1. Project Description

M/s. Akshar Chem (India) Ltd. is located at Plot No. 166 – 169, Village: Indrad, Kadi-Kalol Road, Taluka: Kadi, Dist. Mehsana, Gujarat. Unit is planning to manufacturer of Single Super Phosphate (SSP) with other dye intermediates products at above location.

Akshar Chem plan to produce Single Super Phosphate (SSP) from the byproduct of Sulphuric Acid generated from Dye Intermediates resulted to produce SSP with less cost and enables to provide SSP to farmers with very competitive rate. Proposed Single Super Phosphate' plant will have annual capacity of 8350 MT/Month along with other dye Intermediates products. Details of products are summarized below.

Sr. No.	Product	Capacity MT/month		
		Existing	Additional	Total
1	Vinyl Sulphone	650	00	650
2	Vinyl Sulphones - (PC VS/OA VS/DMS VS/ M-(Beta Sulfate Ethyl Sulphone) Aniline)	00	100	100
3	Acetanilide	00	500	500
4	H-Acid	00	450	450
5	**SSP (Single Super Phosphate)**	**00**	**8350**	**8350**
By Products				
1.	Acetic Acid	126	15	141
2.	Hydrochloric Acid	650	16	666
3.	Spent Sulphuric Acid	2275	1105	3380
4.	Glauber Salt	510	75	585
5.	SBS (Sodium Bi-sulphite)	00	320	320

2. Importance of the Project

SSP is one of the cheapest fertilizers, which farmer can afford to use. The merits of SSP are given below:

- It has been proven that SSP is an excellent source of phosphorous over many years of Agricultural practices. It also contains secondary nutrients like Sulphur (12%) and the calcium (21%), which are important for all the crops.
- In case of SSP, the capital investment for producing one tone of Phosphate is lower as compare to Complex Fertilizers Plants and in our case, it is much more chipper because we are proposed to use Spent Sulphuric Acid, which is our generation from VS production and save treatment cost of acidic effluent also.
- In case of SSP the project implementation period for plant set-up and gestation period for production is much lesser as compare to Complex Fertilizer Plant. Therefore government is encouraging the SSP production to fulfill the growing demand of fertilizers.
- It is useful as phosphoric fertilizer for direct application and as a raw material for N.P.K Granulated mixed fertilizers as SSP production requires simple technical steps.

3. Justification of the Project

- Dye Intermediates are always required as the demand and supply gap in local & international market. Akharchem deliver his production of Vinyl Sulphone in time to the local dyes manufacturer and export which generate revenue and its by product (Sulphuric acid) can be utilized for SSP production currently IFFCO-Kandla and proposed to use in the same unit to set up own SSP plan.
- Fertilizers and Micronutrients are always in shortage, as the demand and supply gap is huge. 65-70% of Indian population is still dependent mainly on Agriculture business. Majority of them are single crop cultivators, those are rain feed dependent.
- It is observed that during the last two years phosphate fertilizer demand has gone up by 20% and it will continue to increase considering the planned target of food grains in next ten years. In fact the whole state

of Gujarat is facing the shortage of fertilizer and SSP in particular always in short supply. For such conditions, timely supply of fertilizers is a must and very essential. Aksharchem can deliver his production of SSP in time to the farmers of this region with chipper rate of market.

4. Raw Material Requirement / Raw material linkage

For SSP production, mainly rock phosphate (16-20 % P_2O_5) and Sulphuric acid (65-70 % Concentration) is main raw materials. Dilute Sulphuric acid is own waste generated from VS products and concentrated Sulphuric acid will be made available from Hindustan Zinc Limited located at Canderi in Chittorgarh. Rock phosphate will be sourced from RSMM (Rajasthan State Mines). HDPE bags will be procured from local suppliers available at Ahmedabad.

Required Quantity of Raw materials for manufacturing of SSP:

Sr. No.	Name of Raw Materials	Quantity (MT / Month)			Source	Storage / type of packing	Transportation
		Existing	Proposed Addition	Total			
SSP (Single Super Phosphate) - 8350 MT / Month							
1	Rock Phosphate	0	4885	4885	Indigenous	Storage yard	by road
2	Spent Sulphuric Acid	0	2050	2050	Own generation	Tank	Own generation
3	Fresh Sulphuric Acid	0	2050	2050	Indigenous	Tank	by road

5. Manufacturing process: Single Super Phosphate (SSP):

Single superphosphate (SSP) was the first commercial mineral fertilizer and it led to the development of the modern plant nutrient industry. This material was once the most commonly used fertilizer, but other phosphorus (P) fertilizers have largely replaced SSP because of its relatively low P content.

Chemical Properties:

Following minimum quality of raw materials is requiring for production of SSP.

Phosphorus content: 7 to 9% (16 to 20% P_2O_5)

Calcium (Ca) content: 18 to 21%

S content: 11 to 12%

Sulphuric Acid: 65% to 70% of Assay value of Sulphuric Acid

Quality of Raw materials:

Rock Phosphate, a natural deposit of Calcium Phosphate containing Fluorine Carbonate and other impurities in lower concentration (Chemically known as Fluorpatite) is the basic Rock material used for the manufacture of phosphate fertilizers. The fertilizer industry gets this Rock phosphate from domestic mines as well as it is being imported. The high grade Rock phosphate from Jhamarkotra of Rajasthan contains +30% P_2O_5 is used for super phosphate manufacturing. The broad specifications of Rock phosphate from Jhamarkotra of Rajasthan are as per following:

Sr. No.	Typical quality of rock phosphate (Rajasthan)	
	Content	**%**
1	P_2O_5	31.5-33%
2	CaO	42-45%
3	MgO	0.5%
4	Al_2O_3	0.6%
5	Fe_2O_3	2.5%
6	Cl	0.10%
7	SIO_2	8-12%
8	F	2-3%
9	LOI	1 to 2%
10	H2O	3-6% avg.

