. TERATOGENIC EFFECTS: Classified POSSIBLE for human [Methyl alcohol]. DEVELOPMENTAL TOXICITY: Not available May cause damage to the following organs: kidneys, liver, central nervous system (CNS).

#### **Other Toxic Effects on Humans:**

Very hazardous in case of ingestion, . Hazardous in case of skin contact (irritant, sensitizer, permeator), of eye contact (corrosive), of inhalation (lung corrosive). Slightly hazardous in case of skin contact (corrosive).

#### **Special Remarks on Toxicity to Animals:**

Formaldehyde: LD50 [Rabbit] - Route: Skin; Dose: 270 ul/kg

#### **Special Remarks on Chronic Effects on Humans:**

Exposure to Formaldehyde and Methanol may affect genetic material (mutagenic). Exposure to Formaldehyde and Methanol may cause adverse reproductive effects and birth defects (teratogenic). Adverse reproductive effects of Formaldehyde as well as Methanol are primarily based on animal studies. Very few human studies have been done on the adverse reproductive effects from exposure to Formaldehyde. Studies produced a weak association (limited evidence) between adverse human female reproductive effects and occupational exposure. Furthermore, no human data could be found on adverse reproductive effects from occupational exposure to Methanol. Exposure to Formaldehyde may cause cancer.

#### **Special Remarks on other Toxic Effects on Humans:**

Acute Potential Health Effects: Skin: Corrosive. Causes skin irritation which may range from mild to severe with possible burns depending on the extent of exposure and concentration of solution. Other symptoms may include brownish discoloration of the skin, urticaria, and pustulovesicffular eruptions. May be absorbed through skin with symptoms paralleling those of ingestion. Eyes: Corrosive. Contact with liquid causes severe eye irritation and burns. It may cause irreversible eye damage (severe corneal Solutions containing low formaldehyde concentrations may produce transient discomfort and irritation. Inhalation: Causes irrititation of the respiratory tract (nose, throat, airways). Symptoms may include dry and sore mouth and throat, thirst, and sleep disturbances, difficulty breathing, shortness of breath, coughing, sneezing, wheezing rhinitis, chest tightness, pulmonary edema, bronchitis, tracheitis, laryngospasm, pneumonia, palpitations. It may also affect metabolism weight loss, metabolic acidosis), behavior/central nervous system (excitement, central nervous system depression, somnolence, convulsions, stupor, aggression, headache, weakness, dizziness, drowsiness, coma), peripheral nervous system, and blood. Ingestion: Harmful if swallowed. May be fatal. Causes gastrointestinal irritation with nausea, vomiting (possibly with blood), diarrhea, severe pain in mouth, throat and stomach, and possible corrosive injury to the gastrointestinal mucosa/ulceration or bleeding from stomach. May also affect the liver(jaundice), urinary system/kidneys (difficulty urinating, albuminuria, hematuria, anuria), blood, endocrine system, respiration (respiratory obstruction, pulmonary edema, bronchiolar obstruction), cardiovascular system (hypotension), metabolism (metabolic acidosis), eves (retinal changes, visual field changes), and behavior/central nervous system (symptoms similar to those for inhalation). Contains Methanol which may cause blindness if swallowed. Chronic Potential Health Effects: Skin: Prolonged or repeated exposure may cause contact dermatits both irritant and allergic. It may also cause skin discoloration. Inhalation: Although there is no clear evidence, prolonged or repeated exposure may induce allergic asthma. Other effects are similar to that of acute exposure. Ingestion: Prolonged or repeated ingestion may cause gastrointestinal tract irritation and ulceration or bleeding from the stomach. Other effects may be similar to that of acute ingestion.

### Section 12: Ecological Information

**Ecotoxicity:** Not available.

**BOD5 and COD:** Not available.

#### **Products of Biodegradation:**

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

#### **Special Remarks on the Products of Biodegradation:**

Methanol in water is rapidly biodegraded and volatilized. Aquatic hydrolysis, oxidation, photolysis, adsorption to sediment, and bioconcentration are not significant fate processes. The half-life of methanol

in surfact water ranges from 24 hrs. to 168 hrs. Based on its vapor pressure, methanol exists almost entirely in the vapor phase in the ambient atmosphere. It is degraded by reaction with photochemically produced hydroxyl radicals and has an estimated half-life of 17.8 days. Methanol is physically removed from air by rain due to its solubility. Methanol can react with NO2 in pollulted to form methyl nitrate. The half-life of methanol in air ranges from 71 hrs. (3 days) to 713 hrs. (29.7 days) based on photooxidation half-life in air. (Methyl alcohol)

### Section 13: Disposal Considerations

Waste Disposal:

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

### Section 14: Transport Information

**DOT Classification:** 

CLASS 3: Flammable liquid. Class 8: Corrosive material **Identification:** : Formaldehyde Solution, flammable (Methyl alcohol) UNNA: 1198 PG: III **Special Provisions for Transport:** Not available.

### Section 15: Other Regulatory Information

#### **Other Regulations:**

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

### Other Classifications:

#### WHMIS (Canada):

CLASS B-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F). CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC).

DSCL (EEC): HMIS (U.S.A.): Health Hazard: 3 Fire Hazard: 2 Reactivity: 0 Personal Protection: G National Fire Protection Association (U.S.A.): Health: 3 Flammability: 2 Reactivity: 0 Specific hazard: Protective Equipment:

Gloves (impervious). Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Safety glasses.

### Section 16: Other Information

References: Not available. Other Special Considerations: Not available. Created: 10/09/2005 05:35 PM Last Updated: 05/21/2013 12:00 PM

## Material Safety Data Sheet- Sodium hydroxide



### Section 1: Chemical Product and Company Identification

Product Name: Sodium hydroxide CAS#: 1310-73-2 **RTECS: WB4900000** TSCA: TSCA 8(b) inventory: Sodium hydroxide CI#: Not available. Synonym: Caustic Soda Chemical Name: Sodium Hydroxide Chemical Formula: NaOH **Contact Information:** Asian Paints Limited **B5-B10,Sipcot Industrial Complex** Kudikadu. Cuddalore-607005. **24HR Emergency Telephone, call:** +91 4142-239247,239248, 239423 Fax:+91 4142 239234

### Section 2: Composition and Information on Ingredients

**Composition:** 

Name	CAS #	% by Weight
Sodium hydroxide	1310-73-2	100

Toxicological Data on Ingredients: Sodium hydroxide LD50: Not available. LC50: Not available.

### Section 3: Hazards Identification

#### **Potential Acute Health Effects:**

Very hazardous in case of skin contact (corrosive, irritant, permeator), of eye contact (irritant, corrosive), of ingestion, of inhalation. The amount of tissue damage depends on length of contact. Eye contact can result in corneal damage or blindness. Skin contact can produce inflammation and blistering. Inhalation of dust will produce irritation to gastro-intestinal or respiratory tract, characterized by burning, sneezing and coughing. Severe over-exposure can produce lung damage, choking, unconsciousness or death. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

#### **Potential Chronic Health Effects:**

CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to mucous membranes, upper respiratory tract, skin, eyes. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure of the eyes to a low level of dust can produce eye irritation. Repeated skin exposure can produce local skin destruction, or dermatitis. Repeated inhalation of dust can produce varying degree of respiratory irritation or lung damage.

### Section 4: First Aid Measures

#### **Eye Contact:**

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.

#### **Skin Contact:**

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used.Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

#### Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek medical attention.

#### Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

#### Serious Inhalation:

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

#### **Ingestion:**

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband. **Serious Ingestion:** Not available.

### Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: metals

#### **Explosion Hazards in Presence of Various Substances:**

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available. Slightly explosive in presence of heat.

#### Fire Fighting Media and Instructions: Not available

#### **Special Remarks on Fire Hazards:**

sodium hydroxide + zinc metal dust causes ignition of the latter. Under proper conditions of temperature, pressure and state of division, it can ignite or react violently with acetaldehyde, ally alcohol, allyl chloride, benzene-1,4-diol, chlorine trifluoride, 1,2 dichlorethylene, nitroethane, nitromethane, nitroparaffins, nitropropane, cinnamaldehyde, 2,2-dichloro-3,3-dimethylbutane. Sodium hydroxide in contact with water may generate enough heat to ignite adjacent combustible materials. Phosphorous boiled with NaOH yields mixed phosphines which may ignite spontanously in air. sodium hydroxide and cinnamaldehyde + heat may cause ignition. Reaction with certain metals releases flammable and explosive hydrogen gas.

