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Six Monthly Environmental Compliance Report (From May 2016 to October 2016)

PREPARED BY: ECOSYSTEM RESOURCE MANAGEMENT PVT. LTD.



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MEMBERS ASSOCIATED WITH REPORT

Project Proponent

Mr. A. K. Singh (Executive Director Technical)

Team leader

Mrs. Rekha Shah (CEO – Eco Chem Sales & Services)

Team Member (ECSS):

Environmental Monitoring & : Team Leader – Mr. Rajesh Parekh

Data Collection Team Member –1. Mr. Dipak Maru

2. Mr. Harsh Shah

3. Mr. Sameer Patel

Sample Analysis : Lab. Incharge – Mr. Sunilkumar Pandey

Chemist – 1. Ms. Riddhi Patel

2. Mr. Bharat Patel

3. Ms. Chaitali Patel

Report Preparation By : Mr. Harsh Shah

Report Reviewed By : Mr. Jacob Tharakan & Mr. Dipakkumar Maru

Report Checked By : Dr. Ashok K. Rathoure

Report Approved By : Ms. Rekha Shah



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INTRODUCTION

Hindusthan Engineering & Industries Ltd. (HEIL) (previously Hindusthan Development Corporation) was set up in 1944 with track materials plant at Tiljala. In the year 1964, Sri R. P. Mody acquired the company which had only one plant at Tiljala producing fabricated points, switches and turnouts, steel sleepers and other railway track components. The company witnessed aggressive and all round growth in 1970's when the expansion in the Indian Railways took place for industrialization in the country. HEIL became the major supplier of railway track materials and enjoyed a major market share with Indian Railways. In tune with the demand of economic growth, HEIL continued its thrust on further diversification and in the process either acquired existing projects in the Core Sector or set up Greenfield Projects in a wide spectrum of industrial activities. HEIL acquired a Wagon Building Plant at Santragachi while a Green field Project for manufacture of Cyanide and Calcined Petroleum Coke was established in Olpad in the state of Gujarat & Haldia in the state of West Bengal, respectively.

The company was also in the forefront for bringing state of the art technology from global leaders for the benefit of the Indian Economy. It has brought to India CMS Crossings tie-up with Bethlehem Steel Corporation, USA, Steel Wire tie-up with Kokon Company, Japan, Electro Porcelain tie-up with Reinsinch Werke, Germany, Calcium Coke Calcination from Alcom International, Canada. During this period, HEIL was instrumental in providing a vision for globalization in the areas of its operation. HEIL made rapid inroads in the International Market with its products. HEIL products viz. Steel Castings Cyanides, Track materials found ready acceptance all over the world. HEIL developed a parallel export market for many of its products.

With the spread of globalization and emergence of fierce competition, HEIL realized the need to restructure and is in the process of reorienting its priorities to become a cost effective, customer friendly industrial conglomerate with focus on Research & Development. The Govt. of India has recognized its Research and Development Cell in the Steel foundry as an accredited Research and Development Center for carrying out all the research in the areas of Steel Castings. In the domestic market, HEIL primarily caters to Indian Railways, Ministry of Defence and other Public Sector undertakings. HEIL is the market leader in the area it

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operates. HEIL is the sole supplier of special containers to CONCOR for the last ten years and no other

Indian Company can claim this unique distinction.

Quality Policy:

"It is the quality policy of HEIL's Points & Crossing, Steel Sleeper and wagon division to provide products

that satisfy the customer quality requirements. It strives to achieve and maintain excellence through

development and absorption of appropriate technologies." - Mr. R.R. Mehta, Executive Director

Achievements:

HEIL has received prestigious export order worth \$18 Crores from a USA based company for supply of

Steel Castings. The company has also been receiving Export Excellence Awards given by the Ministry of

Commerce, Government of India for the last 8 years in a row.

We have received the Export Excellence Award for the year 2001-02 from Shri Arun Jaitley, Honorable

Minister of Commerce in New Delhi on 26th September 2003. In India very few companies can claim the

distinction of receiving Export Excellence Awards for 8 years in a row.

Hindusthan Chemicals Company (HCC) - Project Proponent Unit

Hindusthan Chemical Company, formerly known as Cyanides & Chemicals Company, is a unit of HEIL.

The unit was set up in the year 1982 in GIDC Industrial Estate at Olpad Taluka of Surat District in Gujarat

State. The unit is engaged in manufacture of Hydrogen Cyanide (HCN) and Cyanide based products. The

unique feature of the HCN manufacturing technology is that the whole system of manufacturing process is

working under vacuum hence in any case hazardous gas is not released-out into the atmosphere from the

production system. The unit manufactured Sodium Cyanide and Potassium Cyanide for the first time in our

country. Thus the unit is pioneer in manufacture of HCN and its derivatives in India.

The unit is primarily engaged in the manufacturing of Hydrogen cyanide, Sodium Cyanide, Potassium

Cyanide, Sodium/Potassium Ferro Cyanide, Diphenyl Guanidine, Heat Treatment Salt, Sodium

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Dicyanamide, Cyanohydrins, Nitriles, Cyanide based products, Mandelonitrile and Natural Gas based Captive Power Plant.

The present sales turnover of HCC is approximately Rs. 200.00 Crore. We are currently exporting different types of cyanide derivatives to countries like Zimbabwe, Thailand, Indonesia, Morocco etc.. Exports account for around Rs. 57.00 Crore (2015-16) of the total turnover of the Unit.

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DATA SHEET

Date: 26/11/2016

1. Project type: River-Valley / Mining / : Industry

Industry / Thermal / Nuclear Other (specify) **Project category – 5 (b) "A"**

2. Name of the project : Manufacturing of Sodium Cyanide & other

Cyanide based Products

3. Clearance letter (s) O.M. No. and date : **F. No. J – 11011 / 466 / 2011 – IA II (I), dated**

22/01/2016.

4. Location : Plot no. 26-37, 54-57, 122, 143, Village

Asnabad, Tehsil Olpad.

a. District : Surat-394540

b. State : Gujarat

c. Latitude / Longitude : Latitude 21⁰19'8.40" N

Longitude 72⁰45'3.73" E

5. Address for Correspondence

a. Address of concerned Project Chief: Mr. A. K.

Engineer (with pin code & telephone /

telex / fax number)

Mr. A. K. Singh (Executive Director

Technical)

Hindusthan Chemicals Company,

GIDC Industrial Estate, Olpad – 394 540

District Surat, Gujarat.

Phone: 02621 221681-83, 324222

Fax: 02621-221235

E-mail: aks@hcc-cyanides.com

b. Address of Executive Project Engineer : As Above

/Manager (with pin code /fax numbers)

6. Salient features



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a. of the project

b. of the environmental management plans

: Attached as Annexure – 1.

: • The whole plant is working under vaccum and all vents are connected to the incinerator.

 We have full-fledged Effluent Treatment Plants (2 Nos.) for the treatment of cyanide contaminated effluent and high TDS effluent with adequate capacity.

 We have implemented Zero Liquid Discharge scheme from 1st April, 2016 with waste minimization for the existing ETP plants.

We have a valid membership of TSDF site

 NECL, Nandesari and BEIL, Ankleshwar
 for incineration, treatment and disposal of
 hazardous waste.

• We have developed greenbelt area which is approx. 43% of the total plot area.

 We have facility for in-house monitoring and analysis of effluent and air pollutant parameters.

• Environmental Audit and Environment Monitoring through third party are being conducted regularly.

7. Breakup of the project area

Total Land: 2,04,995 m²

: Green Belt Area: 92,247 m²

a. Submergence area: forest & non forest

: Not Applicable (NA)

b. Others

: **NA**



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NA

8. Breakup of the project affected population with enumeration of those losing

houses/dwelling units only agriculture land only, both dwelling units and agricultural

land & landless labourers / artisan

a. SC.ST / Adivasis : NA

b. Others : NA

9. Financial details

a. Project cost as originally planned & : Project Cost Rs. 202.50 Crores

subsequent revised estimates and the year

of price reference

b. Allocation made for environmental : **Allocation made for environmental**management plans with item-wise & management plans with item-wise & year

year wise break up

wise break up is attached as Annexure -2.

10. Forest Land requirement

a. The status of approval for diversion of : NA

forest land and non-forestry use

b. The status of clearing falling : NA

c. The status of compensatory afforestation, : NA

if any

d. Comments on the viability and : NA

sustainability of compensatory

afforestation Programme in the light of

actual field experience so far

11. The status of clear falling in non areas (much : NA

as submergence area of reservoir, approach

roads) If any with quantitative information



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12. The status of construction

a. Date of commencement (actual and / or : NA

planned)

b. Date of completion (actual) and or : NA

planned

13. Reasons for the delay if the project is yet to : NA

start

14. Dates of site visits

a. The dates on which the project was : 30/05/2016 & 06/10/2016

monitored by the Regional office on

previous occasion, if any

15. Details of correspondence with project

authorities for obtaining action plans /

information on status of compliance to

safeguards other than the routine letters for

logistic support for site visits

(The first manufacturing report may contain

the details of all the letters issued so far, but :

the letter reports may cover only the letters

issued subsequently)

Analysis reports of GPCB are attached as

Annexure – 3.

b. Date of site visit for this monitoring report : Dates of sampling are mentioned in respective

analysis report.

: Last Six Monthly Report (Nov-2015 to Apr-

2016) was submitted in May-2016.

Form-V-Environmental Audit Statement for

the financial year 2015 – 2016 was submitted

to MoEF & CC, Bhopal on 31/05/2016. Copy

of the same is attached as Annexure - 4.



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ENVIRONMENTAL CLEARANCE (EC) BY MOEF&CC, NEW DELHI

F.No. J-11011/466/2011-IA II (I) dated 22/01/2016



F. No. J-11011/466/2011-IA II (I) Government of India Ministry of Environment, Forest and Climate Change (I.A. Division)

Indira Paryavaran Bhawan Aliganj, Jorbagh Road, New Delhi -110003

E-mail: lk.bokolia@nic.in Telefax: 011-24695313 Dated 22nd January, 2016

To.

Shri A.K. Singh, President (Plant)
M/s Hindustan Chemicals Company
(Formerly known as Cyanides & Chemicals Company)
GIDC Industrial Estate, P.O. Olpad - 394540
Surat, Gujarat

E-mail: hccolp@sify.com; Fax No.02621-221235:

Subject :

Manufacturing of Sodium Cyanide & other Cyanide based products at plot no. 26-37, 54-57, 122, 143, Village Asnabad, Tehsil Olpad, District Surat, Gujarat by M/s Hindusthan Chemicals Company (Formerly known as M/s Cyanide & Chemicals Company)- Reg Environment Clearance.

Ref .:

Your letter no. nil dated 29th January, 2013.

Sir,

Kindly refer your letter dated 29th January, 2013 alongwith project documents including Form I, Terms of References, Pre-feasibility Report, EIA/EMP Report alongwith Public Hearing Report and subsequent submission of additional information vide letters dated 24th December, 2013 and 17th December, 2014 regarding above mentioned project. PP vide letter no. HCC/Tech/17/RPS/264 dated 10th December, 2015 has submitted 'Zero' effluent discharged scheme for effluent treatment.

2.0 The Ministry of Environment, Forest and Climate Change has examined the application. It is noted that proposal is for manufacturing of Sodium Cyanide & other Cyanide based products at plot no. 26-37, 54-57, 122, 143, Village Asnabad, Tehsil Olpad, District Surat, Gujarat by M/s Hindusthan Chemicals Company (Formerly known as M/s Cyanide & Chemicals Company). Total plot area is 2,04,995 m² of which 15,963 sq.m will be used for expansion. Total cost of the proposed expansion project is Rs. 202.50 Crore. Out of which, Rs. 2,50 Crore and Rs. 1.25 Crore per annum are earmarked towards capital cost and recurring cost per annum for pollution control measures. River Tapi is flowing at a distance of 9.5 km. No national park/wildlife sanctuary/reserve forest is located within 10 km distance. Details of existing and proposed products will be as follows:

S.N	Name of Products	Production Capacity (MT/Annum)				
	Section 1 and 1 an	Existing	Proposed	Total		
1	Hydrogen Cyanide	5100		5100		
2	Sodium Cyanide	6372	15000	21372		
3	Potassium Cyanide	2000				
4	Sodium Ferro cyanide	1000 -				
5	Potassium Ferro cyanide					
6	Diphenyl Guanidine	1260	-			
7	Sodium Dicyanide	300				

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8	Mandelonitrile	2500	-	
9	Heat Teratment Salt	720	-	
10	CYNOHYDRINES GROUP	h-11 4		
i)	Meta phenoxy Benzaldehyde Cyanophydrin (MPBAD Cyanohydrin))	5000		
ii)	Formaldehyde Cyanohydrin (Glycolonitrile)			
iii)	Acetone Cyanohydrin	D'		
iv)	Mothyl Ethyl Ketone Cyanohydrin			
v)	Acetaldehyde Cyanohydrin (Lactonitrile)			
vi)	Para Anisaldehyde Cyanohydnin			
vii)	Cyclohexanone Cyanohydrin	Ŭ.		
viii)	Methyl Propyl Ketone Cyanohydrin			
ix)	Methyl Mercapto Butyronitrile (Methyl MercaptgoProponaldehyde Cyanohydrin)			
x)	Cyclo Pentanone Cyanohydrin		500	
xi)	2-Chloro BenzaldehydeCyanohydrin (2- Chloro Mandelonitrile)		500	
xii)	Ortho Tolyl Benzaldehyde Cyanohydrin (Ortho Tolyl Mandelonitrile)		100	
	Total of Cyanonydrines Group	5000	2000	7000
11	NITRILES GROUP		-	
i)	Isophoron Nitrile	3000		
ii)	Imino Diacetonitrile		(1)	
in)	Succinonitrile	1		
iv)	3-Hydroxy Propionitrile		100	
v)	Methyl Amino Acetonitrile Hydrochloride			
vi)	Methylene Amino Aceto Nitrie (MAAN)		300	-
	Total of Nitriles Group	3000	300	3300
12	CYANIDE BASE PRODUCTS	3500	6300	9800
i)	Sodium Cyano Acetate	3500		
ii)	Cyanamide (Crystals & Aqueous Solution)			
iii)	Para Anisaldehyde Cyanohydrin	1		
iv)	DiorthoTolyl Guanidine (DOTG)			
v)	Zinc Cyanide	1	300	
vi)	Isophoron Diamine		6000	
	Total of Cyanide based Products	3500	6300	9800
13	N G based CPP	2 MW	-	94
14	Ammonia Sulphate (By-Product)	2649		77

Adequate stack height will be provided to gas fired boiler (4 Nos. x 3.5 TPH). All the gas from the process containing HCN will be incinerated in the incinerator. Scrubber and Stack of adequate height will be provided to incinerator. Bagfilter, water scrubber and stack of adequate height will be provided to heat treatment salt plant, ammonia absorption column to ammonium sulphate recovery plant and Cyclone separator to control particulate emissions. Total water requirement will be increased from 651.2 m³/day to 1105.2 m³/day after expansion. Out of which, fresh water requirement from Kakrapar Canal will be 605 m³/day and remaining water requirement will be met from recycled water 500 m³/day. Industrial effluent generation will be increased from 265.9 m3/day to 512 m3/day after expansion. Effluent will be segregated into high TDS/COD and Low COD/TDS effluent streams. High TDS/COD effluent stream will be evaporated in Multiple Effect Evaporator (MEE). Condensate will be treated in the condensate treatment unit. Low TDS/COD effluent stream will be treated in the effluent treatment plant (ETP) comprising primary, secondary and tertiary treatment (Reverse Osmosis). Permeate will be reused/recycled for cooling tower make up. The proposed effluent treatment scheme for the existing unit as well as

proposed expansion is based on 'Zero effluent discharge'. Incinerator will be designed as per CPCB guidelines. ETP studge, tar residues/distillate residues, spent resin. MEE salt will be sent to TSDF. Activated carbon, ferric hydroxide and iron studge will be sent for incineration. Waste / used oil will be sold to authorized recyclers/re-processors.

- 4.0 Public hearing / consultation was exempted as per stage Section 7 (i), III Stage (3), Para (i)(b) of EIA Notification 2006.
- 5.0 All units producing technical grade pesticides are listed at S.N. 5(b) under category 'A' and appraised at Central level.
- 6.0 The proposal was considered by the Expert Appraisal Committee (Industry) in its meetings held during 16th 17th February, 2012, 16th 17th May, 2013 and 19th-20th December, 2013 respectively. Project Proponent and the EIA Consultant namely M/s Eco-Chem Sales & Services, have presented EIA / EMP report as per the TOR. EAC has found the EIA / EMP Report and additional information to be satisfactory and in full consonance with the presented TORs. The Committee recommended the proposal for environmental clearance.
- 7.0 Based on the information submitted by the project proponent, the Ministry of Environment and Forests hereby accords environmental clearance to above project under the provisions of EIA Notification dated 14th September 2006, subject to the compliance of the following Specific and General Conditions:

A. SPECIFIC CONDITIONS:

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- i) National Emission Standards for Pesticide Manufacturing and Formulation Industry issued by the Ministry vide G.S.R. 46(E) dated 3rd February, 2006 and amended time to time shall be followed by the unit.
- Adequate stack height shall be provided to gas fired boilers.
- All the gas from the process containing HCN shall be incinerated in the incinerator. Scrubber and Stack of adequate height shall be provided to incinerator. Bagfilter, water scrubber and stack of adequate height shall be provided to heat treatment salt plant, ammonia absorption column to ammonium sulphate recovery plant and Cyclone separator to control particulate emissions. Efficiency of pollution control device shall be monitored regularly and maintained properly. Scrubbers vent shall be provided with on-line detection and alarm system to indicate higher than permissible value of controlled parameters. At no time, the emission levels shall go beyond the prescribed standards. The system should be interlocked with the pollution control equipments so that in case of any increase in pollutants beyond permissible limits, plant should be automatically stopped.
 - iv) In plant control measures for checking fugitive emissions from all the vulnerable sources shall be provided. Fugitive emissions shall be controlled by providing closed storage, closed handling & conveyance of chemicals/materials, multi cyclone separator and water sprinkling system. Dust suppression system including water sprinkling system shall be provided at loading and unloading areas to control dust emissions. Fugitive emissions in the work zone environment, product, raw materials storage area etc. shall be regularly monitored and records maintained. The emissions shall conform to the limits stipulated by the GPCB.
 - For further control of fugitive emissions, following steps shall be followed:
 - i. Closed handling system shall be provided for chemicals.

- ii. Reflux condenser shall be provided over reactor.
- System of leak detection and repair of pump/pipeline based on preventive maintenance.
- iv. The acids shall be taken from storage tanks to reactors through closed pipeline. Storage tanks shall be vented through trap receiver and condenser operated on chilled water.
- v. Cathodic protection shall be provided to the underground solvent storage tanks.
- vi) A proper Leak Detection And Repair (LDAR) Program for pesticide industry shall be prepared and implemented as per CPCB guidelines. Focus shall be given for prevention of fugitive emissions for which preventive maintenance of pumps, valves, pipelines are required. Proper maintenance of mechanical seals of pumps and valves shall be given. A preventive maintenance schedule for each unit shall be prepared and adhered to.
- vii) Continuous monitoring system for HCN, chlorine, HCl and NH₂ as well as VOCs, shall be installed at all important places/areas. Effective measures shall be taken immediately, when monitoring results indicate above the permissible limits. All necessary steps should be taken for monitoring of HCN, chlorine, HCl and NH₃ as well as VOCs in the proposed plant.
- viii) Alarm for chlorine leakage if any in the liquid chlorine storage area shall be provided alongwith automatic start of the scrubbing system.
- ix) The gaseous emissions from DG set shall be dispersed through adequate stack height as per CPCB standards. Acoustic enclosure shall be provided to the DG sets to mitigate the noise pollution.
- x) Ambient air quality data shall be collected as per NAAQES standards notified by the Ministry vide G.S.R. No. 826(E) dated 16th September, 2009. The levels of PM_{2.5}, PM₁₀, SO₂, NO_x, CO and VOC shall be monitored in the ambient air and displayed at a convenient location near the main gate of the company and at important public places. The company shall upload the results of monitored data on its website and shall update the same periodically. It shall simultaneously be sent to the Regional office of MOEF, the respective Zonal office of CPCB and GPCB.
- xi) Solvent management shall be carried out as follows:
 - Chilled brine circulation system shall be provided to condensate solvent vapors and reduce solvent losses. It shall be ensured that solvent recovery should not be less than 95%.
 - Reactor and solvent handling pump shall have mechanical seals to prevent leakages.
 - The condensers shall be provided with sufficient HTA and residence time so as to achieve more than 95% recovery
 - Solvents shall be stored in a separate space specified with all safety measures.
 - Proper earthing shall be provided in all the electrical equipment wherever solvent handling is done.
 - Entire plant shall be flame proof. The solvent storage tanks should be provided with breather valve to prevent losses.
- xii) Total water requirement from Kakrapar Canal shall not exceed 600.3 m³/day after expansion in effect of ZLD scheme submitted by PP and prior permission should be obtained from the Competent Authority.

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- xiii) Industrial effluent generation should not exceed 512 m³/day. Effluent will be segregated into high TDS/COD and Low COD/TDS effluent streams. High TDS/COD effluent stream will be evaporated in Multiple Effect Evaporator (MEE). Condensate will be treated in the condensate treatment unit. Low TDS/COD effluent stream will be treated in the effluent treatment plant (ETP) comprising primary, secondary and tertiary treatment (Reverse Osmosis). Permeate will be reused/recycled for cooling tower make up. The proposed effluent treatment scheme for the existing unit as well as proposed expansion is based on 'Zero effluent discharge'. Water quality of treated effluent should meet the norms prescribed by CPCB/SPCB.
- xiv) 'Zero' effluent discharge shall be adopted and no effluent shall be discharged outside the premises.
- xv) Automatic /online monitoring system (24x7 monitoring devices) for flow measurement and relevant pollutants in the treatment system to be installed. The data to be made available to the respective SPCB and in the Company's website.
- xvi) Process effluent/any wastewater shall not be allowed to mix with storm water. Storm water drain shall be passed through guard pond.
- xvii) Incinerator should be designed as per CPCB guidelines. SO₂, NOx, HCN, HCl and CO emissions shall be monitored in the stack regularly.
- xviii) Hazardous chemicals shall be stored in tanks in tank farms, drums, carboys etc. Flame arresters shall be provided on tank farm. Solvent transfer shall be by pumps.
- xix) The company shall obtain Authorization for collection, storage and disposal of hazardous waste under the Hazardous Waste (Management, Handling and Trans-Boundary Movement) Rules, 2008 and amended as on date for management of Hazardous wastes and prior permission from GPCB shall be obtained for disposal of solid / hazardous waste in the TSDF. Measures shall be taken for fire fighting facilities in case of emergency. Membership of TSDF for hazardous waste disposal shall be obtained.
- xx) As proposed, ETP sludge, incineration ash and evaporation residue shall be sent to TSDF site. High calorific value waste such as spent organic shall be sent to cement factory/incinerated.
- xxi) The Company shall strictly comply with the rules and guidelines under Manufacture, Storage and Import of Hazardous Chemicals (MSIHC) Rules, 11989 as amended in October, 1994 and January, 2000. All Transportation of Hazardous Chemicals shall be as per the Motor Vehicle Act (MVA), 1989.
- xxii) The company shall undertake following waste minimization measures :-
 - Metering and control of quantities of active ingredients to minimize waste.
 - Reuse of by-products from the process as raw materials or as raw material substitutes in other processes.
 - Use of automated filling to minimize spillage.
 - d. Use of Close Feed system into batch reactors.
 - Venting equipment through vapour recovery system.
 - Use of high pressure hoses for equipment clearing to reduce wastewater generation.
- xxiii) The unit shall make the arrangement for protection of possible fire hazards during manufacturing process in material handling. Fire fighting system shall be as per the norms.

- xxiv) Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.
- xxv) As proposed, green belt over 33 % of the total project area should be developed within plant premises with at least 10 meter wide green belt on all sides along the periphery of the project area, in downward direction, and along road sides etc. Selection of plant species shall be as per the CPCB guidelines in consultation with the DFO.
- xxvi) The company shall make the arrangement for protection of possible fire and explosion hazards during manufacturing process in material handling.
- xxvii) Provision shall be made for the housing for the construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile sewage treatment plant, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structure to be removed after the completion of the project. All the construction wastes shall be managed so that there is no impact on the surrounding environment.
- xxviii) At least 2.5 % of the total cost of the project should be earmarked towards the Enterprise Social Commitment (ESC) based on local needs and action plan with financial and physical breakup/details should be prepared and submitted to the Ministry's Regional Office of MoEF&CC. Implementation of such program should be ensured accordingly in a time bound manner.

B. GENERAL CONDITIONS:

- The project authorities must strictly adhere to the stipulations made by the Gujarat Pollution Control Board (GPCB), State Government and any other statutory authority.
- ii. No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment and Forests. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the Ministry to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.
- iii. The locations of ambient air quality monitoring stations shall be decided in consultation with the Gujarat Pollution Control Board (GPCB) and it shall be ensured that at least one station is installed in the upwind and downwind direction as well as where maximum ground level concentrations are anticipated.
- iv. The overall noise levels in and around the plant area shall be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under Environment (Protection) Act, 1986 Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).
- v. The Company shall harvest rainwater from the roof-tops of the buildings and storm water drains to recharge the ground water and use the same water for the process activities of the project to conserve fresh water.
- vi. During transfer of materials, spillages shall be avoided and garland drains be constructed to avoid mixing of accidental spillages with domestic wastewater and storm water drains.
- Usage of Personnel Protection Equipments by all employees/ workers shall be ensured.

- viii. Training shall be imparted to all employees on safety and health aspects of chemicals handling. Pre-employment and routine periodical medical examinations for all employees shall be undertaken on regular basis. Training to all employees on handling of chemicals shall be imparted.
- ix. The company shall also comply with all the environmental protection measures and safeguards proposed in the project report submitted to the Ministry. All the recommendations made in the EIA/EMP in respect of environmental management, risk mitigation measures and public hearing relating to the project shall be implemented.
- x. The company shall undertake CSR activities and all relevant measures for improving the socio-economic conditions of the surrounding area.
- xi. The company shall undertake eco-developmental measures including community welfare measures in the project area for the overall improvement of the environment.
- xii. A separate Environmental Management Cell equipped with full fledged laboratory facilities shall be set up to carry out the Environmental Management and Monitoring functions.
- xiii. The company shall earmark sufficient funds for recurring cost per annum to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so earmarked for environment management/ pollution control measures shall not be diverted for any other purpose.
- xiv, A copy of the clearance letter shall be sent by the project proponent to concerned Panchayat, ZilaParisad/Municipal Corporation, Urban local Body and the local NGO, if any, from who suggestions/ representations, if any, were received while processing the proposal.
- xv. The project proponent shall also submit six monthly reports on the status of compliance of the stipulated Environmental Clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the respective Regional Office of MoEF, the respective Zonal Office of CPCB and the Gujarat Pollution Control Board. A copy of Environmental Clearance and six monthly compliance status report shall be posted on the website of the company.
- xvi. The environmental statement for each financial year ending 31st March in Form-V as is mandated shall be submitted to the Gujarat 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 clearance conditions and shall also be sent to the Bhopal Regional Offices of MoEF by e-mail.
- xvii. The project proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB/Committee and may also be seen at Website of the Ministry at http://envfor.nic.in. This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the

locality concerned and a copy of the same shall be forwarded to the concerned Regional Office of the Ministry.

- xviii. The project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of start of the project.
- 8.0 The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.
- 9.0 The Ministry reserves the right to stipulate additional conditions, if found necessary. The company in a time bound manner will implement these conditions.
- 10.0 The above conditions will be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, Air (Prevention & Control of Water Pollution) Act, 1981, the Environment (Protection) Act, 1986 Hazardous Waste (Management, Handling and Trans-boundary Movement) Rules, 2008 and the Public Liability Insurance Act, 1991 along with their amendments and rules.

(Lalit Bokolia) Additional Director

Copy to :-

- The Principal Secretary, Environment Department, Government of Maharashtra, 15th Floor, New Administrative Building, Mantralaya, Mumbai - 400 032.
- The Chief Conservator of Forests (Central), Kendriya Paryavaran Bhavan, Link Road No.3, Bhopal-462016.
- The Chairman, Central Pollution Control Board Parivesh Bhavan, CBD-cum-Office Complex, East Arjun Nagar, New Delhi - 110 032.
- The Chairman, Maharashtra Pollution Control Board, Kalpataru Point, 3rd and 4th floor, Opp. Cine Planet, Sion Circle, Mumbai-400 022.
- Monitoring Cell, Ministry of Environment, Forest and Climate Change, Indira Paryavaran Bhavan, Jor Bagh Road, New Delhi.

Guard File/Monitoring File/Record File.

(Lalit Bokolia) Additional Director



Six Monthly Report: (May 2016 to October 2016)

EC COMPLIANCE REPORT



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Status of Compliance on Specific & General Conditions for Environmental Clearance by MoEF&CC, New Delhi.

S. No.	Condition	Status
Α.	SPECIFIC CONDITIONS	
i)	National Emission Standard for Pesticide Manufacturing and Formulation Industry issued by the Ministry vide G.S.R 46(E) dated 3 rd February, 2006 and amended time to time shall be followed by the unit.	Complied. Industry meets with the National Emission Standard for Pesticide Manufacturing and Formulation Industry issued by the Ministry vide G.S.R 46(E) dated 3 rd February, 2006 it will comply with amendments when required.
ii)	Adequate stack height shall be provided to gas fired boiler.	Complied. Adequate stack height <i>i.e.</i> 30 m has been provided for gas fired boiler.
iii)	All the gases from the process containing HCN shall be incinerated in the incinerator. Scrubber and Stack of adequate height shall be provided to incinerator. Bag filter, Water scrubber and stack of adequate height shall be provided to heat treatment salt plant, ammonia absorption column to ammonium sulphate recovery plant and cyclone separator to control particulate emissions. Efficiency of pollution control device shall be monitored regularly and maintained properly. Scrubber vent shall be provided with on-line detection and	Complied. Proper air pollution control equipment with adequate stack height has been provided to check the flue gas emission as well as process gas emission from incinerator, heat treatment salt plant and ammonium sulphate recovery and boilers. HCC has installed and commissioned online stack monitoring gas analyzer and TOC meter. Waste gas from all plants is driven under vacuum to existing Incinerator. HCN content in flue gas and efficiency of pollution control devices are being monitored on monthly basis by external NABL approved laboratory and also by internal Environmental Quality Lab, twice in a month basis. Bag Filter & Water



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S.		
No.	Condition	Status
	alarm system to indicate higher than permissible value of controlled parameters. At no time, the emission levels shall go beyond the prescribed standards. The system should be interlocked with the pollution control equipment so that in case of any increase in pollutants beyond permissible limits, plant should be automatically stopped.	Scrubber have been provided at Incinerator while Cyclone Separator has also been provided at auxiliary boiler. Interlocking system has been provided with the pollution control equipment to plant automatically stopped in case of any increase in pollution level. Stack Monitoring & Analysis Methodology, Analysis Report & Month Wise Comparison is being attached as Annexure- 14.
iv)	In plant control measures for checking fugitive emissions from all the vulnerable source shall be provided. Fugitive emissions shall be controlled by providing closed storage, closed handling & conveyance of chemicals/materials, multi cyclone separator and water sprinkling system. Dust suppression system including water sprinkling system shall be providing at loading and unloading areas to control dust emissions. Fugitive emissions in the work zone environment, products, raw materials storage area etc. shall be regularly monitored and records maintained. The emissions shall confirm to the limits stipulated by the GPCB.	Complied. • Fugitive emissions in the work zone environment, raw-material storage area are being regularly monitored by on-line detectors like HCN Detectors in HCN, NaCN, and DPG & Mandelonitrile / Cyanohydrin plant. Portable gas detectors are also available at all plants. Company has also engaged a third party for monitoring of finished godown for HCN, HCl, VOC, Moisture and ventilation. • Water sprinkling system is /will be providing at loading and unloading areas to control dust emissions.
v)	For further control of fugitive emissions,	Complied.



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S. No.	Condition	Status
	following steps shall be followed:	Point wise all control measure has been taken to prevent
	a) Closed handling system shall be provided for chemicals.	fugitive emission.
	b) Reflux condenser shall be provided over reactor.	
	c) System of leak detection and repair of pump/pipeline based on preventive maintenance.	
	d) The acids shall be taken from storage tanks to reactors through closed pipeline. Storage tanks shall be vented through trap receiver and condenser operated on chilled water.	
	e) Cathodic protection shall be provided to the underground solvent storage tanks.	
vi)	A proper leak detection and repair	Complied.
	(LDAR) program for pesticide industry shall be prepared and implemented as per CPCB guidelines. Focus shall be given for prevention of fugitive emission for which preventive maintenance of pumps, valves, pipelines are required. Proper maintenance of mechanical seals of pumps and valves shall be given. A preventive maintenance schedule for	 Intermediate storage/dozing tank of HCN in HCN Plant, NaCN Plant, and DPG & Mandelonitrile /Cyanohydrin plant have been kept under vacuum and vent is connected to the existing incinerator. Hence, there is no chance of any leakage. Magnetic Seals have been provided to reactors of Mandelonitrile/Cyanohydrin Plant. Reactors of other plants are closed and connected under vacuum to the incinerator. No pump is used for HCN transfer; it is



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S. No.	Condition			Status	3	
	each unit shall be prepared and adhered to. cooled SS 316 p Condensers with provided where Mandelonitrile/Ovent to incinerate				ine cooli	ng at -5°C are . Reactors of
vii)	Continuous monitoring system for HCN, chlorine, HCL and NH ₃ as well as VOCs shall be installed at all important	Complied. Summary of work place air quality monitoring for period is as under:				
	places/areas. Effective measures shall be taken immediately, when monitoring results indicate above the permissible	Parameter	Locati NACN-1	ons for Go	odown MDN	Permissible limits for work place (Factories Act, 1948) for 8
	limits. All necessary steps should be	HC1	<3.6	<3.6	<3.6	hrs exposure 7000
	taken for monitoring of HCN, chlorine, HCL and NH ₃ as well as VOCs in the	HCN	0.5-0.6	<0.4	<0.4	10000
		NH ₃	3.0-3.6	3.0	4.8-5.4	18000
	proposed plant.	VOC	N.D	0.4-0.5	0.3	NA
		Moisture	30.2- 35.7	33.0- 34.9	35.1- 36.0	NA
		Ventilation Rate	5.8-6.1	3.2-3.5	3.4-3.6	NA
		g/m ³ and ve	entilation r been measi	rate in m ³ /	sec.	pm, Moisture in e of Isobutylene opm.
viii)	Alarm of chlorine leakage if any in the	Complied.	tom has	haan n	wided fo	or ony lookogo
	liquid chlorine storage area shall be provided along with automatic start of	occurred in		-		or any leakage rea.