The composition of Spent Sulphuric Acid which is available with us is having following approximate composition.

Sr. No.	Typical quality of Sulphuric Acid		
	Content	**Concentrated**	**Spent Acid**
1	Physical State	Liquid	Liquid
2	Assay	97±1%	32±2%
3	Colour	Colorless	Colorless

4	Organic Impurities	-	<0.1%
5	Sp. Gravity	1.84	1.29
6	Phosphate	0.5%	0.1%
7	Nitrite	0.2%	0.1%

Chemical Reaction:

The manufacturing process depends on reacting phosphate rock with sulfuric acid and the fertilizer contains about (16- 20 %) P2O5. The net reaction proceeds as follows:

$$CaF_2.3Ca_3(PO_4)_2 + 7H_2SO_4 + 14H2O \longrightarrow 3Ca(H_2PO_4)_2 + 7CaSO_4.2H_2O + 2HF$$

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The calcium phosphate remains in the product and forms in the fertilizer SSP. The other minor reactions which took place are as under:

$2CaO + 2F_2 = 2CaF_2 + O_2$

$3CaO + P_2O_5 = Ca_3(PO_4)_2$

$CaO + SO_3 = CaSO_4$

$MgO + H_2SO_4 = MgSO_4 + H_2$

$Fe_2O_3 + 3H_2SO_4 = Fe_2(SO_4)_3 + 3H_2O$

The process can be divided into two stages as follows:

- The first stage represents the diffusion of sulfuric acid to the rock particles accompanied by a rapid chemical reaction on the particle surface, which continues until the acid is completely consumed, and crystallization of calcium sulphate.
- The second stage represents the diffusion of the formed phosphoric acid into the pores of the rock particles which did not decompose. This stage is accompanied by a second reaction.

In this process phosphate rock is transported from the storage site to automatic weight, by a system of belt and screw conveyors and elevators, which feed the continuous action double conical mixer.

The sulfuric acid is continuously diluted with spent Sulphuric Acid in a batch mixer to a 70-75 % concentration, and then fed to the mixer to react with phosphate rock where a first reaction takes place. This reaction ends in the reaction mixer in 30- 60 minutes, during the period of settling and hardening of the superphosphate slurry, which is caused by the relatively rapid crystallization of the low solubility calcium sulphate.

The next stage of the process is ageing of the superphosphate, i.e. the formation and crystallization of mono-calcium phosphate in the den. The formed slurry is transported to the continuous-action reaction den which has a very low travel speed to allow for solidifying, where formation of superphosphate takes place (settling and hardening of the slurry in the first stage of ageing). Considerable quantities of fluoride compounds are evolved from the acidulation, they are sent to the scrubbers.

The superphosphate powder, from the den, is transferred for ageing by a belt conveyor, located below the den, to the pile storage for curing. The raw fertilizer is uniformly distributed by a scattering device and in order to accelerate the ageing operation, the superphosphate is agitated during storage by means of a grab-bucket crane.

During reaction of the phosphate with sulphuric acid in the den, hydrogen fluoride evolves and reacts with the silica contained in the phosphates and forms gaseous silicon-tetrafluoride (SiF_4) and fluo slicic acid (H_2SiF_6). The continuous den is, therefore, enclosed so that fumes of these compounds do not escape into the working place. The fluorous gases, containing H_2SiF_6 vapors, are withdrawn through an opening in the den roof into a ventilation pipe to an absorption unit (Scrubber) and are utilized for making sodium fluo silicates.

The SSP manufacturing process consists of the following six stages:

I. Grinding of Rock Phosphate (95 – 98% material passing 100 mesh)

II. Concentrate dilute Sulphuric Acid from 30% to 65–70% by adding 98% concentrated Sulphuric Acid.

III. Acidulation (Mixing of Rock Phosphate & Dilute Acid)

IV. Pollution Control

V. Curing & Shuffling

VI. Bagging & Packing

Step-I: Grinding of Rock Phosphate chips (95–98 % material passing 100 meshes):

Rock Phosphate of + 4 mm to + 15 mm size from either Rajasthan State Mines of India or from other sources like Jordan, Egypt, Morocco, Togo, Syria, etc. is unloaded in the covered sheds. The same is fed into Rock Feed hopper by means of either an overhead crane or loaders. These Rock Phosphate chips are than conveyed through belt conveyors to the Grinding Mill where, it is brought to the desired mesh size. The powdered Rock Phosphate is collected in the storage hopper by air swept system through dust collecting cyclones & dust collector bags.

Step-II: Concentrate dilute Sulphuric Acid from 30% to 65 – 70% by adding 98% concentrated Sulphuric Acid.

Dilute Sulphuric Acid from Vinyl Sulphone Plant and other sources are collect in the tanks. Parallel 98% Sulphuric Acid from various sources is stored in MS tanks. This acid is than pumped in to the service tank (day tank) where concentrated and dilute Sulphuric Acid is mixed together by control flow meters to achieve the required concentration.

Step-III: Acidulation (Mixing of Rock Phosphate & dilute Acid):

Ground Rock Phosphate from storage hoppers is conveyed through rotary feeder, screw conveyor, bucket elevator, buffer hopper and weigh belt conveyor to the MS lead & acid heat resistant lined mixer and nickel resist and hard paddle mixer. The dilute acid through the day tank is fed into the mixer and is mixed with powder Rock Phosphate in the paddle mixer. The required 1^{st} stage takes place in 2.50 minutes retention time takes place before the slurry gets in to the slow moving den. In slow moving den conveyor, further reaction will takes place for 35 to 45 minutes. The gases are now sucked by a high speed blower into the pollution control system. The cake bed at den conveyor is than cut into semi powder form by cutter and is flowed into the crane shed. The crane/loader than shifts/ heaps the material in the green SSP shed.