#### **Special Remarks on Explosion Hazards:**

Sodium hydroxide reacts to form explosive products with ammonia + silver nitrate. Benzene extract of allyl benzenesulfonate prepared from allyl alcohol, and benzene sulfonyl chloride in presence of aquesous sodium hydroxide, under vacuum distillation, residue darkened and exploded. Sodium

Hydroxde + impure tetrahydrofuran, which can contain peroxides, can cause serious explosions. Dry mixtures of sodium hydroxide and sodium tetrahydroborate liberate hydrogen explosively at 230-270 deg. C. Sodium Hydroxide reacts with sodium salt of trichlorophenol + methyl alcohol + trichlorobenzene + heat to cause an explosion.

### Section 6: Accidental Release Measures

#### Small Spill:

Use appropriate tools to put the spilled solid in a convenient waste disposal container. If necessary: Neutralize the residue with a dilute solution of acetic acid.

#### Large Spill:

Corrosive solid. Stop leak if without risk. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Neutralize the residue with a dilute solution of acetic acid. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

### Section 7: Handling and Storage

#### **Precautions:**

Keep container dry. Do not breathe dust. Never add water to this product. In case of insufficient ventilation, wear suitablerespiratory equipment. If you feel unwell, seek medical attention and show the label when possible. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, reducing agents, metals, acids, alkalis, moisture.

**Storage:** Keep container tightly closed. Keep container in a cool, well-ventilated area. Hygroscopic. Deliquescent.

### Section 8: Exposure Controls/Personal Protection

#### **Engineering Controls:**

Use process enclosures, local exhaust ventilation, or other engineering controls to keep airborne levels below recommended exposure limits. If user operations generate dust, fume or mist, use ventilation to keep exposure to airborne contaminants below the exposure limit.

#### **Personal Protection:**

Splash goggles. Synthetic apron. Vapor and dust respirator. Be sure to use an approved/certified respirator or equivalent.Gloves.

#### Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Vapor and dust respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

#### **Exposure Limits:**

STEL: 2 (mg/m3) from ACGIH (TLV) [United States] TWA: 2 CEIL: 2 (mg/m3) from OSHA (PEL) [United States] CEIL: 2 (mg/m3) from NIOSHConsult local authorities for acceptable exposure limits.

### Section 9: Physical and Chemical Properties

Physical state and appearance: Solid. (Deliquescent solid.) Odor: Odorless. Taste: Not available. Molecular Weight: 40 g/mole Color: White. p. 4 pH (1% soln/water): 13.5 [Basic.] Boiling Point: 1388°C (2530.4°F)
Melting Point: 323°C (613.4°F)
Critical Temperature: Not available.
Specific Gravity: 2.13 (Water = 1)
Vapor Pressure: Not applicable.
Vapor Density: Not available.
Volatility: Not available.
Odor Threshold: Not available.
Water/Oil Dist. Coeff.: Not available.
Ionicity (in Water): Not available.
Dispersion Properties: See solubility in water.
Solubility: Easily soluble in cold water.

### Section 10: Stability and Reactivity Data

**Stability:** The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Incompatible materials, moisture, moist air

Incompatibility with various substances:

Highly reactive with metals. Reactive with oxidizing agents, reducing agents, acids, alkalis, moisture. **Corrosivity:** Not available.

#### **Special Remarks on Reactivity:**

Hygroscopic. Much heat is evolved when solid material is dissolved in water. Therefore cold water and caution must be used for this process. Sodium hydroxide solution and octanol + diborane during a workup of a reaction mixture of oxime and diborane in tetrahyrofuran is very exothermic, a mild explosion being noted on one occassion. Reactive with water, acids (mineral, non-oxidizing, e.g. hydrochloric, hydrofluoric acid, muriatic acid, phosphoric), acids (mineral, oxidizing e.g. chromic acid, hypochlorous acid, nitric acid, sulfuric acid), acids (organic e.g. acetic acid, benzoic acid, formic acid, methanoic acid, oxalic acid), aldehydes (e.g. acetaldehyde, acrolein, chloral hydrate, foraldehyde), carbamates (e.g. carbanolate, carbofuran), esters (e.g. butyl acetate, ethyl acetate, propyl formate), halogenated organics (dibromoethane, hexachlorobenzene, methylchloride, trichloroethylene), isocyanates (e.g. methyl isocyanate), ketones (acetone, acetophenone, MEK, MIBK), acid chlorides, strong bases, strong oxidizing agents, strong reducing agents, flammable liquids, powdered metals and metals (i.e aluminum, tin, zinc, hafnium, raney nickel), metals (alkali and alkaline e.g. cesium, potassium, sodium), metal compounds (toxic e.g. berylium, lead acetate, nickel carbonyl, tetraethyl lead), mitrides (e.g. potassium nitride, sodium nitride), nitriles (e.g. acetonitrile, methyl cyanide), nitro compounds (organic e.g. nitrobenzene, nitromethane), acetic anhydride, chlorohydrin, chlorosulfonic acid, ethylene cyanohydrin, glyoxal, hydrosulfuric acid, oleum, propiolactone, acylonitrile, phorosous pentoxide, chloroethanol, chloroform-methanol, tetrahydroborate, cyanogen azide, 1,2,4,5 tetrachlorobenzene, cinnamaldehyde. Reacts with formaldehyde hydroxide to yield formic acid, and hydrogen.

**Special Remarks on Corrosivity:** Very caustic to aluminum and other metals in presence of moisture. **Polymerization:** Will not occur.

### Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

#### **Toxicity to Animals:**

LD50: Not available. LC50: Not available.

#### **Chronic Effects on Humans:**

MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. May cause damage to the following organs: mucous membranes, upper respiratory tract, skin, eyes.

#### **Other Toxic Effects on Humans:**

Extremely hazardous in case of inhalation (lung corrosive). Very hazardous in case of skin contact (corrosive, irritant, permeator), of eye contact (corrosive), of ingestion, .

Special Remarks on Toxicity to Animals:
Lowest Published Lethal Dose: LDL [Rabbit] - Route: Oral; Dose: 500 mg/kg
Special Remarks on Chronic Effects on Humans: May affect genetic material. Investigation as a mutagen (cytogenetic analysis)
Special Remarks on other Toxic Effects on Humans:

### Section 12: Ecological Information

**Ecotoxicity:** Not available.

BOD5 and COD: Not available.

#### **Products of Biodegradation:**

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

**Toxicity of the Products of Biodegradation:** The product itself and its products of degradation are not toxic.

Special Remarks on the Products of Biodegradation: Not available.

### Section 13: Disposal Considerations

**Waste Disposal:** Waste must be disposed of in accordance with federal, state and local environmental control regulations.

### Section 14: Transport Information

**DOT Classification:** Class 8: Corrosive material **Identification:** : Sodium hydroxide, solid UNNA: 1823 PG: II **Special Provisions for Transport:** Not available.

### Section 15: Other Regulatory Information

**Other Regulations:** 

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the

European Inventory of Existing Commercial Chemical Substances.

**Other Classifications:** 

WHMIS (Canada): CLASS E: Corrosive solid.

#### DSCL (EEC):

R35- Causes severe burns. S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.

S37/39- Wear suitable gloves and eye/face protection. S45- In case of accident or if you feel unwell, seek medical advice

immediately (show the label where possible).

HMIS (U.S.A.):

Health Hazard: 3

Fire Hazard: 0

**Reactivity:** 2

**Personal Protection:** j

National Fire Protection Association (U.S.A.):

Health: 3

Flammability: 0

Reactivity: 1

Specific hazard:

#### Protective Equipment:

Gloves. Synthetic apron. Vapor and dust respirator. Be sure to use an approved/certified respirator or equivalent. Wear

appropriate respirator when ventilation is inadequate. Splash goggles.

# Section 16: Other Information References: Not available.

References: Not available. Other Special Considerations: Not available. Created: 10/09/2005 06:32 PM Last Updated: 05/21/2013 12:00 PM

# Material Safety Data Sheet- Methyl alcohol



### Section 1: Chemical Product and Company Identification

Product Name: Methyl alcohol CAS#: 67-56-1 **RTECS:** PC1400000 TSCA: TSCA 8(b) inventory: Methyl alcohol **CI#:** Not applicable. Synonym: Wood alcohol, Methanol; Methanol; Wood Spirit: Carbinol Chemical Name: Methanol **Chemical Formula:** CH3OH **Contact Information:** Asian Paints Limited **B5-B10.Sipcot Industrial Complex** Kudikadu. Cuddalore-607005. 24HR Emergency Telephone, call: +91 4142-239247,239248, 239423 Fax:+91 4142 239234

### Section 2: Composition and Information on Ingredients

**Composition:** 

Name	CAS #	% by Weight
Methyl alcohol	67-56-1	100

**Toxicological Data on Ingredients:** Methyl alcohol: ORAL (LD50): Acute: 5628 mg/kg [Rat]. DERMAL (LD50): Acute: 15800 mg/kg [Rabbit]. VAPOR (LC50): Acute: 64000 ppm 4 hours [Rat].

