

Research Paper

Case Study: Environment Impact assessment report on Dyes and Dyes Intermediate Industries.

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ABSTRACT

Environment Impact Assessment or EIA can be defined as the study to predict the effect of a proposed activity/project on the environment. A decision making tool, EIA compares various alternatives for a project and seeks to identify the one which represents the best combination of economic and environmental costs and benefits. EIA process helps to identify the possible environmental effects of a proposed activity and how those impacts can be mitigated. The purpose of the EIA process is to inform decision-makers and the public of the environmental consequences of implementing a proposed project.

The basic concept to introduce this paper is to understand the Environment Impact Assessment legal aspect and how it implement as practical approach. At present EIA Process is mainly restricted to Environment Attributes but looking to current scenario of Industries and Industrial operation now the time has come to introduce Safe Environment Clearance instead of Environment Clearance. Safety aspects is now introduce and include as main attribute like other Environment Attributes because due to less space of industrial operation incident or accident are occurred due to improper safety precaution and due to this chemical spilled or burnt which converted to emission and land pollution due to spillages/leakages.

SCOPE OF STUDY

- Understanding the legislation on Environment Impact Assessment and applicability.
- Understanding the process to carry out Environment Impact Assessment
- Carry out study on Environment Impact Assessment on one sector i.e. Dyes and Dyes Intermediates Industry
- Prepare Environment Management Plan according to study

This paper consisting legal provision of Environment Impacts Assessment, steps of EIA, procedure to obtain Environment Clearance and case study of how EIA to be prepared.

1 Introduction

Environmental Impact assessment (EIA) is a tool that seeks to ensure sustainable development through the evaluation of those impacts arising from a major activity (policy, plan, program, or project) that are likely to have significant environmental effects. It is anticipatory, participatory, and systematic in nature and relies on multidisciplinary input.

The phrase Environmental Impact Assessment comes from Sec. 102 (2) of the National Environmental Policy Act (NEPA), 1969, USA. Some rudiments of EIA are implicit even in early examples of environmental legislation. Napoleon in 1910 issued a decree which divided noxious occupations into categories: those which must far remove from habitations, those which may be permitted on the outskirts of towns, and those which can be tolerated even close to habitations, having regard to the importance of the work and the importance of the surrounding dwellings. Now the EIA has become a requirement in more than 100 countries (Canter 1996). In many European countries, it came into vogue with the introduction of the concept of sustainable development after the World Commission of Environment in 1987. In India, though EIA came into existence around 1978-79, it was made mandatory only in 1994

Environment Impact Assessment Notification was first issued on 27th January 1994 under the provision of the EPA-1986 by Ministry of Environment and Forests, (MoEF), New Delhi for the activity and project mentioned in that notification. EIA was made mandatory in 1994 under the environmental protection Act of 1986 with the following four objectives:

- Predict environmental impact of projects;
- Find ways and means to reduce adverse impacts;
- Shape the projects to suit local environment;
- Present the predictions and options to the decision-makers.

With the objectives of National Environment Policy approved by Union Cabinet on 18th May 2006, Ministry of Environment and Forests issued Environment Impact Assessment Notification 2006 on dated 14th September 2006 by in supersession of the notification number S.O. 60 (E) dated the 27th January 1994. Copies of the said notification were made available to the public on 15th September, 2005. Central Government hereby directs that on and from the date of its publication is 14th September, 2006 after due consideration of suggestion and inputs the required construction of new projects or activities or the expansion or modernization of existing projects or activities listed in the Schedule to this notification entailing capacity addition with change in process and or technology shall be undertaken in any part of India only after the prior environmental clearance from the **Central Government** or as the case may be, by the **State Level Environment Impact Assessment Authority**, duly constituted by the Central Government under sub-section (3) of section 3 of the said Act, in accordance with the procedure specified hereinafter in this notification.

The Objectives of the said EIA notification 2006 are:

- Imposing certain restrictions and prohibitions on new projects or activities, or on the expansion or modernization of existing projects or activities based on their potential environmental impacts.
- To seek public consultation from stakeholders and
- To incorporate necessary environmental safeguards by assessing the impacts at planning stage itself.

For the purpose, the projects were divided in 8 categories and further subdivided in 38 subcategories in the Schedule based on potentiality of project.

- List of Projects requiring prior EC
 1. Mining, extraction of natural resources and power generation
 2. Primary Processing
 3. Material Production
 4. Material Processing
 5. Manufacturing / fabrication
 6. Service Sector

7. Physical Infrastructure including Environmental Services
8. Building /Construction projects/Area Development projects and Townships

Among the above categories, the larger of major pollution potential projects are categorized as Category A for which the EC is to be accorded by the MOEF&CC and comparatively smaller projects or having less pollution potentiality are categorized as Category B for which the EC is to be accorded by the SEIAA. There are four stages to obtain Environmental Clearance

1. Screening
2. Scoping
3. Public Consultation
4. Appraisal

Screening: No screening is required for Category A projects. The Category B projects are to be screened at the State level for further categorization into B1 and B2. For Category B1 projects, both EIA and Public consultation process (If applicable as per Notification) will have to be conducted whereas for Category B2 projects, no EIA was required. The EC was then to be accorded by SEIAA after recommendation of SEAC.