Step-IV: Pollution Control:

Particulates: Particulates generates from grinding mill is sucked through ID fan and emitted after passing through cyclone & bag filter units.

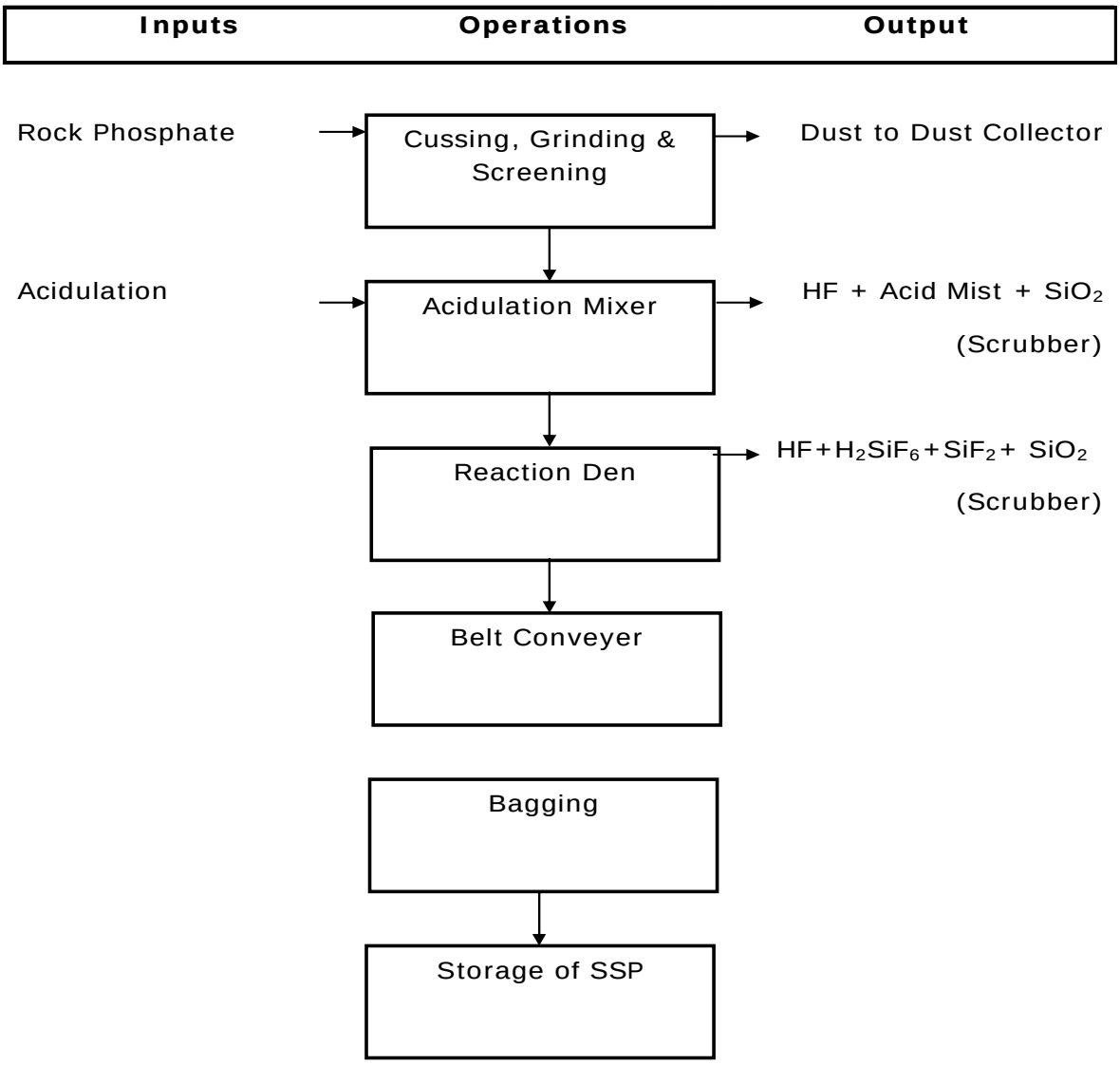
Gaseous: The gases from the den conveyor are sucked through scrubber fan and is pushed the different stages of scrubbing. Here the gases are scrubbed by raw water and the scrubbing liquid is collected in tanks. The scrubber liquor after is then transfer to the acid dilution mixing scrubbed water contain silica is used as a filler to attain the required quality.

Step-V Curing & Shuffling:

The material from den conveyor is heaped in the green SSP bulk shed. These heaps are than sliced and re-heaped by crane/ loaders after analytical procedures by laboratory to attain the required quality. The shuffling of heaps is required to improve the quality of the product.

Step-VI Bagging & Packing:

Then after standardize quality of product send to bagging unit for bagging & dispatch.



6. Details of major Reactors, Vessels and Equipments

Sr. No.	Equipments	Quantity	Capacity
Major Equipments			
1	Coarse rock feed Hoper	1	15 Mt
2	Rotary Table feeder	1	05 MT/Hr