### Section 3: Hazards Identification

#### **Potential Acute Health Effects:**

Hazardous in case of skin contact (irritant), of eye contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (permeator). Severe over-exposure can result in death.

#### **Potential Chronic Health Effects:**

Slightly hazardous in case of skin contact (sensitizer). CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast. TERATOGENIC EFFECTS: Classified POSSIBLE for human. DEVELOPMENTAL TOXICITY: Not available. The substance is toxic to eyes. The substance may be toxic to blood, kidneys, liver, brain, peripheral nervous system, upper respiratory tract, skin, central nervous system (CNS), optic nerve. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

### Section 4: First Aid Measures

#### Eye Contact:

Check for and remove any contact lenses. Immediately flush eyes with running water for at least 15 minutes, keeping eyelids open. Cold water may be used. Get medical attention.

#### **Skin Contact:**

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used.Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

#### Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

#### Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

#### **Serious Inhalation:**

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

#### **Ingestion:**

If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Serious Ingestion: Not available.

### Section 5: Fire and Explosion Data

Flammability of the Product: Flammable.

**Auto-Ignition Temperature:** 464°C (867.2°F)

Flash Points: CLOSED CUP: 12°C (53.6°F). OPEN CUP: 16°C (60.8°F).

Flammable Limits: LOWER: 6% UPPER: 36.5%

Products of Combustion: These products are carbon oxides (CO, CO2).

#### Fire Hazards in Presence of Various Substances:

Highly flammable in presence of open flames and sparks, of heat. Non-flammable in presence of shocks.

#### **Explosion Hazards in Presence of Various Substances:**

Risks of explosion of the product in presence of mechanical impact: Not available. Explosive in presence of open flames and sparks, of heat.

#### **Fire Fighting Media and Instructions:**

Flammable liquid, soluble or dispersed in water. SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use alcohol foam, water spray or fog.

#### **Special Remarks on Fire Hazards:**

Explosive in the form of vapor when exposed to heat or flame. Vapor may travel considerable distance to source of ignition and flash back. When heated to decomposition, it emits acrid smoke and irritating fumes. CAUTION: MAY BURN WITH NEAR INVISIBLE FLAME

#### Special Remarks on Explosion Hazards:

Forms an explosive mixture with air due to its low flash point. Explosive when mixed with Choroform + sodium methoxide and diethyl zinc. It boils violently and explodes.

### Section 6: Accidental Release Measures

Small Spill:

Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container.

#### Large Spill:

Flammable liquid. Poisonous liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

### Section 7: Handling and Storage

#### **Precautions:**

Keep locked up.. Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Wear suitable protective clothing. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, metals, acids.

#### **Storage:**

Store in a segregated and approved area. Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

### Section 8: Exposure Controls/Personal Protection

#### **Engineering Controls:**

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

#### **Personal Protection:**

Splash goggles. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves.

#### Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

#### **Exposure Limits:**

TWA: 200 from OSHA (PEL) [United States] TWA: 200 STEL: 250 (ppm) from ACGIH (TLV) [United States] [1999] STEL: 250 from NIOSH [United States] TWA: 200 STEL: 250 (ppm) from NIOSH SKIN TWA: 200 STEL: 250 (ppm) [Canada] Consult local authorities for acceptable exposure limits.

### Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid.
Odor: Alcohol like. Pungent when crude.
Taste: Not available.
Molecular Weight: 32.04 g/mole
Color: Colorless.
pH (1% soln/water): Not available.
Boiling Point: 64.5°C (148.1°F)
Melting Point: -97.8°C (-144°F)
Critical Temperature: 240°C (464°F)
Specific Gravity: 0.7915 (Water = 1)
Vapor Pressure: 12.3 kPa (@ 20°C)

Vapor Density: 1.11 (Air = 1)
Volatility: Not available.
Odor Threshold: 100 ppm
Water/Oil Dist. Coeff.: The product is more soluble in water; log(oil/water) = -0.8
Ionicity (in Water): Non-ionic.
Dispersion Properties: See solubility in water.
Solubility: Easily soluble in cold water, hot water.

### Section 10: Stability and Reactivity Data

**Stability:** The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Heat, ingnition sources, incompatible materials

Incompatibility with various substances: Reactive with oxidizing agents, metals, acids.

Corrosivity: Non-corrosive in presence of glass.

#### **Special Remarks on Reactivity:**

Can react vigorously with oxidizers. Violent reaction with alkyl aluminum salts, acetyl bromide, chloroform + sodium methoxide, chromic anhydride, cyanuirc chlorite, lead perchlorate, phosphorous trioxide, nitric acid. Exothermic reaction with sodium hydroxide + chloroform. Incompatible with beryllium dihydride, metals (potassium and magnesium), oxidants (barium perchlorate, bromine, sodium hypochlorite, chlorine, hydrogen peroxide), potassium tert-butoxide, carbon tetrachloride, alkali metals, metals (aluminum, potassium magnesium, zinc), and dichlormethane. Rapid autocatalytic dissolution of aluminum, magnesium or zinc in 9:1 methanol + carbon tetrachloride - sufficiently vigorous to be rated as potentially hazardous. May attack some plastics, rubber, and coatings.

Special Remarks on Corrosivity: Not available.

Polymerization: Will not occur.

### Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Eye contact. Inhalation. Ingestion.

#### **Toxicity to Animals:**

WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 5628 mg/kg [Rat]. Acute dermal toxicity (LD50): 15800 mg/kg [Rabbit]. Acute toxicity of the vapor (LC50): 64000 4 hours [Rat].

#### **Chronic Effects on Humans:**

MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. Mutagenic for bacteria and/or yeast. TERATOGENIC EFFECTS: Classified POSSIBLE for human. Causes damage to the following organs: eyes. May cause damage to the following organs: blood, kidneys, liver, brain, peripheral nervous system, upper respiratory tract, skin, central nervous system (CNS), optic nerve.

#### **Other Toxic Effects on Humans:**

Hazardous in case of skin contact (irritant), of ingestion, of inhalation. Slightly hazardous in case of skin contact (permeator).

Special Remarks on Toxicity to Animals: Not available.

#### Special Remarks on Chronic Effects on Humans:

Passes through the placental barrier. May affect genetic material. May cause birth defects and adverse reproductive effects(paternal and maternal effects and fetotoxicity) based on animal studies.

#### Special Remarks on other Toxic Effects on Humans:

### Section 12: Ecological Information

**Ecotoxicity:** Ecotoxicity in water (LC50): 29400 mg/l 96 hours [Fathead Minnow]. **BOD5 and COD:** Not available. **Products of Biodegradation:**
Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

#### **Special Remarks on the Products of Biodegradation:**

Methanol in water is rapidly biodegraded and volatilized. Aquatic hydrolysis, oxidation, photolysis, adsorption to sediment, and bioconcentration are not significant fate processes. The half-life of methanol in surfact water ranges from 24 hrs. to 168 hrs. Based on its vapor pressure, methanol exists almost entirely in the vapor phase in the ambient atmosphere. It is degraded by reaction with photochemically produced hydroxyl radicals and has an estimated half-life of 17.8 days. Methanol is physically removed from air by rain due to its solubility. Methanol can react with NO2 in pollulted to form methyl nitrate. The half-life of methanol in air ranges from 71 hrs. (3 days) to 713 hrs. (29.7 days) based on photooxidation half-life in air.

## Section 13: Disposal Considerations

Waste Disposal:

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

## Section 14: Transport Information

**DOT Classification:** CLASS 3: Flammable liquid. **Identification:** : Methyl alcohol UNNA: 1230 PG: II **Special Provisions for Transport:** Not available.

## Section 15: Other Regulatory Information

#### **Other Regulations:**

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

#### **Other Classifications:**

#### WHMIS (Canada):

CLASS B-2: Flammable liquid with a flash point lower than 37.8°C (100°F). CLASS D-1B: Material causing immediate and serious toxic effects (TOXIC). CLASS D-2A: Material causing other toxic effects (VERY TOXIC). Class D-2B: Material causing other toxic effects (TOXIC).