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S. No.	Condition			St	tatus			
	the scrubbing system.							
ix)	The gaseous emissions from DG set shall be dispersed through adequate stack height as per CPCB standards. Acoustic enclosure shall be provided to the DG sets to mitigate the noise pollution.	Complied. Adequate in gaseous empollution conheight (as po	nission ontrol	from equipm	DG se	ets by	provid	ing air
x)	Ambient air quality data shall be collected as per NAAQES standards notified by the Ministry vide G.S.R. No. 826(E) dated 16 September, 2009. The	Ambient Ailocations with monitoring	ithin th	e premi	_			
	levels of PM _{2.5} , PM ₁₀ , SO2, NOx, CO	Parameter	1	2	3	4	5	6
	and VOC shall be monitored in the	PM_{10}	41.8- 94.9	40.0- 92.4	44.5- 93.0	39.7- 93.3	41.3- 95.4	100
	ambient air and displayed at a convenient location near the main gate of the	PM _{2.5}	19.6- 45.4	18.2- 43.2	20.1- 48.2	18.8- 41.1	18.3- 45.1	60
	company and at important public places.	SO ₂	12.5- 20.1	11.0- 18.9	13.5- 24.0	11.7- 19.0	12.8- 22.8	80
	The company shall upload the results of	NO _x	16.6- 26.4	15.0- 25.1	17.3- 29.0	15.0- 21.8	16.8- 25.3	80
	monitored data on its website and shall	HCN	BDL	BDL	BDL	BDL	BDL	200
	update the same periodically. It shall	HCl	BDL	BDL	BDL	BDL	BDL	80
	simultaneously be sent to the Regional	NH ₃	2.4- 4.7	2.1- 4.2	3.0- 4.6	2.2- 3.8	3.3- 5.5	400
	office of MOEF, the respective Zonal	VOC	BDL	BDL	BDL	BDL	BDL	
	office of CPCB and GPCB.			ar C. R.)	2		· ADM C	
			& D La mmonia	b Bullet A	rea 6		: Securit B Limit	
		Note: All the expressed in BDL= Below HCN, NaC	n ppm w Detec	ction Li	nit			



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S. No.	Condition	Status
		vacuum to Incinerator which is facilitated by Wet Scrubber before emitting burnt gases through 40 m stack height. All the vents of Mandelonitrile / Cyanohydrin Plant are connected with the Scrubber. Results of Ambient Air quality monitoring parameters are displayed near the main gate and summary of the report will be updated on company website www.hcc-cyanide.com
xi)	Solvent management shall be carried out as follows:	Complied.
	a) Chilled brine circulation system shall be provided to condensate solvent vapors and reduce solvent losses, it shall be ensured that solvent recovery should not be less than 95%.	Chilled brine circulation system has been provided to condensate solvent vapors and reduce solvent losses,
	b) Reactor and solvent handling pump shall have mechanical seals to prevent leakages.	Mechanical seals are provided wherever required in reactors and pumps.
	c) The condensers shall be provided with sufficient HTA and residence time so as to achieve more than 95% recovery	Condensers are provided with sufficient HTA & residence time to achieve more than 95% recovery
	d) Solvents shall be stored in a separate space specified with all safety measures.	Separate space has been already provided as per requirement of Petroleum Act for storage of solvent.
	e) Proper earthing shall be provided	Unit has been provided with proper earthing for all



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S.	Condition	Status		
No.				
	in all the electrical equipment	electrical equipments.		
	wherever solvent handling is done.			
	f) Entire plant shall be flame proof. The	Where ever flammable chemicals are being used, flame-		
	solvent storage tanks should be	proof motors & fittings are provided		
	provided with breather valve to			
	prevent losses.			
xii)	Total water requirement from Kakrapar	Complied.		
	Canal shall not exceed 600.3 m ³ /day	Total water requirement has been increased from 651.2		
	after expansion in effect of ZLD scheme	m ³ /day to 1105.2 m ³ /day after expansion. Out of which,		
	submitted by PP and prior permission	fresh water requirement from Kakrapar canal are only		
	should be obtained from the Competent	600.3 m ³ /day and remaining water requirement are		
	Authority.	being met through recycled water <i>i.e.</i> 500 m ³ /day.		
		Total average wastewater generation is nil as company		
		has implemented ZLD scheme from 1 st April, 2016.		
xiii)	Industrial effluent generation should not	Complied.		
	exceed 512 m ³ /day. Effluent will be	Effluent generated from different plants of HCC are		
	segregated into high TDS/COD and Low	segregated & divided for the treatment in two		
	COD/TDS effluent streams. High	schemes.		
	TDS/COD effluent stream will be	1. Scheme – 1: Cyanide containing effluent with		
	evaporated in Multiple Effect Evaporator	Ammonical Nitrogen, low TDS & very low COD-		
	(MEE). Condensate will be treated in the	BOD: Effluent from following plants is combined		
	condensate treatment unit. Low	for the treatment-HCN, NaCN, Ammonium		
	TDS/COD effluent stream will be treated	Sulphate & SFCN – partly (only condensate water,		
	in the effluent treatment plant (ETP)	which is major).		
	comprising primary, secondary and	2. Scheme – 2: Effluent containing high TDS & high		
	tertiary treatment (Reverse Osmosis).	COD – BOD:		



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S. No.	Condition	Status
	Permeate will be reused/recycled for cooling tower make up. The proposed effluent treatment scheme for the existing unit as well as proposed expansion is based on 'Zero effluent discharge'. Water quality of treated effluent should meet the norms prescribed by CPCB/SPCB.	, ,
xiv)	'Zero' effluent discharge shall be adopted and no effluent shall be discharged outside the premises.	Complied. Industry have implemented Zero Liquid Discharge scheme from 1 st April, 2016 with waste minimization for the existing ETP plants which is attached as Annexure – 5. No effluent is being discharged outside the premises.
xv)	Automatic /online monitoring system (24x7 monitoring devices) for flow measurement and relevant pollutants in the treatment system to be installed. The data to be made available to the respective SPCB and in the Company's website.	Complied. Automatic /online monitoring system (24x7 monitoring devices) for flow measurement and relevant pollutants in the treatment system has been already installed.
xvi)	Process effluent/any wastewater shall not	Complied.



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S. No.	Condition	Status
xvii)	be allowed to mix with storm water. Storm water drain shall be passed through guard pond. Incinerator should be designed as per CPCB guidelines. SO ₂ , NO _x , HCN, HCI and CO emissions shall be monitored in the stack regularly.	Utmost care is taken to avoid spillage of chemicals. All the plant area has been already covered with Dyke Wall and floor pit has also been provided to recycle/transfer spillage back to plant or to ETP. Complied. Strictly follow the CPCB guidelines for any environmental concern. Gaseous pollutants like SO ₂ , NO _x , HCN, HCI and CO emissions in flue gas emission and process emission are being monitored on monthly basis by external NABL approved laboratory and also by internal Environmental Quality Lab, twice in a
		month basis.
xviii)	Hazardous chemicals shall be stored in tanks in tank farms, drums, carboys etc. Flame arresters shall be provided on tank farm. Solvent transfer shall be by pumps.	Complied Hazardous chemicals are being stored with proper care in tank farm, drums etc. transfer of liquid material is transferred by pipes through pumps.
xix)	The company shall obtain Authorization for collection, storage and disposal of hazardous waste under the Hazardous Waste (Management, Handling and Trans Boundary Movement) Rules, 2008 and amended as on date for management of Hazardous wastes and prior permission from GPCB shall be obtained for disposal of solid / hazardous waste in the TSDF. Measures shall be taken for	Complied. The industry has obtained authorization for the storage and disposal from GPCB and has valid membership of Nandesari Environment Control Ltd. (NECL), Baroda & Bharuch Enviro Infrastructure Ltd. (BEIL), Ankleswar. Membership copies of the same are enclosed as Annexure – 6.

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S. No.	Condition	Status
	firefighting facilities in case of emergency. Membership of TSDF for hazardous waste disposal shall be obtained.	
xx)	As proposed, ETP sludge, incineration ash and evaporation residue shall be sent to TSDF site. High calorific value waste such as spent organic shall be sent to cement factory/incinerated.	Complied. The industry has obtained authorization for the storage and disposal of incineration ash, treatment and disposal of hazardous waste from GPCB and has valid membership of Nandesari Environment Control Ltd. (NECL), Baroda and Bharuch Enviro Infrastructure Ltd. (BEIL), Ankleswar. Membership copies of the same are enclosed as Annexure –6.
xxi)	The Company shall strictly comply with the rules and guidelines under Manufacture, Storage and Import of Hazardous Chemicals (MSIHC) Rules, 11989 as amended in October, 1994 and January, 2000. All Transportation of Hazardous Chemicals shall be as per the. Motor Vehicle Act (MVA), 1989.	 Complied. Company has carried out various technical studies like HAZOP, Risk Assessment, Safety Audit etc. to understand work operation and their hazards to minimize the potential risk. Company has a comprehensive emergency action plan, contingency report and is also member of the District Crisis Group. Company regularly conducts Mock Drills for various scenarios such as ON-SITE Mock Drill and observations are evaluated and implemented. Company has got adequate firefighting & hydrant system network to cope with the emergency. Company has freeze assembly points at strategic



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S. No.	Condition	Status
		locations & emergency escape routes. Due to low movement of vehicle, HCC used to operate one gate out of two for entry and exit purpose of employees & vehicle and the second gate is being kept as an emergency exit. • Company has got 3 bed OHC within the premises which is managed by qualified Doctor and trained nurse round the clock. Also sufficient stock of Cyanide antidote kits is available in OHC. • Company organizes training on various topics regarding occupational hazard to create awareness among the workforce. • Company has organized various awareness programmes for local Students, Teachers & Doctors.
xxii)	The company shall undertake following waste minimization measures:-	Complied
a)	Metering and control of quantities of active ingredients to minimize waste	Industry has already implemented sophisticated close charging system with instrumentation for metering & control of active ingredients.
b)	Reuse of by-products from the process as raw materials or as raw material substitutes in other processes.	Industry is already using the Ammonium Sulphate – by- product generated from HCN Plant. This is sold as fertilizer. Sodium Cyanide waste & mother liquor of NaCN are used for Sodium Ferro-cyanide manufacturing process. Acidic waste water (dilute HCl) generated from DPG Plant during the manufacture of Ferrous Chloride is

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S. No.	Condition	Status
		being used as a raw-material.
c)	Use of automated filling to minimize spillage.	To minimize the spillage, all finished products, <i>e.g.</i> Sodium Cyanide, Diphenyl Guanidine & Sodium Dicyanamide etc. are filled in drums/bags automatically. Spillage is almost eliminated.
d)	Use of Close Feed system into batch reactors.	Raw-materials and process chemicals feeding system into batch reactors are in a closed system with sophisticated instrumentation
e)	Venting equipment through vapour recovery system	Venting equipments, <i>e.g.</i> condensers, scrubbers & incinerators have been provided to the reactor to destruct hazardous vapour & hence there will be no toxic/hazardous release to atmosphere.
f)	Use of high pressure hoses for equipment clearing to reduce wastewater generation.	Company is already using water at high pressure for cleaning the equipment.
xxiii)	The unit shall make the arrangement for protection of possible fire hazards during Manufacturing process in material handling. Firefighting system shall be as per the norms,	Complied. Company has made arrangement for the protection of possible fire hazard right from the beginning. Fire water pipe line network with fire water pond & pumps have been provided to meet any emergency. Different types of required fire extinguishers have been provided in all plants & other strategic locations. Firefighting training is also given to employees.
xxiv)	Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.	Complied. Occupational Health Surveillance of all workers & employees is being done regularly by industry at least once in a year by qualified medical officer & also by an



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S.	Condition	Status
No.	Condition	Status
		external agency, Dr. Agarwal Diagnostic Centre, Kalyan, Mumbai. Records of the same are maintained as per the Factories Act.
xxv)	As proposed, green belt over 33 % of the total project area should be developed within plant premises with at least 10 meter wide green belt on all sides along the periphery of the project area, in downward direction, and along road sides etc. Selection of plant species shall be as per the CPCB guidelines in consultation with the DFO.	Complied Total plot area is 2,04,995 m ² out of which Greenbelt has already been developed in 92,247 sq. m., which is 45% of total land. Selected plant species is as per the CPCB guidelines in consultation with the DFO.
xxvi)	The company shall make the arrangement for protection of possible fire and explosion hazards during manufacturing process in material handling.	 Complied. Company has made arrangement for the protection of possible fire hazard right from the beginning. Fire water pipe line network with fire water pond & pumps have been provided to meet any emergency. Different types of required fire extinguishers have been provided in all plants & other strategic locations. Firefighting training is also given to employees. Safety training is given to all employees on joining, followed by written test and refresher safety training is also given to all employees once in a period of two years, which includes use of PPEs. Pre-employment and routine medical examination for all employees handling chemicals is conducted



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S. No.	Condition	Status
		regularly.
xxvii)	Provision shall be made for the housing for the construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, mobile sewage treatment plant, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structure to be removed after the completion of the project. All the construction wastes shall be managed so that there is no impact on the surrounding environment.	Complied. Industry has already made provision for the housing of construction laborers in the company's housing colony, which is nearby the plant & has all required facilities.
xxviii)	At least 2.5% of the total cost of the project should be earmarked towards the Enterprise Social Commitment (ESC) based on local needs and action plan with financial and physical breakup/details should be prepared and submitted to the Ministry's Regional Office of MoEF&CC. Implementation of such program should be ensured accordingly in a time bound manner.	Complied. • The company has allocated a budget of 2.5% of project cost for ESC.
В	GENERAL CONDITIONS	
i)	The project authorities must strictly adhere to the stipulations made by the	Complied HCC has received renewed CC&A vide order no.



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Six Monthly Report: (May 2016 to October 2016)

S. No.	Condition	Status
	Gujarat Pollution Control Board (GPCB), State Government and any other statutory authority.	AWH-58577 dated 25/11/2013 valid up to 14/07/2018 which is attached as Annexure - 8 . HCC has also received NOC vide order No. CTE-60692 dated 23/04/2014 valid up to 23/02/2019 for standby D. G. Set. HCC has received CC&A-Amendment vide order no. GPCB / CCA - SRT - 50 (8) / ID_20643 / CCA-Amendment (A-66818) dated 06/05/2015 for standby D. G. Set which is attached as Annexure - 9 . Company adheres to all the stipulations made by GPCB
ii)	No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment and Forests. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the Ministry to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.	Complied. Company assures that no further expansion or modification in the plant shall be carried out without prior approval of MoEF&CC. A fresh reference shall be made for any deviation & change in the plant.
iii)	The locations of ambient air quality monitoring stations shall be decided in consultation with the Gujarat Pollution Control Board (GPCB) and it shall be ensured that at least one station is	Complied. Industry has already decided the following four ambient air locations as under in consultation with GPCB. 1. HCN plant 2. ADM Office



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Six Monthly Report: (May 2016 to October 2016)

S. No.	Condition	Status
	installed in the upwind and downwind direction as well as where maximum ground level concentrations are anticipated.	3. R&D lab.4. Security Office
iv)	The overall noise levels in and around the plant area shall be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under Environment (Protection) Act, 1986 Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).	Complied. Overall ambient noise level was found in the range of 45–75 db(A) in day time and 40 – 68 db(A) in night time during the study period. During the study period, the ambient noise level was within the limit as per the standard prescribed under Environment (Protection) Act, 1986, Rules, 1989 for day time and night time.
v)	The Company shall harvest rainwater from the roof-tops of the buildings and storm water drains to recharge the ground water and use the same water for the process activities of the project to conserve fresh water.	Complied. Industry has already implemented rain water harvesting. During last six months, 14,800 m³ of rain water was harvested. Since water table of surrounding area of the unit is very high, hence re-charging of ground water is quite difficult, so the industry uses harvested water for gardening, washing & in process to reduce consumption of raw water.
vi)	During transfer of materials, spìllages shall be avoided and garland drains be	Complied. Utmost care is taken to avoid spillage of chemicals.



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Six Monthly Report: (May 2016 to October 2016)

S. No.	Condition	Status
	constructed to avoid mixing of accidental spillages with domestic wastewater and storm water drains.	All the plant area has been already covered with Dyke Wall and floor pit has also been provided to recycle/transfer spillage back to plant or to ETP.
vii)	Usage of Personnel Protection Equipments by all employees/ workers shall be ensured.	Complied. All necessary PPEs such as Hand Gloves, Dust mask, Gas mask, Face mask, Safety shoes, Helmet etc. & other safety equipment's/materials are being provided as per the requirements of safe workplace condition.
viii)	Training shall be imparted to all employees on safety and health aspects of chemicals handling. Pre-employment and routine periodical medical examinations for all employees shall be undertaken on regular basis. Training to all employees on handling of chemicals shall be imparted.	Complied. Safety training is given to all employees on joining, followed by written test and refresher safety training is also given to all employees once in a period of two years, which includes use of PPEs. Pre-employment and routine medical examination for all employees handling chemicals is conducted regularly.
ix)	The company shall also comply with all the environmental protection measures and safeguards proposed in the project report submitted to the Ministry. All the recommendations made in the EIA/EMP in respect of environmental management, risk mitigation measures and public hearing relating to the project shall be implemented.	Complied. Industry has provided scrubber, dust collector, bag filter and cyclone separator wherever required.
x)	The company shall undertake CSR	Partially Complied.



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Six Monthly Report: (May 2016 to October 2016)

S. No.	Condition	Status
	activities and all relevant measures for improving the socio-economic conditions of the surrounding area	 HCC Management believes in socio-economic upliftment and undertakes various CSR activities based on requirement of surrounding areas. Company is actively working on improving socio-economic conditions of the surrounding area by way of organizing medical camps, blood donation camps, donation to schools & villages. Awareness training on hazards of chemicals used/produced in plant & their preventive measures are being given to people of surrounding villages. Below mentioned CSR activity was carried out by HCC during the period of May 2016 to October 2016: Donated Rs. 2,00,000/- for mass marriage of 151 couple from economically weaker section of the society, held on 8th May, 2016 which was organized by "Samarth Kalyan Seva" Charitable Trust, Olpad.
xi)	The company shall undertake eco-developmental measures including community welfare measures in the project area for the overall improvement of the environment.	 Complied. Company is actively working on eco-developmental measures in the project area. New tree plantation is done every year on Safety Day, World Environment Day & before monsoon. Company has organized various safety and environment awareness programs and also planted 3,000 nos. of trees within premises in the month of May 2016 to October 2016.

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Six Monthly Report: (May 2016 to October 2016)

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S. No.	Condition	Status
xii)	A separate Environmental Management	Complied.
	Cell equipped with full-fledged	Company has already set up Environmental
	laboratory facilities shall be set up to	Management Cell (EMC) equipped with full-fledged
	carry out the Environmental	laboratory facility. Company has also appointed
	Management and Monitoring functions.	qualified Environmental Officer, who looks after day-
		to-day monitoring and management activity of the
		EMC.
xiii)	The company shall earmark sufficient	Agreed.
AIII)	funds for recurring cost per annum to	HCC Management believes in sustainable management
	implement the conditions stipulated by	of natural resources and environment of project site as
	the Ministry of Environment and Forests	well as surrounding areas. Adequate funds are available
	as well as the State Government along	for the same.
	with the implementation schedule for all	for the same.
	the conditions stipulated herein. The	
	funds so earmarked for environment	
	management pollution control measures	
	shall not be diverted for any other	
	purpose.	
xiv)	A copy of the clearance letter shall be	Partially Complied.
	sent by the project proponent to	Copy of the clearance letter has been sent to concerned
	concerned Panchayat,	authorities but has not put on the company's website.
	ZilaParisad/Municipal Corporation,	
	Urban local Body and the local NGO, if	
	any, from who suggestions/	
	representations, if any, were received	
	while processing the proposal.	

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Six Monthly Report: (May 2016 to October 2016)

S. No.	Condition	Status	
xv)	The project proponent shall also submit	Agreed & Complied.	
	six monthly reports on the status of	HCC is regularly submitting summary of six monthly	
	compliance of the stipulated	report on status of compliance of EC conditions by e-	
	Environmental Clearance conditions	mail to Regional Office of MoEF & CC and the same	
	including results of monitored data (both	comprehensive physical report by post to the Regional	
	in hard copies as well as by e-mail) to the	office of MoEF&CC, the respective zonal office of	
	respective Regional Office of MoEF, the	CPCB and the State Pollution Control Board.	
	respective Zonal Office of CPCB and the		
	Gujarat Pollution Control Board. A copy		
	of Environmental Clearance and six		
	monthly compliance status report shall		
	be posted on the website of the company.		
xvi)	The environmental statement for each	Complied.	
	financial year ending 31st March in	Environmental statement for each financial year in	
	Form-V as is mandated shall be	Form – V is being submitted to GPCB.	
	submitted to the Gujarat Pollution	HCC has sent copy of Form – V through courier for the	
	Control Board as prescribed under the	Financial year 2015 - 2016 to MoEF, Bhopal on 31st	
	Environment (Protection) Rules, 1986, as	May, 2015.	
	amended subsequently, shall also be put		
	on the website of the company along		
	with the status of compliance of		
	environmental clearance conditions and		
	shall also be sent to the Bhopal Regional		
	Offices of MoEF by e-mail.		
xvii)	The project proponent shall inform the	Complied.	
	public that the project has been accorded	Information on Environmental Clearance for new	
	environmental clearance by the Ministry	projects has already been advertised in two local	



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Six Monthly Report: (May 2016 to October 2016)

C		
S. No.	Condition	Status
	and copies of the clearance letter are available with the SPCB/Committee and may also be seen at Website of the Ministry at http://envfor.nic.in. This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same shall be forwarded to the concerned Regional office to the ministry.	newspapers as detailed below and also sent to Regional Office, GPCB. Gujarat Mitra on 30 th January 2016 Rajasthan Patrika on 30 th January 2016
xviii)	The project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of start of the project.	Complied. In case of EC already granted, the new products are proposed to be manufactured in the existing facility and the project cost is financed from internal accruals. Further, major part of the proposed cost, <i>i.e.</i> 2 MW CPP has still not been established. However, when the proposed EC shall be granted for new expansion, we shall inform the Regional Office as well as Ministry regarding the details of financial closure and financial approval of the project.

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Six Monthly Report: (May 2016 to October 2016)

SUMMARY

Hindusthan Chemical Company, formerly known as Cyanides & Chemicals Company, is a unit of HEIL. The unit was set up in the year 1982 in GIDC Industrial Estate at Olpad Taluka of Surat District in Gujarat State. The unit is engaged in manufacture of Hydrogen Cyanide (HCN) and Cyanide based products. The unique feature of the HCN manufacturing technology is that the whole system of manufacturing process is working under vacuum hence in any case hazardous gas is not released-out into the atmosphere from the production system. The unit is manufacturing of Hydrogen Cyanide, Sodium Cyanide, Potassium Cyanide, Sodium/Potassium Ferro Cyanide, Diphenyl Guanidine, Heat Treatment Salt, Sodium Dicyanamide, Cyanohydrins, Nitriles, Cyanide based products, Mandelonitrile and Natural Gas based Captive power Plant.

Under environment legislation, it is mandatory to submit six monthly compliance reports on the conditions mentioned in the Environment Clearance (EC) vide letter no.: No. J - 11011/ 466/2011 - IA II (I) dated 22/01/2016 issued by Ministry of Environment & Forests (MoEF), Govt. of India, New Delhi. Hindusthan Chemicals Company at Olpad Dist: Surat has obtained valid EC, NOC & CC&A from concerned authorities.

The industry has awarded contract for the Environmental monitoring and preparation of six monthly EC compliance report to Ecosystem Resource Management Pvt. Ltd. The consultancy firm has its own well equipped laboratory to measure the pollution parameters related to Environmental Monitoring (Air, Water, Wastewater, Soil) with National Accreditation Board for Testing and Calibration Laboratories (NABL) accreditation. All monitoring equipments are available to measure Stack emissions, Ambient Air quality and noise level of various plants.

Six monthly compliance report along with monitoring data are regularly submitted to the concerned department and during monitoring period of this report RO visit was also done. All the conditions stipulated in EC clearance was compiled by the project proponent.

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Six Monthly Report: (May 2016 to October 2016)

OBSERVATIONS & RECOMMENDATIONS

- HCC has obtained valid EC, NOC & CC&A from concerned authorities.
- HCC used to operate one gate out of two for entry & exit purpose of employees & vehicle and the second gate is being kept as an emergency exit.
- All the analysis report of ambient air, stack, effluent & noise are well within the GPCB norms.
- Industry has implemented ZLD scheme and no effluent discharge outside the industry premises.
- Industry has carried out regularly pre-employment & routine medical examination for all employees.
- HCC has greenbelt area of 22 acres (45%) within premises.
- HCC has installed and commissioned online stack monitoring gas analyzer and TOC meter.
- HCC has implemented rain water harvesting.
- HCC has been regularly carried out CSR activities.
- It is recommended to upload regularly six monthly compliance report of EC conditions, EC letter,
 Form V, Latest CC&A and NOC on company's website.
- HCC has obtained membership certificate of BEIL, Ankleshwar & NECL, Baroda for disposal of hazardous waste.



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ANNEXURE 1 - Salient Features of Project

S. No.	Description	Details	
1.	Airport	Surat (@ 22 km) in S direction	
2.	Railway station	Surat (@ 19 km) in SE direction	
3.	Port	Magdalla (@ 26 km) in S direction	
4.	National Highway	NH-8 (@ 21 km) in E direction	
5.	State Highway	SH-6 (@ 350 m) in E direction	
6.	Town/City	wn/City Surat (@ 15 km) in SE direction	
7.	Village	Olpad (@ 1.5 km) From nearest main locality	
8.	River	Tapi (@ 9.5 km) in SE direction	
9.	Sea	Arabian Sea (@ 18.5 km) in SW direction	

ANNEXURE 2 - Details of Expenditure Allocated on Environment Management Plan

S.	II - 1 - 6 F	Expenditure (Rs. In Lakhs)		
No.	Head of Expenses	Year 2015-16	Year 2016-17	
1.	Effluent Treatment Facility	2000.00	60.00	
2.	Hazardous Waste Management Facility	156.00	200.00	
3.	Green Belt Development	9.00	9.00	
4.	Electricity charge to run ETP for GEB	94.50	94.66	
5.	Environment Monitoring & Audit	20.00	30.00	
	Total	2279.50	393.66	

ANNEXURE 3 – GPCB Analysis Report



ANALYSIS REPORT FOR Hazardous WATSE TYPE: SOL

Gujarat Poliution Control Board

338, Belgium Square

hypical 1st Floor,Opp. Linear Bus Stand

Ring Road, SURAT Teler(0261) 2442696

Simple ID: 188099 - Analysis Completion 21/06/2016

Chemicals & Products / LAB Inward | 25439

1. Name di

2. Address of the Unit

3. Nature of Sample

4. Sample Collected By

5. Date & Time of Collection & Receipt

6. Date of Start & Completion of Analysis

7. Sampling Point

fi. Physical State.

9. Dispusci Mode

98. Waste Category

11. Temporature on Collection

12. Huzardoza Sampled (SPM-M3)

: Hindusthan Chemicals Compnay Old Namé: Cyanides & Chemicals Company) - 20643

: ,GIDC IND.ESTATE,P.O. - OLPAD

OLPAD - 394540 , Taluka : Olpad, District : Surat, GIDC : Not In Gide

: REP-Representative/Grab . (Insp Type : VIG-By Vigilance Team)

: J.M.Chaudhary, DEE

: 30-May-2016, (1320 to 1320)

: 31/05/2016 17:48:20 & 21/06/2016

: Accumulated solid mass discharged outside premises -

: In to Masma Khadi

: 32. & Color & Appearance : white

& Carboys Marks: SUR-7A5FLC

the last	Parameter	Unit	Test Method	Range of Testing	Pleasalt
3 694		Unit	4500 B APHA Std Methods 22nd adi -2012	1 - 14	8.16
2 Total Ties	whed Solida	grvka	(2540 C APHA 21st edi.)	20-5000000mg/kg	607,12
3 Tetal to-	sanii Salida (TIS)	grekg	2540 G APHA Standard Methods 22nd edi-2012	1-1000 gm/kg	489.3
A second	se serrogen	gmikg	1). Timmetric method 2). Nessierization method. (4)	0.5 - 5000 mg/l.	0.05
Grantiste	HA COUNTY AND A CO	groving	Titrimotric method. (4500 - CN7 D AFHA Standard I	0.05-10 mg/l	BOL
Districtive Co.	ical Ovygen Demand (3 Days 27o	gmkg	3 day BOD test(IS 3625 Method)	1-60000mg/kg	3.0
HE-SHARE	Oxyge-Demand	pnilia	APHA (Z2nd Edition)- 5220 E Open Reflux Method	5.0-50000 &	5.99

Laboratory Ramarks : Approve By 98-r.o. 96 Dt. 22/06/2010

S. M. B.Y. Rathod, Lab Head

Hald Observation



omple ID:188095 - Analysis Completion 21/06/2016

Chemicals & Products / LAB Inward : 25449

Gajarat Pollution Control Board, Surat 338, Belgiom Square * Typical 1st Floor,Opp. Linear Bus Stand Ring Road, SURAT Teler(0261) 2442696

Date: 22/06/2016

TEST REPORT

Tast Report No.: 25449

: Hindusthan Chemicals Compnay Old Name: Cyanides & Chemicals Company) - 20643

1. Name of the Customer

: ,GIDC IND.ESTATE.P.O. - OLPAD

2. Address.

OLPAD-394540, Taluka : Olpad, District : Surat, GIDC : Not In Gide

3. Nature of Sample

: REP-Representative/Grab, (Insp Type : VIG-By Vigilance Team)

4. Sample Collected By

: J.M.Chaudbary,DEE : 5 Lit.

5. Quantity of Sample Received 6. Code No. of the Sample

1 188095

7. Date & Time of Collection & Inwarding

: 30/05/2016 , (1350 to 1350) & 31/05/2016

E. Date of Start & Completion of Analysis

= 01/86/2016 & 21/86/2016

9. Sampling Point

: From MEE feed tank -

19. Flow Octails (Remarks) 11. Mode of Disputal

· for further treatment in CETP

12. Ultimate Receiving Body 13. Temperature on Collection : Arebian sea through masma khadi

14. Carboss Not for

: 34 & pH Range on pH Strip : 20 7 to 8 on pH strip : SUR-4C5LUL & Color & Appearance : Milky white

15. Water Consumption & W.W.G (KLPD)

: Ind:643.200 , Dom:8.000 & Ind:265.900 , Dom:8.000

Se Parameter	. Unit	Test Method	Range of Testing	Result
1 Temperature	Centigrade	IS: 3025 (Part - 9) - 1984(Reaffirmed 2000)	Ambient oC - 60 oC	34
2 set	pritants	4500 H+ B AP+IA Standard Methods 22nd edi 2012	1 - 14 pH value As or	7.96
3 (Colour	PLCaSc.	2129 B APHA Standard Methods 22rd edi, 2012	2 - to 99 Hazen & 1-50	- 8-
4 Total Dissolved School	mgil	Gravimetric method. (2540 C APHA Standard Method	10 - 200000 mg/L	7362
5 Suspended Solar	mgit	Gravimetric method. (2540 D APHA Standard Method	2 - 10000 mg/L	93
6 Ammonical Mirogen	Tight	1). Titrimetric method (4500 NH3 B & C APHA Standa	1 - 2000 mg/l.	0.56
7 Chorde	mgri	Argentometric method. (4500 CV7 B APHA Standard II	1 - 50000 mg/f	3900
S Sulph the	mat	APHA(22nd edi)4509 SO4 E	2-40mg/l	622
3 Chemical Oxygen Jemend	mgt.	APHA (22nd Edition)- 5220 B Open Reflux Method-2	5.0-50009 mg/l	85.
19 OF & Charge	mgt	Liquid - Liquid Partition Grewinistric method. (5520 B	8gm 0008 - 10	0.4
11 Phenetic Compounds	mg/	4 Amino Antipyrene method without Chloroform Extra	0.1 - 50 mg/l	BOL
12 Cyanide	mgt	Titrimetric method, (4500 - CN? D APHA Standard Mr	1-10 mg/l	804
19 Supride	mpli	The Third Advance from the control of the Control o	1-500.0 mg/l	OPL
148.D D (3 Days 279C)	mg/F	3 - Day BOD lest. (IS 3025 (Part 44), 1993 Reaffirmed	05-50000 mg/l	26

Laboratory Remarks: Approve@DL-Below Detection limit, Minimum detection limit of Phenol-0.1mg/t. Sidunide: 1.0mg/l, Cyride:0.02 mg/l) By:96-r.u_96.0t. 22/05/2015

ST WENT

B.Y. Rathod, Lab Head

Field Observation:

Note

1. * - These parameters are covered under the scope of NASL.

- 2. This results ratio rarly to the feuled samples and applicable parameters. Endorsament of products is neither inferred nor knolled.
- Samples will be destroyed after 10 days from the date of issue of test report unless otherwise specified.
- 4. This report is not to be reproduced wholly or in part or used in any advertaing media without the permission of the Board in writing.
- The Goard is not responsible for the authenticity for the samples not collected by the Scard's officials.
- II. Total inspirity of our suboratory is limited to the involced amount. Any dispute arising out of this report is subject to Esperat Jurisdiction only.
- 7. Purmissible Limits: as per Schedule VI of EPA Rules, 1986 as ammended by Second and Third ammendment 1993 for Effluents
- II. Physicochamical and microbiological parameters, Std.Methods for Water and Waste Weter-22nd Edition by APHA.
- 9. Biossnay test (for toxicity) -IS 6582 Part-2:2001; Renfirmed 2007.

\$70 · \$46



Sumple 10:188096 - Analysis Completion 21/06/2016

Chemicals & Products / LAB Inward: 25450

Gujarat Pollution Control Board, Surat 338, Belgium Square Typical 1st Floor, Opp. Linear Bus Stand Ring Road, SURAT Tele;(0261) 2442696

Date: 22/06/2016

TEST REPORT

Test Report No.: 25450

: Hindusthan Chemicals Computy Old Name: Cyanides & Chemicals Company) - 20643

1. Name of the Customer

: .GIDC IND.ESTATE.P.O. - OLPAD

2. Address

OLPAD-394540, Taluka : Olpad, District : Surat, GIDC : Not In Gide

3. Nature of Sample 4. Sample Collected By : REP-Representative Grab, (Insp Type : VIG-By Vigilance Team)

5. Quantity of Sample Received

: J.M.Chaudhary,DEE

6. Code No. of the Sample

: 5 Lit : 188096

7. Date & Time of Collection & Inwarding

: 30/05/2016 , (1355 to 1355) & 31/05/2016

6. Dute of Start & Completion of Analysis

: 01/06/2016 & 21/06/2016

9. Sampling Point 10. Flow Details (Remarks) : From MEE condenset storage tank -

11. Mode of Disposal

14. Carboys Not for

reuse

12. Ultimate Receiving Body

: Arebian sea through maxma khadi

13. Temperature on Collection

: 32 & pH Range on pH Strip :@ 7 to 8 on pH strip : SUR-7U424S & Color & Appearance :Colourless

15. Water Consumption & W.W.G (KLPD)

: Ind :643,200 , Dom :8.000 & Ind :265,900 , Dom :8.000

Se	Parameter	Unit	Test Method	Range of Teeting	Heaut
1 (Temporal	nane	Certigrade	(S: 3025 (Part - 9) - 1984(Reaffirmed 2008)	Ambient oC - 60 oC	30
I uff		pH Links	4500 H+ B APHA Standard Methods 22nd edi 2012	1 - 14 pH value As or	8,45
Comur		Pt.Cn.Sc	2120 B APHA Standard Methods 22nd edi. 2012	2 - to 09 Hazon & 1-50	. 5
4 Total Dis	solves Suriou	mgil	Gravimetric method. (2540 C APHA Standard Method	10 - 200000 mg/L	218
5 Simporth	id Solide	mg/l	Gravimetric method. (2540 D APHA Standard Method	2 - 10000 mg/l.	10
5 Ammons	at Niinopen	mari	1). Terimetric method (4500 NH3 B & C APHA Stande	1 - 2000 mg/l.	WDL.
7 Chorste		mgd	Argentometric method. (4500 CI? B APHA Standard N	1 - 50000 mg/l	40
S Sulphote		mgd	APHA(22nd edi)4500 SO4 E	2-40mg/l	- 0
Onemonia.	Oxygen Durnand	mail	APHA (22nd Edition)- 5220 B Open Reflux Method-2	5.0-50000 mgA	7
O'CE A GIR	pse	mgil	Liquid - Liquid Partition Gravimetric method. (5520 8	01 - 1000 mg1	801
1.Phenuic	Compounds	mgd	4 Amino Antipyrene method without Chloroform Extra	0.t - 50 mg/l	306
2 Cynnide		Tight .	Titrimetric method. (4500 - DN? D APHA Standard Mr.	1-10 mg/l	BOL
3 Sulphide		mgr	APHA (22nd Edi.)4500-s2-F -lodometric Method	1-500:0 mg/l	BOX.
48000	Days 27vC)	myl	3 - Day BOD test. (IS 3025 (Part 44) 1993 Realfirmer	05-50000 mg/l	*6

Laboratory Ramarks: Approve (BDI - Selow Detection limit, Minimum detection limit of Phonoi-0 (mg/t, OX and grosse 0.2mg/t, Sulphide-1.8mg/t, Cyride-0.02 mg/t). By 96-r.a._96 Dx: z2/05/2019

25 -11-1

B.Y. Rathod, Lab Head

Field Observation -

Num

- 1. * These purpole is are covered under the scope of NABL.
- Two results refer only to the tested samples and applicable parameters. Endorsoment of products is neither informed nor implied.
- 3. Spreplies will be destroyed after 10 days from the date of issue of test report unless otherwise specified.
- 4. This report is not to be reproduced wholly or in part or used in any advertising media without the permission of the Board in writing
- The Board is not responsible for the authenticity for the samples not collected by the Board's officials.
- Footilisability of our luboratory is limited to the invoiced amount. Any dispute arriving out of this report is subject to Gujarat Jurisdiction only.
- 7. Permissible Limits: as per Schedule VI of EPA Rules, 1986 as ammended by Second and Third ammendment 1993 for Effluents
- 8. Physicochemical and microbiological parameters, Std.Methods for Water and Vilaste Water-22nd Edition by APHA.
- S. Biogestry test (for toxicity) -15:6582 Part-2:2001; Reeffirmed 2007.