Scoping: Scoping is required for Category A and Category B projects upon finalization of site and ToR are to be finalized within 60 days (Now as per new notification Auto TOR is accorded to industry based on location of site and other aspects) to be intimated to the Project Proponent (PP) and display on the website.

Public Consultation: Public Consultation is required to ascertain the concerns of local affected persons and others who have a plausible stake in environmental impacts of the project. Public consultation is to be held on site or in close proximity inviting direct public responses as well as responses from the plausible stake holders. It is to be conducted by the Stated Pollution Control Board (SPCB), with exception to certain projects (no PC is necessary in notified industrial areas, for B2 projects and construction and defense projects etc). It is to be video graphed and completed within 45 days and the public concerns are to be incorporated in the final EIA report. PH proceedings should be signed by the DM on the same day and displayed on web site and other Govt. offices.

Appraisal: Appraisal involves detailed scrutiny of EIA report and the whole process of submission of documents, presentation in front of SEAC, appraisal, recommendation to SEIAA, and decision is to be completed within 105 days.

Grant or Rejection of Prior Environmental Clearance (EC):

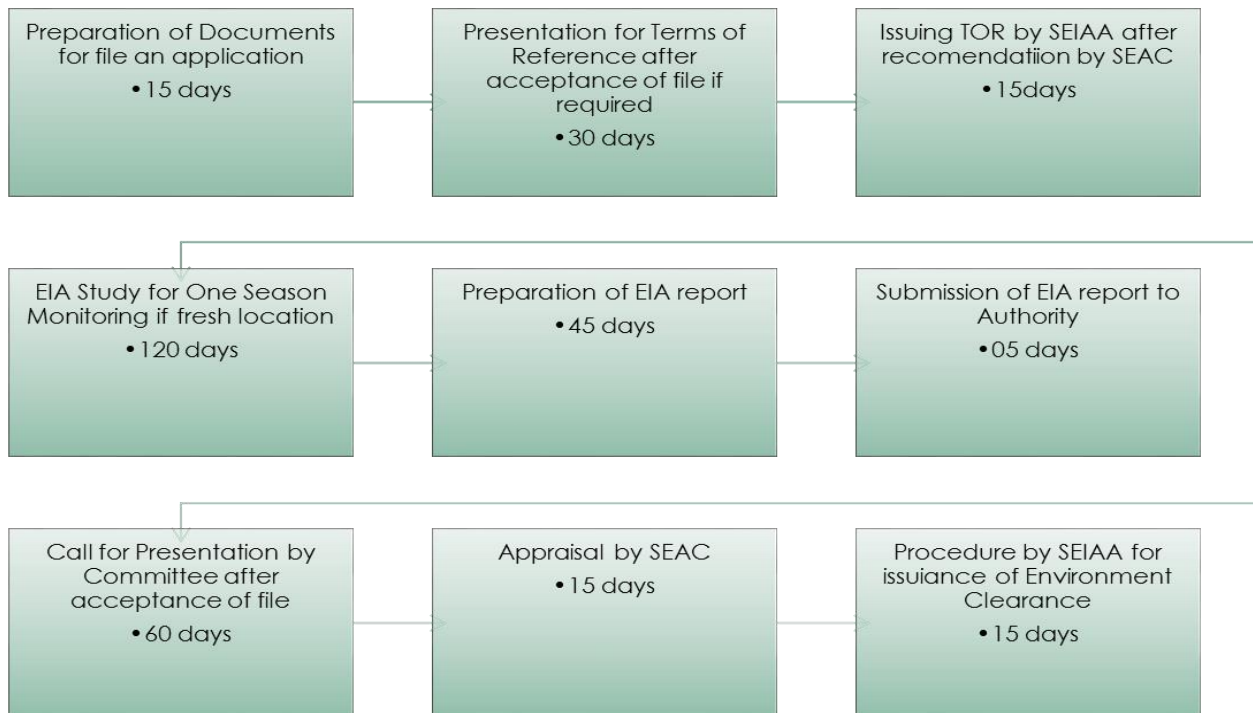
- The regulatory authority shall consider the recommendations of the EAC or SEAC concerned and convey its decision to the applicant within forty five days of the receipt of the recommendations of the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned.
- The regulatory authority shall normally accept the recommendations of the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned. In cases where it disagrees with the recommendations of the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned, the regulatory authority shall request reconsideration by the Expert Appraisal Committee or State Level Expert Appraisal Committee concerned stating the reasons for the disagreement

Validity of EC: EC is valid for 30 years for mining projects, 10 years for River valley projects, 7 years for all other projects. It can be extended to 3 years if an application is submitted within validity period

Post Environmental Clearance Monitoring: It shall be mandatory for the project management to submit half-yearly compliance reports in respect of the stipulated prior environmental clearance terms and conditions in hard and soft copies to the regulatory authority concerned, on 1st June and 1st December of each calendar year.

Transferability of Environmental Clearance (EC): A prior environmental clearance granted for a specific project or activity to an applicant may be transferred during its validity to another legal person entitled to undertake the project or activity on application by the transferor, or by the transferee with a written "no objection" by the transferor, to, and by the regulatory authority concerned, on the same terms and conditions under which the prior environmental clearance was initially granted, and for the same validity period.