#### DSCL (EEC):

R11- Highly flammable. R23/24/25- Toxic by inhalation, in contact with skin and if swallowed. R39-Danger of very serious irreversible effects. R39/23/24/25- Toxic: danger of very serious irreversible effects through inhalation, in contact with skin and if swallowed. S7- Keep container tightly closed. S16-Keep away from sources of ignition - No smoking. S36/37- Wear suitable protective clothing and gloves. S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

HMIS (U.S.A.): Health Hazard: 2 Fire Hazard: 3 Reactivity: 0 Personal Protection: h National Fire Protection Association (U.S.A.): Health: 1 Flammability: 3 Reactivity: 0

#### Specific hazard: Protective Equipment:

Gloves. Lab coat. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Splash goggles.

## Section 16: Other Information

Other Special Considerations: Not available. Created: 10/10/2005 08:23 PM Last Updated: 05/21/2013 12:00 PM

## Material Safety Data Sheet- Sulfuric acid



## Section 1: Chemical Product and Company Identification

Product Name: Sulfuric acid CAS#: 7664-93-9 **RTECS:** WS5600000 TSCA: TSCA 8(b) inventory: Sulfuric acid CI#: Not applicable. Synonym: Oil of Vitriol; Sulfuric Acid Chemical Name: Hydrogen sulfate **Chemical Formula: H2-SO4 Contact Information:** Asian Paints Limited **B5-B10**, Sipcot Industrial Complex Kudikadu, Cuddalore-607005. **24HR Emergency Telephone, call:** +91 4142-239247,239248, 239423 Fax:+91 4142 239234

## Section 2: Composition and Information on Ingredients

Composition:				
Name	CAS #	% by Weight		
Sulfuric acid	7664-93-9	95 - 98		

**Toxicological Data on Ingredients:** Sulfuric acid: ORAL (LD50): Acute: 2140 mg/kg [Rat.]. VAPOR (LC50): Acute: 510 mg/m

2 hours [Rat]. 320 mg/m 2 hours [Mouse].

## Section 3: Hazards Identification

#### **Potential Acute Health Effects:**

Very hazardous in case of skin contact (corrosive, irritant, permeator), of eye contact (irritant, corrosive), of ingestion, of inhalation. Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Severe over-exposure can result in death. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

#### **Potential Chronic Health Effects:**

CARCINOGENIC EFFECTS: Classified 1 (Proven for human.) by IARC, + (Proven.) by OSHA. Classified A2 (Suspected for human.) by ACGIH. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to kidneys, lungs, heart, cardiovascular system, upper respiratory tract, eyes, teeth. Repeated or prolonged exposure to the substance can produce target organs damage. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

## Section 4: First Aid Measures

#### Eye Contact:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.

#### Skin Contact:

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used.Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

#### Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

#### Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

#### Serious Inhalation:

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

#### **Ingestion:**

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention if symptoms appear.

Serious Ingestion: Not available.

## Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

#### **Products of Combustion:**

Products of combustion are not available since material is non-flammable. However, products of decomposition include fumes of oxides of sulfur. Will react with water or steam to produce toxic and corrosive fumes. Reacts with carbonates to generate carbon dioxide gas. Reacts with cyanides and sulfides to form poisonous hydrogen cyanide and hydrogen sulfide respectively.

Fire Hazards in Presence of Various Substances: Combustible materials

#### **Explosion Hazards in Presence of Various Substances:**

Risks of explosion of the product in presence of mechanical impact: Not available. Risks of explosion of the product in presence of static discharge: Not available. Slightly explosive in presence of oxidizing materials.

Fire Fighting Media and Instructions: Not applicable.

#### **Special Remarks on Fire Hazards:**

Metal acetylides (Monocesium and Monorubidium), and carbides ignite with concentrated sulfuric acid. White Phosphorous + boiling Sulfuric acid or its vapor ignites on contact. May ignite other combustible materials. May cause fire when sulfuric acid is mixed with Cyclopentadiene, cyclopentanone oxime, nitroaryl amines, hexalithium disilicide, phorphorous (III) oxide, and oxidizing agents such as chlorates, halogens, permanganates.

#### **Special Remarks on Explosion Hazards:**

Mixtures of sulfuric acid and any of the following can explode : p-nitrotoluene,penta sIlver trihydroxydiaminophosphate, perchlorates, alcohols with strong hydrogen peroxide, ammonium tetraperoxychromate, mercuric nitrite, potassium chlorate, potassium permanganate with potassium chloride, carbides, nitro compounds, nitrates, carbides, phosphorous, iodides, picratres, fulminats, dienes, alcohols (when heated) Nitramide decomposes explosively on contact with concentrated sulfuric acid. 1,3,5-Trinitrosohexahydro-1,3,5-triazine + sulfuric acid causes explosive decompositon.

## Section 6: Accidental Release Measures

#### Small Spill:

Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. If necessary: Neutralize the residue with a dilute solution of sodium carbonate.

#### Large Spill:

Corrosive liquid. Poisonous liquid. Stop leak if without risk. Absorb with DRY earth, sand or other noncombustible material.Do not get water inside container. Do not touch spilled material. Use water spray curtain to divert vapor drift. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Neutralize the residue with a dilute solution of sodium carbonate. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

## Section 7: Handling and Storage

#### **Precautions:**

Keep locked up. Keep container dry. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, reducing agents, combustible materials, organic materials, metals, acids, alkalis, moisture. May corrode metallic surfaces. Store in a metallic or coated fiber board drum using a strong polyethylene inner package.

#### Storage:

Hygroscopic. Reacts. violently with water. Keep container tightly closed. Keep container in a cool, well-ventilated area. Do not store above 23°C (73.4°F).

#### Section 8: Exposure Controls/Personal Protection

#### **Engineering** Controls:

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

#### **Personal Protection:**

Face shield. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves. Boots.

#### Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

#### **Exposure Limits:**

TWA: 1 STEL: 3 (mg/m3) [Australia] Inhalation TWA: 1 (mg/m3) from OSHA (PEL) [United States] Inhalation TWA: 1 STEL: 3 (mg/m3) from ACGIH (TLV) [United States] [1999] Inhalation TWA: 1 (mg/m3) from NIOSH [United States] Inhalation TWA: 1 (mg/m3) [United Kingdom (UK)]Consult local authorities for acceptable exposure limits.

## Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid. (Thick oily liquid.) Odor: Odorless, but has a choking odor when hot. Taste: Marked acid taste. (Strong.) Molecular Weight: 98.08 g/mole Color: Colorless. pH (1% soln/water): Acidic. **Boiling Point:** 270°C (518°F) - 340 deg. C Decomposes at 340 deg. C Melting Point: -35°C (-31°F) to 10.36 deg. C (93% to 100% purity) Critical Temperature: Not available. **Specific Gravity:** 1.84 (Water = 1) Vapor Pressure: Not available. Vapor Density: 3.4 (Air = 1) Volatility: Not available. Odor Threshold: Not available. Water/Oil Dist. Coeff.: Not available. Ionicity (in Water): Not available. Dispersion Properties: See solubility in water. Solubility: Easily soluble in cold water. Sulfuric is soluble in water with liberation of much heat. Soluble in ethyl

## Section 10: Stability and Reactivity Data

**Stability:** The product is stable.

Instability Temperature: Not available.

#### **Conditions of Instability:**

Conditions to Avoid: Incompatible materials, excess heat, combustible material materials, organic materials, exposure to moist air or water, oxidizers, amines, bases. Always add the acid to water, never the reverse.

#### Incompatibility with various substances:

Reactive with oxidizing agents, reducing agents, combustible materials, organic materials, metals, acids, alkalis, moisture.

#### **Corrosivity:**

alcohol.

Extremely corrosive in presence of aluminum, of copper, of stainless steel(316). Highly corrosive in presence of stainless steel(304). Non-corrosive in presence of glass.