178 : 178



Sample ID 188094 - Analysis Complesion:21/06/2018

Chemicals & Products / LAB Inward: 25448

Gujarat Pollution Control Board, Serat 338, Reigium Square Typical 1st Floor,Opp. Linear Bus Stand Ring Road, SURAT Teles(0361) 2442696

Date: 22/06/2016

TEST REPORT

Test Report No. : 25448

: Hindusthan Chemicals Computay Old Name: Cyanides & Chemicals Company) - 20643

L. Name of the Customer

: ,GIDC IND.ESTATE,P.O. - OLPAD

2. Address

OLPAD-394540, Taluks : Olpad, District : Surat, GIDC : Not In Gide

3. Nature of Sample

: REP-Representative/Grab, (Insp Type : VIG-By Vigilance Team)

4. Sample Collected By

: J.M.Chaudhary, DEE

5. Quantity of Sample Received 6. Code No. of the Sample

: 5 Lit 188094

7. Date & Time of Collection & Inwarding

1 30/05/2016 , (1310 to 1310) & 31/05/2016

8. Date of Start & Completion of Analysis

: 01/06/2016 & 21/06/2016

9. Sampling Point

: From storm water drain outlet of Industry -

10. Flow Details (Remarks)

Miner flow : In to Masma Khadi

11. Mode of Disposal

: Arebian sea through masma khadi

12. Ultimate Receiving Body 13. Temperature on Collection.

: 34 & pH Range on pH Strip :@7-8 on pH strip

14. Carbons Non for.

: SUR-SV6Y8E & Color & Appearance : Greenish : Ind :643,200 , Dom :8.000 & Ind :265,900 , Dom :8.000

15. Water Consumption & W.W.G (KLPD)

Sr	Parameter	Unit	Yest Method	Range of Testing	Pomist
1	Temperature	Certigrade	IS: 3825 (Part - 8) 1984(Restfirmed 2006)	Ambient oC - 60 oC	34
i	pH	per Code	4500 H+ B APHA Standard Methods 22nd edi 2012	1 - 14 pH value As or	7.65
3	Coker	Pt.Ce.Sc.	2120 B APHA Standard Methods 22nd edi. 2012	2 - to 99 Hazen & 1-50	700
4	Timui Dinselves dukds	Tiple	Gravimetric method. (2540 C APHA Standard Method	10 - 200000 mg/L	16676
ħ.	trosponded School	-mpt	Gravimetric method. (2540 D APHA fitandard Method	2 - 10000 mg/i.	452
ö	Ammonical Nirrogen	mpf	1) Titrimetric method (4500 NH3 8 & C APHA Standa	1 - 2000 mg/l.	25.2
7	Chiercos	mgil	Argentometric method. (4500 CI? B APHA Standard II	1 - 50009 mg/l	8400
ň	Sulphine	mgill	APHA(22nd edi)4500 SO4 E	2-46mg/l	2603
ï	Chemical Oxygen Demond	, mail	APHA (22nd Edition) - 5220 B Open Reflux Method-2	5.0- 50000 mg/l	530
10	OF & Greate	mail	Liquid - Liquid Partition Gravimetric method. (5520 B	01 - 1000 mg/l	2.0
Ñ	Phonolis, Compositos	ingii	4 Amino Antipyrene method without Chicroform Extra	0.1 - 50 (mg/r)	0.34
ij	Cyaride	mgil	Titrimetric method. (4500 - CNY D APHA Standard Mr	1-10 mg/l	801,
iä	Sulpride	mg/l	APHA (22nd Edi.)4500-s2-F -iodometric Method	1-500.0 mg/t	0.27
14	B.O.D (3 Days 2/oC)	rtigil	3 - Day BCD test. (IS 3025 (Part 44) 1993 Rouffirmer	05-50000 mg/l	128

Laboratory Remoraz - Approve By:16-c.o. 96 Dt.: 22/06/2016

No at the

B.Y. Rathod, Lab Head

Fleid Observation :

- 1. *. These parker story are obvered under the scope of NABL.
- 2. This results refer only to the fested samples and applicable parameters. Endorsement of products is neither inferred for implied
- Somples will be destroyed after 10 days from the date of leave of test report unless otherwise specified.
- 4. This report is not to be reproduced wholly or in part or used in any advertising media without the permission of the Board in writing
- The Soard is not responsible for the authenticity for the samples not collected by the Board's officials.
- 6. Yets liability of our lescratory is limited to the invoiced amount. Any dispute arising out of this report is subject to Outlinet Jurisdiction only.
- 7. Permissible Limits: as per Schedule VI of EPA Rules, 1666 as ammended by Second and Third ammendment 1693 for Efficients
- Physicochemical and migratiological parameters, Std Methods for Water and Waste Water-22nd Edition by APHA.
- 9. Bloostoy test (for toxicity) -IS:6582:Part-2:2001; Resffrmed 2007.

图 1 码



Sample ID 188098 - Analysis Completion 21/06/2016

Chemicals & Products / LAB Inward: 25452

Gujarat Pollution Control Board, Surat 338, Belgium Square Typical 1st Floor,Opp. Linear Bus Stand Ring Road, SURAT Telen(0261) 2442696

Date: 22/06/2016

TEST REPORT

Test Report No.: 25452

: Hindusthan Chemicals Company Old Name: Cyanides & Chemicals Company) - 20643

1. Name of the Customer

: "GIDC IND.ESTATE,P.O. - OLPAD

2. Address

OLPAD-394540, Taluka : Olpad, District : Surat, GIDC : Not In Gide

3. Nicture of Sample

: REP-Representative/Grab, (Insp Type : VIG-By Vigilance Team)

4. Sample Collected By

: J.M.Chaudhary,DEE

5. Quantity of Sample Received 6. Code No. of the Sample

: 5 Lit : 188098

7 Date & Time of Collection & Inwarding

: 30/05/2016 , (1415 to 1415) & 31/05/2016

8. Date of Start d. Completion of Analysis

: 01/06/2016 & 21/06/2016

: From collection tank of STP -

9. Sampling Point

10. Flow Details (Remarks) 11. Mode of Disposal

: for further treatment in ETP

12. Ultimate Receiving Body

: Arebian sea through masma khadi

13, Temperature on Collection

: 35 & pH Range on pH Strip :@ 7 to 8 on pH strip

14. Carboys Nos for

: SUR-J42MFU & Color & Appearance : Grey

15. Water Consumption & W.W.G (KLPD) : Ind :643,200 , Dom :8,000 & Ind :265,900 , Dom :8,000

Sr	Parameter	Linit	Test Method	Range of Testing	Result
1 Temperati	are.	Centgrade	IS: 3025 (Part - 9) - 1984(Reaffroad 2008)	Ambient oC - 80 oC	26
2 pH		pH Chillis	4500 H+ B APHA Standard Methods 22nd edi.2012	1 - 14 pH value As or	7.58
5 Colocr	Trains.	Pt.Co.Sc.	2120 B APHA Standard Methods 22nd edi. 2012	2 - to 99 Hazen & 1-50	10
4 Tope Jan	ohres Solies	mgi	Gravimetric method. (2540 C APHA Standard Method	10 - 200000 mg/L	2800
5 Susponde	d Solits	mgit	Gravimetric method, (2540 D APHA Standard Method	2 ~ 10000 mg/L	350
6 Americana	i Nitrugen	rgi	1) Titrimetric method (4500 NH3 B & C APHA Standa	1 - 2000 mg/l.	0.66
7 Chloode		mg/l	Argentometric method. (4500 CI7 B APHA Standard II	1 - 50000 mg/l	1500
A Sulphule		mg/f	APHA(22nd edi)4500 SO4 E	2-40mg/	139
3 Chemical	Oxygen Demand	mgit	APHA (22nd Edition)- 5229 B Open Reflux Method-2	5.0-50000 mg/l	- 54
NO COLE GARAGE	like .	mat	Liquid - Liquid Partition Grantmetric method. (5520 B	01 - 1000 mg/l	804
13 Phenoic C	Tompounds	ret	4 Amino Antipyrene method without Chloroform Extra	0.1 - 50 mg/l	3.54
12 Cyanata		mall	Titrimetric method. (4500 - CN7 D APHA Standard Me	1-10 mg/l	BOL
(3:Sulption		mat	APHA (22nd Edi.)4500-s2-F -lodometric Method	1-500.0 mg/l	2.12
14(8-0.0) (0.0	lays J?oC)	mg/:	3 - Day BOD test. (IS 3025 (Part 44) 1993 Reaffirmed	05-50000 mg/t	

Laboratory Remurks : Approve By 95-no. 96 Dt.: 22/05/2016

B.Y. Rathod, Lab Head

Field Observation

tions.

- 1. * These parameters are covered under the scope of NABL.
- 2 The results refer only to the tested samples and applicable parameters. Endorsement of products is neither inferred nor implied.
- 3 Serroles will be destroyed after 10 days from the date of issue of test report unless otherwise specified.
- 4. This report is not to be reproduced wholly or in part or used in any advertising media without the permission of the Board in writing.
- The Board is not responsible for the authoritidity for the samples not collected by the Board's officials.
- 8 Total fability of our laboratory is limited to the invoiced amount. Any dispute arising out of this report is subject to. Guirrat Juris diction only.
- 7 Permissible Limits: as per Schedule VI of EPA Rules, 1966 as ammended by Second and Third ammendment 1963 for Efficients
- Physicochemical and microbiological parameters, Std.Methods for Wister and Waste Water-22nd Edition by APHA.
- Sigassay test (for toxicity) -45:6582 Part-2:2001; Reaffirmed 2007.





Sample ID 188097 - Analysis Completion 21/06/2016

Chemicals & Products / LAB Inward: 25451

Gujarut Pullution Control Board, Surat 358, Belgium Square Typical 1st Floor,Opp. Linear Bus Stand Ring Road, SURAT Tele:(0261) 2442696

Date: 22/06/2016

TEST REPORT

Test Report No.: 25451 1. Name of the Customer : Hindusthan Chemicals Company Old Name: Cyanides & Chemicals Company) - 20643 2. Address : ,GIDC IND.ESTATE,P.O. - OLPAD OLPAD-394540, Taluka : Olpad, District : Surat, GIDC : Not In Gide J. Nature of Sample : REP-Representative/Grab, (Insp Type : VIG-By Vigilance Team) 4. Sample Collected By : J.M.Chaudhary,DEE 5. Quantity of Sample Received : 5 Lit. 6. Code No. of the Sample : 188097 7. Date & Time of Collection & Inwarding : 30/05/2016 , (1410 to 1415) & 31/05/2016 fi. Data of Start & Completion of Analysis : 01/06/2016 & 21/06/2016 9. Sampling Point : From Final outlet of STP -10. Finw Details (Remarks) 14. Mode of Disposal : on land for plantation 12. Ultimate Receiving Body : Arebian sea through masma khadi 13. Temperature on Collection : 30 & pH Range on pH Strip : # 7 to 8 on pH strip 14. Carboys Nos for : SUR-V2H67I & Color & Appearance : Colourless 15. Water Consumption & W.W.G (KLPD) : Ind :643.200 , Dom :8.000 & Ind :265.900 , Dom :8.000

Sr Parameter	Unit	Test Method	Range of Testing	Hesult
1 Temperature	Certigrade	IS: 3025 (Part - 9) - 1954(Reaffirmed 2006)	Ambient oC - 60 oC	30
2 pH	pH Unite	4500 H+ 5 APHA Standard Methods 22nd. edi.2012	T-14 pH value As or	7.02
I Coose	Pt.Co.Sc.	2120 B APHA Standard Methods 22nd edi. 2012	2 - to 99 Hazen & 1-50	5
4 Total Discoved Spice	mgift	Gravimetric method. (2540 C APHA Standard Method	10 - 200000 mg/L	2813
5 Susponded Solide	rigit.	Gravimetric method. (2540 D APHA Standard Method	2-10000 mg/L	.26
5. Alstructual Narragen	mgit	1). Titrimetric method (4500 NH3 B & C APHA Standa	1 - 2006 mg/l.	0.50
7 Chiorate	mg/l	Argentometric method, (4500 CIP B APHA Standard N	1 - 50000 mg/i	1500
8 Bulphole	mgif	AFHA(22nd ed)4500 SO4 E	2-40mgft	141
9 Chemical Oxygon Comand	mgit	APHA (22nd Edition)- 5220 B Open Reflux Method-2	5.0-50000 mg/l	27
10 Oil & Gregote	mgif	Liquid - Liquid Partition Gravimetric method. (5520 B	01 - 1000 mg/l	BDL
11 Phannic Compounds	Tigitt	4 Amino Antipyrene method without Chloroform Extra	0.1 - 50 mg/f	SEC
12 Cyanide	mg/l.	Titrimetric method. (4500 - CN? D APHA Standard Me	1-10 mg/l	EDL
12 Sulpride	Tight	APHA (22nd Edi.)4500-s2-F -iodometric Method	1-500.0 mg/l	0.27
14(B.O.D (5 Days 27(C))	mgfi	3 - Day BOD test. (IS 3025 (Part 44) 1993 Reaffirmed	65-50000 mgs	<5

Laboration: Remarks : Approve(fiCl.-Relow Detection limit, Minimum detection limit of Phenci-3 1mg/t. (If and grease 0.2mg/t. Cynide-0.02 mg/t) By 95-ro_95 Dt.: 22/06/2016



B.Y. Rathod, Lab Head

Field Otnorvetion:

- 1. " These parameters are covered under the scope of NASt.
- 2. The results refer only to the tested samples and applicable parameters. Endorsement of products is neither inferred nor implied.
- Samples will be destroyed after 10 days from the date of issue of test report unless otherwise specified.
- This report is not to be reproduced worth or in part or used in any advertising media without the permission of the Board in writing.
- 5. The Board is not responsible for the authenticity for the samples not collected by the Board's officials.
- 9. Tittal liability of our laboratory is limited to the invoiced amount. Any dispute energy out of this report is subject to Guarnit Jurisdiction only.
- 7. Permissible Umils: as per Schedule VI of EPA Rules, 1996 as ammended by Second and Third ammendment 1993 for Effuents
- 5. Physicochemical and nicrubiological parameters, Std Methods for Water and Waste Water, 22nd Edition by APHA.
- 3. Scausey last (for toxicity) 45:6582 Part-2:2001; Reaffirmed 2007.

\$7\$ 1 ESB



Sample ID 197792 - Analysis Completion 30/10/2016

Chemicals & Products / LAB inward: 26603

Gujarat Polistion Control Board, Socat 338, Reigium Square Typical 1st Floor,Opp. Linear Bus Stand Ring Road, SURAT Teles(0261) 2442696

Date: 02/11/2016

TEST REPORT

Test Report No. | 26603

I. Name of the Customer

2. Address

3. Nature of Sample 4. Sample Collegied By.

5. Quantity of Sample Received

4. Code No. of the Sample

7. Date & Time of Collection & Inwarding

5. Date of Start & Completion of Analysis

9. Sampling Point

10. Flow Details (Remarks)

11. Mode of Disposal

12. Ultimate Berriving Body.

t3 Temperature on Collection

4. Cartons Nov for

15. Water Consumption & W.W.G (KLPD)

: Hindusthan Chemicals Company Old Name: Cyanides & Chemicals Company) - 20643

: ,GIBC IND.ESTATE.P.O. - OLFAD

OLPAD-394540, Taluka: Olpad, District: Surat, GIDC: Not In Gide

: REP-Representative/Grab, (Insp Type : VIG-By Vigilance Team)

: T.B. Shah, Unit Head

: 51.ht

: 197392

: 06/10/2016 , (1310 to 1310) & 10/10/2016

: 13/10/2016 & 30/10/2016

: From accumulated water in storm water drain within premises -

: Yero Masma khadi

: Arebian see through masma khadi

: 28 & pH Range on pH Strip :7-8 on pH strip : 1 & Color & Appearance : light yellowish

: Ind:643.200 , Dom:8.000 & Ind:265.900 , Dom:8.000

St Farameter	Unit	Test Method	Range of Testing	Result
1 Temperature	Certigrace	IS: 3025 (Part - 9) - 1954(Roaffamed 2006)	Ambient oC + 60 oC	76
i pH	per Units	4500 H+ B APHA Standard Methods 22nd edi 2012	1 14 pH value As or:	8.14
I Celou	P5 O 6 5c.	2120 8 APHA Standard Methods 22nd edi. 2012	2 - 10 99 Hussen & 1-50	YD
4 Total Disputyed Solids	mp1	Gravimetric mirthod. (2540 C APHA Standard Method	18 - 200000 mg/l.	2176
5 Suspended Solids	mgit	Gravimetric method. (2540 D APHA Standard Method	2 - 10000 mg/s.	20
6 Amnerical Natiges	mpt	1) Termotic method (4500 NH3 B & C APHA Standa	1 - 2000 mg/t	16.4
1 Grande	tiget .	Arguntometric method: (4509 CI7 8 APHA Standard II	1 - 50000 mg/l	1820.0
8 Sulphoto	mgif	APHA(22nd edi)4500 SD4 E	2.40mg8	345.0
Chunical Ovygen Denund	mg/l	APHA (22nd Edition)- 5220 B Open Reflux Method-2	5.0-50000 mg/l	65
NO DI & Greates	mgit	Liquid - Liquid Partition Grawmetric method. (5520 B)	01 - 1000 mg/l	TIOI.
13Phenois: Compounds	mg/l	4 Ammo Antipyrone method without Chloroform Extra	0:1 - 50 mg/l	601
Z Cryanics	mg/t.	Timmetric method. (4500 - CN7 D APHA Standard Mi-	1-10 mg/r	BDL
15 Supriesi	mgit	APHA (22nd Edi.)4500-s2-F -indometric Method	1-500 D-mg/r	0.6
148.0.0 G Days 370C)	rigit	3 - Day BCD test. (IS 3025 (Part 44) 1993 Roufferner	05-50000 mg/t	155

Laboratory Remarks : Approve By 96-7,0-96 Dt: 02/11/2016

B.Y. Rathod, Lab Head

Field Observation: 12 3025 method

- 1. * These garameters are covered under the scope of NASE.
- The require refer only to the tasked samples and applicable parameters. Endorsement of products in neither inferred nor implied.
- 3. Samples will be destroyed after 10 days from the date of issue of test report unless otherwise specified.
- 4. This report, is not to be reproduced whelly or in part or used in any advertising media without the permission of the Board in writing.
- 5. The Board is not responsible for the authenticity for the samples not collected by the Board's officials.
- Total lisbility of our laboratory is limited to the invoiced amount. Any dispute arising out of this report is subject to. Gisland Jurisdiction only
- 7. Premissible Limits, as per Schellule VI of EPA Rules, 1986 as ammended by Second and Third ammendment 1993 for Effuents.
- II. Physicochemical and microbiological parameters. Std Methods for Water and Waste Water 22nd Edition by APHA.
- 6. Biogosay test (for toxicity) -IS 5582 Part-2-2001, Reaffirmed 2007,

m in

04/11/2016



1. Name &

ANALYSIS REPORT FOR AIR TYPE: Stack-Process

Gujarut Pollution Control Board

338. Beigium Square

Typical Let Floor, Opp. Linear Bus Stand

Ring Boad, SURAT Teles(0261) 2442696

Sample ID: 197593 - Analysis Completion:30/10/2016

Chemicals & Products / T.AB Inward: 26612

2. Address of the Unit

: Hindusthan Chemicals Company Old Name: Cyanidex & Chemicals Company) - 20643.

; "GIDC IND.ESTATE,P.O. - OLPAD

OLPAD - 394540, Taluka : Olpad, District : Surat, GIDC : Not In Gide

3. Nature of Sample

: REP-Representative/Grab , (Insp Type : VIG-By Vigilance Team)

4. Sample Collected By-

2 T.B. Shah, Unit Head : 06/10/2016, (1330 to 1400)

5. Date & Time of Collection & Receipt 6. Date of Start & Completion of Analysis.

: 13/10/2016 & 30/10/2016

7. Sampling Point

: Stack attached to Tail gas Incinerator -

S. Fred

2. APCM

10. Thimlife & Weight (gm)

11. Temperature on Collection

& Volume-Absord Media: 50 ml Distilled water for BCL and HCN gas

12. Volume-Gas Passed

: 60 liter for each gas

13. Parameters

& Oper Time(Min) : 30 minite

Sr	Parameter	Unit	Test Method	Range of Testing	Result
FICX-Plan		MGNM3	Argertometric		17.10
214CNL5354	O.	MODWS.	-		604

Laboratory Remarks : Approve By 95 r.u. 96 Dt. 82/11/2016

B.Y. Rathod, Lab Head

Field Observation : IE17255, absorbing media 50ml distilled water for hot and hon gas



04/11/2016

ANNEXURE 4 - Form V

F.HCC.TECH:17.AKK: 5.5

May 31, 2016

The Unit Head Gujarat Pollution Control Board Paryavaran Bhavan Sector – 10 A Gandhinagar – 382 010

Through Courier

Sub Environmental Audit Statement for the Fin. Year Ended on 31st March, 2016.

Dear Sir.

As per Notification dated 13th March, 1992 of Govt. of India, Ministry of Environment & Forests, New Delhi, we are enclosing herewith our Environmental Audit Statement for the financial year ended on 31st March, 2016 for your perusal.

We hope, you will find the same in order.

Thanking you,

Yours faithfully, for Hindustnan Chemicals Company

R.P. Sharma

Sr. General Manager (Plant)

muy

enci: a/a

c.c. 1. The Regional Officer
Gujarat Pollution Control Board
338, Beigium Square, Typical 1st floor
Silver Plaza Complex
Near Linear Bus Stand
Ring Road, Surat – 395 003

The Director (Environment)
 Ministry of Environment & Forests
 Regional Office (Western Region)
 Link Road No. 3, E-5, Ravi Shankar Nagar
 Bhopal – 462 016 (M.P.)

- By Reg. A/D

she she

SNIAKS

Form - V (See Rule 14) ENVIRONMENTAL AUDIT REPORT FOR THE FINANCIAL YEAR ENDED ON 3157 MARCH, 2016 PART - A

1. Name and address of the Owner/ Occupier of the industry operation or process.

: Hindusthan Chemicals Company

Prop:Hindusthan Engineering & Industries Ltd.

GIDC Industrial Estate

P.O. Olpad - 394 540, Dist. Surat (Gujarat)

2. Production capacity unit

As per enclosed Annexure - 1.

3 Date of the last environmental audit.

: 05 05 2015

report submitted

PART-B WATER AND RAW-MATERIAL CONSUMPTION

Water Consumption M³/day

(A) Domestic

: 8.80 M3/day

(B) Industrial:

Process Cooling H) Boiler

34 60 M3/day 307.10 M³/day

44.00 M3/day

Total

385.70 M3/day

Name of the Products

Water Consumption per unit of Products

	During th	e previous Financial Year	During the current Financial Year
		(2014-15)	(2015-16)
Hydrocyanic Acid		5.99 M ³ /day	4.29 M ³ /day
Sodium Cyanide Potassium Cyanide Ammonium Sulphat Sodium Ferrocyanide Diphenyl Gualdine Heat Treatment Sal Potassium Ferrocya Mandelonitrile Sodium Dicyanamid Cyanohydrines Nitriles	ie de It anide	11,77 M ³ /day 2,65 M ³ /day 9,55 M ³ /day 9,42 M ³ /day Nil Nil Nil 5,70 M ³ /day Nil	7.16 M³/day 2.07 M³/day 4.10 M³/day 7.22 M³/day Nil Nil Nil Nil Nil Nil

Contd....2

PART - C POLLUTION GENERATED (Parameters as specified in the Consent Issued)

(1)	Pollutants	Quantity of pollution Generated	Percentage of variation from prescribed standards with reasons
a)	Water }	As per enclosed Ann	nexure – 2.
b)	Air }	Au per anouada vina	

PART - D HAZARDOUS WASTE

(As specified under Hazardous Waste Management and Handling Rules, 1989)

Hazardous Wastes

Total Quantity (Kgs)

	During the previous Financial Year	During the current Financial Year
	(2014-15)	(2015-16)
a) From Process	} } 296089.00	104545.00
b) From Pollution control facilities	j	- 4

Above whole quantity was dried in impervious solid waste collection pan and then sent to M/s Nandesari Environment Control Ltd., Nandesari and M/s Bharuch Enviro Infrastructure Ltd. Ankleshwar for incineration, treatment and disposal.

PART - E

		T o t a I Q During the Previous Fin. Year (2014-15)	uan	During the Current Fin. Year (2015-16)
a)	From Process	Whole quantity of solid waste was dried and then sent to		Whole quantity of solid waste was dried and then sent to
b)	From Pollution Control Facility	M/s Nandesari Environment Control Ltd. & M/s Bharuch Enviro Infrastructure Ltd.		M/s Nandesari Environment Control Ltd. & M/s Bharuch Enviro Infrastructure Ltd.
c)	Quantity Recycled or re-utilized	for incineration, treatment and disposal.		or incineration, treatment and disposal.

Contd....3

PART - F

Please specify the characteristics (in terms of concentration and quantum) of hazardous as well as solid wastes and indicate disposal practice adopted for both these categories of wastes.

Hazardous Waste:

Solid

1)	Activated Carbon	- Semi solid	
		Activated Carbon Water Oxidized Polymer of DPG (Loss on ignition at 500° C)	7.0% 58.0% 35.0%
11)	Ferri Ferrocyanide	 Ferri Ferrocyanide Water 	34.1% 65.9%
iii)	Ferric Hydroxide	 Ferric Hydroxide Water Sodium Ferrocyanide 	30.0% 69.55% 0.45%
d Wast	0;		
6	Contaminated Salt	Sodium Chloride	96%

PART - G

Cyanide content

impact of the Pollution control Measures on conservation of natural resources and consequently on the cost of production.

impact on conservation of natural resources

ETP sludge

Impact of cost of production

1. Water Pollution

Since the effluent discharged by us conforms to the norms described by the Pollution Control Board, it does not have any impact on Conservation of natural resources.

2. Hazardous Waste

Hazardous waste get completely dried in Impervious pan by solar evaporation An amount of Rs. 2000 lacs is spent annually in Effluent Treatment Plants. We have installed Zero Liquid Discharge Plant and commissioned on 14 03 2016.

Traces

Constituents present in hazardous waste was sent to M/s Nandesari Env. Control Ltd., Nandesari & M/s Bharuch Enviro Infrastructure Ltd, Ankleshwar, for Incineration, treatment and disposal. An amount of 84 lacs was spent annually.

Contd.....4

3. Air Pollution

The toxic gases are completely burnt in Incinerator resulting into generation of inert gases, i.e. CO₂/N₂ and simultaneously generation of steam which is effectively used in plants. Therefore, there is no impact of conservation of natural resources. Approx. 20,808 MT/year steam was generated in incinerator, otherwise to generate 20,208 MT seam we would have burnt 1734 K.L. of Furnace Oil.

PART - H

Additional investment proposal for environmental protection including abatement of pollution

- We are already fully equipped to handle hazardous waste, liquid effluents and air pollutants and detoxicate the same conforming to the norms specified by Pollution Control Board.
- 2. We are having On-line Stack Monitoring Gas Analyser and records are being maintained.
- 3. We are having On-line TOC Meter. Records are being maintained.
- 4. We have installed and commissioned Zero Liquid Discharge Plant on 14 03 2016 and stopped discharge of waste water to Masma Khadi from 01 04 2016. All the treated water is being recycled in Cooling Tower and in Process.

PART - I

Miscellaneous

Any other particulars in respect of environment protection and abatement of pollution.

About 2000 additional trees were planted within our battery limit.

(R. P. Sharma) Sr. General Manager (Plant)

Shally.

Annexure - 1

PRODUCTION DETAILS

SI No	Name of product	Consent Capacity MT/Annum	Actual production MT/Annum
1	Hydrocyanic Acid	5100	3054.300
2	Sodium Cyanide	6372	5113.076
3	Potassium Cyanide	2000	134.203
4	Sodium/Potassium Ferrocyanide	1000	228.000/Nil
5	Diphenyl Guanidine	1260	46,500
6	Sodium Dicyanamide	300	Nil
7	Mandelonitrile	2500	222.640
8	Heat Treatment Salt	720	Nil
9	Cyanohydrines	5000	69.300
10	Nitriles	3000	Nil
11	Cyanide Based Products	3500	Nil
12	Ammonium Sulphate (By-product)	2649	1483.500

Annexure - 2

POLLUTION GENERATED

SI No	Pollutants	Quantity of pollution	Parameters	As specified in the consent issued	Percentage of variation from prescribed standard with reason
а)	Water	126 M³/day	pH BOD mg/l COD mg/l Ammonical Nitrogen mg/l Cyanide content	6.5 – 8.5 30 max. 100 max 50 max.	Nii
b)	Air Boiler Incinerator	2000 M ³ /hr 7000 M ³ /hr	Suspended particulate matter (SPM) In mg/NM³ Sox (PPM) Nox (PPM) Cyanide as HCN (NMg/M³) HCI (NMg/M³)	150 max. 100 max. 50 max. 30 max.	Nil

ANNEXURE 5 – Zero Liquid Discharge Scheme With Waste Minimization

TREATMENT OF EFFLUENT STREAMS AT EXISTING AND PROPOSED SCENARIO

Existing treatment scheme:

The total process effluent generated from the plant is segregated into two streams as under-

1. Low TDS and low COD process effluent

Over head Condensate generated from NaCN, SFCN & Ammonium Sulfate, contains High Ammonical Nitrogen & Cyanide collected in V511. This effluent passed through Calion based Ammonical Nitrogen Removal Unit, resulting in reduction of Ammonical Nitrogen less than 50 ppm, and gets mixed with Lean water from HCN plant, containing high cyanides.

Removal of high cyanide is being done through air stripping, (equipped with caustic scrubber where CN gets convert to NaCN sturry, this sturry is transferred to NaCN plant to recover NaCN. The bottom effluent from air stripper containing CN - < 5 ppm, is finally passes through Anion based cyanide removal Unit, in which CN contain gets minimized less than 0.2 ppm.

Above treated effluent of 114 KLD, along with blow downs of boiler & cooling tower of 128 KLD sent to equalization tank of existing conventional treatment plant of 300 KLD consisting of primary and secondary units. The treated effluent is then sent to final treated effluent confirming the GPCB norms sent to Guard Pond No.2 for final discharge to Masma Khadi.

2. High TDS and high COD process effluent

Combined effluent of alkaline nature from DPG, SDCN & SFCN is treated with Chlorine to detoxify free Cyanide and convert volatile organic impurities into stable high boiling chloro derivatives.

Mixed effluent of 50 KLD after chlorination is passed through Nutch filter for filtration. The filtrate is fed to multi-stage evaporator of 80 KLD. The overhead condensate is obtained which is having very low TDS & COD. This condensate is being recycled to our existing plants. The contaminated salt approximately 2.5 MT/day recovered after evaporation through centrifuge is isolated & filled in HDPE Bag and sent to approved TSDF site for indineration for final disposal.

Proposed treatment scheme to achieve ZERO LIQUID DISCHARGE with waste minimization:

To achieve Zero Liquid Discharge, the existing segregated process effluent streams shall be treated in following manner.

1. Low TDS and low COD process effluent

Over head Condensate generated from NaCN, SECN & Ammonium Sulfate, contains High Ammonical Nitrogen & Cyanide collected in V511. This effluent passed through Cation based Ammonical Nitrogen Removal Unit, resulting in reduction of Ammonical Nitrogen less than 50 ppm, and gets mixed with Lean water from HCN plant, containing high cyanides. Removal of high cyanide is being done through air stripping, (equipped with caustic scrubber where CN gets convert to NaCN slurry, this slurry is transferred to NaCN plant to recover NaCN. The bottom effluent from air stripper containing CN - < 5 ppm, is finally passes through Anion based cyanide removal Unit. In which CN contain gets minimized less than 0.2 ppm.

Above treated effluent of 114 KLD, along with blow downs of boiler & cooling tower of 128 KLD sent to equalization tank of existing conventional treatment plant of 300 KLD consisting of primary and secondary units. The treated effluent is then sent to final treated effluent collection unit (guard pond no 1). The treated effluent confirming the GPCB norms sent to Guard Pond No 2.

The treated effluent from existing ETP, which is being presently discharged in Khadi, will be further treated in tertiary treatment plant which will include Pressure Sand Filter (PSF), Activated Carbon Tower (ACT) and Reverse Osmosis (RO) plant. The permeate from RO plant shall be recycled for reuse in the cooling tower. The reject form RO plant will sent to proposed MEE for further treatment. The over head condensate from MEE will be recycled for reuse in the cooling tower Approximately 0.75 MT/day evaporated salt recovered after evaporation through centrifuge is isolated & filled in HDPE Bag and sent to approved TSDF site for land filling for final disposal.

2. High TDS and high COD process effluent

The existing mixed effluent of 50 KLD shall be segregated in two streams and shall be treated as under

A. Spent acid stream containing HCl of 12 KLD.

Another stream of spent Acid from DPG plant containing HCI less than 5 %, will be neutralized & evaporated in an evaporator for removal of TDS as salt & overhead condensate will be recycled in cooling tower. Approximately 0.84 MT/day industrial salt recovered after evaporation through centrifuge is isolated & filled in HDPE Bag and sent to approved TSDF site for land filling for final disposal. We shall explore the possibility of selling as industrial salt to actual users.

B. High TDS & high COD stream with cyanide contamination of 38 KLD.

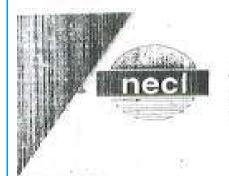
Mixed effluent of 38 KLD after chlorination is passed through Nutch filter for filtration. The filtrate is fed to multi-stage evaporator of 96 KLD. The overhead condensate is obtained which is having very low TDS & COD. This condensate shall be recycled to existing plants or shall be incinerated in proposed liquid waste incinerator of 100 KLD capacity. The contaminated salt approximately 1.5 MT/day recovered after evaporation through centrifuge shall be isolated & filled in HDPE Bag sent to approved TSDF site for incineration for final disposal. The ash from the incinerator of approximately 0.025 MT/day shall be isolated & filled in HDPE Bag sent to approved TSDF site for land filling for final disposal.

HCC Having two number of Membership of Approved TSDF Site.

1 M/s. NECL, Vadodara and 2 M/s. BEIL , Ankleswar

ANNEXURE 6 - Membership Certificate of BEIL, Ankleshwar & NECL, Baroda

CONTRACTOR CONTRACTOR



Armexure - 41

NANDESARI ENVIRONMENT CONTROL LTD.

TO WHOMSOEVER IT MAY CONCERN

THIS IS TO CERTIFY THAT M/S. HUNDUSTHAN CHEMICALS COMPANY, GIDC UNDUSTRIAL ESTATE, P.O.-OLPAD-394 540, DIST: SURAT IS OUR VALID MEMBER (MEMBERSHIP NO. 206) OF COMMON HAZARDOUS WASTE INCINERATION FACILITY DEVELOPED BY NECL AT 519/P GIDC, NANDESARI, DIST. VADODARA

FOR & ON BEHALF OF:

AANDESARLENVIRONMENT CONTROL LTD.

BABUBBALC PATEL

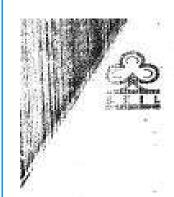
CHAIRMAN

16.08.2010 NANDESARI

Common Solid Waste Disposal and Incineration Facility



UH



BHARUCH ENVIRO INFRASTRUCTUR

DATE, 24/07/2012

To.
Hindusthan Chemicals Company
(Prop: Hindusthan Engg. & Industries Ltd.)
GIDC Industrial Estate,
P.O. Olpad ~ 394 540,
Dist. Surat.

Sub : Membership Certificate for Common Inciseration Facility.

Dear Sir.

We hereby certify that you have become member for the common incineration facility of Bharuch Enviro Infrastructure Ltd., at CDC, Ankleshwar. You have booked quantity of 10 MT/Year. You have paid Registration fees for common incinerator membership. Your Membership No. is CI/OED/885.

Waste will be accepted after submitting valid authoristation of GPCB.

Thanking you,

Yours faithfully,

For BHARUCH ENVIRO INFRASTRUCTURE LTD.

AUTHORISED SIGNATORY

ANNEXURE 7 - Category Wise Hazardous Waste Generation & Disposal Details

	Opening	May, 2	016	June, 2	2016	July, 2	016	August,	2016	Septembe	er, 2016	October,	2016	Closing
Category	Stock	Generation	Disposal	Stock										
							kg	Ŗ						
Activated Carbon	0	560	0	1100	0	1200	0	1220	0	0	0	0	0	4080
Ferric Hydroxide	504	640	0	1160	0	1040	0	960	0	920	0	960	0	6184
Contaminated Salt	21910	12000	17180	17745	7230	17220	16720	23890	23790	19140	17490	15890	12200	33185
Iron Sludge	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ETP Sludge	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Contaminated Polythene Liner	16	0	0	0	0	0	0	0	0	0	0	0	0	16
Drums	0	0	0	0	0	0	0		0	0	0	0	0	0
			•						•		•	•	Total	43465
Used Oil														600 lit
Spent Catalyst														Nil

FOR GENERATOR BY NECL



NANDESARI ENVIRONMENT CONTROL LTD.

SURVEY NO. 61MP, G.LD.C., NANDESARI - 391 340, DIST. VADODARA, PHONE: (0286) 2840016 FAX: (0285) 2841017 Hezardoze Waste Manifest

Sign.