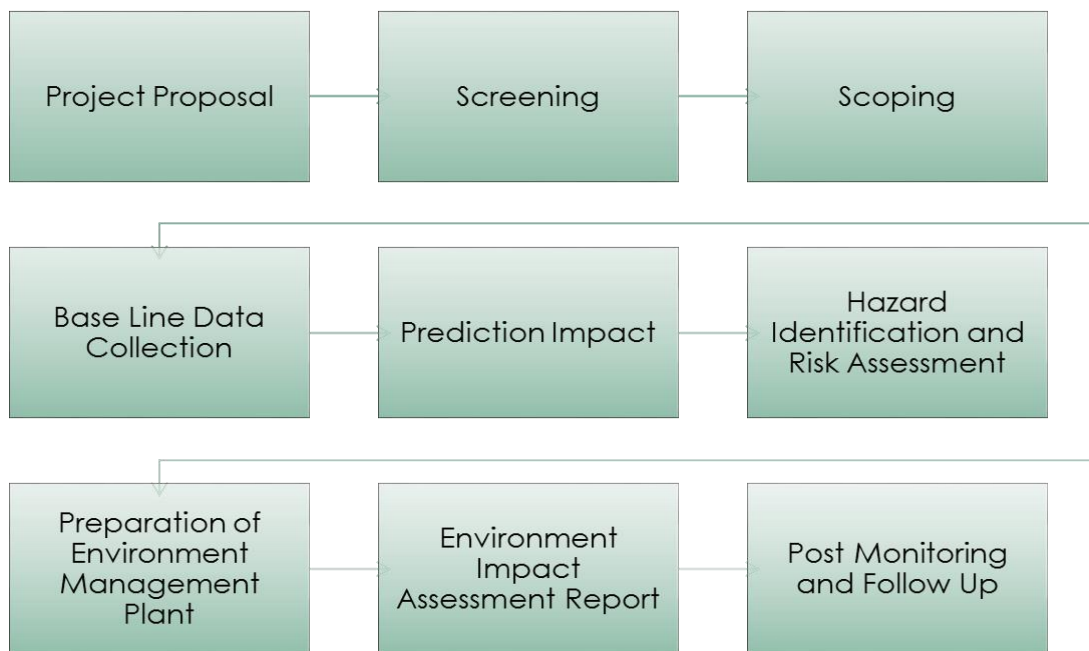
Tentative Time Schedule for Obtaining Environment Clearance:



NEED OF STUDY

- An EIA should **allow decision makers to assess a project's impacts in all its phases.**
- An EIA should allow decision makers to assess a project's impacts in all its phases
- It should also allow the public and other stakeholders to present their views and inputs on the planned development.
- EIA links environment with development for environmentally safe and sustainable development.
- EIA provides a cost effective method to eliminate or minimize the adverse impact of developmental projects
- EIA enables the decision makers to analyze the effect of developmental activities on the environment well before the developmental project is implemented.
- EIA encourages the adaptation of mitigation strategies in the developmental plan.
- EIA makes sure that the developmental plan is environmentally sound and within the limits of the capacity of assimilation and regeneration of the ecosystem.
- The Short term aim of EIA is to inform the process of decision making by identifying the potentially significant environmental effects and risks of development proposals.
- The long term aim of EIA is to promote sustainable development by ensuring that development proposals do not undermine critical resource and ecological functions or the well being, lifestyle and livelihood of the communities and peoples who depend on them.
- To conserve the environment and bring out the best combination of economic and environmental costs and benefits also called as Sustainable Development
- Environment Impact Assessment decreases a legitimate framework for the project with reduced environmental damage.

Methodology



INFORMATION ABOUT STUDY

- Conduct study on Dyes and Dyes intermediate industries falls under GIDC area
- Select One Location
- Understand the need and decide the product and its quantity based on area of the unit
- Project Description and Technical Data Collection
- Base line data collection once in season based on Wind Rose Diagram
- Environment Impact Analysis
- Hazard Identification and Risk Assessment using ALOHA Software
- Environment Management Plan
- Conclusion based on Study

CASE STUDY

i	Name & Address of the Project site (Complete details with plot no. /Survey no., Landmark etc.)	M/s. ABC DYES AND INTERMEDIATE Plot no. 11111, Phase – II, GIDC, Ahmedabad	
ii	Name of the Applicant	Mr. A B C	
iii	Address for correspondence	Plot no. 11111, Phase – II, GIDC, Ahmedabad	
		Mo. no. : 0000000000	
		e-Mail: abc@xyz.com	
v	Aerial distance of nearest Habitat (KM)	Naroda Gam 0.660 KM	
vi	Longitude & Latitude of the Project Site: (4 corners of the site)	corner	Latitude / longitude
		A.	23° 5'49.59"N 72°40'18.67"E
		B.	23° 5'46.79"N 72°40'20.15"E
		C.	23° 5'48.19"N 72°40'18.94"E
vii	Category as per the Schedule to the EIA Notification 2006 i.e. 1(d), 2(b), 5(f) etc. Sub Category: i.e. Dyes, Dyes Intermediates, Specialty chemicals, Bulk Drugs etc.	5 (f) Synthetic Organic Chemicals	
		Sub-Category: B1	

TYPE OF PRODUCTS:

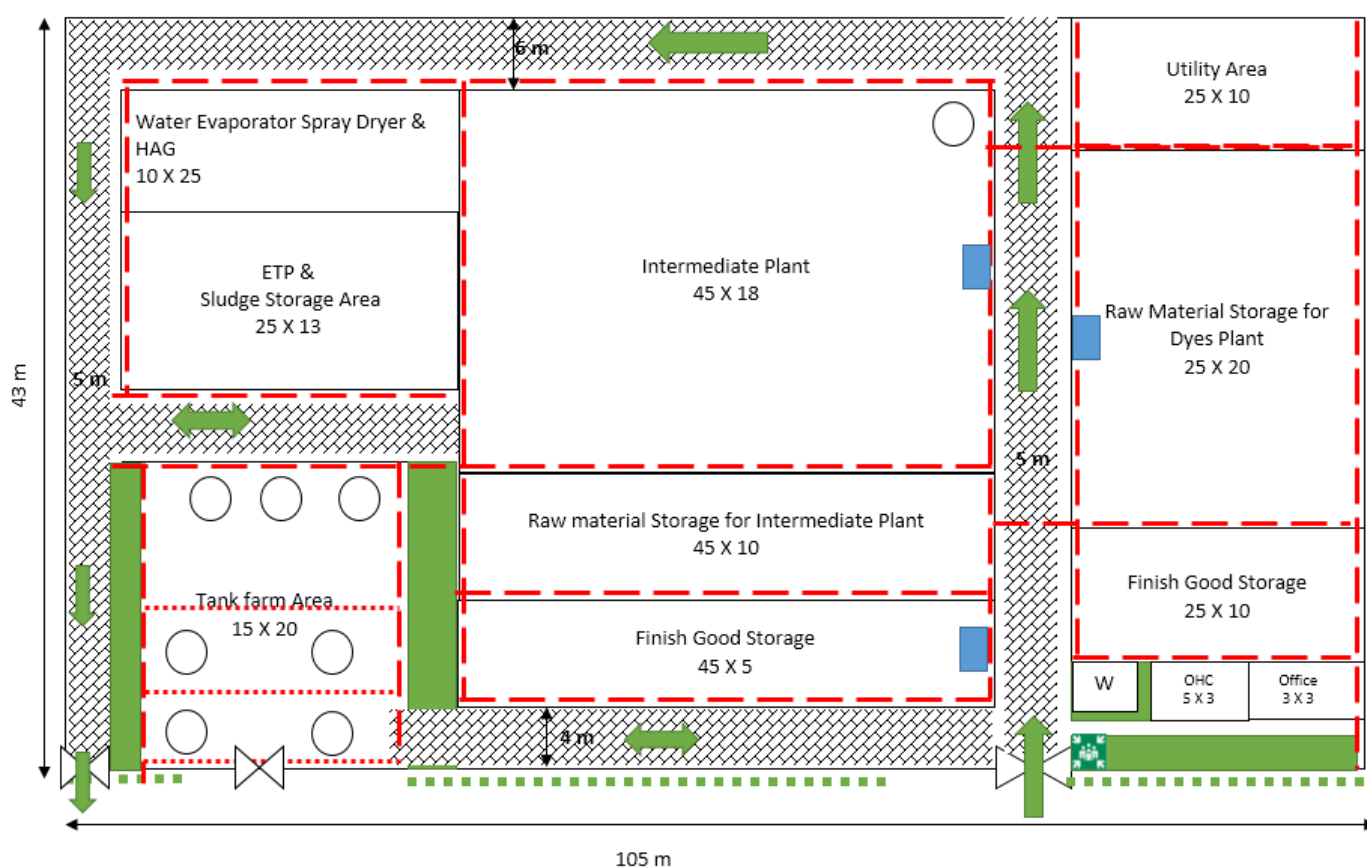
SR. NO	PRODUCT NAME	CI Name/ CAS No.	Total Proposed MT/Month
1	Dyes	--	60.00
2	Dyes Intermediates	-	60.00
	TOTAL		120

BASIC RAW MATERIAL AND ITS STORAGE

Sr No	Name of Raw Material	CAS no	State	Max Storage (MT)	Storage	MOC
1.	Sodium Bi sulfite	7631-90-5	Solid	3	Bag	HDPE
2.	Aniline Oil	62-53-3	Liquid	2	Drum	HDPE
3.	Formaldehyde	50-00-0	Liquid	5	Tank	SS
4.	Salt	7647-14-5	Solid	5	Bag	HDPE
5.	Sulphanilic Acid	121-57-3	Solid	3	Bag	HDPE
6.	HCl	7647-01-0	Liquid	20	Tank	SS
7.	Sodium Nitrite	7632-00-0	Solid	5	Bag	HDPE
8.	Sodium Bi Carbonate	144-55-8	Solid	5	Bag	HDPE
9.	Sulfuric Acid	7667-93-9	Liquid	20	Tank	MS
10.	O – Anisidine	90-04-0	Liquid	3	Drum	HDPE
11.	Oleum (65%)	8014-95-7	Liquid	2	Tank	SS
12.	Soda Ash	497-19-8	Solid	4	Bag	HDPE
13.	Iron Powder	7439-89-6	Solid	2	Bag	HDPE
14.	PNT	99-99-0	Liquid	3	Drum	HDPE
15.	FC Acid	119-70-0	Solid	2	Bag	HDPE
16.	Gamma Acid	90-51-7	Solid	3	Bag	HDPE
17.	Caustic Soda	1310-73-2	Solid	3	Bag	HDPE
18.	MPD(m-Phenylene Diamine)	107-41-5	Solid	3	bag	HDPE
19.	PAA	9003-01-4	Liquid	2	Drum	HDPE
20.	Mix Cleaves Acid	87-65-0	Solid	2	Bag	HDPE
21.	J Acid	87-02-5	Solid	3	Bag	HDPE