3	Belt Conveyer	1	20 MT/Hr
4	Grinding Mill	1	10 MT/Hr
5	Grit Separator	1	-
6	Ground Rock Hopper	1	15 Mt
7	Rotary Vane Feeder	1	10 MT/Hr
8	Screw Conveyer	1	10 MT/Hr
9	Ground rock bucket elevator	1	10 MT/Hr
10	Feed screw conveyer	1	10 MT/Hr
11	Acid Feeder	1	10 MT/Hr
12	Paddle Mixer	1	12 MT/Hr
13	Reciprocating Den	1	15 MT/Hr
14	Sulphuric Acid storage tank	2	100 Kl
15	Sulphuric Acid day tank	1	10 Kl
Pollution Control Systems			
1	Cyclone Separator	1	-
2	Dust Collector-Bag Filter	1	-
3	Venturi Scrubber	1	-
4	Scrubber Tank	1	10 Kl
5	Circulation Pumps	2	5.0 HP
Bagging Plant			
1	SSP Feeder Hopper	1	15 MT/hr
2	SSP Feeder Belt Conveyer	1	15 MT/hr
3	Vibratory screen	1	15 MT/hr
4	Hammer Mill	1	12 MT/Hr
5	Bag Filling & Weighting Machine	1	-
6	Stiching Machine	1	-

7. Details of Emission, effluents, hazardous waste generation and their management

Sr. No.	Components	Source	EMS
1	Air Emission	Dust Emission from rock Phosphate handling & grinding unit	Cyclone & Bag filter, Close conveyer
2	Waste water Generation	Process	No waste water generation
3	Hazardous water	➢ Sulphur residue	Use in process

	generation	➢ Wet scrubber solution ➢ Dust from dust collector	

8. Resource Requirements–

Water requirements: Water requirement for proposed SSP project for industrial activity during operation phase will be 10 KLD. The water requirement will be met through ground water source.

Uses of water	Water Consumption (m^3/day)	Wastewater generation (m^3/day)	Ultimate Disposal/Uses
Processing Scrubber	10	10	Recycle in process because its contain silica and fluoride compound which is filler of SSP.

Power/Energy: Power requirement of proposed project will be made available through State grids (PGVCL - Paschim Gujarat Vij Company Limited).Total power requirement of proposed SSP plant will be 450 Kwh.

Fuel: No need of fuel for Single Supper Phosphate because we are not going to produce granular Single Supper Phosphate fertilizer.

9. Details of proposed source-specific pollution control schemes and equipments to meet the national standards for fertilizer.

Air Pollution Control Measures

Control of Dust pollution in grinding:-

Dust control equipments are the integral part of the plant process design. Grinding & classifying of rock phosphate is totally enclosed, which consist of cyclone separators to collect the ground material & for separate out dust, Bag filters are provided with the mills which works efficiently. After dust separation clean air is allowed to go out to the atmosphere.

Chips rock phosphate of 4 to + 15 mm sizes will be ground in the above mill to 98% passing through 100 mesh. The ground powder will be uplift by air blower to the Cyclone where it will be collected and pass on to Storage hopper. The dust coming out of cyclone by suction of blower will be thrown to Dust collector. Where the equipment will be having cotton bags to collect the dust and vent the air. The dust collected in the bags will be conveyed by screw conveyor to the plant.

Pollution Control System for Acidulation

The gases from the Den conveyor will be sucked by Scrubber fan will get in to the Ventury scrubber, where the gases will be absorbed by raw water and collected in tank. The scrubber liquid will be pumped from the tanks for the Acid dilution tank for reuse in process.

Pollution control of fluorine based gases and fine silica particle:

The fluorine-based gases are highly soluble in water. Silicon tetra fluoride is highly reactive with water and Hydro-fluoroslicic acid. The gases produced in the den are sucked through the ID fan; these gases are passed through two venturi scrubber system. The clean air is vented through Chimney of specified height. The stack will be monitored regularly for Fluoride content. The scrubber liquid will be pumped from the tanks for the Acid dilution tank for reuse in process.

Water Environment

There is no wastewater discharged to outside from the plant. All the wastewater generated in the process i.e. scrubber are collected and is recycled in the process.

Hazardous waste management:

No waste generation from process. Waste what so ever from any activities will be handle and manage as per the guideline of Hazardous and other waste (Management and Handling) Rules-2016.

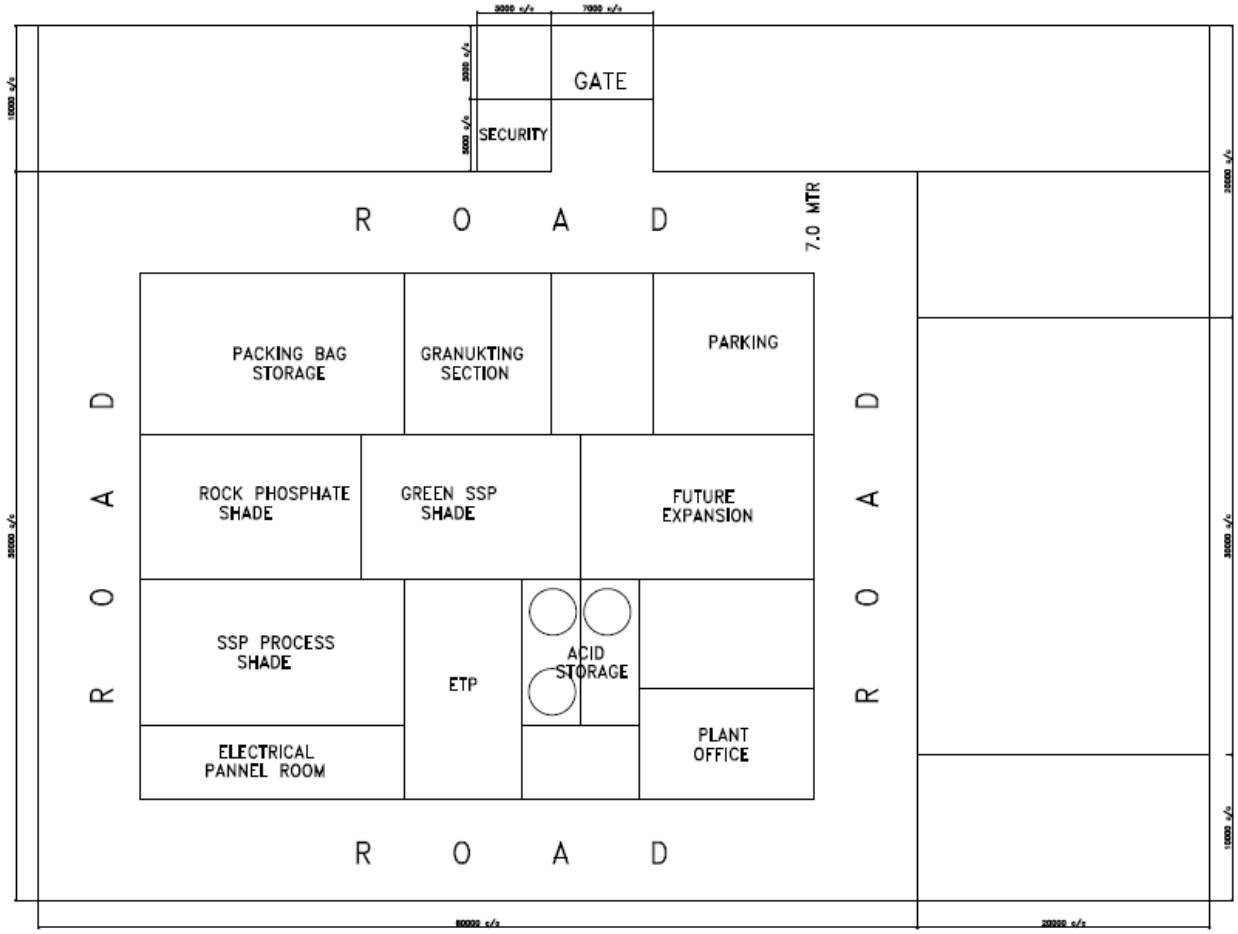
10. Specification of SSP:

Single super Phosphate is the most important single nutrient Phosphatic fertilizer containing 16% P_2O_5 in water-soluble form and has traditionally been very popular in agriculture sector. Raw material for SSP is rock phosphate and sulphuric acid, where rock phosphate is a natural deposit of calcium phosphate containing fluorine and carbonate.

As per FCO (Fertilizer Control Order) Ministry of Agriculture, Government of India has amended specifications of Single Super Phosphate (Powder) / G.S.S.P. effective from 10.05.2011

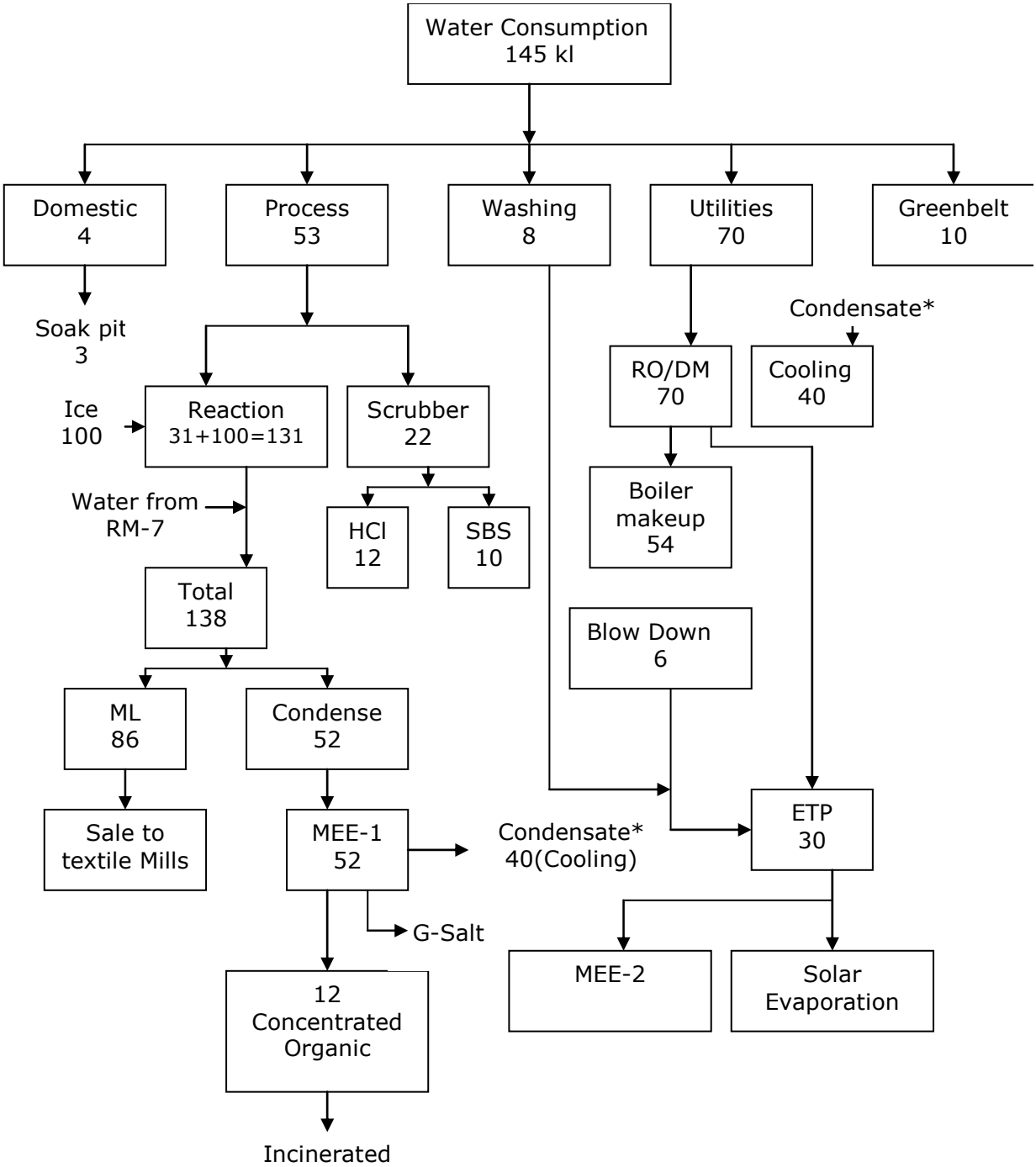
Sr. No.	Descriptions	Concentration
1	Moisture, percent by weight, maximum	12.0%
2	Free Phosphoric acid (As P_2O_5), percent by weight maximum	4.00%
3	Water soluble phosphates (As P_2O_5) percent by weight minimum	14.50%
4	Citrate soluble phosphates (As P_2O_5) % by wt minimum	16.00%
5	Sulphur (As S), percent by weight, minimum	11.00%