#### **Special Remarks on Reactivity:**

Hygroscopic. Strong oxidizer. Reacts violently with water and alcohol especially when water is added to the product. Incompatible (can react explosively or dangerously) with the following: ACETIC ACID, ACRYLIC ACID, AMMONIUM HYDROXIDE, CRESOL, CUMENE, DICHLOROETHYL ETHER, ETHYLENE CYANOHYDRIN, ETHYLENEIMINE, NITRIC ACID, 2-NITROPROPANE, PROPYLENE OXIDE, SULFOLANE, VINYLIDENE CHLORIDE, DIETHYLENE GLYCOL MONOMETHYL ETHER, ETHYL ACETATE, ETHYLENE CYANOHYDRIN, ETHYLENE GLYCOL MONOETHYL ETHER ACETATE, GLYOXAL, METHYL ETHYL KETONE, dehydrating agents, organic materials, moisture (water), Acetic anhydride, Acetone, cyanohydrin, Acetone+nitric acid, Acetone + potassium dichromate, Acetonitrile, Acrolein, Acrylonitrile, Acrylonitrile +water, Alcohols + hydrogen peroxide, ally compounds such as Allyl alcohol, and Allyl Chloride, 2-Aminoethanol, Ammonium hydroxide, Ammonium triperchromate, Aniline, Bromate + metals, Bromine pentafluoride, n-Butyraldehyde, Carbides, Cesium acetylene carbide, Chlorates, Cyclopentanone oxime, chlorinates, Chlorates +metals. Chlorine trifluoride, Chlorosulfonic acid. 2-cyano-4nitrobenzenediazonium hydrogen sulfate, Cuprous nitride, p-chloronitrobenzene, 1,5-Dinitronaphthlene + sulfur, Diisobutylene, p-dimethylaminobenzaldehyde, 1,3-Diazidobenzene, Dimethylbenzylcarbinol +

hydrogen peroxide, Epichlorohydrin, Ethyl alcohol + hydrogen peroxide, Ethylene diamine, Ethylene glycol and other glycols, , Ethylenimine, Fulminates, hydrogen peroxide, Hydrochloric acid, Hydrofluoric acid, Iodine heptafluoride, Indane + nitric acid, Iron, Isoprene,Lithium silicide, Mercuric nitride, Mesityl oxide, Mercury nitride, Metals (powdered), Nitromethane, Nitric acid + glycerides, p-Nitrotoluene, Pentasilver trihydroxydiaminophosphate, Perchlorates, Perchloric acid, Permanganates + benzene, 1-

Phenyl-2-methylpropyl alcohol + hydrogen peroxide, Phosphorus, Phosphorus isocyanate, Picrates, Potassium tert-butoxide,Potassium chlorate, Potassium Permanganate and other permanganates, halogens, amines, Potassium Permanganate + Potassium chloride, Potassium Permanganate + water, Propiolactone (beta)-, Pyridine, Rubidium aceteylene carbide, Silver permanganate, Sodium, Sodium carbonate, sodium hydroxide, Steel, styrene monomer, toluene + nitric acid, Vinyl acetate, Thalium (I) azidodithiocarbonate, Zinc chlorate, Zinc Iodide, azides, carbonates, cyanides, sulfides, sulfites, alkali hydrides, carboxylic acid anhydrides, nitriles, olefinic organics, aqueous acids, cyclopentadiene, cyano-alcohols, metal acetylides, Hydrogen gas is generated by the action of the acid on most metals (i.e. lead, copper, tin, zinc, aluminum, etc.). Concentrated sulfuric acid oxidizes, dehydrates, or sulfonates most organic compounds.

#### **Special Remarks on Corrosivity:**

Non-corrosive to lead and mild steel, but dillute acid attacks most metals. Attacks many metals releasing hydrogen. Minor corrosive effect on bronze. No corrosion data on brass or zinc. **Polymerization:** Will not occur.

### Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

#### **Toxicity to Animals:**

WARNING: THE LC50 VALUES HEREUNDER ARE ESTIMATED ON THE BASIS OF A 4-HOUR EXPOSURE. Acute oral toxicity (LD50): 2140 mg/kg [Rat.]. Acute toxicity of the vapor (LC50): 320 mg/m3 2 hours [Mouse].

#### **Chronic Effects on Humans:**

CARCINOGENIC EFFECTS: Classified 1 (Proven for human.) by IARC, + (Proven.) by OSHA. Classified A2 (Suspected for human.) by ACGIH. May cause damage to the following organs: kidneys, lungs, heart, cardiovascular system, upper respiratory tract, eyes, teeth.

#### **Other Toxic Effects on Humans:**

Extremely hazardous in case of inhalation (lung corrosive). Very hazardous in case of skin contact (corrosive, irritant, permeator), of eye contact (corrosive), of ingestion, .

Special Remarks on Toxicity to Animals: Not available.

#### **Special Remarks on Chronic Effects on Humans:**

Mutagenicity: Cytogenetic Analysis: Hamster, ovary = 4mmol/L Reproductive effects: May cause adverse reproductive effects based on animal data. Developmental abnormalities (musculoskeletal) in rabbits at a dose of 20 mg/m3 for 7 hrs.(RTECS) Teratogenecity: neither embryotoxic, fetoxic, nor teratogenetic in mice or rabbits at inhaled doses producing some maternal toxicity

#### **Special Remarks on other Toxic Effects on Humans:**

Acute Potential Health Effects: Skin: Causes severe skin irritation and burns. Continued contact can cause tissue necrosis. Eye: Causes severe eye irritation and burns. May cause irreversible eye injury. Ingestion: Harmful if swallowed. May cause permanent damage to the digestive tract. Causes gastrointestial tract burns. May cause perforation of the stomach, GI bleeding, edema of the glottis, necrosis and scarring, and sudden circulatory collapse(similar to acute inhalation). It may also cause systemic toxicity with acidosis. Inhalation: May cause severe irritation of the respiratory tract and mucous membranes with sore throat, coughing, shortness of breath, and delayed lung edema. Causes chemical burns to the repiratory tract. Inhalation may be fatal as a result of spasm, inflammation, edema of the larynx and bronchi, chemical pneumonitis, and pulmonary edema. Cause corrosive action on mucous membranes. May affect cardiovascular system (hypotension, depressed cardiac output, bradycardia). Circulatory collapse with clammy skin, weak and rapid pulse, shallow respiration, and

scanty urine may follow. Circulatory shock is often the immediate cause of death. May also affect teeth(changes in teeth and supporting structures - erosion, discoloration). Chronic Potential Health Effects: Inhalation: Prolonged or repeated inhalation

may affect behavior (muscle contraction or spasticity), urinary system (kidney damage), and cardiovascular system, heart (ischemic heart leisons), and respiratory system/lungs(pulmonary edema, lung damage), teeth (dental discoloration, erosion). Skin: Prolonged or repeated skin contact may cause dermatitis, an allergic skin reaction.

## Section 12: Ecological Information

Ecotoxicity: Ecotoxicity in water (LC50): 49 mg/l 48 hours [bluegill/sunfish].

BOD5 and COD: Not available.

#### **Products of Biodegradation:**

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

#### Section 13: Disposal Considerations

#### Waste Disposal:

Sulfuric acid may be placed in sealed container or absorbed in vermiculite, dry sand, earth, or a similar material. It may also be diluted and neutralized. Be sure to consult with local or regional authorities (waste regulators) prior to any disposal. Waste must be disposed of in accordance with federal, state and local environmental control regulations.

#### Section 14: Transport Information

**DOT Classification:** Class 8: Corrosive material **Identification:** : Sulfuric acid UNNA: 1830 PG: II **Special Provisions for Transport:** Not available.

## Section 15: Other Regulatory Information

#### Federal and State Regulations:

#### **Other Regulations:**

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

## Other Classifications:

### WHMIS (Canada):

CLASS D-1A: Material causing immediate and serious toxic effects (VERY TOXIC). CLASS E: Corrosive liquid.

#### DSCL (EEC):

R35- Causes severe burns. S2- Keep out of the reach of children. S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S30- Never add water to this product. S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

HMIS (U.S.A.): Health Hazard: 3 Fire Hazard: 0 Reactivity: 2 Personal Protection: National Fire Protection Association (U.S.A.): Health: 3 Flammability: 0 Reactivity: 2

#### Specific hazard: Protective Equipment:

Gloves. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Face shield.

## Section 16: Other Information

Other Special Considerations: Not available. Created: 10/09/2005 11:58 PM Last Updated: 05/21/2013 12:00 PM

## **Material Safety Data Sheet- Formic acid**



## Section 1: Chemical Product and Company Identification

Product Name: Formic acid, 85%, F.C.C CAS#: Mixture. **RTECS:** Not applicable. TSCA: TSCA 8(b) inventory: Formic acid; Water **CI#:** Not applicable. Synonym: Formic Acid, 85% Chemical Name: Not applicable. Chemical Formula: Not applicable. **Contact Information:** Asian Paints Limited **B5-B10**, Sipcot Industrial Complex Kudikadu, Cuddalore-607005. 24HR Emergency Telephone, call: +91 4142-239247,239248, 239423 Fax:+91 4142 239234

## Section 2: Composition and Information on Ingredients

Comr	osition
Comp	05111011.

Name	CAS #	% by Weight
Formic acid	64-18-6	85
Water	7732-18-5	15

**Toxicological Data on Ingredients:** Formic acid: ORAL (LD50): Acute: 700 mg/kg [Mouse]. 1100 mg/kg [Rat]. 4000 mg/kg

[Dog]. VAPOR (LC50): Acute: 6200 mg/m 0.25 hours [Mouse].