(Information of Hazardous Waste for disposal) ISO 14001 Certified Company Complete Unit's Name Address & Phone No. : 2. Occupier's Registeration No. 206 GIDC Indl. Retate P.O.Olpad 394 540, Dist. Surat. 5. Monifest Document No. 1125 4. Trensporter's Namo Address & Phone No. TYPE OF VEHICLE 5. Transporter's Registration No. 6537 canan transport of TRUCK 10-F. Purgem Ourk Sec. TRACTOR Opp. Punit Pack Enc. OTHER VEHICLE 6. Vegible Registration No. 64-60-662 7. Designated Facility Name & Site Address: NANDESARI ENVIRONMENT CONTROL LTD. 7. Facility Registration No.: \$834 Date 29.11.2007 Plot No. 819/P, G.I.D.C., Nandesari - 391 349. Dist. Vadodara. Phone: (0265) 2846616 Fax: (0265) 2841017 4. Facility's Phone No.: 2840518 10. Waste Description : 15. Total Guestity of Wester Solid was to for incineration, Ton B. Cots treatment and disposal. 12. Consistency :-Solld Oil Send Solld Terry Sludge Sikney 13. Transporter Description of Weste 14. Containers 16. Total 16. Unit 17. Wasto Quantity WL/Vol Category No. No. Type As per Act. Contaminated salt 8-5-5 1 Truck State. won .- 1 Gat. 17.1 8500 18. Special Handling Instruction & Additional Information Use duet mask and cotton hand glovesubile handling. 19. OCCLIFIED'S CERTIFICATE: Thereby declare that the corrects of this consignments are fully and accurately described above by proper attipping name and are nategorised, pecked, marked and lable, and are in all respects in proper condition for transport by road according to applicable national government regulations. The ease is as per GPGB norms. Name & Stamp of Unit : CHECOL son Wednings by the may be industries that Time . Hrs. Cha:a DAY MONTH Signature with Dealgnation With Rubber Stamp 20. Transporter's Asknowledgment of Receipt of Materials Name & Stamp of Transporter: Timo How. HI-F. Purceum pack Son HIMOM YAD VEAD Jon. Punit Punit Siec. **Bignature with Designation** 21. Discrpancy Note Space 22. Facility Owner of Operator's Certification of Receipt of Heart Bryot Make NANDESARI ENVIRONMENT CONTROL LTD. Hrs. Plot No. 519/P, GJ.D.C. NANDESARI Nandesert - 391 340. Dist. Vadodars. DAY MONTH YEAR Phone : (0265) 2849818 Fax : (0265) 2841017

Signmento

BHARUCH ENVIRO INFRASTRUCTURE LTD.

Site Plot No. 9701-9715, BIDC Ankleshvar, Dist. Sharuch Form - 13 (See Rufe 21 (Z) Hazardous Waste Manifest

Member Soal with Sign:

1 a Oceopier's Unit's Name & Making Address			2. Occupier's F	legistration No	
(Prolyding Phone No.)			Take Andrews	0/ 085	
Hindus hen Chemicals Com		104 CAC	2. Maintest Do		-
GIDG Indl. Estate, P.O.O.	Apna-	324 34N	29392	M1 - 1/2/2000	-
JAY-BaSchoenKolySPSR	5. T	rpe of Venicle		s Registration No.	
At. S. Vaghapura,		nuck/Dumpan	7 Vehicle Reg	stration No	The same
1.1 Jhaqadia, Dist. Sharoph a. Delighos 9000/Nobel a Ste Adorese		pecial venice		gistration No.	
BHARUCH ENVIRO INFRASTRUCTURE	LTD.		50800	g	
Site : Plot No. 9701-9718, GIDC Estate. A	necessival.		10. Facility's Ph	one No. 225228	253105
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NANDESARI ENVIRONMENT CONTROL LTD.

SURVEY NO. 618YP, GILD,C., NANDESARE-391 340 CIST, VACOGARA. PHONE: (0265) 3840618 FAX: (0265) 3841017 Hexardous Waste Manifest

Member

7691

 Occupier's Unit's Warms Address & Pho Mindus than Cosmicals 		my	2º Openyslaria	a Registe	ewiton.	No. 206	
GIDC Industrial Heta	te		S. Menifeet I	Sociation	it No.	2684	
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20-F, Purvam Park Soc.,	OTH	ER VEHICLE	6. Voohlie Re	eglatratic	m No. 1	iJ −6U−6 66	
7. Designate Party Name & Site Addre NANDESARI ENVIRONMENT CON	TROL LTD		7. Facility Re	egiatratic	n Nevs	9834 Date 19.11.950	
Phone : (0265) 2840616 Fax : (0265) 284		Vedodara.	9. Fecility's i	Phone No	.: 2840	ate.	
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BHARUCH ENVIRO INFRASTRUCTURE LTD.

Site: Plot No. 9701-9718, GIDC, Ankleshwar, Dist. Bharuch. Form - 13 (See Rule 21 (I) Hazardous Waste Manifest

Seal with Sign.

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	4. Transporter's Name & Address : (Including Phone No.) JAY DASAMA TRAN At S. Vashapin	SPORT	5. Ty	pe of Vehicle uck/Dumper/ actal Vehicle	6. Transporter BELL/AS 7. Vehicle Reg GU-16-	atrasor	102/188 1No.	
	8. Congraide affronsite 6 884 At BHARUCH ENWRO INTRASTERA Ste. Plot No. 9701-9716, GIDC Ex	SORE LTD). shwar.		9. Facility's Re 10. Facility's Ph	gistratio	in No.	/ 253135
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BHARUCH ENVIRO INFRASTRUCTURE LTD.

Site: Plot No. 9701-9715, GIBC, Ankleshwar, Dist, Bharuch,

Form - 13 (See Rule 21 (I)) Hazardous Waste Manifest

Hazardous Waste Manifest Information of Hazardous Waste for disposall Member Seal with Sign

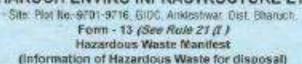
Sr. No.

30173

(Including Phone No.)	850	2: Goodplar's 8	Registration No.	
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GIDC Indl. Batate, P.	0-01pag-394 540	30173		
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JAY DASAMA TRANSPORT		BEIL/AB	E/JULY 088	
JAY DASAMA TRANSPORT	Truck/Dompon		istration No.	
At. S. Veghapura	SSecial Volvida	QJ-5V-	-2033	
Tal Jagondia Dier Rayweb.	166	9. Facility's Re	gistration No	
BHARUCH EN THE WHATEN LICTU	INE LTD.	50900		
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BHARUCH ENVIRO INFRASTRUCTURE LTD.





30337

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- Sinduthan Chemicals Co	many				
GING Industrial Estate	. P.O. 01 pad	3. Manifest De	oument No.		
Mins Samet - 394540		70537			
4. Inemsporter's Name-6 Address	5. Type of Vehicle	the same of the sa	s Registration No	00	
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BHARUCH ENVIRO INFRASTRUCTURE LTD. Membe See: Plot No. 9703-9715. SIDC, Ankleshwar, Dist. Bharuch. See with Form - 13 (See Rule 21 (1) 5igo. Hazardous Waste Manifest (Information of Hazardous Waste for disposal) Sr. No. 30461 Occupier's Regulation No. ANGROUPE TOTAL SEE STY 30461 addefrant Estate, F.C.Dipad st. Surat-394540 Monited Document No. MRIL/ANK/JET/088 Transporter's Registration No. Type of Vehicle 6 76 rick Recistration No. Truck/Dumperl Int Jhagadio, Best Bharuck Special Vanida House Party Name & Site Address Facility's Registration No. BHARUCH ENVIRO INFRASTRUCTURE LTD. 50809 Site : Plot No. 9701-9716. GIDC Estate. Anciestrate. Facility's Phone No.: 225228 / 253135 CON Econtity of Waste and disposal 77920 MT Consistency Oily Sold Serri-Solid TRITY SUNY Sludge 14 Transport Description of Wasto 15. Containers Total 17. Unit 18. Wester Quantity is Wt.Akst. in Na. Type Contaminated 1920 10. Segrial Head of greatment & Author of the commenced gloves and lie handling 20. OCCUPIER'S CERTIFICATE: I nom by doclare that the centerts of this consignment are fully and accurately described above by proper shipping name and are categorised, packed, marked and labed, and are in all respects in proper condition for transport by road according to applicable national government regulations. in Time. antoned. DAYS WONTER 2 DIVENTE Signature with Designation With Rubber Stamp 21 Transporter's Advanced germent of Place and Materials JAY DASAMA TRANSPORT Out Time . At. S. Vaghapara Tal, Jhagadia Dist. Bharuch Signature with Designation Mob. 6090495467 22 Discrepancy Note Spece 23. Facility Owner or Operator's Cartification of Receipt of Hazardous Waste BHANUCH ENVIRO INFRASTRUCTURE LTD. For BEIL Priorie No.: (08646) 225228, 253135 Fax No.: (02646) 222549 Manifest Valid for 3 Months Authorised Signatory MONTH YEAR From the Date of Issue Signature with Designation

BUILD CODY



BHARUCH ENVIRO INFRASTRUCTURE LTD.

Site: Plot No. 9701-9715, GIDC, Ankleshway Dist. Bharuch. Form - 13 (See Rule 21 (1)

Member Saal with Sign

3046	Sr. No.	nifest te for disposal	us Waste Ma zardous Was		
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253135	one No.: 2252287	10. Facility's P.			
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The state of the s	16	ste	l Hazarcious vita F 222849 Author	0.	Facility Carner or Operator's Certification of B BHARUCH ENVIRO INFRASTRUCTURE LTD Phone No.: (00646) 255226, 253135 Fax No.: (



Site: Plot No. 9781-9716, GIDC, Ankleshwar, Dist. Bharush. Member



2		orm - 13 <i>(See Rule)</i> azardous Waste Ma		Seat est)
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SRe: Plot No. 9701-9715, GICG, Anklashmar, Dist. Bibaruch. September

		rus Waste Ma	CONTRACTOR OF THE PARTY OF THE	Sedu	March 1019	
(informati	on of Ha	izardona Was	te for disposal)	Sr. No.	30824	
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BHARUCH ENVIRO INFRASTRUCTURE	25000E2400E2		50809	AND THE		
See : Plut No. 9701-9716, GIDG Estate, Ar	nicestwest.		10. Facility's Ph	ione No. 22522	8/253195	
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11. Waste Description:			12. Total Guant	nty of Waste	- 4	
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		- 0	13. Consistence			
			The state of the s	-	ALCOHOL: NO	
	- 10		Serii-Solid	OW		
	and I		Studge	Surry		
14. Transport Description of Waste	15.0	ontainers	16. Total	17. Unt	18.9Vasto	
	No.	Type	Quantity in	Wt./Vol. in	TELESCONO (1997)	
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901 302 of 507



BHARUCH ENVIRO INFRASTRUCTURE LTD.

Site: Piet No. 9761-9716, GIDC, Anklestwar, Dist. Sharech. Form - 13 /See Rule 21 (I) Hazardora Waste Manifest Monitor Seal with Sign

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Crossers Unita Name & Making Address. Indiana para imperioris Comp IDC Industrial Natate. P.	any	nd- toa E	Service Comment	Fieggspaton No.		
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4 Transporter's Name & Address . Jacques Prene Man Page 2 t	100	rea of Vahiala	6 Terrengering	Septemp &	Ba	
At 8. Vaghapura, Tal Jhada Dist. Bhruch.	7. Vegraloping	istiglion No.	Second .			
Designated Facility Name & Site Address BHARUCH ENVIRO IMPRASTRUCTURE L			9. Facility's Ro 50909	giomation No.	DIE	
Site: Plot No. 9701-9716, GIDC Estate, Ark	eeshwar,		10. Facety's Ph	one No 225228	1/253155	
1) Waste Description		THE RESERVE	12 FrankGuard	By of Washin	20	
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		ar.	13 Consistency			
	25	No.	Semi-Solid Semi-Solid	Oily Tarry Storty	luci i	
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EXECUTED AND ADDRESS OF THE PARTY OF THE PAR	50/45	Type	ME	MT No. No.	As per Act.	
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BHARUCH ENVIRO INFRASTRUCTURE LTD.

Site: Plot No. 9701-9716, GIDG, Anklashvar, Dist. Bharuch.

Form - 13 (See Rule 21 (L.)
Hazardous Waste Manifest
(Information of Hazardous Waste for disposal)



Sr. No.

31055

	Occupier's Unit's Name & Making Address		117.75	2. Occupiers	Registra	stien No.	- //
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		outles?		3. Marrifest Do	oumer	t No.	
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ANNEXURE 8 – CCA



GUJARAT POLLUTION CONTROL BOARD

PARYAVARAN BHAVAN

Sector 10-A, Gandhinagar 382 010

Phone (079) 23226295 Fax (079) 23232156

Website: www.gpcb.gov.in

In exercise of the power conferred under section-25 of the Water (Prevention and Control of Pollution) Act-1974, under section-21 of the Air (Prevention and Control

of Pollution)-1981 and Authorization under rule 3(c) & 5(5) of the Hazardous Waste (Management and Handling & Trans boundary Movement) Rules'2008 framed under the Environmental (Protection) Act-1986. This Board is empowered to Grant CC&A.

And whereas Board Lat received consolidated consent application latter Re-68779 dated:-15/07/2013 for the Renewal of Consolidated Consent and Authorization (CC & A) of this Board under the provisions / rules of the aforesaid Acts. Consents & Authorization are hereby granted as under:

CONSENTS AND AUTHORISATION:

(Under the provisions /rules of the aforesaid environmental acts)

To,

M/s. HINDUSTAN CHEMICALS COMPANY

(OLD NAME: CYANIDES & CHEMICALS COMPANY)

GIDC INDUSTRIAL ESTATE,

P.O. OLPAD, OLPAD-394 540 TAL: OLPAD

DIST: SURAT

- Consent Order No. AWH-58577 Date of issue: 25/11/2013
- 2.
- The consents shall be <u>valid up to 14/07/2018</u> for the use of outlet for the discharge of treated effluent & air emission and to operate industrial plant for manufacture of the following items/ products:

Sr. No.	Product	Quantity		
1.	Hydrogen Cyanide	5100 MT/Annum		
2.	Sodium Cyanide	6372 MT/Annum		
3.	Po,assium Cyanide	2000 MT/Annum		
4.	Sodium Ferro Cyanide	1000 MT/Assum		
5.	Potassium Ferro Cyanide	1000 MT/Annum		
6.	Diphenyl Guanidine	1260 MT/Annum		
7.	Sodium Dicyanide	300 MT/Annum		
8.	Mandelonitirle	2500 MT/Annum		
9.	Heat Treatment Salt	720 WT/Annum		
10.	Cyano hydrines	5000 MT/Annum		
11.	Nitrites	3000 MT/Annum		

Clean Gujarat Green Gujarat

ISO - 9001 - 2008 & ISO - 14001 - 2004 Certified Organisation

Cyanide based products		3500 MT/Annum
13.	NG based CPP	2 MW
	BY Product	
1.	Ammonium Sulphate	2649 MT/Annum

Subject to Specific Conditions:-

- Unit shall strictly follow conditions mentioned EC issued by MOEF on date: 05/10/2010 & CTE order issued by GPCB vide letter NO: GPCB/CTE/SRT-50(6)/88114.
- Cyanide stream & High TDS Stream shall be separated & Cyanide stream shall be given cyanide removal treatment & High TDS Stream shall be evaporated in Multi Effect Evaporator.
- Unit shall follow & implement applicable recommendation of cleaner production in Chemical industry, which is enclosed herewith this order.

CONDITIONS UNDER THE WATER ACT:

- 3.1 The quantity of trade effluent from the factory shall not exceed <u>258 KL/Day</u> Of which 208 m³/Day of treated effluent shall be discharged in to Masma Khadi & remaining 50 m³/Day shall be evaporated in Multi Effect Evaporator & its condensate water shall be used in cooling tower of DPG Plant.
- 3.2 The quantity of Domestic effluent from the factory shall not exceed 8 KL/Day

3.3 TRADE EFFLUENT:

3.3.1. The applicant shall provide adequate effluent treatment system so that effluent from the industrial unit shall conform to the GPCB norms mentioned below.

Sr. No	Parameter	Unit	GPCB Norms
1	pH		6.5~8.5
2	Temperature	C	40.0
3	Colour (Pt. Co. Scale)	units	100.0
4	Suspended Solids	mg/l	100.0
5	Oil & Grease	mg/l	10.0
6	Phenolic compounds	mg/l	1.0
7	Cyanides	mg/l	0.2
8	Fluorides	mg/l	1.5
9	Sulphides	mg/l	2.0
10	Ammonical Nitrogen	mg/l	50.0
11	Total Chromium	mg/l	2.0
12	Hexavalent Chromium	mg/l	0.1

13	Copper	mg/l	2.0
14	Lead	mg/l	0.1
15	Mercury	mg/l	0.01
16	Nickel	mg/l	2.0
17	Zinc	mg/l	5.0
18	BOD (5 days, 20°C)	mg/l	30.0
19	COD	mg/l	250.0
20	Insecticides/Pesticides		Absent
21	Bio assay test		90 % survival of fish after 96 hours in 100 %effluent

- 3.3.2 Effluent conforming to above standards shall be discharged in to Masma Khadi through underground pipeline.
- 3.3.3 Unit shall also provide flow meter at ETP.
- 3.3.4 Domestic effluent shall be disposed off through septic tank/soak pit system.
- CONDITIONS UNDER THE AIR ACT:
- 4.1 The following shall be used as a fuel.

Sr. No.	Product	Quantity
1	Natural Gas	14,000 n:3/Day
2	FO	5 Lit/Hr
3	LDO	10 Lit/Hr

- 4.2 The applicant shall install & operate comprehensive adequate air pollution Control system in order to achieve prescribed norms.
- 4.2.1 The flue gas emission through stack attached to Boiler/CPP shall conform to the following standards:

Stack No.	Stack attached to	Stack height in Meter	Air Pollution Control System	Parameters	Permissible Limit
1	Boiler 2 Nos.	30	Cyclone Separator	Particulate Matter SO ₂ NO _x	150 mg/NM ³ 100 ppm 50 ppm

2	Solid Waste Incinerator	30	Water Scrubber	Particulate Matter SO ₂ NO ₄	150 mg/NM ³ 100 ppm 50 ppm
3	Salt Incinerator	15	Water Scrubber	Particulate Matter SO ₂ NO _x	150 mg/NM ³ 100 ppm 50 ppm
4	CPP-1 no. 2 MW	30	- south	Particulate Matter SO ₂ NO ₄	150 mg/NM ³ 100 ppm 50 ppm

4.2.2 The process emission through various stacks/vent of reactors, process, vessel shall conform to the following standards:

Stack Nos.	Process vessel to which the stack / vent is attached	Vent Height in Meter	Air Pollution Control Measures	Parameters	Permissible Limit
1	Tail Gas Incinerator	40		HCN HCL	30 mg/Nm ³ 20 mg/Nm ³
2	Scrubber H.T. Plant	19	Water Scrubber & Bag Filter	PM HCN	150 mg/Nm ³
3	Ammonium Sulphate Recovery	20	Ammonia absorption Column	NH ₃	175 mg/Nm

4.2.3 The concentration of the following parameters in the ambient air within the premises of the industry and a distance of 10meters from the source) other than the stack/vent) shall not exceed the following levels.

PARAMETER	PERMISSIBLE LIMIT
Particulate matter 10	100 Microgram Per cubic meter
PM 25	60 Microgram Per cubic meter
Oxides of Sulphur	80 Microgram Per cubic meter
Oxides of Nitrogen	80 Microgram Per cubic meter
DVIDE OF THE OB	

- 4.2.4 The applicant shall provide portholes, ladder, platform etc at chimney(s) for monitoring the air emissions and the same shall be open for inspection to/and for use of Board's staff. The chimney(s) vents attached to various sources of emission shall be designed by numbers such as S-1, S-2, etc. and these shall be painted/displayed to facilitate identification.
- 4.2.5. The industry shall take adequate measures for control of noise levels from its own sources within the premises so as to maintain ambient air quality standards in respect of noise to less than 75dB(a) during day time and70 dB (A) during night time. Daytime is reckoned in between 6a.m. and10 p.m. and nighttime is reckoned between 10 p.m. and 6 a.m.

GENERAL CONDITIONS: -

- 5.1 Any change in personnel, equipment or working conditions as mentioned in the consents form/order should immediately be intimated to this Board.
- 5.2 If it is established by any competent authority that the damage is caused due to their industrial activities to any person or his property in that case they are obliged to pay the compensation as determined by the competent authority.
- AUTHORISATION FOR THE MANAGEMENT & HANDLING OF HAZARDOUS WASTES Form-2 (See rule 3 (c) & 5 (5))
- 6.1 Number of authorization No: AWH-58577 Date of issue: 25/11/2013
 - 6.1.1. M/s. HINDUSTAN CHEMICALS COMPANY (OLD NAME: CYANIDES & CHEMICALS COMPANY) is hereby granted an authorization to operate facility for following hazardous wastes on the premises situated at. GIDC INDUSTRIAL ESTATE, P.O. OLPAD, OLPAD-394 540 TAL: OLPAD DIST: SURAT

Sr. No.	Waste	Quantity	Schedule-I Process No.	Facility
1	ETP Sludge	14 MT/Year	34.3	Collection, Storage, Transportation and Disposal incineration at CHWT Facility of NECL, Nandesari.
2	Used Oil	800 Lit/Year	5.1	Collection, Storage, Transportation and Disposal by selling to Registered Refiners approved by GPCB/MOEF.
3	Discarded Containers	200 #/Year	33.3	Collection, Storage, Decontamination
4	Activated Carbon	170 Kg/Day	A-10 Sch - II	Collection, Storage, Transportation and Disposal by

				incineration at CHWT Facility of NECL, Nandesari.
5	Ferric Hydroxide	40 Kg/Day	A-10 Sch - II	Collection, Storage, Transportation and Disposal by incineration at CHWT Facility of NECL, Nandesari.
6	Iron Sludge	8 MT/Year	A-10 Sch - II	Collection, Storage, Transportation and Disposal by incineration at CHWT Facility of NECL, Nandesari.
7	Spent Catalyst	What So ever Generated	A-10 Sch - II	Collection, Storage, Transportation and Disposal by incineration at CHWT Facility of NECL, Nandesari.
8	Residues from ETP (MEE) (in place of DPG Lagoon)	330 MT/Year	17.1	Collection, Storage, Transportation and Disposal by incineration at CHWT Facility of NECL, Nandesari.
9	SFCN Lagoon (Contaminated Salt)	700 Kg/Day	A-10 Sch - II	Collection, Storage, Transportation and Disposal by Incineration at CHWT Facility of NECL, Nandesari.
10	SDCN Plant (Contaminated Salt)	500 Kg/Day	A-10 Sch - Ii	Collection, Storage, Transportation and Disposal by incineration at CHWT Facility of NECL, Nandesari.

- 6.1.2 The authorization is granted to operate a facility for collection, storage, within the factory premises transportation and ultimate disposal of Hazardous Waste at incineration at CHWT Facility of NECL, Nandesari.
- 6.1.3 The authorization shall be valid up to. 14/07/2018
- 6.1.4 The authorization is subject to the conditions stated below and such other conditions as may be specified in the rules from time to time under the Environment (Protection) Act-1986 and Haz. Waste (M & H and T M) Rules 2008.

6.1.5 TERMS AND CONDITIONS OF AUTHORIZATION:

- The applicant shall comply with the provisions of the Environment (Protection)
 Act 1986 and the rules made there under.
- b) The authorization shall be produced for inspection at the request of an officer authorized by the Gujarat Pollution Control Board.

- c) The persons authorized shall not rent, lend, sell, transfer of otherwise transport the hazardous wastes without obtaining prior permission of the Gujarat Pollution Control Board.
- d) Any unauthorized change in personnel, equipment or working conditions as mentioned in the authorization order by the persons authorized shall constitute a breach of this authorization.
- e) It is the duty of the authorized person to take prior permission of the Gujarat Pollution Control Board to close down the facility.
- f) An application for the renewal of an authorization shall be made as laid down in rule 5 (6) (ii).
- g) Industry shall have to manage waste oil, discarded containers etc. as per amended rules 2003.
- Industry shall submit annual report within 15 days and subsequently by 31st.
 January every year.
- Industry shall have to display the relevant information with regard to hazardous waste as indicated in the Supreme Court's order in W.P. No.657 of 1995 dated 14th October 2003.
- Industry shall have to display on-line data outside the main factory gate with regard to quantity and nature of hazardous chemicals being handled in the plant, including waste water and air emissions and solid hazardous wastes generated within the factory premises.

For and on behalf of Guiarat Pollution Control Board

> (D.M.THAKER) DEE & UNIT HEAD

NO: GPCB/CCA-SRT-50(7)/ID_20643/ 14 8 74-2

Date: 19/12/2013

Issued to:

M/s. HINDUSTAN CHEMICALS COMPANY

(OLD NAME: CYANIDES & CHEMICALS COMPANY)

GIDC INDUSTRIAL ESTATE,

P.O. OLPAD, OLPAD-394 540

TAL: OLPAD DIST: SURAT

ANNEXURE 9 – CCA Amendment



GUJARAT POLLUTION CONTROL BOARD

PARYAVARAN BHAVAN Sector-10-A, Gandhinagar-382 021. Website: www.gpcb.gov.in

R. P. A. D.

No: GPCB/CCA-SRT-50 (8)/ 1D 20643/

Date- / /2013

CCA-Amendment (A-66818)

Amendment to CONSENTS AND AUTHORISATION Order No: - AWH-58577 Dated: 25/11/2013

(Under the provisions /rules of the aforesaid environmental acts)

To, M/s. Hindusthan Chemiclas Company, Plot No:- GIDC Ind. Estate, P.O.- Olpad:- 394540, Tal:- Olpad, Dist:- Surat.

SUB: Consolidated Consent and Authorization (CC & A) under various provision Environmetal Acts/Rules.

REF.: I) Your application no. 82438 dated 13/06/2014

- 1) Your letter no. Nil received dated 25/07/2012
- This office letter CCA order No: AWH-58577 Dated: 25/11/2013 under various Environmetal Acts/Rules.

In exercise of the power conferred by clause (b) of sub-section (4) of Section 25 of the Water (Prevention & Control of Pollution) Act, 1974 and sub-section (4) of Section 21 of the Air (Prevention & Control of Pollution) Act, 1981 and rule 6 of Hazardous Waste (Management Handling & Trans-boundary Movement) Rules 2008, framed under Environment (Protection) Act, 1986. The Consolidated Consent and Authorization (CC & A) granted vide his office Consent order No: AWH-58577 Dated: 25/11/2013 Valid up to Dated – 14/07/2018 is being subjected to amendment for the following conditions only.

SPECIFIC CONDITIONS:

 Unit shall provide arrangement for acoustic enclosure to keep Noise levels within Norms.

The Conditions under Air Act 1981 shall be read as:

The following shall be used as fuel only in D.G. Set (Stand By).

Sr.No.	Fuel	Total Quantity
1	Diesel	200 Lit/Hr

No: OCA-SRT-50 (8)/113-20643

Clean Gujarat Green Gujarat ISO - 9001 - 2008 & ISO - 14001 - 2004 Certified Organisation

- The applicant shall install & operate a comprehensive adequate air pollution control system in order to achieve prescribed norms.
- The flue gas emission through Proposed D.G. Sets stack shall conform to the following standards;

Stack No.	Stack attached to	Stack height in Meter	Air Pollution Control System	Parameters	Permissible Limit
1.	D.G. Set -1 No. (Stand By) 2250 KVA	20		PM SO ₂ NO ₃	150 mg/NM ³ 100 ppm 50 ppm

- Stack monitoring facilities like port hole, platform/ladder etc., shall be provided with stacks/vents chimney in order to facilitate sampling of gases being emitted into the atmosphere.
- Ambient air quality within the premises of the industry shall conform to the following standards:-

PARAMETERS	PERMISSIBLE LIMIT		
PM 10	100 Microgram/M3		
PM 2.5	60 Microgram/M3		
SO ₂	80 Microgram/M3		
NOx	80 Microgram/M3		

- All measures for the control of environmental pollution shall be provided before commencing production.
- The other conditions of the Consent order No: AWH-58577 Dated: 25/11/2013 Valid up to Dated – 14/07/2018 shall remain unchanged.

For and on behalf of Gujarat Pollution Control Board

> (D. M. Thaker) Environmental Engineer

No: CCA-SRT-50 (8)/ID-20643

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ANNEXURE 10 – License for Ammonia Storage



GOVERNMENT OF INDIA MINISTRY OF COMMERCE & INDUSTRY PETROLEUM AND EXPLOSIVES SAFETY ORGANISATION (PESO) VADODARA SUB CIRCLE OFFICE

Tel:2225159,

Fax:(265)-

Email:dyccebaroda@explosives.gov.in

8th Floor, Yash Kamal Building, Sayajigunj Vadodara -390020

Date :11 Apr,2016

LIC. No. :S/HO/GJ/03/56 (S1147)

(Old No :PV(WC)S-94/GJ)

To.

Mis Hindusthan Chemicals Company ,Prop.M/s Hindusthan Engg. & Ind. Ltd.,

Flot No(s) 26 to28,29C,30,32 to 36,37p, 53p,55to57,122 GIDC lindustrial Estate . Asanabad P O Olpad SURAT--304540.

District : SURAT State : Gujarat .

Sub:- Storage of AMMONIA, gas in pressure vessels at Village 26-37,53p,55-57,122 &143 Surat Ankleshwar State Highway Asanabad GIDC Ind Estate- District : SURAT , State : Gujarat -LIC. No.
S/HO/GJ/03/56 (S1147) Renewal Granted under SMPV(U)Rules,1981

Sir/s,

Reference: Your letter No.NIL. dated: 4/2/2016

Licence Number: S/HO/GJ/03/56 is renewed and is valid upto to 31/3/2017 is forwarded herwith.

The provisions of the Rule 55 of the above said rules shall be followed for further renewal of the licence beyond 31/3/2017. The renewal application along with fees, Original licence and other documents shall reach in the Office of Vadodara Sub Circle Office, Vadodara latest by 2nd March, 2017 positively to avoid late fees.

Please acknowledge the receipt of the licence

RECD.

1 2 APR 2016

Hindusthan Chemicals Company-Olpad

Yours faithfully.

(D. D. V. Dana)

(Dr. P. K. Rana)

Controller of Explosives

for Dy. Chief Controller of Explosives Vadodara Sub Circle Office , Vadodara

(For more information regarding status fees and other details please visit our website http://peso.gov.in)



Form III (See Rules 49 and 50)

Licence to Store Compressed gas in pressure vessel or vessels

Licence Number: S/HO/GJ/03/56 (S1147)

Fee Rs: 10000/-.

Libence is here by granted to M/s. Hindusthan Chemicals Company ,Prop.M/s Hindusthan Engg. & Ind. Ltd.,Plot No(s) 26 to 28,29C,30,32 to 36,37p. 53p,55to 57,122,GIDC lindustrial Estate. As an abad P.O. Olpad SURAT-304540, District: SURAT., State: Gujarat. valid only for the storage of compressed gas in 1 Number/s. of pressure vessel/s as indicated below in the licensed premises described below and shown in the plan No. S/HO/GJ/03/56 dtd 9. June,2009 subject to the provisions of the Indian Explosives Act, 1884 (4 of 1884) and the rules made thereunder and to the further conditions of this licence.

Vessel No.	Name of Gas	Gas- State	Volume in Cubic M	Max Pressure (kg/cm 2 g)	Quantity Granted in kgs (Liquified gases)
V-1004	AMMONIA	Liquified	220	4.35	115786
	Total Water capacity		220		

The licence shall remain in force upto 31st day of March , 2010.

The 20, October 1984.

for Chief Controller of Explosives.

Amendment dated 09/06/2009

DESCRIPTION AND LOCATION OF THE LICENSED PREMISES

The licensed premises, the layout boundaries and other particulars of which are shown in the attached approved plan No S/HO/GJ/03/56 Amendment dated 09/06/2009 are situated at Asanabad GIDC Ind Estate and consists of 1 vessel/s for storage of

a) Flammable/Corrosive/Toxic Gases AMMONIA,

- W EK

b) Non-toxic Gases :

and situated at Plot No. 26-37,53p,55-57,122 &143 Name of Street : Surat - Ankleshwar State High-Village/Town : Asanabad GIDC Ind Estate Police Station : Olpad District : SURAT

Renowed up to 31/03/25/25

14 मुख्य विस्फोटक निर्मेशक, **ब्रोक**

नकीनीकत <u>3</u>1/03/2

ANNEXURE 11 - Ambient Air Sampling & Analysis Methodology, Analysis Report of Ambient Air and Work Place & Month Wise Comparison of Ambient Air Quality

Sr. No.	Particulars	Details
1.	Sampling Procedure	The PM _{2.5} micron dust sampler and RSPM sampler were used for the sampling of PM _{2.5} , PM ₁₀ , SO ₂ & NO _x . Micrometeorological data were also collected by mechanical instruments like wind vane, anemometer, hygrometer & thermometer as per CPCB guideline. Sampling was carried out as per instrument manual & IS 5182 guideline.
2.	Analysis Methodology	
i.	Particulate Matter (PM ₁₀)	For the sampling of PM ₁₀ Envirotech & Yash make Respirable Dust Sampler was used. Pre weighed filter media GFA 8"x10" was used for the collection of PM ₁₀ . Samples were collected on 24 hr basis at a flow rate of 1.0 to 1.3 m ³ /min. Samples were transported to the laboratory after packing as per standard procedure. After receiving the sample, sample conditioning was done before taking final weight. Concentration was measured gravimetrically as per IS 5182 (part XXIII) 2006.
ii.	Particulate Matter (PM _{2.5})	PM _{2.5} micron dust samplers Polltech make and Yash make were used. Filter media used for the collection of PM _{2.5} were PTFE filter paper. Samples were collected for 24 hr at the flow rate of 16.67 lpm. Conditioning was done before taking the initial and final weight of filter paper. Concentration was measured gravimetrically as per the EPA method.
iii.	Sulphur Dioxide (SO ₂)	Sulphur Dioxide was absorbed from air in a solution of Sodium Tetrachloromercurate; which forms a stable Dichloro Sulphitomercurate complex. Sulphur Dioxide is estimated from the colour after the addition of p-rosaniline Hydrochloride indicator and concentration was measured spectrophotometrically as per IS 5182 (Part II) 2001.
iv.	Oxide of Nitrogen (NOx)	Nitrogen oxide as nitrogen dioxide was collected by bubbling air through a sodium hydroxide solution to form a stable solution of sodium nitrate. The nitrate ion produced during sampling was determined calorimetrically by reacting the exposed absorbing reagent with sulphanilamide and N (1-Naphthyl) ethylenediamine dihydrochloride as per IS 5182 (part VI) 2006.







Issue Date: 16/05/2016

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Test Report AMBIENT AIR QUALITY MONITORING REPORT TEST REPORT NO: ERM/ECSS/QF/5.10/02 B/AAQM/HCC/01/05-2016

Name of the Industry ;

Hindusthan Chemicals Company.

Olpad, Dist. Surat

Sample Collected On

10/05/2016 to 11/05/2016

Date of Analysis

11/05/2016 to 12/05/2016

Sample ID No.

ERM/ECSS/2016/05/862, 863, 864, 869, 870

Height from G.L. Dominant Wind Direction 3.5 meter

Avg. Temperature (°C)

SW-NE

31.0

Avg. Humldity (%)

43.0

Avg. Wind Speed (km/hr)

10

Quantity/No. of Sample

5-5 Nos. Filter Paper for PM_{2.5}&PM₁₀, Approx 30 -30ml exposed scrubbing

Media for SO₂, NOx, HCL, HCN and ammonia in 20 No. of plastic bottles.

Packing/Seal

Packed

Protocol (Purpose)

As per Work Order Sample Collected By Mr. Bhavesh Patel

Su.		RESULT					
Sr. No.	LOCATION	PM ₁₀ (μg/m³)	PM _{2.5} (μg/m ³)	SO₂ (μg/m³)	NO _χ (μg/m³)		
1.	HCN Plant (Near C.R.)	84.6	43.4	18.9	23.2		
2.	Near ADM Office	80.4	41.3	16.7	21.7		
3.	Near R&D Lab.	93.0	47.7	22.7	26.1		
4.	Near Security office	83.7	40.0	16.2	19.7		
5.	Nr. Ammonia bullet area	91.1	44.0	20.5	23.0		
	GPCB Limit	100	60	60	80		
	Method	IS 5182 Part 23 2006	As per CPCB	As per CPCB	IS 5182 Part-6 2006		

Note: (1) These results relate to the sample tested only.

(2) The report shall not be reproduced except in full without written approval of the laboratory.

Regd. Off.: Office Floor, Ashoka Pavillion-A, Opp. Kapadia Health Club, New Civil Road, SURAT-395 001. Telefax: 91-261-2231630-2236223-6569151-6545050 e-mail: eco@ecoshripad.com Website: www.ecosystemindla.com



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Page 2 of 2

Sr,		Result					
No.	LOCATION	HCl (μg/m³)	HCN (µg/m³)	NH ₃ (μg/m³)	VOC (ppm)		
1.	HCN Plant (Near C.R.)	BDL	BDL	4.0	BDL		
2.	Near ADM Office	BDL	BDL	3.6	BDL		
3.	Near R&D Lab.	8DL	BDL	3.9	BDL		
4.	Near Security office	BDL	BDL	3.3	BDL		
5.	Nr. Ammonia bullet area	BDL	BDL	5.5	BDL		
	GPCB Limit						
	Method	Agentometric Titartion	Coloromate-T (Pyridine barbicuric acid)	CPCB Gludeline Nessler Method	GC Method		

Note: (1) These results relate to the sample tested only.

(2) The report shall not be reproduced except in full without written approval of the laboratory.

N .

CHEMIST

AUTHORIZED SIGNATORY (Sunilkumar Pandey)

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Telefax: 91-261-2231630-2236223-6569151-6545050 e-mall: eco@ecoshripad.com Website: www.ecosystemindfa.com

CIN No.: U72200GJ2000PTC038265

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Issue Date: 02 /06/2016

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Test Report

AMBIENT AIR QUALITY MONITORING REPORT TEST REPORT NO: ERM/ECSS/QF/5.10/02 B/AAQM/HCC/01/04-2016

Name of the Industry

Hindusthan Chemicals Company.