22.	H-Acid	9004-61-9	Solid	2	Solid	HDPE
23.	MAP	7722-76-1	Solid	3	bag	HDPE
24.	Sodium Acetate	127-09-3	Solid	2	Bag	HDPE
25.	J-Acid urea	854812-04-7	Solid	3	Bag	HDPE
26.	p-Amino acetanilide	122-80-5	Solid	1	Bag	HDPE
27.	p-Aminoazo benzene 4-sulfonic Acid	104-23-4	Liquid	3	Drum	HDPE
28.	Benxoyl chloride	98-07-7	Liquid	1	Bag	HDPE
29.	Barbituric Acid	67-52-7	Solid	1	Bag	HDPE
30.	Bronner's acid	93-00-5	Powder	3	Bag	HDPE
31.	PAABSA	60-09-3	Solid	1	Drum	HDPE
32.	Dextrose	492-62-6	Solid	2	Bag	HDPE

MODEL PLANT LAY OUT



AREA DISCTRIBUTION

Sr no	Area	Area in Sq. m		Total
		Ground Floor	First Floor	
1	Production Area	810	2135	2945
2	Raw Material Storage	950	-	950
3	Finish Good Storage Area	475	225	700
4	Tank farm area	300	-	300

5	ETP Area	325	-	325
6	Office and lab	12	12	24
7	OHC	15	-	15
8	Spray Drying Area	250	-	250
9	Utility Area	250	-	250
10	Green Belt Area	200	-	200
11	Open Area	991	-	991
Total		4581		

AREA ADEQUACY

Sr No.	Description of Area	Criteria for Storage	Inventory Required (MT) (KL)	Area Required (m2)
1	Finished Product Storage Area (1 Week inventory)	120 MT/month	30	100
		25 Drum (Caustic & its safe combinations Group)	5.2	12.0
		20 Drum (Inorganic Acids & its safe combinations Group)	4.2	9.0
		2 Drum (Amines and Alkanolamines & its safe combinations Group)	0.420	0.90
		3 Drum (Aldehydes & its safe combinations Group)	0.630	2.0
		Open Space	-	150.0
	Raw Material Store area in Bag (1 Week inventory)	1050 Bag	26.25	30
		20 KL X 3	60	70
		15 KL X 1	15	20
		10 KL X 1	10	15
		2 KL X 1	2	5
		4 KL X 1	4	10
4	Effluent Treatment Plant	61 KLD	61 KLD	150
5	ETP Sludge Storage (30 Day Inventory)	900 MT/Annum	75 MT	90
6	Utility Area	-	Boiler, HAG	150
7	Spray Drying Area	-	-	200
8	Adm. Office	-	-	15
9	OHC	-	-	15
10	Manufacturing Area	80 MT/Month	-	880
		TOTAL		1923.9

• POLLUTION POTENTIAL AND MITIGATION MEASURES

The summarized statement for proposed pollution load is provided in the following table.

Pollution		Remarks/Mitigation			
Wastewater					
<ul style="list-style-type: none">Domestic: 2.0 KLDIndustrial: 61.0 KLD		<ul style="list-style-type: none">The domestic wastewater @ 2.0 KL/day disposed through septic tank/ soak pit.Total industrial 61.0 KLD wastewater generation from manufacturing process and other ancillary operation which is divided into two stream i.e. Low Concentrated wastewater treated in Primary, secondary ETP Plant and then treated water final discharge though 5 KLD CETP Naroda (NEPL) for further treatment and final disposal.High Concentrated Effluent @ 56.00 KLD including washing stream will be discharge through Common Facility @ 28.00 KLD and remaining 28.0 KLD water in house Spray dryer for the Evaporation.There will be no additional hydraulic as well organic load will be on CETP of Naroda due to this proposed expansion.			
<ul style="list-style-type: none">Air Emission					
Sr. no	Stack attached to	Stack height in meter	Fuel	Consumption	APCM
1	Small Industrial Boiler 0.8 TPH	11	Fire Wood (Removed)	10 MT/Month	Adequate Stack Height
2	IBR Boiler (2 TPH)	15	Natural Gas	1200 SCM/Day	Adequate Stack Height
3	Hot Air Generator for SFD (800 Kcal /Hr)	11	Natural Gas	200 SCM/Day	Adequate Stack Height
4	Hot Air Generator for SFD (800 Kcal /Hr) 2 nos	11	Natural Gas	400 SCM/Day	Adequate Stack Height
5	Hot Air Generator (10 lac Kcal /Hr)	15	Coal	3 MT/Day	Multi Cyclone Separator with Bag Filter
6	Hot Air Generator (30 Lac Kcal /Hr)	21	Coal	7 MT/Day	Multi Cyclone Separator with Bag Filter
<ul style="list-style-type: none">Process gas emission					
Sr no	Stack attached to	Stack height in meter	APCM	Type of Emission	
1	Sulphonation Vessel of Vessel			SO2	
2	Sulphonation Vessel			SO2	
3	Spin Flash Dryer	11	-	PM	
4	Tray Dryer	11	-	PM	
5	Spray Dryer for Product (1000 LPH)	15	Multi Cyclone Separator With Two Stage Water Scrubber	PM	