## Section 3: Hazards Identification

#### **Potential Acute Health Effects:**

Very hazardous in case of skin contact (irritant), of eye contact (irritant, corrosive), of ingestion, . Hazardous in case of skin contact (corrosive, permeator). Slightly hazardous in case of inhalation (lung sensitizer). Non-corrosive for lungs. Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

#### **Potential Chronic Health Effects:**

Slightly hazardous in case of skin contact (sensitizer). CARCINOGENIC EFFECTS: Not available. MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. [Formic acid]. Mutagenic for bacteria and/or yeast. [Formic acid]. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL

TOXICITY: Not available. The substance may be toxic to kidneys, liver, upper respiratory tract, skin, eyes, central nervous system (CNS). Repeated or prolonged exposure to the substance can produce target organs damage. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial infection.

## Section 4: First Aid Measures

#### Eye Contact:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Cold water may be used. Get medical attention immediately.

#### **Skin Contact:**

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used.Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

#### Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

#### Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

#### Serious Inhalation:

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek medical attention. **Ingestion:** 

Do NOT induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband. **Serious Ingestion:** Not available.

## Section 5: Fire and Explosion Data

#### Flammability of the Product: Combustible.

Auto-Ignition Temperature: The lowest known value is 539°C (1002.2°F) (Formic acid).

Flash Points: The lowest known value is OPEN CUP: 69°C (156.2°F). (Formic acid)

Flammable Limits: The greatest known range is LOWER: 18% UPPER: 57% (Formic acid)

Products of Combustion: These products are carbon oxides (CO, CO2).

#### Fire Hazards in Presence of Various Substances:

Flammable in presence of open flames and sparks, of heat. Slightly flammable to flammable in presence of metals. Nonflammable in presence of shocks, of oxidizing materials, of reducing materials, of combustible materials, of organic materials, of acids, of alkalis, of moisture.

#### **Explosion Hazards in Presence of Various Substances:**

Explosive in presence of oxidizing materials. Slightly explosive in presence of organic materials, of metals. Non-explosive in presence of open flames and sparks, of shocks.

#### **Fire Fighting Media and Instructions:**

SMALL FIRE: Use DRY chemical powder. LARGE FIRE: Use water spray, fog or foam. Do not use water jet.

#### **Special Remarks on Fire Hazards:**

Decomposes more rapidly under fire conditions, forming carbon monoxide. Aluminum reduces formic acid (itself a reductant) with incandescence. (Formic acid)

#### **Special Remarks on Explosion Hazards:**

Formic acid forms explosive reactions with the following: Furfuryl alcohol, Hydrogen Peroxide + organic matter; Nitromethane, P2O5, Thallic nitrate trihydrate +vanillin, and oxidizing agents Explosive decompositon of Formic Acid on clean nickel. (Formic acid)

## Section 6: Accidental Release Measures

#### **Small Spill:**

Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. If necessary: Neutralize the residue with a dilute solution of sodium carbonate.

#### Large Spill:

Combustible material. Corrosive liquid. Keep away from heat. Keep away from sources of ignition. Stop leak if without risk. Absorb with DRY earth, sand or other non-combustible material. Do not get water inside container. Do not touch spilled material. Use water spray curtain to divert vapor drift. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Neutralize the residue with a dilute solution of sodium carbonate. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

## Section 7: Handling and Storage

#### **Precautions:**

Keep locked up.. Keep container dry. Keep away from heat. Keep away from sources of ignition. Ground all equipment containing material. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, organic materials, acids, alkalis.

#### **Storage:**

Keep container in a cool, well-ventilated area. Keep container tightly closed and sealed until ready for use. Avoid all possible sources of ignition (spark or flame).

## Section 8: Exposure Controls/Personal Protection

#### **Engineering Controls:**

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

#### **Personal Protection:**

Face shield. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves. Boots.

#### **Personal Protection in Case of a Large Spill:**

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

#### **Exposure Limits:**

Formic acid TWA: 5 STEL: 10 (ppm) from ACGIH (TLV) [United States] [1999] TWA: 9 (mg/m3) from NIOSH TWA: 5 (ppm) from NIOSH TWA: 9 (mg/m3) from OSHA (PEL) [United States] TWA: 5 (ppm) from OSHA (PEL) [United States] TWA: 5 (ppm) [United Kingdom (UK)] TWA: 9.3 (mg/m3) [United Kingdom (UK)]3 Consult local authorities for acceptable exposure limits.

## **Section 9: Physical and Chemical Properties**

Physical state and appearance: Liquid. Odor: Pungent. Penetrating. Benzaldehyde-like Taste: Sour Molecular Weight: Not applicable.

Color: Clear Colorless. pH (1% soln/water): Acidic. Boiling Point: The lowest known value is 100°C (212°F) (Water). Weighted average: 100.67°C (213.2°F) **Melting Point:** May start to solidify at 8.4°C (47.1°F) based on data for: Formic acid. Critical Temperature: Not available. **Specific Gravity:** Weighted average: 1.21 (Water = 1) Vapor Pressure: The highest known value is 4.7 kPa (@ 20°C) (Formic acid). Weighted average: 4.6 kPa (@ 20°C) Vapor Density: The highest known value is 1.59 (Air = 1) (Formic acid). Weighted average: 1.55 (Air = 1) Volatility: Not available. Odor Threshold: The highest known value is 0.625 ppm (Formic acid) Water/Oil Dist. Coeff.: Not available. Ionicity (in Water): Not available. **Dispersion Properties:** See solubility in water, diethyl ether, acetone. Solubility: Easily soluble in acetone. Soluble in cold water, hot water, diethyl ether. Section 10: Stability and Reactivity Data Stability: The product is stable.

**Instability Temperature:** Not available.

**Conditions of Instability:** Heat, ignition sources, incompatible materials

Incompatibility with various substances:

Highly reactive with oxidizing agents. Reactive with organic materials, metals, acids, alkalis.

**Corrosivity:** 

Highly corrosive in presence of copper. Corrosive in presence of stainless steel(304). Non-corrosive in presence of glass, of aluminum, of stainless steel(316).

**Special Remarks on Reactivity:** 

Formic acid is a strong reducing agent. Decomposes slowly during storage! Vent Container At Least Monthly. Formic acid may react with alkalies and oxidizing materials such as peroxides, nitric acid, and chromic acid. It is also incompatible with concentrated Sulfluric Acid, Nitromethane, finely powdered metals, permanganates, strong bases, oxidizing agents. (Formic acid)

Special Remarks on Corrosivity: Corrosive to metals

Polymerization: Will not occur.

### Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation. Ingestion.

Toxicity to Animals: Acute oral toxicity (LD50): 729 mg/kg (Mouse) (Calculated value for the mixture).

#### **Chronic Effects on Humans:**

MUTAGENIC EFFECTS: Mutagenic for mammalian somatic cells. [Formic acid]. Mutagenic for bacteria and/or yeast. [Formic acid]. May cause damage to the following organs: kidneys, liver, upper respiratory tract, skin, eyes, central nervous system (CNS).

#### **Other Toxic Effects on Humans:**

Extremely hazardous in case of inhalation (lung corrosive). Very hazardous in case of skin contact (irritant), of eye contact (corrosive), of ingestion, . Hazardous in case of skin contact (corrosive, permeator).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: May affect genetic material (mutagenic)

#### **Special Remarks on other Toxic Effects on Humans:**

Acute Potential Health Effects: Skin: Corrosive. Causes skin irritation and burns . Absorbed through the skin. May cause erythema and blistering. Eyes: Corrosive. Causes eye irritation and burns. Lachrymator.

May cause corneal edema, ulceration and scaring. Vapors may cause itching, burning and swelling of the eyes. Inhalation: Affects respiration and causes respiratory tract irritation and burns. Vapors may afect behavior (brain) and sense organs and cause dizziness, and nausea. May also affect the urinary system and liver Ingestion: May be harmful if swallowed. Causes digestive tract irritation and burns with abdominal pain, vomiting, and possible death. May product corrosive ulceration and bleeding, and necrosis of the gastrointestinal tract. May also affect the cardiovascular system, urinary system, blood, behavior, and metabolism. Chronic Potential Health Effects: Prolonged or repeated skin contact may cause dermatitis. Mah cause liver and kidney damage. Effects may be delayed. Laboratory experiments have resulted in mutagenic effects.

## Section 12: Ecological Information

Ecotoxicity: Not available.

BOD5 and COD: Not available.

**Products of Biodegradation:** 

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are less toxic than the product itself.