Olpad, Dist. Surat

Sample Collected On

27/05/2016 to 30/05/2016

Date of Analysis

30/05/2016 to 31/05/2016

Sample 1D No.

ERM/ECSS/2016/05/968, 969, 970, 971, 972

Height from G.L.

3.5 meter

Dominant Wind Direction

Avg. Temperature (°C)

SW-NE

30.0

Avg. Humidity (%)

63

Avg. Wind Speed (km/hr)

05

Quantity/No. of Sample

⋞

5-5 Nos. Filter Paper for PM_{2.5}&PM₁₀, Approx 30 -30ml exposed scrubbing

Media for SO₂, NOx, HCL, HCN and ammonia in 20 No. of plastic bottles.

Packing/Seal

Packed

Protocol (Purpose)

As per Work Order

Sample Collected By

Mr. Bhavesh Patel

C.,	3 16	RESULT					
Sr. No.	LOCATION	PM ₁₀ (μg/m³)	PM _{2.5} (μg/m³)	SO ₂ (μg/m³) 18.3 16.6	NO _x (µg/m³)		
1.	HCN Plant (Near C.R.)	78.0	44.0	18.3	22.6		
2.	Near ADM Office	68.2	39.7	16.6	20.7		
3.	Near R&D Lab.	84.7	48.2	22.7	26.1		
4.	Near Security office	66.0	38.0	14.0	17.0		
5.	Nr. Ammonia bullet area	82.3	45.1	20.4	24.1		
	GPCB Limit	100	60	60	80		
	Method	IS 5182 Part 23 2006	As per CPCB	As per CPCB	IS 5182 Part-6 2006		

Note: (1) These results relate to the sample tested only.

(2) The report shall not be reproduced except in full without written approval of the laboratory.

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Sr.		Result					
No.	LOCATION	HCl (μg/m³)	HCN (µg/m³)	NH₃ (μg/m³)	VOC (ppm)		
1.	HCN Plant (Near C.R.)	BDL	BDL	2,6	BDL		
2.	Near ADM Office	BDL	BDL	2.1	BDL		
3.	Near R&D Lab.	BDL	BDL	3.9	BDL		
4,	Near Security office	BDL	BDL	2.8	BDL		
5.	Nr. Ammonia bullet area	BDL	BDL	3.5	BDL		
'	GPCB Limit			21			
	Method	Agentomeţr ic Titartion	Coloromate- T (Pyridine barbicuric acid)	CPCB Gludeline Nessler Method	GC Method		

Note: (1) These results relate to the sample tested only.

(2) The report shall not be reproduced except in full without written approval of the laboratory.

CHEMIST

AUTHORIZED SIGNATORY (Sunilkumar Pandey)









Issue Date: 16/06/2016

Page 1 of 2

Test Report AMBIENT AIR QUALITY MONITORING REPORT TEST REPORT NO: ERM/ECSS/QF/5.10/02 B/AAQM/HCC/01/06-2016

Name of the Industry Hindusthan Chemicals Company. :

Olpad, Dist. Surat

Sample Collected On 10/06/2016 to 13/06/2016 Date of Analysis 13/06/2016 to 14/06/2016

Sample ID No. ERM/ECSS/2016/06/1064, 1065, 1066, 1067, 1070

Height from G.L. 3.5 meter **Dominant Wind Direction** SW-NE 32°C Avg. Temperature Avg. Humidity 70 %

Avg. Wind Speed 10 km/hour

Quantity/No. of Sample 5-5 Nos. Filter Paper for PM_{2,5}&PM₁₀, Approx 30 -30ml exposed scrubbing

Media for SO₂, NOx, HCL, HCN and ammonia in 20 No. of plastic bottles.

Packing/Seal Packed

Protocol (Purpose) As per Work Order Sample Collected By Mr. Bhavesh Patel

	LOCATION		RESULT				
Sr. No.		PM ₁₀ (μg/m³)	PM _{2.5} (μg/m ³)	SO ₂ (μg/m³)	NO _x (μg/m³)		
1.	HCN Plant (Near C.R.)	94.9	45.4	20.1	26.4		
2.	Near ADM Office	92.4	43.2	18.9	25.1		
3.	Near R&D Lab.	92.7	46.3	24.0	29.0		
4.	Near Security office	93.3	41.1	19.0	21.8		
5,	Nr. Ammonia bullet area	95.4	42.3	22.8	25.3		
	GPCB Limit	100	60	60	80		
	Method	IS 5182 Part 23 2006	As per CPCB	As per CPCB	IS 5182 Part-6 2006		

Note: (1) These results relate to the sample tested only.

(2) The report shall not be reproduced except in full without written approval of the laboratory.

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		Result				
Sr. No,	LOCATION	HCl (μg/m³)	HCN (µg/m³)	NH ₃ (μg/m ³)	VOC (ppm) (BTX)	
1.	HCN Plant (Near C.R.)	BDL	BDL	4.7	BDL	
2.	Near ADM Office	BDL	BDL	4.2	BDL	
3.	Near R&D Lab.	BDL	BDL	4.6	BDL	
4.	Near Security office	BDL	BDL	3.8	BDL	
5.	Nr. Ammonia bullet area	8DL	BDL	5.4	8DL	
	GPCB Limit					
	Method	Agentometric Titartion	Coloromate-T (Pyridine barbicuric acid)	CPCB Gludeline Nessler Method	GC Method	

Note: (1) These results relate to the sample tested only.

(2) The report shall not be reproduced except in full without written approval of the laboratory.

CHEMIST

AUTHORIZED SIGNATORY (Sunlikumar Pandey)

Regd. Off.: Office Floor, Ashoka Pavillion-A, Opp. Kapadia Health Club, New Civil Road, SURAT-395 001. Telefax: 91-261-2231630-2236223-6569151-6545050 e-mail: eco@ecoshripad.com Website: www.ecosystemindia.com CIN No.: U72200GJ2000PTC038265







Issue Date: 30 /06/2016

Page 1 of 2

Test Report

AMBIENT AIR QUALITY MONITORING REPORT TEST REPORT NO: ERM/ECSS/QF/5.10/02 B/AAQM/HCC/01/06-2016

Name of the Industry : Hindusthan Chemicals Company.

Olpad, Dist. Surat

Sample Collected On : 26/06/2016 to 29/06/2016

Date of Analysis : 29/06/2016

Sample ID No. : ERM/ECSS/2016/06/1161, 1162, 1163, 1164, 1165

Height from G.L. : 3.5 meter

Dominant Wind Direction : SW-NE

Avg. Temperature : 28.0°C

Avg. Temperature : 28.0 Avg. Humldity : 72%

Avg. Wind Speed : 04km/ hour

Quantity/No. of Sample : 5-5 Nos. Filter Paper for PM_{2.5}&PM₁₀, Approx 30 -30ml exposed scrubbing

■ Media for SO₂, NOx, HCL, HCN and ammonia in 20 No. of plastic bottles.

Packing/Seal : Packed

Protocol (Purpose) : As per Work Order Sample Collected By : Mr. Bhavesh Patel

		RESULT					
Sr. No.	LOCATION	PM ₁₀ (μg/m³)	PM _{2.5} (μg/m³)	SO ₂ (μg/m³)	NO _χ (μg/m³)		
1.	HCN Plant (Near C.R.)	75.2	41.3	16.8	21.0		
2.	Near ADM Office	72.5	40.0	14.4	19.4		
3.	Near R&D Lab.	88.1	46.2	21.5	25.0		
4.	Near Security office	71.4	38.4	13.8	18.9		
5.	Nr. Ammonia bullet area	79.0	42.8	19.7	22.7		
	GPCB Limit	100	60	60	80		
	Method	IS 5182 Part 23 2006	As per CPCB	As per CPCB	IS 5182 Part-6 2006		

Note: (1) These results relate to the sample tested only.

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Sr.		Result					
No.	LOCATION	HCl (μg/m³)	HCN (μg/m³)	NH ₃ (μg/m³)	VOC (ppm)		
1.	HCN Plant (Near C.R.)	BDL	BDL	2.9	BDL		
2.	Near ADM Office	BDL	BDL	2.5	BDL		
3.	Near R&D Lab.	BDL	BDL	3.5	BDL		
4.	Near Security office	BDL	BDL	2.2	BDL		
5.	Nr. Ammonia bullet area	BDL	BDL	3.9	BDL		
	GPCB Limit						
(Method	Agentometric Titartion	Coloromate-T (Pyridine barbicuric acid)	CPCB Giudeline Nessler Method	GC Method		

Note: (1) These results relate to the sample tested only.

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(Sunilkumar Pandey)







Issue Date: 12/07/2016

Page 1 of 2

Test Report AMBIENT AIR QUALITY MONITORING REPORT TEST REPORT NO: ERM/ECSS/QF/5.10/02 B/AAQM/HCC/01/07-2016

Name of the Industry : Hindusthan Chemicals Company.

Olpad, Dist. Surat

Sample Collected On : 06/07/2016 to 07/07/2016

Date of Analysis : 07/07/2016 to 08/07/2016

Sample ID No. : ERM/ECSS/2016/07/1201, 1202, 1203, 1207, 1208

Helght from G.L. : 3.5 meter
Dominant Wind Direction : SW-NE
Avg. Temperature : 32°C
Avg. Humidity : 74.5 %

Avg. Wind Speed : 08 km/ hour

Quantity/No. of Sample : 5-5 Nos. Filter Paper for PM_{2,5}&PM₁₀, Approx 30 -30ml exposed scrubbing

Media for SO₂, NOx, HCL, HCN and ammonia in 20 No. of plastic bottles.

Packing/Seal : Packed

◆Protocol (Purpose) : As per Work Order
Sample Collected By : Mr. Bhavesh Patel

		RESULT					
Sr. No.	LOCATION	PM ₁₀ (μg/m³)	PM _{2.5} (μg/m ³)	SO ₂ (μg/m³)	NO _x (μg/m³)		
1.	HCN Plant (Near C.R.)	78.7	39.5	18.6	24.3		
2.	Near ADM Office	80.1	37.5	17.0	22.6		
3.	Near R&D Lab.	81.7	40.4	22.1	25.0		
4.	Near Security office	75.8	38.7	18.3	21.0		
5.	Nr. Ammonia bullet area	76.9	39.3	20.2	23.8		
	GPCB Limit	100	60	60	80		
	Method	IS 5182 Part 23 2006	As per CPCB	As per CPCB	IS 5182 Part-6 2006		

Note: (1) These results relate to the sample tested only.

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Page 2 of 2

			Result				
Sr. No.	LOCATION	HCl (µg/m³)	HCN (μg/m³)	NH ₃ (μg/m ³)	VOC (ppm) (BTX)		
1.	HCN Plant (Near C.R.)	BDL	BDL	4.3	BDL		
2.	Near ADM Office	BDL	BDŁ	3.8	BDL		
3.	Near R&D Lab.	BDL	BDL	4.3	BDL		
4.	Near Security office	BDL	BDL	3.4	BDL. ·		
5.	Nr. Ammonia bullet area	BDL	BDL	5.1	BDL		
	GPCB Limit	-					
	Method	Agentometric Titartion	Coloromate-T (Pyridine barbicuric acid)	CPCB Gludeline Nessler Method	GC Method		

Note: (1) These results relate to the sample tested only.

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Issue Date: 29/07/2016

Page 1 of 2

Test Report

AMBIENT AIR QUALITY MONITORING REPORT TEST REPORT NO: ERM/ECSS/QF/5.10/02 B/AAQM/HCC/01/07-2016

Name of the Industry : Hindusthan Chemicals Company.

Olpad, Dist. Surat

Sample Collected On : 25/07/2016 to 26/07/2016 Date of Analysis : 26/07/2016 to 27/07/2016

Sample ID No. : ERM/ECSS/2016/07/1330, 1331, 1332, 1333, 1334

Height from G.L. : 3.5 meter

Dominant Wind Direction : 5W-NE

Avg. Temperature : 02°C

Avg. Temperature : 02°C Avg. Humidity : 77%

Avg. Wind Speed : 06 km/ hour

Quantity/No. of Sample : 5-5 Nos. Filter Paper for PM_{2.5}&PM₁₀, Approx 30 -30ml exposed scrubbing

Media for SO₂, NOx, HCL, HCN and ammonia in 20 No. of plastic bottles.

Packing/Seal : Packed

		RESULT					
Sr. No.	LOCATION	PM ₁₀ (μg/m³)	PM _{2.5} (μg/m ³)	SO ₂ (μg/m³)	NO _x (μg/m³)		
1.	HCN Plant (Near C.R.)	56.8	22.9	16.2	21,2		
2.	Near ADM Office	60.4	21.9	15.9	19.5		
3.	Near R&D Lab.	62.0	24.0	17.4	21.7		
4.	Near Security office	53.6	22.9	16.0	19.5		
5.	Nr. Ammonia bullet area	55.8	22.1	17.8	20.9		
<u>'</u>	GPCB Limit	100	60	60	80		
	Method	IS 5182 Part 23 2006	As per CPCB	As per CPCB	IS 5182 Part-6 2006		

Note: (1) These results relate to the sample tested only.

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_		Result					
Sr. No.	LOCATION	HCl (µg/m³)	HCN (µg/m³)	NH₃ (μg/m³)	VOC (BTX) (ppm)		
1.	HCN Plant (Near C.R.)	BDL	BDL	3.3	8DL		
2.	Near ADM Office	BDL	BDL	3.8	BDL		
3.	Near R&D Lab.	BDL	BDL	3.3	BDL		
4.	Near Security office	BDL	BDL	2.9	BDL		
5.	Nr. Ammonia bullet area	BDL	BDL	3.8	BDL		
	GPCB Limit						
	Method	AgentometricTi tartion	Coloromate-T (Pyridine barbicuric acid)	CPCB Gludeline Nessler Method	GC Method		

Note: (1) These results relate to the sample tested only.

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Issue Date: 12/08/2016

Page 1 of 2

Test Report

AMBIENT AIR QUALITY MONITORING REPORT TEST REPORT NO: ERM/ECSS/QF/5.10/02 B/AAQM/HCC/01/08-2016

Name of the Industry : Hindusthan Chemicals Company.

Olpad, Dist. Surat

Sample Collected On : 05/08/2016 to 06/08/2016 Date of Analysis : 06/08/2016 to 08/08/2016

Sample ID No. : ERM/ECSS/2016/08/1378, 1379, 1383, 1384

Height from G.L. : 3.5 meter Dominant Wind Direction : SW-NE

Avg. Temperature (°C) : 28
Avg. Humidity (%) : 83
Avg. Wind Speed (Km/hr) : 06

Quantity/No. of Sample : 5-5 Nos. Filter Paper for PM_{2.5}&PM₁₀, Approx 30 -30ml exposed scrubbing

Media for SO₂, NOx, HCL, HCN and ammonia in 20 No. of plastic bottles.

Packing/Seal : Packed

✓Protocol (Purpose) : As per Work Order
Sample Collected By : Mr. Bhavesh Patel

		RESULT					
Sr. No.	LOCATION	PM ₁₀ (μg/m³)	PM _{2.5} (μg/m³)	SO ₂ (μg/m³)	NO _X (μg/m³)		
1.	HCN Plant (Near C.R.)	45.8	20.7	14.3	18.1		
2.	Near ADM Office	48.6	19.2	14.0	17.0		
3.	Near R&D Lab.	50.4	21.5	15.2	19.3		
4.	Near Security office	42.1	20.9	13.1	16.3		
5.	Nr. Ammonia bullet area	45.3	19.2	14.0	18.2		
	GPCB Limit	100	60	60	80		
	Method	IS 5182 Part 23 2006	As per CPCB	As per CPCB	IS 5182 Part-6 2006		

Note: (1) These results relate to the sample tested only.

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Page 2 of 2

		Result				
Sr. No.	LOCATION	HCI (μg/m³)	HCN (μg/m³)	NH ₃ (μg/m³)	VOC (ppm) (BTX)	
1.	HCN Plant (Near C.R.)	. BDL	8DL	2.8	8DL	
2.	Near ADM Office	BDL	BDL	3.3	BDL	
3.	Near R&D Lab.	BDL	BDL	3.3	BDL	
4.	Near Security office	BDL	BDL	2.4	BDL	
5.	Nr. Ammonia bullet area	BDL	BDL	3.3	BDL	
	GPCB Limit					
	Method	AgentometricTi tartion	Coloromate-T (Pyridine barbicuric acid)	CPCB Giudeline Nessler Method	GC Method	

Note: (1) These results relate to the sample tested only.

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Issue Date: 31/08/2016

Page 1 of 2

Test Report AMBIENT AIR QUALITY MONITORING REPORT TEST REPORT NO: ERM/ECSS/QF/5.10/02 B/AAQM/HCC/01/08-2016

Name of the Industry Hindusthan Chemicals Company.

Olpad, Dist. Surat

Sample Collected On 26/08/2016 to 27/08/2016 Date of Analysis 29/08/2016 to 30/08/2016

Sample ID No. ERM/ECSS/2016/08/1501, 1502, 1503, 1504, 1505

Height from G.L. 3.5 meter **Dominant Wind Direction** SW-NE Avg. Temperature (°C) 28 Avg. Humidity (%) 83

Avg. Wind Speed (Km/hr) 05

Quantity/No. of Sample 5-5 Nos. Filter Paper for PM_{2.5}&PM₁₀, Approx 30 -30ml exposed scrubbing

Media for SO₂, NOx, HCL, HCN and ammonia in 20 No. of plastic bottles.

1

Packing/Seal Packed

Protocol (Purpose) As per Work Order Sample CollectedBy Mr. Bhavesh Patel

Sr. No.	LOCATION	RESULT				
		PM ₁₀ (μg/m ³)	PM _{2.5} (μg/m³)	SO ₂ (µg/m³)	NO _x (μg/m³)	
1.	HCN Plant (Near C.R.)	51.8	30.7	13.8	17.2	
2.	Near ADM Office	45.0	26.1	11.0	15.9	
3.	Near R&D Lab.	53.8	31.4	15.4	18.6	
4.	Near Security office	49.0	28.2	12.4	16.3	
5.	Nr. Ammonia bullet area	58.1	33.4	16.7	21.1	
GPCB Limit		100	60	60	80	
Method		IS 5182 Part 23 2006	As per CPCB	As per CPCB	IS 5182 Part-6 2006	

Note: (1) These results relate to the sample tested only.

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Sr. No.	LOCATION	Result					
		HCl (μg/m³)	HCN (µg/m³)	NH ₃ (μg/m ³)	VOC (ppm) (BTX)		
1.	HCN Plant (Near C.R.)	BDL	BDL	3.0	8DL		
2.	Near ADM Office	BDL	BDL	2.1	BDL		
3.	Near R&D Lab.	BDL	BDL	3.4	8DL		
4.	Near Security office	BDL	BDL	2.6	BDL		
5.	Nr. Ammonia bullet area	BDL	BDL	3.8	BDL		
	GPCB Limit						
	Method	AgentometricTi tartion	Coloromate-T (Pyridine barbicuric acid)	CPCB Giudeline Nessler Method	GC Method		

Note: (1) These results relate to the sample tested only.

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Issue Date: 14/09/2016

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TEST REPORT

AMBIENT AIR QUALITY MONITORING REPORT

TEST REPORT NO; ERM/ECSS/QF/5.10/02 B/AAQM/HCC/01/09-2016

Name of the Industry : Hindusthan Chemicals Company.

Olpad, Dist. Surat

Sample Collected On : 08/09/2016 to 09/09/2016 Date of Analysis : 10/09/2016 to 11/09/2016

Sample ID No. : ERM/ECSS/2016/09/1564, 1565, 1566, 1569, 1570

Height from G.L. : 3.5 meter

Dominant Wind Direction : SW-NE

Avg. Temperature (°C) : 32

Avg. Humidity (%) : 67

Avg. Wind Speed (Km/hr) : 06

Quantity/No. of Sample : 5-5 Nos. Filter Paper for PM_{2.5}&PM₁₀, Approx 30 -30ml exposed scrubbing

Media for SO₂, NOx, HCL, HCN and ammonia in 20 No. of plastic bottles.

Packing/Seal : Packed

Protocol (Purpose) : As per Work Order Sample Collected By : Mr. Bhavesh Patel

Sr. No.	LOCATION	RESULT				
		PM ₁₀ (μg/m³)	PM _{2.5} (μg/m³)	SO _z (µg/m³)	NO _χ (μg/m³)	
1.	HCN Plant (Near C.R.)	41.8	19.6	13.1	16.7	
2.	Near ADM Office	44.1	18.2	12.5	16.0	
3.	Near R&D Lab.	47.5	20.1	14.0	17.3	
4.	Near Security office	39.7	18.8	12.0	15.2	
5.	Nr. Ammonia bullet area	43.0	18.3	12.8	16.8	
GPCB Limit		100	60	80	80	
Method		I\$ 5182 Part 23 2006	As per CPCB	IS 5182 Part II 2001	IS 5182 Part- 2006	

Note: (1) These results relate to the sample tested only.

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			Resul	t	
Sr. No.	LOCATION	HCI (µg/m³)	HCN (μg/m³)	NH ₃ (μg/m ³)	VOC (ppm) (BTX)
1.	HCN Plant (Near C.R.)	BDL	BDL	2.4	BDL
2.	Near ADM Office	BDL	BDL	2.9	BDL
3.	Near R&D Lab.	8DL	BDL	3.3	BDL
4.	Near Security office	BDL	BDL	2.9	BDL
5.	Nr. Ammonia bullet area	BDL	BDL	3.8	BDL
	GPCB Limit				
	Method	Agentometric Titartion	Coloromate-T (Pyridine barbicuric acld)	CPCB Giudeline Nessler Method	GC Method

Remark: The parameters HCl, HCN, NH3, VOC are not incorporate in consent order. Therefore, Standard limit is not given. Note: (1) These results relate to the sample tested only.

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Issue Date: 02/10/2016

Page 1 of 2

TEST REPORT AMBIENT AIR QUALITY MONITORING REPORT TEST REPORT NO: ERM/ECSS/QF/5.10/02 B/AAQM/HCC/01/09-2016

Name of the Industry : Hindusthan Chemicals Company.

Olpad, Dist. Surat

Sample Collected On : 28/09/2016 to 29/09/2016 Date of Analysis : 29/09/2016 to 30/09/2016

Sample ID No. : ERM/ECSS/2016/09/1675, 1676, 1677, 1678, 1678A

Height from G.L. : 3.5 meter

Dominant Wind Direction : SW-NE

Avg. Temperature (°C) : 28

 Avg. Temperature (*C)
 : 28

 Avg. Humidity (%)
 : 76

 Avg. Wind Speed (Km/hr)
 : 05

Quantity/No. of Sample : 5-5 Nos. Filter Paper for PM_{2.5}&PM₁₀, Approx 30 -30ml exposed scrubbing

Media for SO₂, NOx, HCL, HCN and ammonia in 20 No. of plastic bottles.

Packing/Seal : Packed

Protocol (Purpose) : As per Work Order ≪ample CollectedBy : Mr. Bhavesh Patel

Sr. No.	LOCATION	PM ₁₀ (μg/m³)	PM _{2.5} (μg/m³)	SO ₂ (μg/m³)	NO _x (μg/m³)
1.	HCN Plant (Near C.R.)	42.6	20.7	12.5	17.0
2.	Near ADM Office	40.0	19.3	12.2	15.6
3.	Near R&D Lab.	44.5	22.9	14.6	18.5
4.	Near Security office	40.7	20.1	11.7	15.0
5.	Nr. Ammonia bullet area	41.3	18.5	13.1	18.0
	GPCB Limit	100	60	80	80
Method		IS 5182 Part 23 2006	As per CPCB	IS 5182 Part II 2001	IS 5182 Part-6 2006

Note: (1) These results relate to the sample tested only.

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"			Resul	t	
Sr. No.	LOCATION	HCl (μg/m³)	HCN (µg/m³)	NH₃ (μg/m³)	VOC (BTX) (ppm)
1.	HCN Plant (Near C.R.)	BDL	BOL	2.6	BDL
2.	Near ADM Office	BDL	BDL	2.6	BDL
3.	Near R&D Lab.	BDL	BDL	3.0	BDL
4.	Near Security office	BDL	8DL	2.6	BDL
5.	Nr. Ammonia bullet area	BDL	BDL	3.6	8DL
GPCB Limit		_	·		
	Method	Agentometric Titartion	Coloromate-T (Pyridine barbicuric acid)	CPCB Giudeline Nessler Method	GC Method

Remark: The parameters HCI, HCN, NH3, VOC are not incorporate in consent order. Therefore, Standard limit is not given.

Note: (1) These results relate to the sample tested only.

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Issue Date: 22/10/2016

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TEST REPORT

AMBIENT AIR QUALITY MONITORING REPORT

TEST REPORT NO: ERM/ECSS/QF/5.10/02 B/AAQM/HCC/01/10-2016

Name of the Industry : Hindusthan Chemicals Company.

Olpad, Dist. Surat

Sample Collected On : 14/10/2016 to 15/10/2016 Date of Analysis : 17/10/2016 to 18/10/2016

Sample ID No. : ERM/ECSS/2016/10/1709, 1710, 1711, 1714, 1715

Height from G.L. : 3.5 meter

Dominant Wind Direction : SW-NE

 Avg. Temperature (°C)
 :
 28

 Avg. Humidity (%)
 :
 71

 Avg. Wind Speed (Km/hr)
 :
 02

Quantity/No. of Sample : 5-5 Nos. Filter Paper for PM_{2.5}&PM₁₀, Approx 30 -30ml exposed scrubbing

Media for SO₂, NOx, HCL, HCN and ammonia in 20 No. of plastic bottles.

Packing/Seal : Packed

Protocol (Purpose) : As per Work Order Sample Collected By : Mr. Bhavesh Patel

			RESUL	Τ	
Sr. No.	LOCATION	PM ₁₀ (μg/m³)	PM _{2.5} (μg/m³)	SO₂ (μg/m³)	NO _χ (μg/m³)
1.	HCN Plant (Near C.R.)	50.8	24.2	13.2	17.8
2.	Near ADM Office	46.9	22.8	13.8	16.5
3.	Near R&D Lab.	51.0	26.8	14.0	18.2
4.	Near Security office	47.1	23.2	12.4	16.0
5.	Nr. Ammonia bullet area	49.0	23.0	12.8	18.6
	GP68-Limit-	100	-60-	80-	80
	Method	IS 5182 Part 23 2006	As per CPCB	IS 5182 Part II 2001	IS 5182 Part-6 2006

Note: (1) These results relate to the sample tested only.

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CIN No.: U72200GJ2000PTC038265









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	1		Resul	t	
Sr. No.	LOCATION	HCl (μg/m³)	HCN (μg/m³)	NH ₃ (μg/m ³)	VOC (ppm) (BTX)
1.	HCN Plant (Near C.R.)	BDL	BDL	2.9	BDL
2.	Near ADM Office	BDL	BDL	2.4	BDL
3.	Near R&D Lab.	8DL	BDL	3.3	BDL
4.	Near Security office	BDL	BOL	3.0	BDL
5.	Nr. Ammonia bullet area	BDL	BDL	3.4	BDL
	GPCB Limit				
	Method	Agentometric Titartion	Coloromate-T (Pyridine barbicuric acid)	CPCB Gludeline Nessler Method	GC Method

Remark: The parameters HCl, HCN, NH3, VOC are not incorporate in consent order. Therefore, Standard limit is not given.

Note: (1) These results relate to the sample tested only.

(2) The report shall not be reproduced except in full without written approval of the laboratory.

CHEMIST

AUTHORIZED SIGNATORY (Sunilkumar Pandey)

Regd. Off.: Office Floor, Ashoka Pavillion-A, Opp. Kapadia Health Club, New Civil Road, SURAT-395 001.

Telefax: 91-261-2231630-2236223-6569151-6545050 e-mail: eco@ecoshripad.com Website: www.ecosystemindia.com

CIN No.: U72200GJ2000PTC038265









Issue Date: 29/10/2016

Page 1 of 2

TEST REPORT

AMBIENT AIR QUALITY MONITORING REPORT TEST REPORT NO: ERM/ECSS/QF/5.10/02 B/AAQM/HCC/01/10-2016

Name of the Industry : Hindusthan Chemicals Company.

Olpad, Dist. Surat

Sample Collected On : 26/10/2016 to 27/10/2016

Date of Analysis : 27/10/2016 to 28/10/2016

Sample ID No. : ERM/ECSS/2016/10/1836, 1837, 1838, 1839, 1840

Height from G.L. : 3.5 m.

Dominant Wind Direction : SW-NE

Avg. Temperature (°C) : 27

Avg. Humidity (%) : 56

Avg. Wind Speed (km/h) : 01

Quantity/No. of Sample : 5-5 Nos. Filter Paper for PM_{2,5} & PM₁₀ Approx 30 -30 ml exposed scrubbing

Media for SO₂, NOx, HCl, HCN and Ammonia in 20 No. of plastic bottles.

Packing/Seal : Packed

Protocol (Purpose) : As per Work Order **Eample CollectedBy : Mr. Bhavesh Patel

Sr. No.	LOCATION	PM ₁₀ (μg/m³)	PM _{z.5} (μg/m³)	SO ₂ (μg/m³)	NO _x (μg/m³)
1.	HCN Plant (Near C.R.)	52.6	30.1	12.7	16.6
2.	Near ADM Office	50.3	29.4	11.3	15.0
3.	Near R&D Lab.	57.1	32.5	13.5	17.9
4.	Near Security office	54.4	31.1	14.0	18.2
5.	Nr. Ammonia bullet area	61.1	33.9	16.5	20.0
GPCB Limit		100	60	80	80
	Method	IS 5182 Part 23 2006	As per CPCB	IS 5182 Part II 2001	IS 5182 Part-6 2006

Note: (1) These results relate to the sample tested only.

(2) The report shall not be reproduced except in full without written approval of the laboratory.

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CIN No.: U72200GJ2000PTC038265









Page 2 of 2

			Resul	t	
Sr. No.	LOCATION	HCl (µg/m³)	HCN (µg/m³)	NH₃ (µg/m³)	VOC (BTX) (ppm)
1.	HCN Plant (Near C.R.)	BDL	BDL	2.5	BDL
2.	Near ADM Office	BDL	BDL	2.2	8DL
3.	Near R&D Lab.	BDL	BOL	3.1	BDL
4.	Near Security office	BDL	BDL	2.8	BDL
5.	Nr. Ammonia bullet area	BDL	BDL	3.4	BDL
GPCB Limit					
Method		Agentometric Titartion	Coloromate-T (Pyridine barbicuric acid)	CPCB Gludeline Nessier Method	GC Method

Remark: The parameters HCl, HCN, NH3, VOC are not incorporate in consent order. Therefore, Standard limit is not given.

Note: (1) These results relate to the sample tested only.

(2) The report shall not be reproduced except in full without written approval of the laboratory.

CHEMIST

AUTHORIZED SIGNATORY (Sunilkumar Pandey)



Issue Date: 16/06/2016

Test Report

WORK PLACE AIR QUALITY MONITORING REPORT

TEST REPORT NO: ERM/ECSS/QF/5.10/02 B/work place/HCC/01/06/2016

Name of the Industry Hindusthan Chemicals Company.

Olpad, Dist. Surat

Sample Collected On

Date of Analysis

10/06/2016

Quantity/No. of Sample

13/06/2016 to 14/06/2016

Approx 30-30ml exposed scrubbing media for HCl,HCN & NH₃

in plastic Bottles.

Packing/Seal

Packed

Protocol (Purpose)

As per Work Order

Sample ID

ERM/ECSS/2016/06/ 1071, 1072, 1073

Sample Collected By

Mr. Bhavesh Patel

			Loc	cations for Godo	Permissible limits for	
Sr. No.	Parameter	Unit	NACN-1	DPG -1	MDN	work place (Factories Act, 1948) for 8 hrs exposure
1.	HCl	μg/m³	<3.6	<3.6	<3.6	7000
2.	HCN	μg/m³	0.6	<0.4	<0.4	10000
3.	NH₃	μg/m³	3.6	3.0	5.4	18000
4.	voc	ppm	N.D.	0.5	0.3	NA
5.	Moisture	g/m³	30.2	33.0	35.1	NA
6.	Ventilation Rate	m³/Sec	6.1	3.2	3.6	NA

Note: VOC has been measured as a reference of Isobutylene and detection limit of instrument is 0.1 ppm.

CHEMIST

AUTHORIZED SIGNATORY (Sunilkumar Pandey)



Issue Date: 16/09/2016

TEST REPORT

WORK PLACE AIR QUALITY MONITORING REPORT TEST REPORT NO: ERM/ECSS/QF/5.10/02 B/work place/HCC/01/09/2016

Name of the Industry : Hindusthan Chemicals Company.

Olpad, Dist. Surat

Sample Collected On

09/09/2016

Date of Analysis

10/09/2016 to 12/09/2016

Quantity/No. of Sample

Approx 30-30ml exposed scrubbing media for HCl, HCN & NH₃

in plastic Bottles.

Packing/Seal

Packed

Protocol (Purpose)

As per Work Order

Sample ID

ERM/ECSS/2016/09/ 1571, 1572, 1573

Sample Collected By : Mr. Bhavesh Patel

Sr.	_		Locations for Godown			Permissible limits for work
No.	Darameter	Unit	NACN-1	DPG -1	MDN	place (Factories Act, 1948) for 8 hrs exposure
1.	HCI	μg/m³	<3.6	<3.6	<3.6	7000
2.	HCN	μg/m³	0 .5	<0.4	<0.4	10000
3.	NH ₃	μg/m³	3.0	3.0	4.8	18000
4.	VOC	ppm	N.D.	0.4	0.3	NA NA
5.	Moisture	g/m³	35.7	34.9	36.0	NA
6.	Ventilation Rate	m³/Sec	5.8	3.5	3.4	NA

Note: VOC has been measured as a reference of Isobutylene and detection limit of instrument is 0.1 ppm.

0

CHEMIST

AUTHORIZED SIGNATORY (Sunlikumar Pandey)

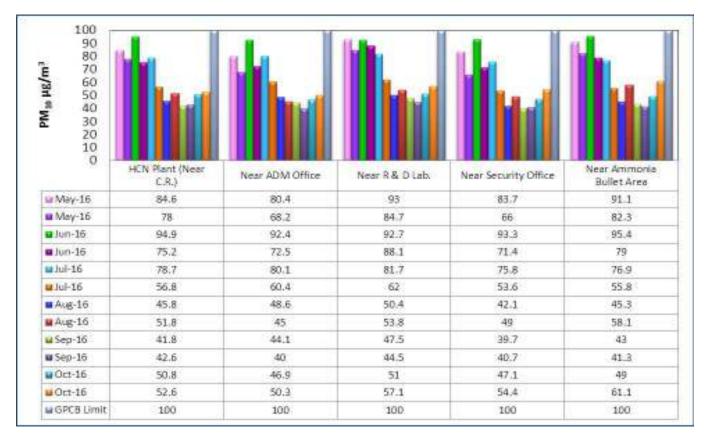
Monthly Variation in Ambient Air Quality for the period of May 2016 to October 2016

1. Comparative Analysis & Graphical Presentation of PM_{2.5}

70 60 50 40 30 20 10	1			The state of	ll
0	HCN Plant (Near C.R.)	Near ADM Office	Near R.& D Lab.	Near Security Office	Near Ammonia Bullet Area
ш Mey-16	43,4	41,3	47.7	40	44
■ May-16	44	39.7	48.2	38	45.1
ulun-16	45.4	43.2	46.3	41.1	42.3
■ Jun-16	41,3	40	46.2	38.4	42.8
■Jul-16	39.5	37.5	40.4	38.7	39.3
■ Jul-16	22.9	21.9	24	22.9	22.1
Aug-16	20.7	19.2	21.5	20.9	19.2
■ Aug-16	30.7	26.1	31.4	28.2	33.4
■ Sep-16	19.6	18.2	20.1	18.8	18.3
■ Sep-16	20.7	19.3	22.9	20.1	18.5
■ Oct-16	24.2	22.8	26.8	23.2	23
■ Oct-16	30,1	29.4	32.5	31.1	33.9
₩ GPCB Limit	60	60	60	60	60

Note: All the values are expressed in $\mu g/m^3$

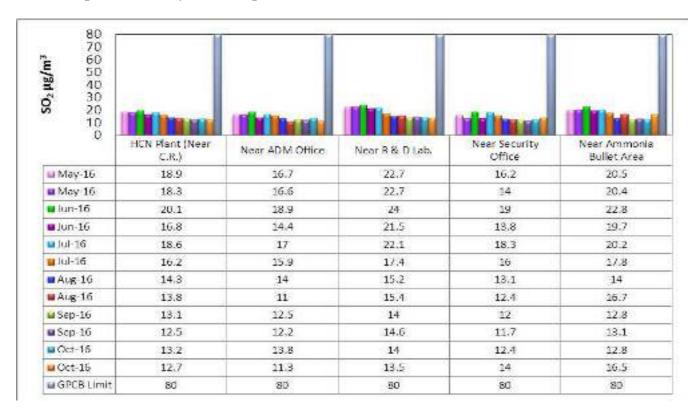
2. Comparative Analysis & Graphical Presentation of PM₁₀



Note: All the values are expressed in $\mu g/m^3$

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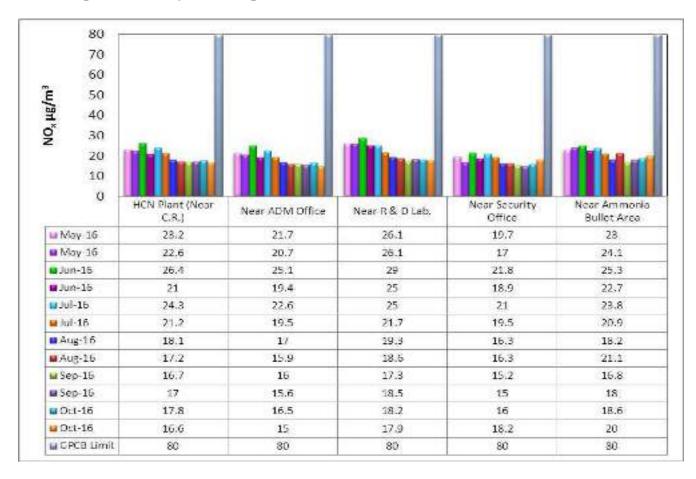
3. Comparative Analysis & Graphical Presentation of SO₂



Note: All the values are expressed in $\mu g/m^3$

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4. Comparative Analysis & Graphical Presentation of NO_x



Note: All the values are expressed in $\mu g/m^3$

ANNEXURE 12 - Micrometeorological Analysis Data







Issue Date: 16/05/2016

MICRO-METEOROLOGICAL DATA

Name of the Industry : Hindusthan Chemicals Company,

Olpad, Dist. Surat.