6	Spin Flash Dryer	11	-	PM
7.	Spray Dryer for Water Evaporation (2500 LPH)	21	Multi Cyclone Separator With Two Stage Water Scrubber	PM

Hazardous Waste

Sr. No	Types of Hazardous Waste	Sources	Category	Ultimate MT/Year	Disposal
1	ETP Sludge	ETP Plant	35.3	580	Collection, storage, Transportation and Dispose to Active TSDF Site
2	Used Oil	Plant Machinery	5.1	0.5	Collection, storage, Reuse within premises.
				20.0	
				25.0	
4	Process Waste (Residue)	4 ADAPSA	26.1	2.0	Collection, Storage, Transportation & Dispose to Co processing or CHIWF
5	SBS	Scrubbing media	26.1	150	Collection, Storage, transportation and send to actual users having permission under Rule 9
6	Process Waste (Gypsum)	--	26.1	150.0	Collection, Storage, Transportation & Dispose to Co processing or TSDF
7	Process Waste (Iron Sludge)	Process	26.1	211	Collection, Storage, Transportation & Dispose to Co processing or TSDF
8	Spent Sulphuric Acid (45% to 70%)	Intermediates	26.2	1286	Collection, Storage and 116 MT/Year Spent Acid Reuse in Process and remaining 170 MT/Year Spent Acid Send to actual users having permission under Rule 9 OR sent to Spent Acid Management

MAXIMUM RAW MATERIAL STORAGE

Sr No	Name of Raw Material	Max Storage MT	Nature of Chemical	Storage Condition	Nos of Storage Tank	Fire extinguisher Type	Remark
1	Sulphuric Acid	20	Corrosive	NTP	1		-
2	Spent Sulphuric Acid	20	Corrosive	NTP	1		-
3	Oleum 23 %	10	Highly Corrosive	NTP	1	DCP	
4	Oleum 65 %	02	Highly Corrosive	NTP	1	DCP	
5	Formaldehyde	04	Flammable and Danger to Health	NTP	1	DCP and CO2 and Class B	

6	HCl	20	Corrosive	NTP	1	Sand Bucket	
7	Aniline Oil	15	Danger to Health	NTP	1	DCP and CO2 and Class B	

RISK ASSESSMENT

Sr. No.	Short description of scenario	Chemical evolved	Types of risk	Probability	Concentration	Damage Distance from source
1	Rupture of Tank in storage area	Sulphuric Acid	Corrosive	Very Rare	130mg/m ³ 7.3 mg/m ³ 0.17 mg/m ³	9.96 Meter 10.97 Meter 74.98 Meter
2	Rupture of Tank in storage area	Hydrochloric Acid	Corrosive	Very rare	100 ppm 22 ppm 1.8 ppm	9.96 Meter 14.63 Meter 52.12 Meter
3	Rupture of Tank in storage area	Oleum 23%	Corrosive	Very rare	160 mg/m ³ 8.7 mg/m ³ 0.2 mg/m ³	9.96 Meter 10.05 Meter 66.75 Meter
4	Rupture of Tank in storage area	Oelum 65%	Corrosive	Very rare	160 mg/m ³ 8.7 mg/m ³ 0.2 mg/m ³	12.80 Meter 53.03 Meter 352.044 Meter
5	Rupture of Tank in storage area	Aniline	Danger to health	Very rare	10.0 KW/m ³ 5.0 KW/m ³ 2.0 KW/m ³	15.54 Meter 21.94 Meter 32.91 Meter
6	Rupture of Tank in storage area	Formaldehyde	Flammable	Very rare	10.0 KW/m ³ 5.0 KW/m ³ 2.0 KW/m ³	10.97 Meter 14.63 Meter 20.11 Meter

ENVIRONMENT IMPACT ASSESSMENT AND MANAGEMENT PLAN

Environmental Attributes	Causes	Impact Characteristics			
		Nature	Duration	Reversibility	Significance, Mitigative measures
Activity: Handling & Charging of Raw Materials/Products					
					Low, manage to ensure proper handling of the spillages during transfer, charging operation and provision of a dust collection system for collection of the air borne material wherever applicable.
					Preventive maintenance of flange connections and glands of pumps.

	connection or gland leaks				<p>Besides this, the management will also ensure proper usage of the personnel protective Equipments by the workers.</p> <p>Regular work place Monitoring, ambient air, stack air monitoring to be done</p>
	Generation of wastewater from the manufacturing process	Direct Negative	Long Term	Irreversible	<p>Total industrial 61.0 KLD wastewater generation from manufacturing process and other ancillary operation which is divided into two streams i.e. Low Concentrated wastewater treated in Primary, secondary ETP Plant and then treated water final discharge through 5 KLD CETP Naroda (NEPL) for further treatment and disposal.</p> <p>High Concentrated Effluent @ 56.00 KLD including washing stream will be discharge through Common Facility @ 28.00 KLD and remaining 28.0 KLD water in house Spray dryer for the Evaporation.</p>
	Generation of domestic wastewater	Direct Negative	Long Term	Reversible	Discharged to soak pit/septic tank
Noise Generation	Generation of noise from the operation of Process machinery.	Direct negative	Long term	Reversible	The workers of that area to be provided PPE (Ear Plugs and the use of PPE will be ensured by the management).
Activity : operation of boiler, HAGs & Utilities					
					<p>Boiler-2 TPH and hot air Generator-800 Kcal/hr, 800 kcal/hr-2 nos will use natural gas and hot air generator-30 lac kcal/hr and 10 Lac Kcal/hr will use coal as a fuel.</p> <p>APCM provided as MCS with bag filter with HAG-10 lac kcal/hr and HAG-30 lac Kcal/hr.</p> <p>The flue gas is emitted into the atmosphere through a stack of 11 meter, 15 meter and 21 meter height according to instrument used.</p>