Layout plan


GATE
SECURITY
R O A D
7.0 MTR
PACKING BAG STORAGE
GRANUKTING SECTION
PARKING
ROCK PHOSPHATE SHADE
GREEN SSP SHADE
FUTURE EXPANSION
SSP PROCESS SHADE
ETP
ACID STORAGE
ELECTRICAL PANNEL ROOM
PLANT OFFICE
R O A D
R O A D

As per EC no. J-11011/1059/2007-IA-II (I) dated 22.9.2008 and 3.6.2009.		
SPECIFIC CONDITIONS		
1.	The effluent shall not exceed 117 M^3/d after the proposed expansion of which 71 M^3/d shall be sold to the textiles mills and 46 M^3/d shall be concentrated effluent in the multiple effect evaporators. The concentrated effluent shall be incinerated. The condensate from the MEE shall be recycled. The dilute stream from the utilities shall be treated in the ETP and treated effluent shall be sent for solar evaporation. The solar evaporation pond shall be properly lined to prevent leaching of effluent.	**Not Complied.** The average water consumption was **199.25 KLPD** and average waste water generation was **181 KLPD** as per environment audit report 2014 which is higher than the prescribed in the ECs of 2009 & 2012. Details of selling of effluent to textile mills were not submitted. Two MEE have been installed to treat effluent and concentrated effluent was being incinerated within the premises. The incinerator was not found in accordance with CPCB guidelines and the working was found inefficient (Photo I). Although PA has claimed that condensate of MEE was recycled in the cooling tower and blow down was mixed in the treated effluent. But, actual water balance was not submitted. The treated effluent was stored in solar evaporation ponds. It was observed that lot of sludge was stored along the pond (Photo 2).
	Clarification/Action plan: Zonal Officer of MoEF & CC has taken the reference of our earlier EC vide EC no. J-11011/1059/2007-IA-II (I) dated 22.9.2008 and 3.6.2009. Actually we have obtained second EC vide EC letter no. J-11011/552/2010-IA-II (I) dated 07/12/2012. **Water consumption:** As per our last EC issued in 2012 Total ground water requirement from132 m^3/day to 145 m^3/day after expansion. Detailed water balance is given below. Water balance diagram indicate that 40 m^3/day recycle water from condensate of MEE. So total water requirements is tune around 185 m^3/day. As per Environmental audit report, its tune around 199.25 KLPD which is little higher because less water consumption submitted by us for domestic & greenbelt development in our earlier EC proposal and actual consumption in both the head is higher. We have modified it in our current proposal. **Wastewater Generation:** There is some calculative mistake. Pl refer water balance diagram for existing set up which shows that actual wastewater generation is tune around 168 KLD (82 KLD effluent + 86 KLD ML) whereas as per the Audit report it is tune around 169 KLD. It is very marginal difference and we have further reduced it to control excess use of water. **Hazardous waste disposal:** The reason for large quantity of sludge accumulation is saturation of existing TSDF site operated by M/s. NEPL. Other nearest site is GESCSL-Vatva is also saturated and both the site operators are trying to develop TSDF site at new location. During this time, we have get membership from BEIL and it is our interim arrangement because location is quite far and they are not ready to receive our entire quantity of sludge. Currently, we have started co-processing activity and generated Gypsum sludge sent to Ambuja Cement. During period of Apr, 15 to March, 16, we have disposed off around 5428.37 MT of sludge and currently no major accumulation of ETP sludge.	

Water Balance Diagram



2.	The company shall adopt cleaner production technology to minimize the quantity of fresh water equipment and process effluent generation.	**Being Complied:** Certain measures like vacuum filtration system, vacuum ejectors in process, Multi Effect Evaporate (MEE) system and recovery of so_2in soda ash solution etc. have been implemented. Moreover, design of esterification vessel has been changed to reduce power consumption.
3.	The process emissions from of HCl and so_2 shall be scrubber by two stage ventury water scrubber followed by two stage alkali scrubber.	**Being Complied:** Two stage ventury water scrubber followed by two stage alkali scrubber were provided for scrubbing of HCL and so_2.
4.	Particulate emissions from the steam boiler shall be controlled by installation of ESP. Adequate height as per CPCB standard shall be provided to thermic fluid heater, incinerator and process gas stack for dispersion of gaseous emission. The fugitive emissions shall be controlled by regular maintenance of values, pumps and other equipment to prevent leakage. The entire process shall be carried out in the closed reactor with proper maintenance of pressure and temperature.	**Not Complied:** Cyclone separator was installed for steam boiler with stack height of 30 mtr. Stack height of thermic fluid heater was found less than the prescribed height as observed during visit. Monthly monitoring reports of steam boiler, thermic fluid heater, incinerator process stack 1 and 2 were submitted regularly which do not show any anomaly. Particulate matter, chlorine and NO_x were not monitored in the process stacks. RSPM was monitored in the packing area, raw material storage yard and lignite handling area on monthly basis and reports do not show any anomaly. With regards to fugitive emissions at the work place VOCs were not monitored. Although PA has claimed that adequate measures have been taken to control fugitive emissions but it was observed that process vessels and other associated facilities were in dilapidated condition **(Photo 3-5).** Considering the status at the site and the information provided, condition is considered as not complied.
	Clarification / Action plan: **1. <u>Regarding installation of ESP</u>** We have never proposed ESP for emission control of boiler because it is techno-commercially not feasible for such capacity of boiler. We have proposed to install Cyclone separator before put up the proposal to MoEF for our earlier EC. This condition was amended by MoEF on 03.06.2009 with word of **"Particulate emissions from the 6 TPH steam boiler shall be controlled by installation of Cyclone separator"** and we have submitted this letter to MoEF office, Bhopal, chances to oversight this modified condition. Instead of that, we have installed Cyclone separator & bag filter to control the emission from the boiler. Bag filter may not be observed by zonal officer, MoEF, but it is there since beginning. Photographs of same are enclosed in next pages. **2.<u>Regarding visual stack height of Thermic fluid heater</u>** Capacity of thermic fluid heater is only 4 lakhs kcal/hr. and fuel requirement is maximum 150 kg/hr. of lignite having gross calorific value 3000 kcal/kg. Sulphur content in lignite is max. 2.4%. Based on the stack height calculation, it is tune around 12.7 m and we have **proposed and install 15 mtr. Stack height.**	