Date of Monitoring : 10/05/2016 to 11/05/2016

Data Collected by : ERM

Sr. No.	Time in Hrs.	Rel. Humidity (%)	Wind Speed (Km/hr)	Wind Direction	Temp. °C
1.	11.00	47	10.5	SW-NE	33.0
2.	12.00	43	11.3	SW-NE	32.5
3.	13.00	37	11.8	SW-NE	33.5
4.	14.00	38	12.0	W-E	33.0
5.	15.00	40	11.9	W-E	33.5
6,	16.00	43	12.5	W-E	32.0
7.	17.00	47	11.8	W-E	31.5
8.	18.00	49	10.4	W-E	3.0
9.	19.00	53	9.7	SW-NE	29.0
10,	20.00	58	8.9	SW-NE	28.0
11.	21.00	55	8.6	SW-NE	28.0
12.	22.00	67	8.2	SW-NE	27.5
13.	23.00	64	7.7	SW-NE	27.0
14.	00.00	70	6.8	SW-NE	26.5
15.	01.00	72	6.3	SW-NE	26.0
16.	02.00	77	5.8	SW-NE	25.0
17.	03.00	75	5.3	SW-NE	25.5
18.	04.00	72	5.0	W-E	25.0
19.	05.00	78	4.8	W-E	24.0
20.	06.00	72	4.4	W-E	25.5
21.	07.00	68	5.9	W-E	26.0
22.	08.00	65	6.3	W-E	27.0
23.	09.00	58	6.9	W-E	28.0
24.	10.00	54	7.5	W-E	28.5
24 hrs.	Max.	78.0	12.5	SW-NE	33.5
24 hrs.	Min.	37.0	4.4	W-E	24.0
24 hrs.	Avg.	57.5	8.4	* SW-NE	28.7

Note: Micrometeorological data are collected by mechanical instrument

Reference: CPCB Guideline.

CHEMIST

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CIN No.: U72200GJ2000PTC038265









Issue Date: 16/06/2016

MICRO-METEOROLOGICAL DATA

Name of the Industry Hindusthan Chemicals Company,

Olpad, Dist. Surat.

10/06/2016 to 13/06/2016 Date of Monitoring

Data Collected by ERM

Data Collected by . ERIVI							
Sr. No.	Time in Hrs.	Rel. Humidity (%)	Wind Speed (Km/hr)	Wind Direction	Temp. °C		
1.	11.00	49	11.5	SW-NE	33.5		
2,	12.00	44	11.0	SW-NE	32.0		
3.	13.00	39	11.8	W-E	33.0		
4.	14.00	36	12.2	W-E	32.0		
5.	15.00	42	11.6	W-E	33.5		
6,	16.00	45	12.4	W-E	32.0		
7.	17.00	49	11.8	W-E	31.5		
8.	18.00	50	10.4	W-E	30.0		
9.	19.00	53	9,9	W-E	29.0		
10.	20.00	59	8.5	SW-NE	28.0		
11.	21.00	56	8.2	SW-NE	28.0		
12.	22.00	69	7.8	SW-NE	27.0		
13.	23.00	65	7.5	SW-NE	26.5		
14.	00.00	71	6.6	SW-NE	26.5		
15.	01.00	74	6.0	SW-NE	26.0		
16.	02.00	79	5.9	SW-NE	25.0		
17.	03.00	76	5.5	SW-NE	25.5		
18.	04.00	73	4.5	W-E	25.0		
19.	05.00	80	4.8	W-E	23.5		
20.	06.00	74	4.3	SW-NE	24.0		
21.	07.00	67	5.9	SW-NE	25.5		
22.	08.00	66	6.3	SW-NE	26.5		
23.	09.00	57	6.9	W-E	27.0		
24.	10.00	55	7.8	W-E	28.5		
24 hrs	. Max.	80.0	12.4	SW-NE	33.5		
24 hrs	. Min.	36.0	4.5	W-E	23.5		
24 hrs	. Avg.	58.0	16.9	SW-NE	28.5		

Note: Micrometeorological data are collected by mechanical instrument

Reference: CPCB Guideline.

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CIN No.: U72200GJ2000PTC038265









Issue Date: 12/07/2016

MICRO-METEOROLOGICAL DATA

Name of the Industry Hindusthan Chemicals Company,

Olpad, Dist. Surat

Date of Monitoring 06/07/2016 to 07/07/2016

Data Collected by **ERM**

	, Little					
Sr. No.	Time in Hrs.	Rel. Humidity (%)	Wind Speed (Km/hr)	Wind Direction	Temp. °C	
1.	11.00	44	9.2	W-E	30.0	
-					29.0	
2.	12.00	42	8.0	W-E	30.9	
3	13.00	40	10.1	W-E	31.2	
4,	14.00	47	11.3	S-N	32.5	
5.	15.00	43	12.6	S-N	31.0	
6.	16.00	52	13.3	W-E	29.6	
7.	17.00	50	12.8	W-E	28.8	
8.	18.00	55	13.0	W-E	28.0	
9.	19.00	60	9.6	SW-NE	28.1	
10.	20.00	62	8.2	SW-NE	27.5	
11.	21.00	65	9.2	SW-NE	26.5	
12.	22.00	68	6.0	SW-NE	26.0	
13.	23.00	72	10.2	. SW-NE	25.0	
14.	00.00	70	7.0	SW-NE	25.0	
15.	01.00	72	5.3	W-E	24.0	
16.	02.00	76	4.9	W-E	23.0	
17.	03.00	80	5.2	W-E	22.5	
18.	04.00	74	6.9	W-E	21.5	
19.	05.00	70	4.3	W-E	20.5	
20.	06.00	64	4.0	W-E	21.5	
21.	07.00	59	5.6	W-E	22.0	
22.	08.00	63	6.9	SW-NE	24.5	
23.	09.00	56	7.5	SW-NE	25.0	
24.	10:00	-52	10.0	SW-NE	27.0	
24 hrs	. Max.	80.0	13.3	W-E	32.5	
24 hrs	. Min.	40.0	4.0	S-N	20.5	
24 hrs	. Avg.	60.0	8.6	W-E	26.5	

Note: Micrometeorological data are collected by mechanical instrument

Reference: CPCB Guideline.

CHEMIST

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Issue Date: 12/08/2016

MICRO-METEOROLOGICAL DATA

Name of the Industry : Hindusthan Chemicals Company,

Olpad, Dist. Surat

Date of Monitoring : 05/08/2016 to 06/08/2016

Data Collected by : ERM

Sr.	Time in	Rel. Humidity	Wind Speed	Wind Direction	Temp. °C
No.	Hrs.	_(%)	(Km/hr)		
1.	11.00	67	6.9	SW-NE	29.5
2.	12.00	58	5.5	SW-NE	28.0
3.	13.00	56	0.0	calm	30.5
4.	14.00	67	7.0	SW-NE	29.0
5.	15.00	59	7.3	<u>W-E</u>	27.5
6.	16.00	75	8.2	SW-NE	28.0
7.	17.00	70	10.5	SW-NE	28.0
8.	18.00	66	9.5	SW-NE	27.0
9.	19.00	70	6.0	SW-NE	27.5
10.	20.00	75	7.5	SW-NE	26.5
11.	21.00	74	8.2	W-E	26.0
12.	22.00	70	10.5	W-E	26.5
13.	23.00	68	10.0	SW-NE	25.5
14.	00.00	81	8.5	SW-NE	25.0
15.	01.00	78	6.8	SW-NE	24.0
16.	02.00	84	10.1	W-E	24.5
17.	03.00	82	7.5	W-E	23.5
18.	04.00	86	7.0	SW-NE	24.5
19.	05.00	81	8.5	W-E	25.5
20.	06.00	79	5.5	SW-NE	25.0
21.	07.00	75	6.1	SW-NE	26.5
22.	08.00	73	7.5	SW-NE .	26.0
23.	09.00	67	8.0	W-E	27.0
24.	10.00	64	7.6	W-E	29.0
24 hrs	. Max.	86.0	10.5	SW-NE	30.5
24 hrs. Min.		64.0	0.0	Calm	23.5
24 hrs. Avg.		75.0	5.2	SW-NE	27.0

Note: Micrometeorological data are collected by mechanical instrument

Reference: CPCB Guideline.

CHEMIST

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Regd. Off.: Office Floor, Ashoka Pavillion-A, Opp. Kapadia Health Club, New Civil Road, SURAT-395 001.









Issue Date: 14/09/2016

MICRO-METEOROLOGICAL DATA

Name of the Industry : Hindusthan Chemicals Company,

Olpad, Dist. Surat.

Date of Monitoring : 08/09/2016 to 09/09/2016

Data Collected by : ERM

Cu Time o in		Dal Humidity Milad Spand			
Sr. No.	Time in Hrs.	Rel. Humidity	Wind Speed	Wind Direction	Temp. °C
		(%)	(Km/hr)	111.5	
1	11.00	67	7.5	W-E	27.5
2.	12.00	<u>7</u> 0	6.7	W-E	27.0
3.	13.00	63	6.3	SW-NE_	28.0
4.	14.00	64	5.5	SW-NE	30.5
5	15.00	60	0.0	Calm	29.0
6.	16.00	72	0.0	Calm	28.5
7.	17.00	75	10.1	W-E	28.0
8.	18.00	77	10.5	SW-NE	27.0
9.	19.00	80	8.5	SW-NE	27.0
10.	20.00	82	8.1	SW-NE	27.5
11.	21.00	75	9.5	SW-NE	26.0
12.	22.00	72	8.8	W-E	26.5
13.	23.00	70	8.7	W-E	27.5
14.	00.00	74	8.2	W-E	25.0
15.	01.00	82	7,4	W-E	25.5
16.	02.00	86	9.5	SW-NE	24.5
17.	03.00	88	7.1	W-E	23.5
18.	04.00	86	6.8	W-E	24.0
19.	05.00	82	8.5	SW-NE	25.0
20.	06.00	77	6.4	SW-NE	25.0
21.	07.00	74	5.5	SW-NE	26.5
22.	08.00	70	6.6	SW-NE	26.0
23.	09.00	68	8.0	W-E	26.5
24.	10.00	62	7.9	SW-NE	27.5
24 hrs	. Max.	88	10.5	SW - NE	30.5
24 hrs	. Min.	60	0.0	Calm	23.5
24 hrs	. Avg.	74	5.2	SW - NE	27.0

Note: Micrometeorological data are collected by mechanical instrument

Reference: CPCB Guideline.

CHEMIST

AUTHORIZED SIGNATORY

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CIN No.: U72200GJ2000PTC038265

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Issue Date: 22/10/2016

MICRO-METEOROLOGICAL DATA

Name of the Industry Hindusthan Chemicals Company,

Olpad, Dist. Surat.

Date of Monitoring 14/10/2016 to 15/10/2016

Data Collected by ERM

Data	Collected by		ERIVI		
Sr. No.	Time in Hrs.	Rel. Humidity (%)	Wind Speed (Km/hr)	Wind Direction	Temp. °C
1.	11.00	57	6.5	S-N	29.0
2.	12.00	59	6.0	S-N	28.5
3.	13.00	61	6.5	Ş-N	28.0
4.	14.00	63	7.0	S-N	29.5
5.	15.00	62	0.0	Calm	30.0
6.	16.00	71	0.0	Calm	28.5
7.	17.00	65	0.0	Calm	28.0
8.	18.00	62	11.5	S-N	27.5
9.	19.00	70	10.5	S-N	27.0
10.	20.00	69	8.9	SW-NE	26.5
11.	21.00	67	9.0	SW-NE	26.0
12.	22.00	70	8.5	SW-NE	25.0
13.	23.00	75	9.0	SW-NE	27.5
14.	00.00	77	8.5	S-N	26.5
15.	01.00	79	7.5	SW-NE	26.0
16.	02.00	81	11.0	SW-NE	24.0
17.	03.00	83	7.0	S-N	23.5
18.	04.00	86	6.5	SW-NE	24.0
19.	05.00	72	7.6	S-N	25.5
20.	06.00	74	5.8	SW-NE	25.0
21,	07.00	78	5.4	SW-NE	26.5
22.	08.00	72	6.7	SW-NE	26.0
23.	09.00	64	8.5	SW-NE	26.5
24.	10.00	59	8.2	SW-NE	27.0
24 hrs	. Max.	86	11.5	SW - NE	30.0
24 hrs	. Min.	59	0.0	Calm	23.5
24 hrs	. Avg.	72.5	5.7	SW - NE	26.7

Note: Micrometeorological data are collected by mechanical instrument

Reference: CPC8 Guideline.

CHEMIST

AUTHORIZED SIGNATORY

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CIN No.: U72200GJ2000PTC038265

ANNEXURE 13 - Noise Level Monitoring Methodology, Noise Level Report & Month Wise Comparison

Noise level monitoring:

Noise level monitoring was carried out in the vicinity of the source, and nearby area within the factory premises where there is continuous presence of humans. Noise level monitoring was carried out during day time and night time at 15 locations in the premises and total 30 nos. of noise levels were recorded. Sound level meter was used for the noise monitoring.









Issue Date: 16/05/2016

Test Report NOISE LEVEL MONITORING REPORT TEST REPORT NO: ERM/ECSS/QF/5.10/02 D/NOISE/HCC/Rev.0-01/05-2016

Name of the Industry : Hindusthan Chemicals Company,

Olpad, Dist. Surat

Sample Description : Noise Level Monitoring

Date of Monitoring : 11/05/2016

Sample ID No. : ERM/ECSS/2016/05/874

Quantity/No. of Stations : 30 Nos.

Protocol (Purpose) : As per Work Order
Noise level monitored by : Mr. Bhavesh Patel

Sr, No.	Location	Distance From the Location	Noise level in dB(A) (Day Time)	Noise level in dB(A) (Night Time)
1.	Security Office	10 meter	57	50
2.	ADM Office	10 meter	49	43
3.	Canteen	10 meter	48	42
4.	Nr. Brine Chilling Centre	15 meter	73	66
5.	Near DG Room	10 meter	71	64
6.	Nr. HCN Control Room	10 meter	64	60
7.	R&D Lab Area	15 meter	69	63
8.	Nr. Boiler area	20 meter	75	67
9.	NaCN Plant	Inside	73	66
10.	Engineering Stores	10 meter	62	56
11.	SFCN Plant	10 meter	72	58
12.	Maintenance Workshop	10 meter	71	53
13.	Effluent Treatment plant	15 meter	63	56
14.	DPG plant	10 meter	68	57
15.	Fire pump House 10 meter		48	. 42
	GPCB limit	75	70	

Note: (1) These results relate to the sample tested only.

(2) The report shall not be reproduced except in full without written approval of the laboratory.

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CIN No.: U72200GJ2000PTC038265









Issue Date: 20/06/2016

Test Report NOISE LEVEL MONITORING REPORT TEST REPORT NO: ERM/ECSS/QF/5.10/02 D/NOISE/HCC/Rev.0-01/06-2016

Name of the Industry : Hindusthan Chemicals Company,

Olpad, Dist. Surat

Sample Description : Noise Level Monitoring

Date of Monitoring : 11/06/2016

Sample ID No. : ERM/ECSS/2016/06/1079

Quantity/No. of Stations : 30 Nos.

Protocol (Purpose) : As per Work Order Noise level monitored by : Mr. Bhavesh Patel

Sr. No.	Location	Distance From the Location	Noise level in dB(A) (Day Time)	Noise level in dB(A) (Night Time)
1.	Security Office	10 meter	57	50
2.	ADM Office	10 meter	49	43
3.	Canteen	10 meter	48	42
4.	Nr. Brine Chilling Centre	15 meter	73	66
5.	Near DG Room	10 meter	71	64
6.	Nr. HCN Control Room	10 meter	64	60
7.	R&D Lab Area	15 meter	69	63
8.	Nr. Boiler area	20 meter	75	67
9.	NaCN Plant	Inside	73	66
10.	Engineering Stores	10 meter	62	56
11.	SFCN Plant	10 meter	72	58
12.	Maintenance Workshop	10 meter	71	53
13.	Effluent Treatment plant	15 meter	63	56
14.	DPG plant	10 meter	68	57
15.	Fire pump House	48	42	
	GPCB limit		75	70

Note: (1) These results relate to the sample tested only.

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Issue Date: 12/07/2016

Test Report NOISE LEVEL MONITORING REPORT TEST REPORT NO: ERM/ECSS/QF/5.10/02 D/NOISE/HCC/Rev.0-01/07-2016

Name of the Industry : Hindusthan Chemicals Company,

Olpad, Dist. Surat

Sample Description : Noise Level Monitoring

Date of Monitoring : 06/07/2016

Sample ID No. : ERM/ECSS/2016/07/1206

Quantity/No. of Stations : 30 Nos.

Protocol (Purpose) : As per Work Order Noise level monitored by : Mr. Bhavesh Patel

Sr. No.	Location	Distance From the Location	Noise level in dB(A) (Day Time)	Noise level in dB(A) (Night Time)
1.	Security Office	10 meter	56	51
2.	ADM Office	10 meter	48	42
3,	Canteen	10 meter	50	46
4.	Nr. Brine Chilling Centre	15 meter	74	67
5.	Near DG Room	10 meter	65	62
6.	Nr. HCN Control Room	10 meter	66	61
7.	R&D Lab Area	15 meter	68	64
8.	Nr. Boiler area	20 meter	73	66
9.	NaCN Plant	Inside	70	64
10.	Engineering Stores	10 meter	60	54
11.	SFCN Plant	10 meter	73	67
12.	Maintenance Workshop	10 meter	72	65
13.	Effluent Treatment plant	15 meter	60	56
14.	DPG plant	10 meter	66	61
15.	Fire pump House	10 meter	45	42
	GPCB limit	75	70	

Note: (1) These results relate to the sample tested only.

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CIN No.: U72200GJ2000PTC038265



Name of the Industry







Issue Date: 12/08/2016

Test Report NOISE LEVEL MONITORING REPORT TEST REPORT NO: ERM/ECSS/QF/5.10/02 D/NOISE/HCC/Rev.0-01/08-2016

Olpad, Dist. Surat

Hindusthan Chemicals Company,

Sample Description Noise Level Monitoring

Date of Monitoring 06/08/2016

Sample ID No. ERM/ECSS/2016/08/1390

Quantity/No. of Stations 30 Nos.

Protocol (Purpose) As per Work Order Noise level monitored by Mr. Bhavesh Patel

Sr. No.	Location	Distance From the Location	Noise level in dB(A) (Day Time)	Noise level in dB(A) (Night Time)
1.	Security Office	10 meter	53	48
2.	ADM Office	10 meter	47	43
3,	Canteen	10 meter	45	41
4.	Nr. Brine Chilling Centre	15 meter	73	66
5.	Near DG Room	10 meter	67	62
6.	Nr. HCN Control Room	10 meter	66	63
7.	R&D Lab Area	15 meter	67	64
8.	Nr. Boiler area	20 meter	74	67
9.	NaCN Plant	Inside	73	63
10.	Engineering Stores	10 meter	64	57
11.	SFCN Plant	10 meter	72	64
12.	Maintenance Workshop	10 meter	73	63
13.	Effluent Treatment plant	15 meter	58	. 55
14.	DPG plant	10 meter	68	62
15.	Fire pump House	10 meter	45	40
	GPCB limit	75	70	

Note: (1) These results relate to the sample tested only.

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CIN No.: U72200GJ2000PTC038265

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Issue Date: 14/09/2016

TEST REPORT NOISE LEVEL MONITORING REPORT TEST REPORT NO: ERM/ECSS/QF/5.10/02 D/NOISE/HCC/Rev.0-01/09-2016

Name of the Industry

Hindusthan Chemicals Company,

Olpad, Dist. Surat

Sample Description

Noise Level Monitoring

Date of Monitoring

08/09/2016

Sample ID No.

ERM/ECSS/2016/09/1578A :

Quantity/No. of Stations

30 Nos.

:

:

Protocol (Purpose) Noise level monitored by

As per Work Order : Mr. Bhavesh Patel

Sr. No.	Location	Distance From the Location	Noise level in dB(A) (Day Time)	Noise level in dB(A) (Night Time)
1.	Security Office	10 meter	52	46
2.	ADM Office	10 meter	48	42
3.	Canteen	10 meter	49	43
4.	Nr. Brine Chilling Centre	15 meter	74	67
5.	Near DG Room	10 meter	70	63
6.	Nr. HCN Control Room	10 meter	60	56
7.	R&D Lab Area	15 meter	64	60
8.	Nr. 8oiler area	20 meter	72	63
9.	NaCN Plant	Inside	73	66
10.	Engineering Stores	10 meter	60	⁻ 56
11.	SFCN Plant	10 meter	72	63
12.	Maintenance Workshop	10 meter	70	66
13.	Effluent Treatment plant	15 meter	58	54
14.	DPG plant	10 meter	62	. 56
15.	Fire pump House	10 meter	46	43
	GPCB limit	75	70	

Note: (1) These results relate to the sample tested only.

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CIN No.: U72200GJ2000PTC038265









Issue Date: 22/10/2016

TEST REPORT NOISE LEVEL MONITORING REPORT TEST REPORT NO: ERM/ECSS/QF/5.10/02 D/NOISE/HCC/Rev.0-01/10-2016

Name of the Industry : Hindusthan Chemicals Company,

Olpad, Dist. Surat

Sample Description : Noise Level Monitoring

Date of Monitoring : 14/10/2016

Sample ID No. : ERM/ECSS/2016/10/1721

Quantity/No. of Stations : 30 Nos.

Protocol (Purpose) : As per Work Order Noise level monitored by : Mr. Bhavesh Patel

Sr. No.	Location	Distance From the Location	Nolse level in dB(A) (Day Time)	Noise level in dB(A) (Night Time)
1.	Security Office	10 meter	52	46
2.	ADM Office	10 meter	48	42
3.	Canteen	10 meter	49	43
4.	Nr. Brine Chilling Centre	15 meter	74	65
5.	Near DG Room	10 meter	68	63
6.	Nr. HCN Control Room	10 meter	74	66
7.	R&D Lab Area	15 meter	65	60
8.	Nr. Boiler area	20 meter	75	68
9.	NaCN Plant	Inside	73	63
10.	Engineering Stores	10 meter	62	57
11.	SFCN Plant	10 meter	70	66
12.	Maintenance Workshop	10 meter	69	64
13.	Effluent Treatment plant	15 meter	59	52
14.	DPG plant	10 meter	64	. 59
15.	Fire pump House	10 meter	46	42
	GPCB limit	75	70	

Note: (1) These results relate to the sample tested only.

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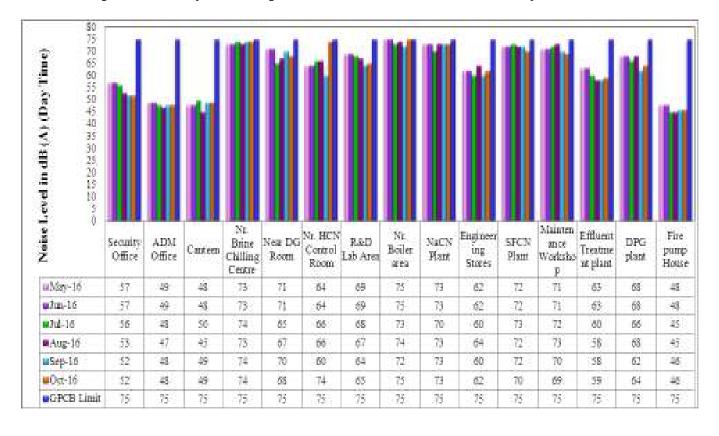
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CIN No.: U72200GJ2000PTC038265

Monthly Variation in Noise Level for the period of May 2016 to October 2016

1. Comparative Analysis & Graphical Presentation of Noise Level (Day Time)



2. Comparative Analysis & Graphical Presentation of Noise Level (Night Time)



ANNEXURE 14 – Stack Monitoring & Analysis Methodology, Analysis Report & Month Wise Comparison

Sr. No.	Particulars	Details
1.	Sampling Procedure	Sampling & analysis was carried out as per the instruction manual and IS: 11255. PM sample was collected as per IS: 11255 Part I and SO ₂ sample as per IS 11255 Part II, NO _x sampling was carried out as per method given by EPA (PDA Method)
2.	Analysis Methodology	
i.	Suspended Particulate matter	Sampling of SPM was done at isokinetic flow rate and SPM was determined from the difference in initial and final weight by using the following formula. PM = Weight diff. in gram x 10 ⁶ /flow rate x time in minute
ii.	Sulphur dioxide	Sulphur Dioxide was absorbed at the flow rate of 2 lpm in 3% H ₂ O ₂ solution. After the absorption the exposed solution was transferred to Polyethylene bottle. Above scrubbed sample is titrated against known Sodium Hydroxide normal solution by using mixed indicator. Burette reading is noted when the colour of solution changes from red to green.
iii.	Oxides of Nitrogen	Sampling flask was evaluated and gas was passed in the equated flask containing $0.1\ N\ H_2SO_4$ and H_2O_2 . Sample was kept for 24 hr in closed condition of flask. Initial and final pressure is noted before the sampling and analysis. The absorbing media is transferred in the dish. It is dried on hot plate and Phenol Disulphonic Acid is then added and rubbed with the help of glass rod for dissolution of residue. Water is added and neutralized by Sodium Hydroxide solution. Yellow color develops and the color intensity is measured Spectrophotomatrically on 'Abs' mode.







Issue Date: 16/05/2016

<u>Test Report</u> STACK ANALYSIS REPORT

TEST REPORT NO: ERM/ECSS/QF/5.10/02 C/Stack /HCC/01/05-2016

Name of the Industry : Hindusthan Chemicals Company,

Olpad, Dist. SURAT

Sample Description : Stack Monitoring

Stack Identification : Stack Attached to Auxiliary Boiler

Type of Fuel : Natural Gas
Date of Stack Monitoring : 10/05/2016
Sample Received on : 12/05/2016

Date of Analysis & Completion : 12/05/2016 & 13/05/2016 Sample ID No. : ERM/ECSS/2016/05/865

Quantity/No. of Sample : 1 nos. Thimble for PM, Approx 50 ml exposed scrubbing

media in 1 nos. Plastic bottle for SO₂ & Gas in a bladder

for NOx.

Stack Height : 31 Stack Diameter : 0.7

Protocol (Purpose)/Packing : As per Work Order/Packed

Sample Collected By : Mr. Bhavesh Patel

		, , , , , , , , , , , , , , , , , , , ,				
Sr. No.	Parameters	Unit	Results	Permissible limit	Method	
1.	Temperature	°C	168			
2.	Velocity	m/sec	7.3		IS 11255 (PART-3)	
3.	PM	mg/Nm³	18.4	150	IS 11255 (PART-1)-1985	
4.	SO ₂	ppm	<4.9	100	IS 11255 (PART-2)-1985	
5.	NO _x	ppm	25.4	50	Emission of CPCB (PART- 3)-1985	

Note: (1) These results relate to the sample tested only.

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Issue Date: 16/05/2016

Test Report STACK ANALYSIS REPORT

TEST REPORT NO: ERM/ECSS/QF/5.10/02 C/Stack /HCC/02/05-2016

Name of the Industry Hindusthan Chemicals Company,

Olpad, Dist. SURAT

Sample Description Stack Monitoring

Stack Identification Stack Attached To Incinerator

Date of Stack Monitoring 10/05/2016 Sample Received on 12/05/2016

Date of Analysis & Completion 12/05/2016 & 13/05/2016 Sample ID No. ERM/ECSS/2016/05/866

Quantity/No. of Sample 1 no. Thimble for PM, Approx 30 ml exposed scrubbing

media in 1 nos. Plastic bottle for SO₂ & Gas in a bladder

for NOx.

40 Stack Height Stack Diameter 1.4

Protocol (Purpose)/Packing As per Work Order/Packed

Sample Collected By Mr. Bhavesh Patel

Sr. No.	Parameters	Unit	Results	Permissible limit	Method
1.	Temperature	°C	122	-	-
2.	Velocity	m/sec	6.8	-	IS 11255 (PART-3)
3.	PM	mg/Nm³	19.5	150	IS 11255 (PART-1)- 1985
4.	SO ₂	ppm	<4.9	100	IS 11255 (PART-2)- 1985
5.	NOx	ppm	22.6	50	Emission of CPCB (PART-3)-1985
6.	HCl	mg/Nm³	<01	20	-
7.	HCN	mg/Nm ³	0.7	30	-
8.	HC	mg/Nm³	1.3	-	-

Note: (1) These results relate to the sample tested only.

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CIN No.: U72200GJ2000PTC038265









Issue Date: 16/06/2016

Test Report STACK ANALYSIS REPORT

TEST REPORT NO: ERM/ECSS/QF/5,10/02 C/Stack /HCC/01/06-2016

Name of the Industry

Hindusthan Chemicals Company,

Olpad, Dist. SURAT

Sample Description

Stack Monitoring

Stack Identification

Stack Attached to Auxiliary Boiler

Type of Fuel

Natural Gas

Date of Stack Monitoring Sample Received on

10/06/2016

Date of Analysis & Completion

13/06/2016

Sample ID No.

13/06/2016 & 14/06/2016

ERM/ECSS/2016/06/1068

Quantity/No. of Sample

1 nos. Thimble for PM, Approx 30 ml exposed scrubbing

media in 1 nos. Plastic bottle for SO₂ & Gas In a bladder

for NOx.

Stack Height

31

Stack Diameter

0.7

Protocol (Purpose)/Packing

As per Work Order/Packed

Sample Collected By

Mr. Bhavesh Patel

Sr. No.	Parameters	Unit	Results	Permissible limit	Method
1.	Temperature	°C	164		·
2.	Velocity	m/sec	7.6		IS 11255 (PART-3)
3.	PM	mg/Nm ³	16.9	150	IS 11255 (PART-1)-1985
4.	SO ₂	ppm	<4.9	100	IS 11255 (PART-2)-1985
5.	NO _x	ppm	23.7	50	Emission of CPCB (PART- 3)-1985

Note: (1) These results relate to the sample tested only.

(2) The report shall not be reproduced except in full-without written approval of the laboratory.

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Issue Date: 16/06/2016

Test Report STACK ANALYSIS REPORT

TEST REPORT NO: ERM/ECSS/QF/5.10/02 C/Stack /HCC/02/06-2016

Name of the Industry : Hindusthan Chemicals Company,

Olpad, Dist. SURAT

Sample Description : Stack Monitoring

Stack Identification : Stack Attached To Incinerator

Date of Stack Monitoring : 10/06/2016 Sample Received on : 13/06/2016

Date of Analysis & Completion : 13/06/2016 & 14/06/2016 Sample ID No. : ERM/ECSS/2016/06/1069

Quantity/No. of Sample : 1 no. Thimble for PM, Approx 30 ml exposed scrubbing

media in 1 nos. Plastic bottle for SO₂ & Gas in a bladder

for NOx.

Stack Height : 40 Stack Diameter : 1.4

Protocol (Purpose)/Packing : As per Work Order/Packed

Sample Collected By : Mr. Bhavesh Patel

Sr. No.	Parameters	Unit	Results	Permissible limit	Method
1.	Temperature	°C	118	-	-
2.	Velocity	m/sec	7.0	-	IS 11255 (PART-3)
3.	PM	mg/Nm ³	20.0	150	IS 11255 (PART-1)-1985
4.	SO ₂	ppm	<4.9	100	IS 11255 (PART-2)- 1985
5.	NOx	ppm	22.0	50	Emission of CPCB (PART-3)-1985
6.	HCI	mg/Nm³	<01	20	Agentometric Titartion
7.	HCN	mg/Nm³	0.6	30	Coloromate-T (Pyridine-barblcuric acid)
8.	НС	mg/Nm ³	1.2	-	Colorimetric Method (Detector Tube)

Note: (1) These results relate to the sample tested only.

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Issue Date: 12/07/2016

<u>Test Report</u> <u>STACK ANALYSIS REPORT</u>

TEST REPORT NO: ERM/ECSS/QF/5.10/02 C/Stack /HCC/01/07-2016

Name of the Industry : Hindusthan Chemicals Company,

Olpad, Dist. SURAT

Sample Description : Stack Monitoring

Stack Identification : Stack Attached to Auxiliary Boiler

Type of Fuel : Natural Gas
Date of Stack Monitoring : 06/07/2016
Sample Received on : 07/07/2016

Date of Analysis & Completion : 07/07/2016 & 08/07/2016 Sample ID No. : ERM/ECSS/2016/07/1204

Quantity/No. of Sample : 1 nos. Thimble for PM, Approx 30 ml exposed scrubbing

media in 1 nos. Plastic bottle for SO₂ & Gas in a bladder

for NOx.

Stack Height : 31 Stack Diameter : 0.7

Protocol (Purpose)/Packing : As per Work Order/Packed

Sample Collected By : Mr. Bhavesh Patel

Sr. No.	Parameters	Unit	Results	Permissible limit	Method
1.	Temperature	°C	162		
2.	Velocity	m/sec	7.1		IS 11255 (PART-3)
3.	PM	mg/Nm³	17.2	150	IS 11255 (PART-1)-1985
4.	SO ₂	ppm	<4.9	100	IS 11255 (PART-2)-1985
5.	NO _x	ppm	24.3	50	Emission of CPCB (PART- 3)-1985

Note: (1) These results relate to the sample tested only.

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CIN No.: U72200GJ2000PTC038265

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Issue Date: 12/07/2016

<u> Test Report</u>

STACK ANALYSIS REPORT

TEST REPORT NO: ERM/ECSS/QF/5.10/02 C/Stack /HCC/02/07-2016

Name of the Industry : Hindusthan Chemicals Company,

Olpad, Dist. SURAT

Sample Description : Stack Monitoring

Stack Identification : Stack Attached To Incinerator

Date of Stack Monitoring : 06/07/2016 Sample Received on : 07/07/2016

 Date of Analysis & Completion
 :
 07/07/2016 & 08/07/2016

 Sample ID No.
 :
 ERM/ECSS/2016/07/1205

Quantity/No. of Sample : 1 no. Thimble for PM, Approx 30 ml exposed scrubbing

media in 1 nos. Plastic bottle for SO₂ & Gas in a bladder

for NOx.

Stack Height : 40 Stack Dlameter : 1.4

Protocol (Purpose)/Packing : As per Work Order/Packed

Sample Collected By : Mr. Bhavesh Patel

***************************************		· · · · · · · · · · · · · · · · · · ·			
Sr. No.	Parameters	Unit	Results	Permissible limit	Method
1.	Temperature	°C	118	-	-
2.	Velocity	m/sec	7.0	-	IS 11255 (PART-3)
3.	PM	mg/Nm³	18.7	150	IS 11255 (PART-1)-1985
4.	SO ₂	ppm	<4.9	100	IS 11255 (PART-2)- 1985
5.	NOx .	ppm	21.8	50	Emission of CPCB (PART-3)-1985
6.	HCI	mg/Nm ³	<01	20	Agentometric Titartion
7.	HCN	mg/Nm ³	0.7	30	Coloromate-T (Pyridine barbicuric
					acid)
8.	HC	mg/Nm³	1.2	-	Colorimetric Method (Detector Tube)

Note: (1) These results relate to the sample tested only.

(2) The report shall not be reproduced except in full without written approval of the laboratory.

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Issue Date: 12/08/2016

<u>Test Report</u> <u>STACK ANALYSIS REPORT</u>

TEST REPORT NO: ERM/ECSS/QF/5.10/02 C/Stack /HCC/01/08-2016

Name of the Industry : Hindusthan Chemicals Company,

Olpad, Dist. SURAT

Sample Description : Stack Monitoring

Stack Identification : Stack Attached to Auxiliary Boiler

Type of Fuel : Natural Gas

Date of Stack Monitoring : 05/08/2016

Sample Received on : 06/08/2016

Date of Analysis & Completion : 06/08/2016 & 08/08/2016 Sample ID No. : ERM/ECSS/2016/08/1381

Quantity/No. of Sample : 1 nos. Thimble for PM, Approx 30 ml exposed scrubbing

media in 1 nos. Plastic bottle for SO₂ & Gas in a bladder

for NOx.