Waste water	Generation of boiler blow down	Direct negative	Long term	irreversible	To be treated in the ETP along with the industrial effluent.
Noise	Noise generation due to operation of boiler and HAG	Direct negative	Long term	Reversible	Noise generation due to operation of the pumps & draft fans. Preventive Maintenance to be done and PPE like ear plugs to be provided
Solid wastes	Annual maintenance for cleaning the Heater tubes- solid waste generation during the cleaning – up operation.	Direct negative	Long term	Reversible	The solid waste generated will be sent to TSDF site for disposal along with ETP sludge.
Activity : operation & maintenance of domestic utilities					
Water	Operation of washroom, toilets – wastewater generation	Direct negative	Long term	Reversible	Domestic effluent (sewage) to be disposed of through soak pit/septic tank.
Activity: operation & maintenance of ETP					
Water	Treatment of wastewater generation of ETP sludge	Direct negative	Long term	Reversible	<p>Total industrial 61.0 KLD wastewater generation from manufacturing process and other ancillary operation which is divided into two streams i.e.</p> <p>Low Concentrated wastewater treated in Primary, secondary ETP Plant and then treated water final discharge through 5 KLD CETP Naroda (NEPL) for further treatment and disposal.</p> <p>High Concentrated Effluent @ 56.00 KLD including washing stream will be discharge through Common Facility @ 28.00 KLD and remaining 28.0 KLD water in house Spray dryer for the Evaporation.</p>
Air Quality	Dosing of treatment chemicals and process	Direct negative	Long term	Reversible	<p>To ensure proper handling & dosing of treatment chemicals. In process gas emission sulphonation vessel with attached APCM as two stage alkali scrubber.</p> <p>Spray dryer for product (1000 LPH) with attached APCM as MCS with two stage water scrubber.</p> <p>Spray dryer for water evaporation (2500 LPH) with attached APCM as MCS with two stage water</p>

					scrubber.
					Designated storage area with proper roof and impervious flooring to avoid soil Contamination due to leachate infiltration during Monsoon.
					Leachate collection, Conveyance to ETP.
					Hazardous wastes are to be disposed as per the statutory requirements.
					Treatment Chemicals to be stored in a designated area.
Activity : Storage Facilities					
					Management will ensure good practices during transfer operations to avoid any spillage of the solid wastes.
					Use Of PPE's by workers
Land	Transfer of material from drums – spillage / Leakage of material during loading, unloading and transfer, due to gland leakage of pumps, flange leakage in pipelines and due to manual operation. Generation of solid waste of Spillage clean-up of the material using Water, sand / gypsum and Treatment of the wash water.	Direct negative	Long term	Reversible	Contaminated soil will be sent for disposal into landfill, after accumulation if any. Regular maintenance of pumps and flange connections in pipelines should be Ensured and carried out by the management. Impervious flooring to be provided to avoid contact of spilled material with soil. Dyke walls to be constructed.
Activity: Storage of raw materials/Products					
Land, Water	Storage of all the solid raw materials in the plant area in Drums / HDPE bags and transfer to the	Direct negative	Long term	Reversible	Chemicals shall be stored, by taking necessary measures to avoid contamination of Land & water during monsoon. Ensure safe disposal of the empty containers to

	operational / processing area spillage, disposal of used bags.				registered/approved recyclers. Relevant Records to be maintained.
Land, Water	Storage of all the liquid raw materials within the plant area and transfer to the operational / processing area spillage / leakage, disposal of used drums.	Direct negative	Long term	Reversible	Chemicals shall be stored, by taking necessary measures to reduce contamination of Land & Water during monsoon and ensure safe disposal of the empty drums to registered/ approved recyclers. Relevant records to be maintained. Dyke Walls to be made at storage tanks with valve & Pump arrangements to contain spillages & Leakages.
Activity: Transportation of Raw materials/Products, hazardous waste					
					Trained transporters to be engaged for transport of hazardous materials, spill control & other emergency actions.
					MSDS of all raw materials & finished products shall be kept available at storage area & with the concerned departments.
					The vehicles used for transporting hazardous materials shall follow the applicable guidelines given in The Motor Vehicles Act.
Green Belt	Development of green belt for mitigation of pollution, Plantation of trees within & at periphery of premises	Direct negative	Long term	Reversible	Positive Impact due to development of a good green belt along the periphery of the premises.
Activity : Employment Generation					
					Positive Impact due to hiring of manpower.
					Benefits in the form of contracts to local agencies for different services
					Employment generation in transport sector as local conveyance trips and trucks loadings will be handled regularly.