**Special Remarks on the Products of Biodegradation:** Not available.

## Section 13: Disposal Considerations

Waste Disposal:

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

## Section 14: Transport Information

**DOT Classification:** Class 8: Corrosive material Identification: : Formic acid (Formic acid) UNNA: 1779 PG: II Special Provisions for Transport: Not available. **Section 15: Other Regulatory Information** Other Regulations: OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). **Other Classifications:** WHMIS (Canada): CLASS B-3: Combustible liquid with a flash point between 37.8°C (100°F) and 93.3°C (200°F). CLASS E: Corrosive liquid. DSCL (EEC): HMIS (U.S.A.): Health Hazard: 3 Fire Hazard: 2 Reactivity: 0 **Personal Protection:** National Fire Protection Association (U.S.A.): Health: 3 Flammability: 2 Reactivity: 0 **Specific hazard: Protective Equipment:** Gloves. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator

when ventilation is inadequate. Face shield.

## Section 16: Other Information

References: Not available. Other Special Considerations: Not available. Created: 10/09/2005 05:35 PM Last Updated: 05/21/2013 12:00 PM

## Material Safety Data Sheet- Hydrochloric acid



## Section 1: Chemical Product and Company Identification

Product Name: Hydrochloric acid CAS#: Mixture. **RTECS:** MW4025000 TSCA: TSCA 8(b) inventory: Hydrochloric acid CI#: Not applicable. Synonym: Hydrochloric Acid; Muriatic Acid Chemical Name: Not applicable. Chemical Formula: Not applicable. **Contact Information:** Asian Paints Limited **B5-B10,Sipcot Industrial Complex** Kudikadu, Cuddalore-607005. **24HR Emergency Telephone, call:** +91 4142-239247,239248, 239423 Fax:+91 4142 239234

# Section 2: Composition and Information on Ingredients

Composition				
Name	CAS #	% by Weight		
Hydrogen chloride	7647-01-0	20-38		
Water	7732-18-5	62-80		

**Toxicological Data on Ingredients:** Hydrogen chloride: GAS (LC50): Acute: 4701 ppm 0.5 hours [Rat].

## Section 3: Hazards Identification

#### **Potential Acute Health Effects:**

Very hazardous in case of skin contact (corrosive, irritant, permeator), of eye contact (irritant, corrosive), of ingestion, Slightly hazardous in case of inhalation (lung sensitizer). Non-corrosive for lungs. Liquid or spray mist may produce tissue damage particularly on mucous membranes of eyes, mouth and respiratory tract. Skin contact may produce burns. Inhalation of the spray mist may produce severe irritation of respiratory tract, characterized by coughing, choking, or shortness of breath. Severe over-exposure can result in death. Inflammation of the eye is characterized by redness, watering, and itching. Skin inflammation is characterized by itching, scaling, reddening, or, occasionally, blistering.

#### **Potential Chronic Health Effects:**

Slightly hazardous in case of skin contact (sensitizer). CARCINOGENIC EFFECTS: Classified 3 (Not classifiable for human.) by IARC [Hydrochloric acid]. MUTAGENIC EFFECTS: Not available. TERATOGENIC EFFECTS: Not available. DEVELOPMENTAL TOXICITY: Not available. The substance may be toxic to kidneys, liver, mucous membranes, upper respiratory tract, skin, eyes, Circulatory System, teeth. Repeated or prolonged exposure to the substance can produce target organs

damage. Repeated or prolonged contact with spray mist may produce chronic eye irritation and severe skin irritation. Repeated or prolonged exposure to spray mist may produce respiratory tract irritation leading to frequent attacks of bronchial

infection. Repeated exposure to a highly toxic material may produce general deterioration of health by an accumulation in one or many human organs.

### Section 4: First Aid Measures

#### **Eye Contact:**

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water for at least 15

minutes. Cold water may be used. Get medical attention immediately.

#### **Skin Contact:**

In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Cover the irritated skin with an emollient. Cold water may be used.Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

#### Serious Skin Contact:

Wash with a disinfectant soap and cover the contaminated skin with an anti-bacterial cream. Seek immediate medical attention.

#### Inhalation:

If inhaled, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention immediately.

#### Serious Inhalation:

Evacuate the victim to a safe area as soon as possible. Loosen tight clothing such as a collar, tie, belt or waistband. If breathing is difficult, administer oxygen. If the victim is not breathing, perform mouth-to-mouth resuscitation. WARNING: It may be hazardous to the person providing aid to give mouth-to-mouth resuscitation when the inhaled material is toxic, infectious or corrosive. Seek immediate medical attention.

#### **Ingestion:**

If swallowed, do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.

Serious Ingestion: Not available.

## Section 5: Fire and Explosion Data

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: of metals

**Explosion Hazards in Presence of Various Substances:** Non-explosive in presence of open flames and sparks, of shocks.

Fire Fighting Media and Instructions: Not applicable.

#### **Special Remarks on Fire Hazards:**

Non combustible. Calcium carbide reacts with hydrogen chloride gas with incandescence. Uranium phosphide reacts with hydrochloric acid to release spontaneously flammable phosphine. Rubidium acetylene carbides burns with slightly warm hydrochloric acid. Lithium silicide in contact with hydrogen chloride becomes incandescent. When dilute hydrochloric acid is used, gas spontaneously flammable in air is evolved. Magnesium boride treated with concentrated hydrochloric acid produces spontaneously flammble gas. Cesium acetylene carbide burns hydrogen chloride gas. Cesium acetylene carbide burns hydrogen chloride gas.

with hydrochloric acid unless acid is dilute. Reacts with most metals to produce flammable Hydrodgen gas.

#### **Special Remarks on Explosion Hazards:**

Hydrogen chloride in contact with the following can cause an explosion, ignition on contact, or other violent/vigorous reaction: Acetic anhydride AgClO + CCl4 Alcohols + hydrogen cyanide, Aluminum Aluminum-titanium alloys (with HCl vapor), 2-Amino ethanol, Ammonium hydroxide, Calcium carbide Ca3P2 Chlorine + dinitroanilines (evolves gas), Chlorosulfonic acid Cesium carbide Cesium acetylene carbide, 1,1-Difluoroethylene Ethylene diamine Ethylene imine, Fluorine, HClO4 Hexalithium disilicide H2SO4 Metal acetylides or carbides, Magnesium boride, Mercuric sulfate, Oleum, Potassium permanganate, beta-Propiolactone Propylene oxide Rubidium carbide, Rubidium, acetylene carbide Sodium (with aqueous HCl), Sodium hydroxide Sodium tetraselenium, Sulfonic acid, Tetraselenium tetranitride, U3P4 , Vinyl acetate. Silver perchlorate with carbon tetrachloride in the presence of hydrochloric acid produces trichloromethyl perchlorate which detonates at 40 deg. C.

## Section 6: Accidental Release Measures

#### **Small Spill:**

Dilute with water and mop up, or absorb with an inert dry material and place in an appropriate waste disposal container. If necessary: Neutralize the residue with a dilute solution of sodium carbonate. **Large Spill:** 

Corrosive liquid. Poisonous liquid. Stop leak if without risk. Absorb with DRY earth, sand or other noncombustible material. Do not get water inside container. Do not touch spilled material. Use water spray curtain to divert vapor drift. Use water spray to reduce vapors. Prevent entry into sewers, basements or confined areas; dike if needed. Call for assistance on disposal. Neutralize the residue with a dilute solution of sodium carbonate. Be careful that the product is not present at a concentration level above TLV. Check TLV on the MSDS and with local authorities.

## Section 7: Handling and Storage

#### **Precautions:**

Keep locked up. Keep container dry. Do not ingest. Do not breathe gas/fumes/ vapor/spray. Never add water to this product. In case of insufficient ventilation, wear suitable respiratory equipment. If ingested, seek medical advice immediately and show the container or the label. Avoid contact with skin and eyes. Keep away from incompatibles such as oxidizing agents, organic materials, metals, alkalis, moisture. May corrode metallic surfaces. Store in a metallic or coated fiber board drum using a strong polyethylene inner package.

Storage: Keep container tightly closed. Keep container in a cool, well-ventilated area.

## Section 8: Exposure Controls/Personal Protection

#### **Engineering Controls:**

Provide exhaust ventilation or other engineering controls to keep the airborne concentrations of vapors below their respective threshold limit value. Ensure that eyewash stations and safety showers are proximal to the work-station location.

#### **Personal Protection:**

Face shield. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Gloves. Boots.

#### Personal Protection in Case of a Large Spill:

Splash goggles. Full suit. Vapor respirator. Boots. Gloves. A self contained breathing apparatus should be used to avoid inhalation of the product. Suggested protective clothing might not be sufficient; consult a specialist BEFORE handling this product.