Stack Height : 31 Stack Diameter : 0.7

Protocol (Purpose)/Packing : As per Work Order/Packed

Sample Collected By : Mr. Bhavesh Patel

Sr. No.	Parameters	Unit	Results	Permissible limit	Method
1.	Temperature	°C	179		
2.	Velocity	m/sec	6.9		IS 11255 (PART-3)
3.	PM	mg/Nm ³	15.1	150	IS 11255 (PART-1)-1985
4.	SO ₂	ppm	<4.9	100	IS 11255 (PART-2)-1985
5.	NO _X	ppm	23.0	50	Emission of CPCB (PART-3) 1985

Note: (1) These results relate to the sample tested only.

(2) The report shall not be reproduced except in full without written approval of the laboratory.

CHEMIST

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CIN No.: U72200GJ2000PTC038265









Issue Date: 12/08/2016

Test Report STACK ANALYSIS REPORT

TEST REPORT NO: ERM/ECSS/QF/5.10/02 C/Stack /HCC/02/08-2016

Name of the Industry : Hindusthan Chemicals Company,

Olpad, Dist. SURAT

Sample Description : Stack Monitoring

Stack Identification : Stack Attached To Incinerator

Date of Stack Monitoring : 05/08/2016 Sample Received on : 06/08/2016

Date of Analysis & Completion : 06/08/2016 & 08/08/2016 Sample ID No. : ERM/ECSS/2016/08/1382

Quantity/No. of Sample : 1 no. Thimble for PM, Approx 30 ml exposed scrubbing

media in 1 nos. Plastic bottle for SO₂ & Gas in a bladder

for NOx.

Stack Height : 40 Stack Diameter : 1.4

Protocol (Purpose)/Packing : As per Work Order/Packed

Sample Collected By : Mr. Bhavesh Patel

Sample conected by		· 1711. DI1	vesirratei			
Sr. No.	Parameters	Unit	Results	Permissible limit	Method	
1.	Temperature	°C	119	_	-	
2.	Velocity	m/sec	6.8		IS 11255 (PART-3)	
3.	PM	mg/Nm ³	16.5	150	IS 11255 (PART-1)-1985	
4.	SO₂	ppm	<4.9	100	IS 11255 (PART-2)-1985	
5.	NOx	ppm	20.2	50	Emission of CPCB (PART- 3)-1985	
6.	HCI	mg/Nm ³	<01	20	Agentometric Titartion	
7.	HCN	mg/Nm³	<0.5	30	Coloromate-T (Pyridine barbicuric acid)	
8.	НС	mg/Nm³	1.0	-	Colorimetric Method (Detector Tube)	

Note: (1) These results relate to the sample tested only.

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Issue Date: 14/09/2016

TEST REPORT STACK ANALYSIS REPORT

TEST REPORT NO: ERM/ECSS/QF/5.10/02 C/Stack /HCC/01/09-2016

Name of the Industry : Hindusthan Chemicals Company,

Olpad, Dist. SURAT

Sample Description : Stack Monitoring

Stack Identification : Stack Attached to Auxiliary Boiler

Type of Fuel : Natural Gas
Date of Stack Monitoring : 08/09/2016
Sample Received on : 10/09/2016

Date of Analysis & Completion : 10/09/2016 & 12/09/2016 Sample ID No. : ERM/ECSS/2016/09/1567

Quantity/No. of Sample : 1 nos. Thimble for PM, Approx 30 ml exposed scrubbing

media in 1 nos. Plastic bottle for SO₂ & Gas in a bladder

for NOx.

Stack Height : 31 Stack Diameter : 0.7

Protocol (Purpose)/Packing : As per Work Order/Packed

Sample Collected By : Mr. Bhavesh Patel

Sr. No.	Parameters	Unit	Results	Permissible limit	Method
1.	Temperature	°C	189		
2.	Velocity	m/sec	6.8		IS 11255 (PART-3)
3.	PM	mg/Nm³	14.7	150	IS 11255 (PART-1)-1985
4.	SO ₂	ppm	<4.9	100	IS 11255 (PART-2)-1985
5.	NO _x	ppm	22.2	50	Emission of CPCB (PART-3)- 1985

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CIN No.: U72200GJ2000PTC038265









Issue Date: 14/09/2016

TEST REPORT STACK ANALYSIS REPORT

TEST REPORT NO: ERM/ECSS/QF/5.10/02 C/Stack /HCC/02/09-2016

Name of the Industry : Hindusthan Chemicals Company,

Olpad, Dist. SURAT

Sample Description : Stack Monitoring

Stack Identification : Stack Attached To Incinerator

Date of Stack Monitoring : 08/09/2016 Sample Received on : 10/09/2016

Date of Analysis & Completion : 10/09/2016 & 12/09/2016 Sample ID No. : ERM/ECSS/2016/09/1568

Quantity/No. of Sample : 1 no. Thimble for PM, Approx 30 ml exposed scrubbing

media in 1 nos. Plastic bottle for SO₂ & Gas in a bladder

for NOx.

Stack Height : 40 Stack Diameter : 1.4

Protocol (Purpose)/Packing : As per Work Order/Packed

Sample Collected By : Mr. Bhavesh Patel

Sr. No.	Parameters	Unit	Results	Permissible limit	Method	
1.	Temperature	°C	122	_	-	
2.	Velocity	m/sec	7.0	-	IS 11255 (PART-3)	
3.	PM	mg/Nm³	15.9	150	IS 11255 (PART-1)-1985	
4.	SO₂	ppm	<4.9	100	IS 11255 (PART-2)-1985	
5.	NOx	ppm	19.6	50	Emission of CPCB (PART-3)- 1985	
6.	HCI	mg/Nm³	<01	20	Agentometric Titartion	
7.	HCN	mg/Nm ³	<0.5	30	Coloromate-T (Pyridine barbicuric acid)	
8.	НС	mg/Nm³	0.9	-	Colorimetric Method (Detector Tube)	

Note: (1) These results relate to the sample tested only.

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Issue Date: 22/10/2016

TEST REPORT STACK ANALYSIS REPORT

TEST REPORT NO: ERM/ECSS/QF/5,10/02 C/Stack /HCC/01/10-2016

Name of the Industry

Hindusthan Chemicals Company,

Sample Description

Olpad, Dist. SURAT Stack Monitoring

Stack Identification

Stack Attached to Auxiliary Boiler

Type of Fuel

Natural Gas

Date of Stack Monitoring

14/10/2016

Sample Received on

15/10/2016

Date of Analysis & Completion

15/10/2016 & 17/10/2016

Sample ID No.

ERM/EC\$\$/2016/10/1712

Quantity/No. of Sample

1 nos. Thimble for PM, Approx 30 ml exposed scrubbing

media in 1 nos. Plastic bottle for SO₂ & Gas in a bladder

for NOx.

Stack Height

31

Stack Diameter

0.7

(Protocol (Purpose)/Packing

As per Work Order/Packed

Sample Collected By

Mr. Bhavesh Patel

Sr. No.	Parameters	Unit	Results	Permissible Ilmit	Method
1.	Temperature	°C	174		
2.	Velocity	m/sec	6.7		IS 11255 (PART-3)
3.	PM	mg/Nm³	13.0	150	IS 11255 (PART-1)-1985
4.	SO₂	ppm	<4.9	100	IS 11255 (PART-2)-1985
5.	NO _x	ppm	20.7	50	Emission of CPCB (PART-3)- 1985

Note: (1) These results relate to the sample tested only.

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Issue Date: 22/10/2016

TEST REPORT STACK ANALYSIS REPORT

TEST REPORT NO: ERM/ECSS/QF/5.10/02 C/Stack /HCC/02/10-2016

Name of the Industry

Hindusthan Chemicals Company,

Olpad, Dist. SURAT

Sample Description

Stack Monitoring

Stack Identification

Stack Attached To Incinerator

Date of Stack Monitoring

14/10/2016

Sample Received on

15/10/2016

Date of Analysis & Completion

15/10/2016 & 17/10/2016

Sample ID No.

Quantity/No. of Sample

ERM/ECSS/2016/10/1713

1 no. Thimble for PM, Approx 30 ml exposed scrubbing

media in 1 nos. Plastic bottle for SO₂ & Gas in a bladder

for NOx.

Stack Height

40

Stack Diameter

1.4

:

Protocol (Purpose)/Packing

As per Work Order/Packed

Sample Collected By

Mr. Bhavesh Patel

Sr. No.	Parameters	Unit	Results	Permissible Ilmit	Method
1.	Temperature	°C	119	-	-
2.	Velocity	m/sec	7.3	-	IS 11255 (PART-3)
3.	PM	mg/Nm³	14.8	150	IS 11255 (PART-1)-1985
4.	SO ₂	ppm	<4.9	100	IS 11255 (PART-2)-1985
5.	NOx	ppm	17.9	50	Emission of CPCB (PART-3)- 1985
6.	HCI	mg/Nm³	<01	20	Agentometric Titartion
7.	HCN	mg/Nm³	<0.5	30	Coloromate-T (Pyridine barblcuric acid)
8.	НС	mg/Nm³	0.8	-	Colorimetric Method (Detector Tube)

Note: (1) These results relate to the sample tested only.

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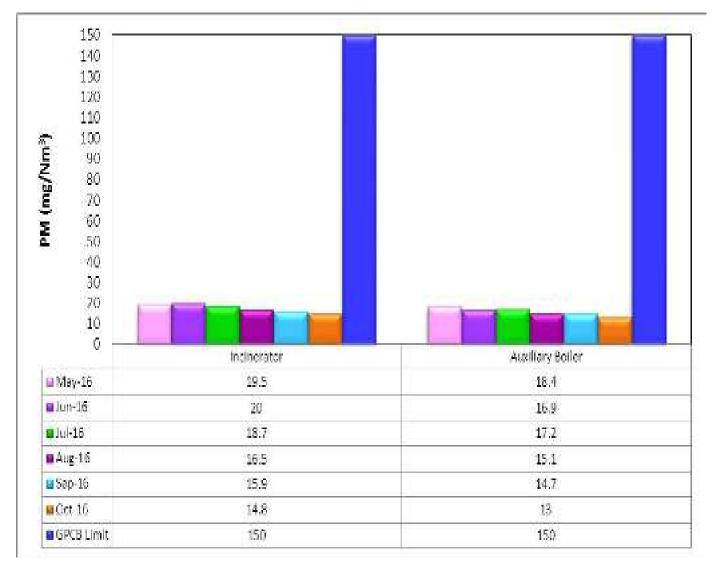
Regd. Off.: Office Floor, Ashoka Pavillion-A, Opp. Kapadia Health Club, New Civil Road, SURAT-395 001.

Telefax: 91-261-2231630-2236223-6569151-6545050 e-mail: eco@ecoshrlpad.com Website: www.ecosystemindia.com

CIN No.: U72200GJ2000PTC038265

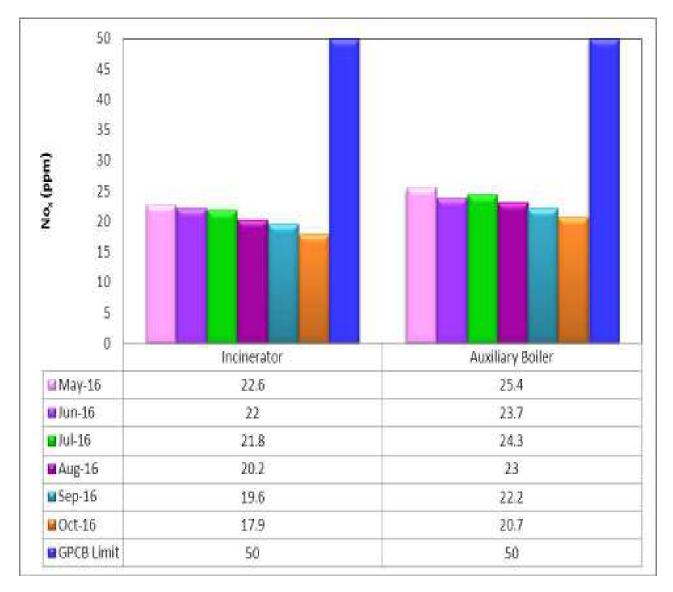
Monthly Variation in Stack Emission for the period of May 2016 to October 2016

1. Comparative Analysis & Graphical Presentation of PM



Note: All the values are expressed in mg/Nm^3

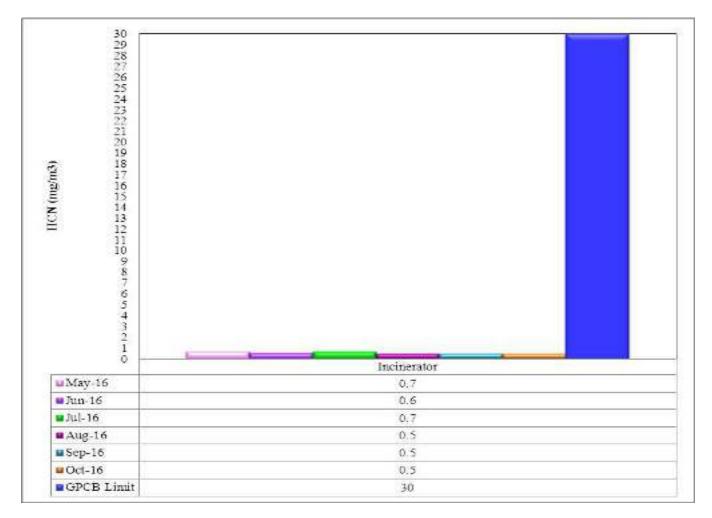
2. Comparative Analysis & Graphical Presentation of NO_x



Note: All the values are expressed in ppm

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3. Comparative Analysis & Graphical Presentation of HCN



Note: All the values are expressed in mg/Nm³

ANNEXURE 15 – Water Sampling & Analysis Methodology, Analysis Report & Month Wise Comparison

S. No.	Particulars	Details
1.	Temperature	Temperature was measured by using calibrated thermometer.
2.	pН	pH analysis was carried out on site with the help of handy pH meter. pH analysis was also carried out in the laboratory after receiving the sample at room temperature. Only laboratory pH results have been reported in test report.
3.	TDS	Measured quantity of filtered sample was evaporated into previously weighed evaporating dish. TDS was calculated on weight difference basis.
4.	Turbidity	Turbidity measurement was carried out with Nephelo turbidity meter. Before the estimation calibration was done by standard turbidity solution and then the sample was run for the turbidity measurement. Display shown by the instrument was noted and reported.
5.	Total Hardness	Total Hardness was determined by EDTA method. Sample was titrated against 0.01 M EDTA solution in alkaline medium (ammonia buffer) using Errichrome Black-T indicator.
6.	Calcium	Calcium ion was determined by EDTA method. Sample was titrated with EDTA solution using ammonium purpurate as an indicator.
7.	Magnesium	Magnesium was estimated on the basis of difference between total hardness and calcium hardness.
8.	Alkalinity	A measured volume of sample was titrated against known H ₂ SO ₄ solution using Phenolphthalein and Methyl Orange as an indicator.
9.	Chloride	Sample of measured quantity was titrated against standard Silver Nitrate using potassium chromate as indicator. Chloride was calculated from the volume of AgNO ₃ standard solution used during the titration.
10.	Sulphate	A measured volume of sample was acidified by Concentrated HCl and evaporated on hot plate till the dryness of the sample. Re added HCl and distilled water and Sulphate was precipitated as BaSO ₄ using 5 % BaCl ₂ . Precipitate were dried and gravimetrically estimated.
11.	Silica	Suitable aliquot of the sample was taken and 1:1 HCl was added. Ammonium molybdate was also added for colour development. Colour intensity was measured spectrophotometrically after the addition of 1.5 ml oxalic acid at 410 nm.
12.	Nitrate	Estimated volume of sample was dried. Dried precipitate of nitrate was dissolved in phenol disulphonic acid by rubbing with rod and water was added for complete dissolution. pH was raised with KOH solution, yellow

color developed and color intensity was measured spectrophotometrically. 13. DO			
Sulphate solution and Alkali Iodide Azide solution were added in the sample. Precipitates developed are dissolved by the addition of conc. Sulphuric acid. Sample was brought to titration against known sodium thiosulphate solution using starch as an indicator. 14. BOD Measured quantity of sample was placed in airtight bottle along with bacterial and nutrient chemical. It was kept under incubation at specific temperature (usually 27o C) and for specific time usually 3 Days). The dissolved Oxygen quantity was measured before and after incubation, Iodometrically. BOD was estimated on DO difference basis. 15. Chromium Chromium was oxidized by permanganate to chromate after digestion with HNO3 and H2SO4 and violet colour produced after the reaction of symmetrical diphenyl carbazide to chromate ion and intensity of colour was measured spectrophotometrically at 510 nm. 16. Copper Cuprous ion in neutral or slightly acidic solution react with 2, 9 dimethyl 1,10 phenanthroline (neocuproin) form a complex in which 2 moles of neocuproin are bound by 1 mole of cuprous ion. The complex was then extracted by chloroform in presence of hydroxyl amine hydrochloride and sodium citrate. Colour intensity was measured spectrophotometrically. Iron Iron was reduced to ferrous state by boiling with acid and hydroxylamine. Then it was treated with 1,10 Phenanthroline at pH 5.2 to 6.0 and orange or red color developed. Optical density was measured on spectrophotometer. Most Probable Number (MPN) Take 50 ml of sample and add 4.0 ml ammonium molybdate reagent and 0.5 ml stannous chloride reagent. Mix it and dilute the aliquot up to 100 ml with distilled water. Let the colour develop. Measure OD at 690 nm after 10 min, but before 12 min. Take a suitable amount of sample in 50ml measuring flask. Now add 1ml conc. HCl in each flask. Then heat till its volume becomes half. Cool it at room temperature. Now add a piece of pH paper in each flask and add NaOH solution till its pH becomes 7.0 to 7.5. Make up the volume to 50 ml in eac			color developed and color intensity was measured spectrophotometrically.
bacterial and nutrient chemical. It was kept under incubation at specific temperature (usually 27o C) and for specific time usually 3 Days). The dissolved Oxygen quantity was measured before and after incubation, Iodometrically. BOD was estimated on DO difference basis. 15. Chromium Chromium was oxidized by permanganate to chromate after digestion with HNO3 and H2SO4 and violet colour produced after the reaction of symmetrical diphenyl carbazide to chromate ion and intensity of colour was measured spectrophotometrically at 510 nm. 16. Copper Cuprous ion in neutral or slightly acidic solution react with 2, 9 dimethyl 1,10 phenanthroline (neocuproin) form a complex in which 2 moles of neocuproin are bound by 1 mole of cuprous ion. The complex was then extracted by chloroform in presence of hydroxyl amine hydrochloride and sodium citrate. Colour intensity was measured spectrophotometrically. 17. Iron Iron was reduced to ferrous state by boiling with acid and hydroxylamine. Then it was treated with 1,10 Phenanthroline at pH 5.2 to 6.0 and orange or red color developed. Optical density was measured on spectrophotometer. 18. Most Probable Number (MPN) 19. Phosphate Take 50 ml of sample and add 4.0 ml ammonium molybdate reagent and 0.5 ml stannous chloride reagent. Mix it and dilute the aliquot up to 100 ml with distilled water. Let the colour develop. Measure OD at 690 nm after 10 min, but before 12 min. 20. Zinc Take a suitable amount of sample in 50ml measuring flask. Now add 1ml conc. HCl in each flask. Then heat till its volume becomes half. Cool it at room temperature. Now add a piece of pH paper in each flask and add NaOH solution till its pH becomes 7.0 to 7.5. Make up the volume to 50 ml in each flask. Take 10 ml from each of the flask and add 0.5 g Sodium ascorbate, 1 ml KCN add solution, 5ml Borate buffer and 3ml Zincon solution. Swirl to mix all the reagents and cyclohexanone fresh solution till the colour change is not obtained. Take Absorbance at 620 nm.	13.	DO	Sulphate solution and Alkali Iodide Azide solution were added in the sample. Precipitates developed are dissolved by the addition of conc. Sulphuric acid. Sample was brought to titration against known sodium
HNO3 and H2SO4 and violet colour produced after the reaction of symmetrical diphenyl carbazide to chromate ion and intensity of colour was measured spectrophotometrically at 510 nm. 16. Copper Cuprous ion in neutral or slightly acidic solution react with 2, 9 dimethyl 1,10 phenanthroline (neocuproin) form a complex in which 2 moles of neocuproin are bound by 1 mole of cuprous ion. The complex was then extracted by chloroform in presence of hydroxyl amine hydrochloride and sodium citrate. Colour intensity was measured spectrophotometrically. 17. Iron Iron was reduced to ferrous state by boiling with acid and hydroxylamine. Then it was treated with 1,10 Phenanthroline at pH 5.2 to 6.0 and orange or red color developed. Optical density was measured on spectrophotometer. 18. Most Probable Number (MPN) 19. Phosphate Take 50 ml of sample and add 4.0 ml ammonium molybdate reagent and 0.5 ml stannous chloride reagent. Mix it and dilute the aliquot up to 100 ml with distilled water. Let the colour develop. Measure OD at 690 nm after 10 min, but before 12 min. 20. Zinc Take a suitable amount of sample in 50ml measuring flask. Now add 1ml conc. HCl in each flask. Then heat till its volume becomes half. Cool it at room temperature. Now add a piece of pH paper in each flask and add NaOH solution till its pH becomes 7.0 to 7.5. Make up the volume to 50 ml in each flask. Take 10 ml from each of the flask and add 0.5 g Sodium ascorbate, 1 ml KCN add solution, 5ml Borate buffer and 3ml Zincon solution. Swirl to mix all the reagents and cyclohexanone fresh solution till the colour change is not obtained. Take Absorbance at 620 nm.	14.	BOD	bacterial and nutrient chemical. It was kept under incubation at specific temperature (usually 270 C) and for specific time usually 3 Days). The dissolved Oxygen quantity was measured before and after incubation,
1,10 phenanthroline (neocuproin) form a complex in which 2 moles of neocuproin are bound by 1 mole of cuprous ion. The complex was then extracted by chloroform in presence of hydroxyl amine hydrochloride and sodium citrate. Colour intensity was measured spectrophotometrically. 17. Iron Iron was reduced to ferrous state by boiling with acid and hydroxylamine. Then it was treated with 1,10 Phenanthroline at pH 5.2 to 6.0 and orange or red color developed. Optical density was measured on spectrophotometer. 18. Most Probable Number (MPN) 19. Phosphate Take 50 ml of sample and add 4.0 ml ammonium molybdate reagent and 0.5 ml stannous chloride reagent. Mix it and dilute the aliquot up to 100 ml with distilled water. Let the colour develop. Measure OD at 690 nm after 10 min, but before 12 min. 20. Zinc Take a suitable amount of sample in 50ml measuring flask. Now add 1ml conc. HCl in each flask. Then heat till its volume becomes half. Cool it at room temperature. Now add a piece of pH paper in each flask and add NaOH solution till its pH becomes 7.0 to 7.5. Make up the volume to 50 ml in each flask. Take 10 ml from each of the flask and add 0.5 g Sodium ascorbate, 1 ml KCN add solution, 5ml Borate buffer and 3ml Zincon solution. Swirl to mix all the reagents and cyclohexanone fresh solution till the colour change is not obtained. Take Absorbance at 620 nm.	15.	Chromium	HNO3 and H2SO4 and violet colour produced after the reaction of symmetrical diphenyl carbazide to chromate ion and intensity of colour
Then it was treated with 1,10 Phenanthroline at pH 5.2 to 6.0 and orange or red color developed. Optical density was measured on spectrophotometer. Most Probable Number (MPN) Phosphate Take 50 ml of sample and add 4.0 ml ammonium molybdate reagent and 0.5 ml stannous chloride reagent. Mix it and dilute the aliquot up to 100 ml with distilled water. Let the colour develop. Measure OD at 690 nm after 10 min, but before 12 min. Zinc Take a suitable amount of sample in 50ml measuring flask. Now add 1ml conc. HCl in each flask. Then heat till its volume becomes half. Cool it at room temperature. Now add a piece of pH paper in each flask and add NaOH solution till its pH becomes 7.0 to 7.5. Make up the volume to 50 ml in each flask. Take 10 ml from each of the flask and add 0.5 g Sodium ascorbate, 1 ml KCN add solution, 5ml Borate buffer and 3ml Zincon solution. Swirl to mix all the reagents and cyclohexanone fresh solution till the colour change is not obtained. Take Absorbance at 620 nm.	16.	Copper	1,10 phenanthroline (neocuproin) form a complex in which 2 moles of neocuproin are bound by 1 mole of cuprous ion. The complex was then extracted by chloroform in presence of hydroxyl amine hydrochloride and
Probable Number (MPN) Take 50 ml of sample and add 4.0 ml ammonium molybdate reagent and 0.5 ml stannous chloride reagent. Mix it and dilute the aliquot up to 100 ml with distilled water. Let the colour develop. Measure OD at 690 nm after 10 min, but before 12 min. Zinc Take a suitable amount of sample in 50ml measuring flask. Now add 1ml conc. HCl in each flask. Then heat till its volume becomes half. Cool it at room temperature. Now add a piece of pH paper in each flask and add NaOH solution till its pH becomes 7.0 to 7.5. Make up the volume to 50 ml in each flask. Take 10 ml from each of the flask and add 0.5 g Sodium ascorbate, 1 ml KCN add solution, 5ml Borate buffer and 3ml Zincon solution. Swirl to mix all the reagents and cyclohexanone fresh solution till the colour change is not obtained. Take Absorbance at 620 nm.	17.	Iron	Then it was treated with 1,10 Phenanthroline at pH 5.2 to 6.0 and orange or
0.5 ml stannous chloride reagent. Mix it and dilute the aliquot up to 100 ml with distilled water. Let the colour develop. Measure OD at 690 nm after 10 min, but before 12 min. Zinc Take a suitable amount of sample in 50ml measuring flask. Now add 1ml conc. HCl in each flask. Then heat till its volume becomes half. Cool it at room temperature. Now add a piece of pH paper in each flask and add NaOH solution till its pH becomes 7.0 to 7.5. Make up the volume to 50 ml in each flask. Take 10 ml from each of the flask and add 0.5 g Sodium ascorbate, 1 ml KCN add solution, 5ml Borate buffer and 3ml Zincon solution. Swirl to mix all the reagents and cyclohexanone fresh solution till the colour change is not obtained. Take Absorbance at 620 nm.	18.	Probable Number	Multiple fermentation Technique was applied for the estimation of MPN.
conc. HCl in each flask. Then heat till its volume becomes half. Cool it at room temperature. Now add a piece of pH paper in each flask and add NaOH solution till its pH becomes 7.0 to 7.5. Make up the volume to 50 ml in each flask. Take 10 ml from each of the flask and add 0.5 g Sodium ascorbate, 1 ml KCN add solution, 5ml Borate buffer and 3ml Zincon solution. Swirl to mix all the reagents and cyclohexanone fresh solution till the colour change is not obtained. Take Absorbance at 620 nm.	19.	Phosphate	0.5 ml stannous chloride reagent. Mix it and dilute the aliquot up to 100 ml with distilled water. Let the colour develop. Measure OD at 690 nm after
21. Cyanide From the absorption solution take measured volume of sample in a conical	20.	Zinc	conc. HCl in each flask. Then heat till its volume becomes half. Cool it at room temperature. Now add a piece of pH paper in each flask and add NaOH solution till its pH becomes 7.0 to 7.5. Make up the volume to 50 ml in each flask. Take 10 ml from each of the flask and add 0.5 g Sodium ascorbate, 1 ml KCN add solution, 5ml Borate buffer and 3ml Zincon solution. Swirl to mix all the reagents and cyclohexanone fresh solution till
	21.	Cyanide	From the absorption solution take measured volume of sample in a conical

	flask.	Titrate	with	standard	AgNO3	solution	using	p-
	dimethy	ylaminobei	nzalrhod	anine as an	indicator to	the first ch	ange in c	olor
	from a	canary yell	low to a	Salmon hue.				











Issue Date: 20/05/2016

Test Report BORE WATER ANALYSIS REPORT

TEST REPORT NO; ERM/ECSS/QF/5.10/02 A/BORE WATER/HCC/Rev.-01/05-2016

Hindusthan Chemicals Company. Name of the Industry

Olpad, Dist. Surat

Sample Collected On 11/05/2016 12/05/2016 Sample Received on

12/05/2016 to 16/05/2016 Sample Analyzed & Completion ERM/ECSS/2016/05/871, 872, 873 Sample 1D No.

2 lit for each location in plastic carboy for Physico chemical and Quantity/No. of Sample

500-500ml for each location in sterilized bottle for MPN testing/6

Nos.

As per Work Order Protacol (Purpose)

Packing/ Seal Packed

Sample Collected By Mr. Bhavesh Patel

Standard methods for the examination of water & waste water, Analysis Method Followed

APHA-22nd Edition, 2012 & IS 3025

Sr. No.	Parameters	Unit	Surat Drums Factory Bore Well	Nemlaxmi Books Bore well	Ganesh Automobile Bore well
1	Temperature	°C	31.5	32,5	32.0
2	рН	pH-Unit	7.25	7.39	7.45
3	Total Dissolved Solids (TDS)	mg/L	1185	260	624
4	Turbidity	NTU	2.0	1.4	1.9
5	Nitrate as (NO ₃ ')	mg/L	0.8	0.4	0.6
6	Total Phosphate as PO4	mg/L	5.8	0.8	1.0
7	Dissolved Oxygen	mg/L	6.2	5.0	5.4
8	BOD	mg/L	<04	<04	<04
9	Total alkalinity	mg/L	316	200	282
10	Total Hardness	mg/L	576	130	350
11	Chloride	mg/L	508	38	195
12	Sulphate	mg/L	29	10	20
13	Chromium	mg/L	<0.03	<0.03	<0.03
14	Cyanide	mg/L	Nil	Nil	Níl
15	Copper	mg/L	<0.01	<0.01	<0.01
16	Lead	mg/L	<0.005	<0.005	<0.005
17	Iron	mg/C	<0.1	<0.1	<0.1
18	Zinc	mg/L	< 0.02	<0.02	<0.02
19	Calcium	mg/L	192	26	83
20	Magnesium	mg/L	23	16	35
21	Silica	mg/L	6.5	5.7	6.0
22	MPN (Total Coliform)	No./100ml	NIL	NIL	NJL

Note: (1) These results relate to the sample tested only.

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Issue Date: 20/06/2016

Test Report BORE WATER ANALYSIS REPORT

TEST REPORT NO: ERM/ECSS/QF/5.10/02 A/BORE WATER/HCC/Rev,-01/06-2016

Name of the Industry : Hindusthan Chemicals Company.

Olpad, Dist. Surat

Sample Collected On : 11/06/2016 Sample Received on : 13/06/2016

Sample Analyzed & Completion : 13/06/2016 to 16/06/2016

Sample ID No. : ERM/ECSS/2016/06/1076, 1077, 1078

Quantity/No, of Sample : 2 lit for each location in plastic carboy for Physico chemical and

500-500ml for each location in sterilized bottle for MPN testing/6

Nos.

Protocol (Purpose) : As per Work Order

Packing/ Seal : Packed

Sample Collected By : Mr. Bhavesh Patel

Analysis Method Followed : Standard methods for the examination of water & waste water,

APHA-22nd Edition, 2012 & I\$ 3025

Sr. No.	Parameters	Unit	Surat Drums Factory Bore Well	Nemlaxml Books Bore well	Ganesh Automobile Bore well
1	Temperature	°c	31.0	31.7	31.9
2	pH	pH-Unit	7.17	7.35	7.42
3	Total Dissolved Solids (TDS)	mg/L	1164	248	589
4	Turbidity	NTU	2.4	1.0	1.6
5	Nitrate as (NO ₃)	mg/L	0.6	0.2	0.4
6	Total Phosphate as PO ₄ "	mg/L	4.6	0.6	1.4
7	Dissolved Oxygen	mg/L	6.1	5.2	5.9
8	BOD	mg/L	<04	<04	<04
9	Total alkalinity	mg/L	326	208	288
10	Total Hardness	mg/L	584	136	356
11	Chloride	mg/L	517	52	210
12	Sulphate	mg/L	34	14	28
13	Chromium	mg/L	<0.03	<0.03	<0.03
14	Cyanide	mg/L	Nil	Nil	Nil
15	Copper	mg/L	<0.01	<0.01	<0.01
16	Lead	mg/L	<0.005	<0.005	<0.005
17	Iron	mg/L	<0.1	<0.1	<0.1
18	Zinc _	mg/L	<0.02	<0.02	<0.02
19	Calcium.	mg/L	199	29	90
20	Magnesium	mg/L	21	16	32
21	Silica	mg/L	6.9	5.0	6.2
22	MPN (Total Coliform)	No./100ml	NIL	NIL	NIL

Note: (1) These results relate to the sample tested only.

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CIN No.: U72200GJ2000PTC038265









Issue Date: 16/07/2016

Test Report BORE WATER ANALYSIS REPORT

TEST REPORT NO: ERM/ECSS/QF/5.10/02 A/BORE WATER/HCC/Rev.-01/07-2016

Name of the Industry Hindusthan Chemicals Company.

Olpad, Dist. Surat

Sample Collected On 07/07/2016 : Sample Received on 08/07/2016

Sample Analyzed & Completion 08/07/2016 to 12/07/2016

Sample ID No. ERM/ECSS/2016/07/1211, 1212, 1213

Quantity/No. of Sample 2 litres for each location in plastic carboy for Physico chemical and

500-500ml for each location in sterilized bottle for MPN testing/6

Protocol (Purpose) As per Work Order

Packing/ Seal Packed

Sample Collected By Mr. Bhavesh Patel

Analysis Method Followed Standard methods for the examination of water & waste water,

APHA-22nd Edition, 2012 & IS 3025

Sr. No.	Parameters .	Unit	Surat Drums Factory Bore Well	Olpad Forzen Foods Pvt. Ltd. Bore well	Ganesh AutoMobile Bore well
1	Temperature	°C	31.0	31.0	30.0
2	Нα	pH-Unit	7.29	7.38	7.49
3	Total Dissolved Solids (TDS)	mg/L	1133	231	611
4	Turbidity	NTU	2.0	1.4	1.2
5	Nitrate as (NO ₃)	mg/t	0.8	0.4	0.2
6	Total Phosphate as PO ₄	rng/L	4.2	0.4	1.8
7	Dissolved Oxygen	mg/L	6.0	5.4	5.8
8	BOD	mg/L	<04	<04	<04
9	Total alkalinity	mg/L	316	200	282
10	Total Hardness	mg/L	576	129	348
11	Chloride	mg/L	507	38	195
12	Sulphate	mg/L	39	19	34
13	Chromium	mg/L	<0.03	<0.03	<0.03
14	Cyanide	mg/L	Nil	Níl	Nil
15	Copper	mg/L	< 0.01	<0.01	< 0.01
16	Lead	mg/L	< 0.005	<0.005	< 0.005
17	Iron	mg/L	<0.1	<0.1	<0.1
18	Zinc	mg/L	<0.02	<0.02	<0.02
19	Calcium	mg/L	184	21	80
20	Magnesium	mg/L	28.2	19	36
21	Silica	mg/L	7.8	7.8	5.1
22	MPN (Total Coliform)	No./100ml	NIL	NìL	NIL

Note: (1) These results relate to the sample tested only.

(2) The report shall not be reproduced except in full without written approval of the lab date.

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CIN No.: U72200GJ2000PTC038265







Issue Date: 30/08/2016

Test Report BORE WATER ANALYSIS REPORT

TEST REPORT NO: ERM/ECSS/QF/5.10/02 A/BORE WATER/HCC/Rev.-01/08-2016

Olpad, Dist. Surat

Name of the Industry : Hindusthan Chemicals Company.

 Sample Collected On
 : 06/08/2016

 Sample Received on
 : 08/08/2016

Sample Analyzed & Completion : 08/08/2016 to 12/08/2016

Sample ID No. : ERM/ECSS/2016/08/1387, 1388, 1389

Quantity/No. of Sample : 2 litres for each location in plastic carboy for Physico chemical and

500-500ml for each location in sterilized bottle for MPN testing/6

Nos.