	3. <u>Particulate matter, chlorine and NO_x were not monitored in the process stacks</u> Above pollutants are not generated from our process and it is not in our proposal and not in condition of EC. So it is not relevant with our EC condition. **Based on EIA report, we are complying this condition.**

Photographs of Bag filter installed

5.	The PA shall strictly comply with the rules and guidelines under MSIHC rules, 1989 as amended in Oct., 1994 and January, 2000 and HWMH Rules, 1989, as amendment from time to time. Authorization from the SPCB shall be obtained for collection, treatment, storage, and disposal of hazardous wastes. All Transportation of Hazardous Chemicals shall be as per the MVA, 1989. The GPCB shall ensure that capacity for disposal of waste at Naroda TSDF is available.	**Being Complied.** Risk assessment report and onsite emergency plan has been prepared. Necessary permission from CEE was also obtained for storage of Ethylene Oxide. An authorization under HWMH rules was obtained. Membership of M/s. NEPL and M/s BEIL has been obtained. The details of generation and disposal of hazardous waste have been provided which show that generation of incineration ash and hydrochloric acid was higher than the permissible limits whereas other categories were found within the limits. The storage of hazardous waste was found in accordance with the rules.
6.	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.	**Not Complied.** Hazardous chemicals were stored in tank farm, drums and carboys etc. PA has claimed that adequate safety measures were provided in the tank farm area. However, the condition of storage tanks were not found in order and lot of emissions were observed during the visit **(Photos 6-7)**. Storage tanks were found in dilapidated condition.
	<u>Clarification / Action plan</u>: Heavy rain was at the time of visit and very difficult situation to visit entire process plant & storage area. However, they have visited our plant based on our personal request. Due to heavy rain & high humidity, cloudy atmosphere is observed because of little fugitive emission. In regular day, there is insignificant fugitive emission. Regarding storage of Haz. Chemicals, we have obtained PESO permission for MAH chemicals and store it as per the guideline of PESO. **Action plan:** We have immediate take action and checked the thickness & pressure test of all storage tanks including EO before scheduled of PESO condition and found adequate and safe. Due to high humidity, some surface part of color was observed broken and resulted to notice this point. Recent status of storage tanks are enclosed in next page.	
7.	An area of 33% shall be developed as green belt. Selection of plants species shall be as per the guideline of CPCB.	**Being Complied EC 2008 & EC 2012:** few hundred plants have been grown within the premises covering an area of 30%.
8.	The company shall seek permission from the CGWA/SGWA to draw the ground water.	**Not Complied**. There was two bores within the premises for which permission for drawl of ground water was not obtained from CGWA/SGWA.
	<u>Clarification / Action plan</u>: We have submitted an application to CGWA for permission which is awaited. We have taken this matter on top priority & committed to obtained required permission as early as possible.	
10.	Occupational health surveillance of the workers shall be carried out on the regular basis & records shall be maintained as per the Factories Act.	**Being Complied EC 2008 & EC 2012:** All the employees have been provided medical facilities under Factories Act and records are maintained.

Photograph of Hazardous chemicals storage tanks

9.	The company shall harvest surface as well as rain water from the rooftops of the buildings and storm water drains to recharge the ground water and use the same water for the various activities of the project to conserve fresh water.	**Not Complied**. PA has not developed rainwater harvesting structures even after 7 years of grant of EC.
	<u>Clarification / Action plan</u>: GPCB does not favor to develop rain water harvesting structure in factory premises because there could be probability of contamination of ground water due to industrial effluent. Instead of that, we have proposed to improve village lake for increase the storage capacity of rain water which resulted to recharge groundwater. This matter is also committed by us in front of District magistrate during public hearing & requested to grant necessary permission for the same. Representative of company and sarpanch of village panchayat is regularly followed up this matter and very soon we get the permission and start the activity.	
10.	Occupational health surveillance of the workers shall be carried out on the regular basis & records shall be maintained as per the Factories Act.	**Being Complied EC 2008 & EC 2012:** All the employees have been provided medical facilities under Factories Act and records are maintained.
	GENERAL CONDIRIONS	
1.	The project authorities shall strictly adhere to the stipulations made by the State Pollution Control Board.	**EC 2008 & EC 2012: Being Complied.** The CC&A was obtained from GPCB which is valid up to 14.2.2019. The production was found within the permissible limits as per the details provided. The average water consumption was 199.25 KLPD and average waste water generation was 181 KLPD as per the environment audit report 2014 which is higher than the prescribed in the ECs of 2009 & 2012. It was observed that process vessels, storage tanks and other associated facilities were in dilapidated condition. The details of generation and disposal of hazardous waste have been provided which show that generation of incineration ash and hydrochloric acid was higher than the permissible limits where as other categories were found within the limits. Online monitoring system not installed. With regard to the monitoring of steam boiler, thermic fluid heater, incineration, process tank 1 & 2, it was noted that monitoring being carried out on monthly basis and reports show parameters within the limits. Gypsum to the tune of 10452.15 MT was supplied to cement manufactures namely M/S Ambuja cement Ltd., M/S JK Lakshmi cement Ltd., M/S Sanghi Industries Ltd., during Jan. 14 to July 15. Housekeeping in the ETP and hazardous