#### **Exposure Limits:**

CEIL: 5 (ppm) from OSHA (PEL) [United States] CEIL: 7 (mg/m3) from OSHA (PEL) [United States] CEIL: 5 from NIOSH CEIL: 7 (mg/m3) from NIOSH TWA: 1 STEL: 5 (ppm) [United Kingdom (UK)]

TWA: 2 STEL: 8 (mg/m3) [United Kingdom (UK)]Consult local authorities for acceptable exposure limits.

## Section 9: Physical and Chemical Properties

Physical state and appearance: Liquid. **Odor:** Pungent. Irritating (Strong.) Taste: Not available. Molecular Weight: Not applicable. **Color:** Colorless to light yellow. pH (1% soln/water): Acidic. **Boiling Point:** 108.58 C @ 760 mm Hg (for 20.22% HCl in water) 83 C @ 760 mm Hg (for 31% HCl in water) 50.5 C (for 37% HCl in water) **Melting Point:** -62.25°C (-80°F) (20.69% HCl in water) -46.2 C (31.24% HCl in water) -25.4 C (39.17% HCl in water) Critical Temperature: Not available. **Specific Gravity:** 1.1- 1.19 (Water = 1) 1.10 (20% and 22% HCl solutions) 1.12 (24% HCl solution) 1.15 (29.57% HCl solution) 1.16 (32% HCl solution) 1.19 (37% and 38% HCl solutions) Vapor Pressure: 16 kPa (@ 20°C) average Vapor Density: 1.267 (Air = 1) Volatility: Not available. Odor Threshold: 0.25 to 10 ppm Water/Oil Dist. Coeff.: Not available. Ionicity (in Water): Not available. Dispersion Properties: See solubility in water, diethyl ether. Solubility: Soluble in cold water, hot water, diethyl ether. Section 10: Stability and Reactivity Data Stability: The product is stable. Instability Temperature: Not available. Conditions of Instability: Incompatible materials, water Incompatibility with various substances: Highly reactive with metals. Reactive with oxidizing agents, organic materials, alkalis, water.

Corrosivity:

Extremely corrosive in presence of aluminum, of copper, of stainless steel(304), of stainless steel(316). Non-corrosive in presence of glass.

#### **Special Remarks on Reactivity:**

Reacts with water especially when water is added to the product. Absorption of gaseous hydrogen chloride on mercuric sulfate becomes violent @ 125 deg. C. Sodium reacts very violently with gaseous hydrogen chloride. Calcium phosphide and hydrochloric acid undergo very energetic reaction. It reacts with oxidizers releasing chlorine gas. Incompatible with,

alkali metals, carbides, borides, metal oxides, vinyl acetate, acetylides, sulphides, phosphides, cyanides, carbonates. Reacts with most metals to produce flammable Hydrogen gas. Reacts violently (moderate reaction with heat of evolution) with water especially when water is added to the product. Isolate hydrogen chloride from heat, direct sunlight, alkalies (reacts vigorously), organic materials, and oxidizers (especially nitric acid and chlorates), amines, metals, copper and alloys (e.g.brass), hydroxides, zinc (galvanized materials), lithium silicide (incandescence), sulfuric acid(increase in temperature and pressure) Hydrogen chloride gas is emitted when this product is in contact with sulfuric acid. Adsorption of Hydrochloric Acid onto silicon dioxide results in exothmeric reaction. Hydrogen chloride causes aldehydes and epoxides to violently polymerize. Hydrogen chloride or Hydrochloric Acid in contact with the folloiwng can cause explosion or ignition on contact or

**Special Remarks on Corrosivity:** 

Highly corrosive. Incompatible with copper and copper alloys. It attacks nearly all metals (mercury, gold, platinium, tantalum, silver, and certain alloys are exceptions). It is one of the most corrosive of the nonoxidizing acids in contact with copper alloys. No corrosivity data on zinc, steel. Severe Corrosive effect on brass and bronze

Polymerization: Will not occur.

## Section 11: Toxicological Information

Routes of Entry: Absorbed through skin. Dermal contact. Eye contact. Inhalation.

#### **Toxicity to Animals:**

Acute oral toxicity (LD50): 900 mg/kg [Rabbit]. Acute toxicity of the vapor (LC50): 1108 ppm, 1 hours [Mouse]. Acute toxicity of the vapor (LC50): 3124 ppm, 1 hours [Rat].

#### **Chronic Effects on Humans:**

CARCINOGENIC EFFECTS: Classified 3 (Not classifiable for human.) by IARC [Hydrochloric acid]. May cause damage to the following organs: kidneys, liver, mucous membranes, upper respiratory tract, skin, eyes, Circulatory System, teeth.

#### **Other Toxic Effects on Humans:**

Very hazardous in case of skin contact (corrosive, irritant, permeator), of ingestion, . Hazardous in case of eye contact (corrosive), of inhalation (lung corrosive).

#### **Special Remarks on Toxicity to Animals:**

Lowest Published Lethal Doses (LDL/LCL) LDL [Man] -Route: Oral; 2857 ug/kg LCL [Human] - Route: Inhalation; Dose: 1300 ppm/30M LCL [Rabbit] - Route: Inhalation; Dose: 4413 ppm/30M

#### Special Remarks on Chronic Effects on Humans:

May cause adverse reproductive effects (fetoxicity). May affect genetic material.

#### Special Remarks on other Toxic Effects on Humans:

Acute Potential Health Effects: Skin: Corrosive. Causes severe skin irritation and burns. Eyes: Corrosive. Causes severe eye irritation/conjuntivitis, burns, corneal necrosis. Inhalation: May be fatal if inhaled. Material is extremely destructive to tissue of the mucous membranes and upper respiratory tract. Inhalation of hydrochloric acid fumes produces nose, throat, and larryngeal burning, and irritation, pain and inflammation, coughing, sneezing, choking sensation, hoarseness, laryngeal spasms, upper respiratory tract edema, chest pains, as well has headache, and palpitations. Inhalation of high concentrations can result in corrosive burns, necrosis of bronchial epithelium, constriction of the larynx and bronchi, nasospetal perforation, glottal closure, occur, particularly if exposure is prolonged. May affect the liver. Ingestion: May be fatal if swallowed. Causes irritation and burning, ulceration, or perforation of the gastrointestinal tract and resultant peritonitis, gastric hemorrhage and infection. Can also cause nausea, vomitting (with "coffee ground" emesis), diarrhea, thirst, difficulty swallowing, salivation, chills, fever, uneasiness, shock, strictures and stenosis (esophogeal, gastric, pyloric). May affect behavior (excitement), the cardiovascular system (weak rapid pulse, tachycardia), respiration (shallow respiration), and urinary system (kidneys- renal failure, nephritis). Acute exposure via inhalation or ingestion can also cause erosion of tooth enamel. Chronic Potential Health Effects: dyspnea, bronchitis. Chemical pneumonitis and pulmonary edema can also

## Section 12: Ecological Information

**Ecotoxicity:** Not available.

BOD5 and COD: Not available.

#### **Products of Biodegradation:**

Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

**Toxicity of the Products of Biodegradation:** The products of degradation are less toxic than the product itself.

Special Remarks on the Products of Biodegradation: Not available.

## Section 13: Disposal Considerations

#### Waste Disposal:

Waste must be disposed of in accordance with federal, state and local environmental control regulations.

## Section 14: Transport Information

**DOT Classification:** Class 8: Corrosive material **Identification:** : Hydrochloric acid, solution UNNA: 1789 PG: II **Special Provisions for Transport:** Not available.

## Section 15: Other Regulatory Information

#### **Other Regulations:**

OSHA: Hazardous by definition of Hazard Communication Standard (29 CFR 1910.1200). EINECS: This product is on the European Inventory of Existing Commercial Chemical Substances.

#### **Other Classifications:**

#### WHMIS (Canada):

CLASS D-2A: Material causing other toxic effects (VERY TOXIC). CLASS E: Corrosive liquid. **DSCL (EEC):** 

R34- Causes burns. R37- Irritating to respiratory system. S26- In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).

HMIS (U.S.A.): Health Hazard: 3 Fire Hazard: 0 **Reactivity:** 1 **Personal Protection:** National Fire Protection Association (U.S.A.): Health: 3 Flammability: 0 **Reactivity:** 1 **Specific hazard: Protective Equipment:** Gloves. Full suit. Vapor respirator. Be sure to use an approved/certified respirator or equivalent. Wear appropriate respirator when ventilation is inadequate. Face shield. **Section 16: Other Information** Other Special Considerations: Not available. Created: 10/09/2005 05:45 PM

Last Updated: 05/21/2013 12:00 PM