Protocol (Purpose) : As per Work Order

Packing/ Seal : Packed

Sample Collected By : Mr. 8havesh Patel

Analysis Method Followed : Standard methods for the examination of water & waste water,

APHA-22nd Edition, 2012 & IS 3025

Sr. No.	Parameters	Unit	Surat Drums Factory Bore Well	Amar Honda Bore well	Ganesh Automobile Bore well
1	Temperature	°C	30.5	30.0	29.5
2	рН	pH-Unit	7.22	7.51	7.36
3	Total Dissolved Solids (TDS)	mg/L	1284	231	708
4	Turbidity	NTU	2.6	1.9	1.6
5	Nitrate as (NO ₃)	mg/L	0.9	0.6	0.8
6	Total Phosphate as PO ₄ "	mg/L	4.8	0.2	2.1
7	Dissolved Oxygen	mg/t.	6.4	5.1	6.0
8	BOD	mg/L	<04	<04	<04
9	Total alkalinity	mg/L	385	285	301
10	Total Hardness	mg/L	612	185	450
11	Chloride	mg/L	525	42	210
12	Sulphate	mg/L	45	23	38
13	Chromlum	mg/L	<0.03	<0.03	<0.03
14	Cyanide	mg/L	Nil	Nil	Nil
15	Copper	mg/L	<0.01	<0.01	<0.01
16	Lead	mg/L	<0.005	<0.005	<0.005
17	Iron	mg/L	<0.1	<0.1	<0.1
18	Zinc	mg/L	<0.02	<0.02	<0.02
19	Calcium	mg/L	148	26	90
20	Magnesium	mg/L	59	29	55
21	Silica	mg/L	6.8	4.3	5.8
22	MPN (Total Coliform)	No./100mi	NiL	NIL	NIL

Note: (1) These results relate to the sample tested only.

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CIN No.: U72200GJ2000PTC038265







Issue Date: 16/09/2016

TEST REPORT BORE WATER ANALYSIS REPORT

TEST REPORT NO: ERM/ECSS/QF/5.10/02 A/BORE WATER/HCC/Rev.-01/09-2016

Name of the Industry : Hindusthan Chemicals Company.

Olpad, Dist. Surat

 Sample Collected On
 : 09/09/2016

 Sample Received on
 : 10/09/2016

Sample Analyzed & Completion : 10/09/2016 to 14/09/2016

Sample ID No. : ERM/ECSS/2016/09/1576, 1577, 1578

Quantity/No. of Sample : 2 litres for each location in plastic carboy for Physico chemical and

500-500ml for each location in sterllized bottle for MPN testing/6

Nos.

Protocol (Purpose) : As per Work Order

Packing/ Seal : Packed

Sample Collected By : Mr. Bhavesh Patel

Analysis Method Followed : Standard methods for the examination of water & waste water,

APHA-22nd Edition, 2012 & IS 3025

Sr. No.	Parameters	Unit	Surat Drums Factory Bore Well	Amar Honda Bore well	Ganesh Automobile Bore well
1	Temperature	°C	29.5	29	29.5
2	На	pH-Unit	7.85	7.51	7.62
3	Total Dissolved Solids (TDS)	mg/L	1075	201	654
4	Turbidity	NTU	2.2	1.4	1.2
5	Nitrate as (NO ₃ ')	mg/L	0.8	0.5	0.6
6	Total Phosphate as PO ₄	mg/L	3.6	0.8	2.6
7	Dissolved Oxygen	mg/L	6.2	5.6	6.4
8	BOD	mg/L	<04	<04	<04
9	Total alkalinity	mg/L	324	220	265
10	Total Hardness	mg/L	510	130	296
11	Chloride	mg/L	384	86	185
12	Sulphate	mg/L	50	28	43
13	Chromium	mg/L	<0.03	<0.03	<0.03
14	Cyanide	mg/L	Nil	Nil	Nil
15	Copper	mg/L	<0.01	<0.01	<0.01
16	Lead	mg/L	< 0.005	<0.005	<0.005
17	Iron	mg/L	<0.1	<0,1	<0.1
18	Zinc	mg/L	<0.02	<0.02	<0.02
19	Calcium	mg/L	127	32	87
20	Magnesium	mg/L	47	12	19
21	Silica	mg/L	6.2	4.8	5.6
22	MPN (Total Coliform)	No./100ml	NIL	NIL.	NIL

Note: (1) These results relate to the sample tested only.

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CIN No.: U72200GJ2000PTC038265







Issue Date: 22/10/2016

TEST REPORT

BORE WATER ANALYSIS REPORT

TEST REPORT NO: ERM/ECSS/QF/5.10/02 A/BORE WATER/HCC/Rev.-01/10-2016

Name of the Industry : Hindusthan Chemicals Company.

Olpad, Dist. Surat

 Sample Collected On
 : 14/10/2016

 Sample Received on
 : 15/10/2016

Sample Analyzed & Completion : 15/10/2016 to 14/10/2016

Sample ID No. : ERM/ECSS/2016/10/1718, 1719, 1720

Quantity/No. of Sample : 2 litres for each location in plastic carboy for Physico chemical and

500-500ml for each location in sterilized bottle for MPN testing/6

Nos.

Protocol (Purpose) : As per Work Order

Packing/ Seal : Packed

Sample Collected By : Mr. Bhavesh Patel

Analysis Method Followed : Standard methods for the examination of water & waste water,

APHA-22nd Edition, 2012 & IS 3025

Sr. No.	Parameters	Unit	Surat Drums Factory Bore Well	Amar Honda Bore well	Ganesh Automobile Bore well
1	Temperature :	°C	28.5	28	28.5
2	рН	pH-Unit	7.69	7.80	7.36
3	Total Dissolved Solids (TDS)	mg/L	911	284	544
4	Turbidity	NTU	2.0	1.8	1.4
5	Nitrate as (NO ₃ ')	mg/L	0.4	0.6	0.8
6	Total Phosphate as PO ₄ "	mg/L	4	0.6	1.9
7	Dissolved Oxygen	mg/L	5.6	5.0	6.0
8	BOD	mg/L	<04	<04	<04
9	Total alkalinIty	mg/L	348	216	250
10	Total Hardness	mg/L	488	142	276
11	Chloride	mg/L	320	43	162
12	Sulphate	mg/L	36	20	31
13	Chromium	mg/L	<0.03	<0.03	< 0.03
14	Cyanide	mg/L	Nil	Nil	Nil
15	Copper	mg/L	<0.01	<0.01	< 0.01
16	Cead	mg/L	<0.005	<0.005	< 0.005
17	Iron	mg/L	<0.1	<0.1	₹0.1
18	Zinc	mg/L	<0.02	<0.02	<0.02
19	Calclum	mg/L	112	24	59
20	Magnesium	mg/L	51	20	31
21	Silica	mg/L	5.6	5.2	4.2
22	MPN (Total Coliform)	No./100ml	NIL	NIL	NIL

Note: (1) These results relate to the sample tested only.

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Monthly Comparison of Water sample of Surat Drums Factory Borewell

Sr. No.	Parameters	Unit	May-16	Jun-16	July-16	Aug-16	Sept-16	Oct-16
1	Temperature	°C	31.5	31.0	31.0	30.5	29.5	28.5
2	рН	pH-Unit	7.25	7.17	7.29	7.22	7.85	7.69
3	Total Dissolved Solids (TDS)	mg/l	1185	1164	1133	1284	1075	911
4	Turbidity	NTU	2.0	2.4	2.0	2.6	2.2	2.0
5	Nitrate as (NO ₃ ⁻)	mg/l	0.8	0.6	0.8	0.9	0.8	0.4
6	Total Phosphate as PO ₄	mg/l	5.8	4.6	4.2	4.8	3.6	4
7	Dissolved Oxygen	mg/l	6.2	6.1	6.0	6.4	6.2	5.6
8	BOD	mg/l	<04	<04	<04	<04	<04	<04
9	Total alkalinity	mg/l	316	326	316	385	324	348
10	Total Hardness	mg/l	576	584	576	612	510	488
11	Chloride	mg/l	508	517	507	525	384	320
12	Sulphate	mg/l	29	34	39	45	50	36
13	Chromium	mg/l	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
14	Cyanide	mg/l	Nil	Nil	Nil	Nil	Nil	Nil
15	Copper	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
16	Lead	mg/l	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
17	Iron	mg/l	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
18	Zinc	mg/l	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
19	Calcium	mg/l	192	199	184	148	127	112
20	Magnesium	mg/l	23	21	28.2	59	47	51
21	Silica	mg/l	6.5	6.9	7.8	6.8	6.2	5.6
22	MPN (Total Coliform)	No./100 ml	NIL	NIL	NIL	NIL	NIL	NIL

Monthly Comparison of Water sample of Amar Honda Borewell

Sr. No.	Parameters	Unit	May-16	Jun-16	July-16	Aug-16	Sept-16	Oct-16
1	Temperature	°C	-	-	-	30.0	29	28
2	рН	pH-Unit	-	-	-	7.51	7.51	7.80
3	Total Dissolved Solids (TDS)	mg/l	-	-	-	231	201	284
4	Turbidity	NTU	-	-	-	1.9	1.4	1.8
5	Nitrate as (NO ₃ ⁻)	mg/l	-	-	-	0.6	0.5	0.6
6	Total Phosphate as PO ₄	mg/l	-	-	-	0.2	0.8	0.6
7	Dissolved Oxygen	mg/l	1	-	-	5.1	5.6	5.0
8	BOD	mg/l	-	-	-	<04	<04	<04
9	Total alkalinity	mg/l	-	-	-	285	220	216
10	Total Hardness	mg/l	-	-	-	185	130	142
11	Chloride	mg/l	-	-	-	42	86	43
12	Sulphate	mg/l	1	-	-	23	28	20
13	Chromium	mg/l	1	-	-	< 0.03	< 0.03	< 0.03
14	Cyanide	mg/l	-	-	-	Nil	Nil	Nil
15	Copper	mg/l	1	-	-	< 0.01	< 0.01	< 0.01
16	Lead	mg/l	1	-	-	< 0.005	< 0.005	< 0.005
17	Iron	mg/l	1	-	-	< 0.1	< 0.1	< 0.1
18	Zinc	mg/l	1	-	-	< 0.02	< 0.02	< 0.02
19	Calcium	mg/l	-	-	-	26	32	24
20	Magnesium	mg/l	-	-	-	29	12	20
21	Silica	mg/l	-	-	-	4.3	4.8	5.2
22	MPN (Total Coliform)	No./100 ml	NIL	NIL	NIL	NIL	NIL	NIL

Monthly Comparison of Water sample of Ganesh Automobile Borewell

Sr. No.	Parameters	Unit	May-16	Jun-16	July-16	Aug-16	Sept-16	Oct-16
1	Temperature	°C	32.0	31.9	30.0	29.5	29.5	28.5
2	pН	pH-Unit	7.45	7.42	7.49	7.36	7.62	7.36
3	Total Dissolved Solids (TDS)	mg/l	624	589	611	708	654	544
4	Turbidity	NTU	1.9	1.6	1.2	1.6	1.2	1.4
5	Nitrate as (NO ₃ ⁻)	mg/l	0.6	0.4	0.2	0.8	0.6	0.8
6	Total Phosphate as PO ₄	mg/l	1.0	1.4	1.8	2.1	2.6	1.9
7	Dissolved Oxygen	mg/l	5.4	5.9	5.8	6.0	6.4	6.0
8	BOD	mg/l	<04	<04	<04	<04	<04	<04
9	Total alkalinity	mg/l	282	288	282	301	265	250
10	Total Hardness	mg/l	350	356	348	450	296	276
11	Chloride	mg/l	195	210	195	210	185	162
12	Sulphate	mg/l	20	28	34	38	43	31
13	Chromium	mg/l	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
14	Cyanide	mg/l	Nil	Nil	Nil	Nil	Nil	Nil
15	Copper	mg/l	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01	< 0.01
16	Lead	mg/l	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005	< 0.005
17	Iron	mg/l	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
18	Zinc	mg/l	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02
19	Calcium	mg/l	83	90	80	90	87	59
20	Magnesium	mg/l	35	32	36	55	19	31
21	Silica	mg/l	6.0	6.2	5.1	5.8	5.6	4.2
22	MPN (Total Coliform)	No./100 ml	NIL	NIL	NIL	NIL	NIL	NIL

Monthly Comparison of Water sample of Olpad Frozen Foods Pvt. Ltd. Borewell

Sr. No.	Parameters	Unit	May-16	Jun-16	July-16	Aug-16	Sept-16	Oct-16
1	Temperature	°C	-	-	31.0	-	-	-
2	pН	pH-Unit	-	-	7.38	-	-	-
3	Total Dissolved Solids (TDS)	mg/l	-	-	231	-	-	-
4	Turbidity	NTU	-	-	1.4	-	-	-
5	Nitrate as (NO ₃ ⁻)	mg/l	-	-	0.4	-	-	-
6	Total Phosphate as PO ₄	mg/l	-	-	0.4	-	-	-
7	Dissolved Oxygen	mg/l	-	-	5.4	-	-	-
8	BOD	mg/l	-	-	<04	-	-	-
9	Total alkalinity	mg/l	-	-	200	-	-	-
10	Total Hardness	mg/l	-	-	129	-	-	-
11	Chloride	mg/l	-	-	38	-	-	-
12	Sulphate	mg/l	-	-	19	-	-	-
13	Chromium	mg/l	-	-	< 0.03	-	-	-
14	Cyanide	mg/l	-	-	Nil	-	-	-
15	Copper	mg/l	-	-	< 0.01	-	-	-
16	Lead	mg/l	-	-	< 0.005	-	-	-
17	Iron	mg/l	-	-	< 0.1	-	-	-
18	Zinc	mg/l	-	-	< 0.02	-	-	-
19	Calcium	mg/l	-	-	21	-	-	-
20	Magnesium	mg/l	-	-	19	-	-	-
21	Silica	mg/l	-	-	7.8	-	-	-
22	MPN (Total Coliform)	No./100 ml	NIL	NIL	NIL	NIL	NIL	NIL

Monthly Comparison of Water sample of Nemlaxmi Books Borewell

Sr. No.	Parameters	Unit	May-16	Jun-16	July-16	Aug-16	Sept-16	Oct-16
1	Temperature	°C	32.5	31.7	-	-	-	-
2	рН	pH-Unit	7.39	7.35	-	-	-	-
3	Total Dissolved Solids (TDS)	mg/l	260	248	-	-	-	-
4	Turbidity	NTU	1.4	1.0	-	-	-	-
5	Nitrate as (NO ₃ ⁻)	mg/l	0.4	0.2	-	-	-	-
6	Total Phosphate as PO ₄	mg/l	0.8	0.6	-	-	-	-
7	Dissolved Oxygen	mg/l	5.0	5.2	-	-	-	-
8	BOD	mg/l	<04	<04	-	-	-	-
9	Total alkalinity	mg/l	200	208	-	-	-	-
10	Total Hardness	mg/l	130	136	-	-	-	-
11	Chloride	mg/l	38	52	-	-	-	-
12	Sulphate	mg/l	10	14	-	-	-	-
13	Chromium	mg/l	< 0.03	< 0.03	-	-	-	-
14	Cyanide	mg/l	Nil	Nil	-	-	-	-
15	Copper	mg/l	< 0.01	< 0.01	-	-	-	-
16	Lead	mg/l	< 0.005	< 0.005	-	-	-	-
17	Iron	mg/l	< 0.1	< 0.1	-	-	-	-
18	Zinc	mg/l	< 0.02	< 0.02	-	-	-	-
19	Calcium	mg/l	26	29	-	-	-	-
20	Magnesium	mg/l	16	16	-	-	-	-
21	Silica	mg/l	5.7	5.0	-	-	-	-
22	MPN (Total Coliform)	No./100 ml	NIL	NIL	NIL	NIL	NIL	NIL

ANNEXURE 16 – Effluent Sampling & Analysis Methodology, Analysis Report & Month Wise Comparison

Sr. No.	Particulars	Details
1.	Temperature	Temperature was measured by using calibrated thermometer.
2.	рН	pH analysis was carried out on site with the help of handy pH meter. pH analysis was also carried out in the laboratory after receiving the sample at room temperature. Only laboratory pH results have been reported in test report.
3.	Colour	Samples were filtered through whatman 40 filter paper to remove the turbidity and colour intensity was measured spectrophotometrically at 470 nm. Calculation was done by comparing the absorbance found during the measurement with standard calibration curve.
4.	TDS	Measured quantity of filtered sample was evaporated into previously weighed evaporating dish. TDS was calculated on weight difference basis.
5.	Chloride	Sample of measured quantity was titrated against standard Silver Nitrate using potassium chromate as indicator. Chloride was calculated from the volume of AgNO ₃ standard solution used during the titration.
6.	Sulphate	A measured volume of sample was acidified by Concentrated HCl and evaporated on hot plate till the dryness of the sample. Re added HCl and distilled water and Sulphate was precipitated as BaSO ₄ using 5 % BaCl ₂ . Precipitate were dried and gravimetrically estimated.
7.	Silica	Suitable aliquot of the sample was taken and 1:1 HCl was added. Ammonium molybdate was also added for colour development. Colour intensity was measured spectrophotometrically after the addition of 1.5 ml oxalic acid at 410 nm.
8.	Nitrate	Estimated volume of sample was dried. Dried precipitate of nitrate was dissolved in phenol disulphonic acid by rubbing with rod and water was added for complete dissolution. pH was raised with KOH solution, yellow color developed and color intensity was measured spectrophotometrically.
9.	DO	Suitable aliquot of the sample was taken in BOD bottle. Manganous Sulphate solution and Alkali Iodide Azide solution were added in the sample. Precipitates developed are dissolved by the addition of conc. Sulphuric acid. Sample was brought to titration against known sodium thiosulphate solution using starch as an indicator.
10.	BOD	Measured quantity of sample was placed in airtight bottle along with bacterial and nutrient chemical. It was kept under incubation at specific temperature (usually 270 C) and for specific time usually 3 Days). The dissolved Oxygen quantity was measured before and after incubation, Iodometrically. BOD was estimated on DO difference basis.
11.	Chromium	Chromium was oxidized by permanganate to chromate after digestion with HNO ₃ and H ₂ SO ₄ and violet colour produced after the reaction of symmetrical diphenyl carbazide to chromate ion and intensity of colour was measured spectrophotometrically at 510 nm.

		1
12.	Copper	Cuprous ion in neutral or slightly acidic solution react with 2, 9 dimethyl 1,10 phenanthroline (neocuproin) form a complex in which 2 moles of neocuproin are bound by 1 mole of cuprous ion. The complex was then extracted by chloroform in presence of hydroxyl amine hydrochloride and sodium citrate. Colour intensity was measured spectrophotometrically.
13.	Iron	Iron was reduced to ferrous state by boiling with acid and hydroxylamine. Then it was treated with 1,10 Phenanthroline at pH 5.2 to 6.0 and orange or red color developed. Optical density was measured on spectrophotometer.
14.	Most Probable Number (MPN)	Multiple fermentation Technique was applied for the estimation of MPN.
15.	Oil & Grease	Dissolved or emulsified oil and grease was extracted from water by petroleum ether at room temperature. Petroleum ether was evaporated in water bath. Remaining Oil and grease was measured gravimetrically.
16.	Boron	4 ml of curcumin solution was added in known volume of water sample and it was dried at 550C and residues were dissolved in acetone solution. Intensity of colour was measured spectrophotometrically after the development of colour.
17.	Fluoride	Under acidic condition fluoride reacts with Zirconium oxy chloride and SPAND and bleaching of colour was measured specrophotometrically.
18.	Phenolic Compound	Suitable aliquot was distilled out after adjusting the pH 4.0 with phosphoric acid. Ammonium hydroxide was added to adjust pH 10 and 4-aminoantipyrine was added followed by the addition of Potassium Ferricyanide. Colour intensity was measured spectrophotometrically at 510 nm wave length.
19.	COD	Take a suitable amount of sample make the volume upto 40 ml, add 0.4 gm HgSO4. Add 10 ml 0.25N Potassium Dichromate reagent. Add 30 ml Conc. H2SO4 containing Ag2SO4, cool at room temperature. Continue swirling and mixing while adding the sulfuric Acid reagent. Attach Flask to Condenser and turn on cooling Water. Reflux for 2 Hrs at 150 °C. Cool & wash down condenser with distilled water. Disconnect reflux condenser & dilute mixture to about twice its volume with distilled water. Cool to Room Temperature. Titrate excess K2Cr2O7 with FAS, using ferroin as an indicator. End Point: - Wine Red colour same for blank.
20.	Ammonical Nitrogen	Take 250 ml sample or an aliquot of sample in a flask and add 10ML Sodium tetra borate buffer & adjust pH 9.5 with 6 N NaOH. Transfer it in distillation assembly & omit it in 25 ml plane boric acid solution. Take suitable aliquot of sample and make it up to 25 ml with ammonia free distilled water. Add 2 drops of Rochelle Solution and 1ml Nessler Reagent and make up the volume 50 ml with distilled water. Wait for 10 min. for color development. Set absorbance 0 at 410 nm using blank as reference. Now note the absorbance reading for each sample at 410 nm.
21.	Hexavalent Chromium	Take 50ml of sample and add 1:1 sulphuric acid solution to adjust pH 1.0+0.3. Transfer quantitatively to each of these solutions in to 100 ml

		volumetric flask and add 2.0 ml diphenyl carbazide solution. Adjust the volume 100 ml with distilled water and mix well. Stand for 10 to 15 minute. Run the blank in similar way. Take abs at 540 nm wave length and plot the curve Conc vs Abs and calculate the OD factor.
22.	Total Suspended Solids	Wet the filter paper with a small volume of double distilled water and dry at 103°C to 105°C for 1 hour in hot air oven, cool in a desiccator and Weigh. Now put the weighed filter paper in TSS assembly and add suitable amount of sample in it and again dry atleast for 1 hour at 103°C to 105°C in a hot air oven, cool in a desiccator and take final weigh.









Issue Date: 20/05/2016

Test Report **EFFLUENT ANALYSIS REPORT**

TEST REPORT NO: ERM/ECSS/QF/5.10/02 A/Effluent/HCC/Rev.0-01/05-2016

Name of Industry Hindusthan Chemicals Company,

Olpad, Dist. Surat.

Sample Collected On 10/05/2016 Sample Received on 12/05/2016

Sample Analysed & Completion 12/05/2016 to 17/05/2016 Sample ID No. ERM/ECSS/2016/05/867, 868

Quantity/No. of Sample 2+2+10 lit. /3 Nos. Protocol (Purpose) As per Work Order

Packed Packing/ Seal

Sample Collected By Mr. Bhavesh Patel

Analysis Method Followed Standard methods for the examination of water & waste water,

APHA-22nd Edition, 2012 & IS 3025

Sr.			Res	ults	
No.	Parameters	Unit	Equalization Tank	Final Outlet	Limit
01.	рН	pH Unit	7.30	7.45	6.5-8.5
02.	Temperature	°C	32.0	32.5	40
03.	Colour	Hazen	17	15	100
04.	Total Dissolved Solids	mg/L	1010	760	2100
05.	Total Suspended Solids	mg/L	42	30	100
06.	COD	mg/L	72	35	100
07.	BOD (5 days at 20°C)	mg/L	25	18	30
08.	Oil & Grease	mg/L	4.5	3.0	10
09.	Phenolic compound	mg/L	<0.1	<0.1	1.0
10,	Cyanides	mg/L	0.2	0.1	0.2
11.	Ammonical Nitrogen	mg/L	17.6	15.8	50
12.	Hexavalent Chromium	mg/L	<0.03	<0.03	0.1
13.	Total Chromium	mg/L	<0.03	< 0.03	2.0
14.	Chloride	mg/L	181	125	600
<u> 15.</u>	Fluoride	mg/l	0.6	0.4	1.5
16.	Sulphates	mg/L	73	64	1000
17.	Sulphides	mg/L	<0.2	<0.2	2
18.	Bio-assay	(Survival of Fish in 100% Effluent after 96 hrs.)	-	90	90

Note: (1) These results relate to the sample tested only.

(2) The report shall not be reproduced except in full without written approval of the laboratory.

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CIN No.: U72200GJ2000PTC038265







issue Date: 20/06/2016

Test Report **EFFLUENT ANALYSIS REPORT**

TEST REPORT NO: ERM/ECSS/QF/5.10/02 A/Effluent/HCC/Rev.0-01/06-2016

Name of Industry Hindusthan Chemicals Company,

Olpad, Dist. Surat.

Sample Collected On 11/06/2016 Sample Received on 13/05/2016

Sample Analysed & Completion 13/06/2016 to 18/06/2016 Sample ID No. ERM/ECSS/2016/06/1074, 1075

Quantity/No. of Sample 2+2+10 lit. /3 Nos. Protocol (Purpose) As per Work Order

Packing/ Seal Packed

Sample Collected By Mr. Bhavesh Patel

Analysis Method Followed Standard methods for the examination of water & waste water,

APHA-22nd Edition, 2012 & IS 3025

		MITIA-ZZ GUIUOI	1, 2012 0 13 3023		
Sr.			Res	ults	
No.	Parameters	Unit	Equalization Tank	Final Outlet	Limit
01.	рH	pH Unit	7.25	7.30	6.5-8.5
02.	Temperature	°C	31.5	31.0	40
03.	Colour	Hazen	15	12	100
04.	Total Dissolved Solids	mg/L	1154	813	2100
05.	Total Suspended Solids	mg/L	47	36	100
06.	COD	mg/L	58	34	100
07.	BOD (5 days at 20°C)	mg/L	20	13	30
08.	Oil & Grease	mg/L	4.0	3.4	10
09.	Phenolic compound	mg/L	<0.1	<0.1	1.0
10.	Cyanides	mg/L	0.1	0.05	0.2
11.	Ammonical Nitrogen	mg/L	15.1	12.8	50
12.	Hexavalent Chromium	mg/L	<0.03	< 0.03	0.1
13.	Total Chromium	mg/L	<0.03	< 0.03	2.0
14.	Chloride	mg/L	156	115	600
15	Fluoride	mg/Ł	0.5	0.3	1.5
16.	Sulphates	mg/L	70	62	1000
17.	Sulphides	mg/L	<0.2	<0.2	2
18.	Bio-assay	(Survival of Fish in 100% Effluent after 96 hrs.)	-	90	90

Note: (1) These results relate to the sample tested only.

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CIN No.: U72200GJ2000PTC038265







Issue Date: 16/07/2016

Test Report EFFLUENT ANALYSIS REPORT

TEST REPORT NO: ERM/ECSS/QF/5.10/02 A/Effluent/HCC/Rev.0-01/07-2016

Name of Industry : Hindusthan Chemicals Company,

Olpad, Dist. Surat.

Sample Collected On : 07/07/2016 Sample Received on : 08/07/2016

 Sample Analysed & Completion
 : 08/07/2016 to 12/07/2016

 Sample ID No.
 : ERM/ECSS/2016/07/1209, 1210

Quantity/No. of Sample : 2+2+10 litres /3 Nos.

Protocol (Purpose) : As per Work Order

Packing/ Seal : Packed

Sample Collected By : Mr. Bhavesh Patel

Analysis Method Followed : Standard methods for the examination of water & waste water,

APHA-22nd Edition, 2012 & IS 3025

٠.,			Res			
Sr. No.	Parameters	Unit	Equalization Tank	Final Outlet	Limit	
01.	рН	pH Unit	7.18	7.45	6.5-8.5	
02.	Temperature	°C	32.0	32.5	40	
03.	Colour	Hazen	18	15	100	
04.	Total Dissolved Solids	mg/L	1010	760	2100	
05.	Total Suspended Solids	mg/L	38	28	100	
06.	COD	mg/L	40	26	100 30	
07.	BOD (5 days at 20°C)	mg/L	08	<4		
08.	Oil & Grease	mg/L	1.8	<1	10	
09.	Phenolic compound	mg/L	<0.1	<0.1	1.0	
10.	Cyanides	mg/L	NIL	NIL	0.2	
11.	Ammonical Nitrogen	mg/L	17.6	15.8	50	
12.	Hexavalent Chromium	mg/L	<0.03	<0.03	0.1	
13.	Total Chromium	mg/L	< 0.03	<0.03	2.0	
14.	Chloride	mg/L	54	44	600	
15.	Fluoride	mg/L	0.6	0.4	1.5	
16.	Sulphates	mg/L	73	64	1000	
17.	Sulphides	mg/L	<0.2	<0.2	2	
18.	Bio-assay (Survival of Fish in 100% Effluent after 96 hrs.)		-	100	90	

Note: (1) These results relate to the sample tested only.

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CIN No.: U72200GJ2000PTC038265

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Issue Date: 30/08/2016

Test Report **EFFLUENT ANALYSIS REPORT**

TEST REPORT NO: ERM/ECSS/QF/5.10/02 A/Effluent/HCC/Rev.0-01/08-2016

Name of Industry Hindusthan Chemicals Company,

Olpad, Dist. Surat.

Sample Collected On 05/08/2016 Sample Received on 06/08/2016

Sample Analysed & Completion 06/08/2016 to 10/08/2016 Sample ID No. ERM/ECSS/2016/08/1385, 1386

Quantity/No. of Sample 2+2+10 litres /3 Nos. Protocol (Purpose) As per Work Order

Packed Packing/ Seal

Sample Collected By Mr. Bhavesh Patel

Analysis Method Followed Standard methods for the examination of water & waste water,

APHA-22nd Editlon, 2012 & IS 3025

		711111 22 0010101	1, 2012 0 10 0 020			
Sr.			Res			
No.	Parameters	Unit	Equalization Tank	Final Outlet	Limit	
01.	pH pH Unit		7.35	7.85	6.5-8.5	
02.	Temperature	°C	28	28	40	
03.	Colour	Hazen	19	16	100	
04.	Total Dissolved Solids	mg/L	1185	847	2100	
05.	Total Suspended Solids	mg/L	48	32	100	
06.	COD	mg/L	36	20	100	
07.	BOD (5 days at 20°C)	mg/L	06	<4	30	
08.	Oil & Grease	mg/L	2.1	<1	10	
09.	Phenolic compound	mg/L	<0.1	<0.1	1.0	
10.	Cyanides	mg/L	0.1	0.08	0.2	
11.	Ammonical Nitrogen	mg/L	15.1	11.9	50	
12.	Hexavalent Chromium	mg/L	<0.03	< 0.03	0.1	
13.	Total Chromium	mg/L	<0.03	< 0.03	2.0	
14.	Chloride	mg/L	59	48	600	
_15	Fluoride	mg/L	0.5	0.3	1.5	
16.	Sulphates	mg/L	78	69	1000	
17.	Sulphides	mg/L	<0.2	<0.2	2	
18.	Bio-assay	(Survival of Fish in 100% Effluent after 96 hrs.)	-	100	90	

Note: (1) These results relate to the sample tested only.

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Issue Date: 16/09/2016

TEST REPORT EFFLUENT ANALYSIS REPORT

TEST REPORT NO: ERM/ECSS/QF/5.10/02 A/Effluent/HCC/Rev.0-01/09-2016

Name of Industry Hindusthan Chemicals Company,

Olpad, Dist. Surat.

Sample Collected On 09/09/2016 Sample Received on 10/09/2016

Sample Analysed & Completion 10/09/2016 to 14/09/2016 Sample ID No. ERM/ECSS/2016/09/1574, 1575 Quantity/No. of Sample 2+2+10 litres /3 Nos. in plastic carboy

Protocol (Purpose) As per Work Order

Packing/ Seal Packed

Sample Collected By Mr. Bhavesh Patel

Analysis Method Followed Standard methods for the examination of water & waste water,

APHA-22nd Edition, 2012 & IS 3025

Sr. No.			Res		
	Parameters	Unit	Equalization Tank	Final Outlet	Limit
01.	pH	pH Unit	7.67	7.42	6.5-8.5
02.	Temperature	°C	28	28	40
03.	Colour	Hazen	14	12	100
04.	Total Dissolved Solids	mg/L	1084	768	2100
05.	Total Suspended Solids	mg/L	41	29	100
06.	COD	mg/L	32	18	100
07.	BOD (5 days at 20°C)	mg/L	04	<4	30
08.	Oil & Grease	mg/L	3.0	<1	10
09.	Phenolic compound	mg/L	<0.1	<0.1	1.0
10.	Cyanides	mg/L	0.1	0.04	0.2
11.	Ammonical Nitrogen	mg/L	13.7	10.6	50
12.	Hexavalent Chromium	mg/L	<0.03	< 0.03	0.1
13.	Total Chromium	mg/L	<0.03	< 0.03	2.0
14.	Chloride	mg/L	52	44	600
15.	Fluoride	mg/L	0.4	0.2	1.5
16.	Sulphates	mg/L	68	58	1000
17.	Sulphides	mg/L	<0.2	<0.2	2
18.	Bio-assay	(Survival of Fish in 100% Effluent after 96 hrs.)	-	90	90

Note: (1) These results relate to the sample tested only.

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CIN No.: U72200GJ2000PTC038265

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Issue Date: 22/10/2016

TEST REPORT EFFLUENT ANALYSIS REPORT

TEST REPORT NO: ERM/ECSS/QF/5.10/02 A/Effluent/HCC/Rev.0-01/10-2016

Name of Industry Hindusthan Chemicals Company,

Olpad, Dist. Surat.

Sample Collected On 14/10/2016 15/10/2016 Sample Received on

Sample Analysed & Completion 15/10/2016 to 19/10/2016 ERM/ECSS/2016/10/1716, 1717 Sample ID No. Quantity/No. of Sample 2+2+10 litres /3 Nos. in plastic carboy

Protocol (Purpose) As per Work Order

Packed Packing/ Seal

Sample Collected By Mr. Bhavesh Patel

Standard methods for the examination of water & waste water, Analysis Method Followed

APHA-22nd Edition, 2012 & IS 3025

		ATTIM EE LUTTO	, 2012 G 10 3023			
C.,			Res			
Sr. No.	Parameters	Unit	Equalization Tank	Final Outlet	Limit	
01.	рН	pH Unit	7.85	7.67	6.5-8.5	
02.	Temperature	°C	30	29	40	
03.	Colour	Hazen	16	14	100	
04.	Total Dissolved Solids	mg/L	1142	818	2100	
05.	Total Suspended Solids	mg/L	48	32	100	
06.	COD	mg/L	34	20	100	
07.	BOD (5 days at 20°C)	mg/L	04	<4	30	
08.	Oil & Grease	mg/L	2.7	<1	10	
09.	Phenolic compound	mg/L	<0.1	<0.1	1.0	
10.	Cyanides	mg/L	0.1	0.03	0.2	
11.	Ammonical Nitrogen	mg/L	15.7	12.9	50	
12.	Hexavalent Chromium	mg/L	<0.03	< 0.03	0.1	
13.	Total Chromium	mg/L	<0.03	< 0.03	2.0	
14.	Chloride	mg/L	58	51	600	
15.	Fluoride	mg/L	0.6	0.4	1.5	
16.	Sulphates	mg/L	72	62	1000	
17.	Sulphides	mg/L	<0.2	<0.2	2	
18.	Bio-assay (Survival of Fish in Effluent after 96		-	90	90	

Note: (1) These results relate to the sample tested only.

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CIN No.: U72200GJ2000PTC038265

Monthly Comparison of Effluent sample (Equalization Tank)

Sr. No.	Parameters	Unit	May-16	Jun-16	July-16	Aug-16	Sept-16	Oct-16
1	pН	pH-Unit	7.30	7.25	7.18	7.35	7.67	7.85
2	Temperature	°C	32.0	31.5	32.0	28	28	30
3	Colour	Hazen	17	15	18	19	14	16
4	Total Dissolved Solids	mg/l	1010	1154	1010	1185	1084	1142
5	Total Suspended Solids	mg/l	42	47	38	48	41	48
6	COD	mg/l	72	58	40	36	32	34
7	BOD (5 days at 20°C)	mg/l	25	20	08	06	04	04
8	Oil & Grease	mg/l	4.5	4.0	1.8	2.1	3.0	2.7
9	Phenolic compound	mg/l	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
10	Cyanides	mg/l	0.2	0.1	NIL	0.1	0.1	0.1
11	Ammonical Nitrogen	mg/l	17.6	15.1	17.6	15.1	13.7	15.7
12	Hexavalent Chromium	mg/l	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
13	Total Chromium	mg/l	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
14	Chloride	mg/l	181	156	54	59	52	58
15	Fluoride	mg/l	0.6	0.5	0.6	0.5	0.4	0.6
16	Sulphates	mg/l	73	70	73	78	68	72
17	Sulphides	mg/l	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
18	Bio-assay	(Survival of Fish in 100% Effluent after 96 hrs.)	-	-	-	-	-	

Monthly Comparison of Effluent sample (Final Outlet)

Sr. No.	Parameters	Unit	May-16	Jun-16	July-16	Aug-16	Sept-16	Oct-16
1	pН	pH-Unit	7.45	7.30	7.45	7.85	7.42	7.67
2	Temperature	°C	32.5	31.0	32.5	28	28	29
3	Colour	Hazen	15	12	15	16	12	14
4	Total Dissolved Solids	mg/l	760	813	760	847	768	818
5	Total Suspended Solids	mg/l	30	36	28	32	29	32
6	COD	mg/l	35	34	26	20	18	20
7	BOD (5 days at 20°C)	mg/l	18	13	<4	<4	<4	<4
8	Oil & Grease	mg/l	3.0	3.4	<1	<1	<1	<1
9	Phenolic compound	mg/l	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1	< 0.1
10	Cyanides	mg/l	0.1	0.05	NIL	0.08	0.04	0.03
11	Ammonical Nitrogen	mg/l	15.8	12.8	15.8	11.9	10.6	12.9
12	Hexavalent Chromium	mg/l	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
13	Total Chromium	mg/l	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03
14	Chloride	mg/l	125	115	44	48	44	51
15	Fluoride	mg/l	0.4	0.3	0.4	0.3	0.2	0.4
16	Sulphates	mg/l	64	62	64	69	58	62
17	Sulphides	mg/l	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2	< 0.2
18	Bio-assay	(Survival of Fish in 100% Effluent after 96 hrs.)	90	90	100	100	90	90