Activity	Environmental impacts	Mitigation	Remarks
		Ensure proper handling of all spillages/ Leakages by introducing spill control procedures for various chemicals.	
		Ensure use of PPE's workers. MSDS of each chemical & finished product to be displayed at the storage area.	
		No. effluent discharge	
Operation of Utility facilities			
		Preventive maintenance of fuel firing system and optimization of air fuel ratio.	
		Preventive maintenance of machinery to reduce noise level.	
		Provision of adequate stack height of 11 m and 12 m	
		Ensure use of PPE	
		Preventive maintenance of machinery to reduce noise level	
		Ensure usage of PPE	
		Provision of adequate stack height	
Operation of Utility Facilities			
		The industrial effluent shall be treated in ETP having primary, secondary and tertiary treatment.	
		Treated effluent will be Discharged to CETP and common facilities to achieve reuse and recycle of treated water to its Maximum.	
Temporary Solid Waste storage and handling within the premises.	<ul style="list-style-type: none"> Water Land 	Well demarcated Storage area marked as Hazardous Waste Storage area with Leachate collection system, impervious roof and floor.	Will be carried out by company.
Storage, Handling & Transportation of Raw materials and Products			
		Fugitive emission of chemical controlled by providing the tarpaulin sheet during Transportation.	
		Loading/unloading will be carried out at Minimum height.	
		Metering and control of quantities of active ingredient to minimize waste	
		Use of automated filling to minimize the spillage	
		Use of close feed system into batch reactor	
		Small quantity of chemical should be stored	
		Venting equipment through vapour recovery system	
		Use of high pressure hoses for equipment cleaning to reduce waste water generation for reuse	
		Fire Extinguishers to be installed at all vulnerable points within the plant.	
Other Facilities			

Toilets	<ul style="list-style-type: none"> Water 	Ensure proper sewage collection, conveyance & disposal	Will be carried out by company.
Development and maintenance of green belt	<ul style="list-style-type: none"> Air Land 	Ensure development and maintenance of proper green belt as proposed.	
Direct / Indirect Employment	<ul style="list-style-type: none"> Socioeconomic issue 	Continue policy of local employment	
Human health	<ul style="list-style-type: none"> Worker 	Regular Health Checkups Workplace monitoring PPE should provided	Will be carried out by company.

CONCLUSION

Water: The water consumption for the proposed unit will be satisfied by GIDC pipeline for domestic and Industrial purpose with consumption rate of 61.0 KLD.

Total industrial 61.0 KLD wastewater generation from manufacturing process and other ancillary operation which is divided into two stream i.e. Low Concentrated wastewater treated in Primary, secondary ETP Plant and then treated water final discharge through 5 KLD CETP Naroda (NEPL) for further treatment and disposal. High Concentrated Effluent @ 56.00 KLD including washing stream will be discharge through Common Facility @ 28.00 KLD and remaining 28.0 KLD water in house Spray dryer for the Evaporation. There will be no additional hydraulic as well organic load will be on CETP of Naroda due to this proposed expansion. There will be no any impact on human health and surrounding environment due to spray Dryer of wastewater as this wastewater does not contains any VOC or other hazardous substances.

Air: The unit has proposed some additional utility for this proposed expansion. The unit is going to utilized natural gas and coal as fuel and APCM provided as MCS with bag filter. The only process gas emission from which it is mitigate will be provided with APCM such as two stage alkali scrubber, MCS with two stage water scrubber and MCS with two stage water scrubber connected to sulphonation vessels and spray dryers.

Hazardous Waste: There will be total eight types of Hazardous waste will be envisaged in the study. The ETP waste will be send to TSDF site. Used oil will be reuse in premises. Discarded Container and Empty Bags with liners will be sold to registered recycler. Other waste will be managed as per provision of Hazardous Waste Rules 2016

From the overall study and evaluation of impacts, it can be concluded that the overall negative impact from various activities on different environmental parameters is negligible with proper EMP in place. Even the negative impacts can be converted into positive beneficial impact with proper and timely implementation of EMP. Hence project can be considered environmentally safe & fit.

The proposed expansion project will have overall minor negative impacts on environment and positive impacts on Socio economic. This unit has properly discharged the industrial effluent to common facilities. There will be no increase in hydraulic load to CETP after Proposed Expansion. The organic load will be reduced on CETP after proposed expansion. The proposed has proposed with adequate Environment Management Plan to reduce negative impact. The proposed will generate direct and indirect employment which increase socio economy aspect.

The salient features of the impact on environment due to the proposed project can be summarized as follows:

- Construction phase will not impart significant impact, as indicated mitigation measures will be followed.
- Negligible impacts will occur on air quality during operation phase. However, all the necessary air pollution control measures will be provided.
- No ecological damage will occur
- No adverse impacts will occur on water environment
- Economic status of the local population will be improved due to the increased business Opportunities. The industry will generate employment.
- Various other environmental parameters like Forest/ National Park/ Sanctuary and Religious/Historical Places will not be affected.
- Environmental Management Plan has been formulated to control all the pollution control measures and Environmental Management Cell has been set-up to follow the formulated environmental plan.

The proposed project will have overall minor negative impacts on environment and positive impacts on Socio economic. This unit has utilized natural gas as fuel and also proposed natural gas fuel to minimize the air pollution. The unit is also partially utilized spent acid. The proposed expansion has proposed with adequate Environment Management Plan to reduce negative impact. The proposed expansion will generate direct and indirect employment which increase socio economy aspect.

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