		waste storage area needs sincere attention.
2.	No further expansion or modification in the plant shall be carried out without prior approval of the MOEF. In case of deviations or alteration 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.	**Being Complied EC 2008 & EC 2012:** No expansion and modification was carried out so far without prior approval of the competent authorities. The area has been identified for the proposed expansion **(photo 8-9)** and no work was started.
3.	At no time, the emissions shall exceed the prescribed limits. In the event of failure of any pollution control system adopted by the unit, the unit shall be immediately put out of operation and shall not be restarted until the desired efficiency has been achieved.	**Not Complied.** Online monitoring system not installed for critical parameters to ensure emissions within limits all the times.
	Clarification / Action plan: Our is small scale unit and now we are going to expand it after obtaining EC from MoEF & CC. Online monitoring system is not a part of our earlier EC condition hence we have not installed it. We are regularly checking the emission level by third party and our environmental auditors are also monitored overall EMS system 3 to 4 times in a year. GPCB is also monitored emission norms during surveillance visit if they feel some abnormal emission. No major deviation found.	
4.	The gaseous emissions (NO_x, HCl, SO_2, VOC & CO) and Particulate matter along with RSPM levels from various process units shall conform to the standards prescribed by the concerned authorities from time to time. At no time, the emission levels shall go beyond the stipulated standards. In the event of failure of pollution control system (s) adopted by the unit, the respective unit shall not be restarted unit the control measures are rectified to achieve the desired efficiency. Stack monitoring for SO_2, NO_X and SPM shall be carried.	**Being Complied.** Monthly monitoring reports of steam boiler, thermic fluid heater, incineration, process tank 1 and 2 were submitted which do not show any anomaly. Particulate matter, Chlorine and NO_xwere not monitored in the process stacks. RSPM was monitored in the packing area, raw material storage yard and lignite handling area on monthly basis.
5.	The locations of AAQ monitoring stains shall be decided in consultation with the SPCB and it shall be ensured that at least one stations is installed in the up wind and downwind direction as well as where maximum ground level concentrations are anticipated.	**Being Complied EC 2008 & EC 2012:** AAQ has been monitored at two stations on monthly basis with parameters of SO_2, NO_X, PM_{10} and $PM_{2.5}$. Monitoring reports do not show any anomaly.
6.	Dedicated scrubbers and stacks of	**Being Complied.** Dedicated scrubbers

	appropriate height as per the CPCB guidelines shall be provided to control the emissions from various vents. The scrubbed water shall be sent to ETP for further treatment.	were to control emissions and scrubbed water was being treated in the ETP.
7.	The company shall undertake following waste Minimization measures. • Metering and control of quantities of active ingredients to minimize waste. • Re use of by products from the process as raw materials or as raw material substitutes in other processes. • Use of automated filling to minimize spillage. • Use of "close feed" system into batch reactors. • Venting equipment through vapour recovery system. • Use of high pressure hoses for equipment cleaning to reduce wastewater generation.	**Being Complied EC 2008 & EC 2012:** It was observed that waste minimization measures like close feed system, recovery of SO_2 as sodium bio Sulphate, closed feed system & high pressure jet nozzles for cleaning have been implemented.
8.	Fugitive emissions in the work zone environment, product, and raw materials storage area shall be regularly monitored. The emissions shall conform to the limits imposed by the SPCB/CPCB.	**Not complies.** Although PA has claimed that adequate measures have been taken to control fugitive emissions but it was observed that process vessels and other associated facilities were in dilapidated condition. With regards to fugitive emissions at the work place, VOCs no monitored. Considering the status at the site & the information provided, condition is considered as not complied.
	<u>Clarification / Action plan</u>: We have taken best effort to minimize the fugitive emission by way of transfer the liquid materials pneumatically and solid materials are charged in closed manner from bottom of the vessels through charging silo. Little vacuum is maintain in reactor to minimize fugitive emission in work zone. All the reactions are taken in closed reactors. Visit was made during rainy days and resulted to observed foggy atmosphere in work area.	
9.	The overall noise level in and around the area plant shall be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all source of noise generation. The ambient noise levels shall conform to the standards prescribed under EP Act, 1986 Rules, 1989 viz. 75 dB A (daytime) and 70 dB A (nighttime).	**Being Complied EC 2008 & EC 2012:** Noise levels have been monitored at nine locations on monthly basis and reports do not show any anomaly.

<table>
<tr><td>10.</td><td>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.</td><td>Being Complied EC 2008 & EC 2012: Safety training was provided by outside safety experts on six monthly bases. Fire mock drills were also conducted periodically. Workers have been provided medical facilities as per Factories Act.</td></tr>
<tr><td>11.</td><td>Usage of PPEs by all employees/ workers shall be ensured.</td><td>Being Complied. EC 2008& EC 2012: Usage of PPE'S by entire employee was ensured. Workers have been provided PPE’S like Helmets / Goggles / Hand gloves / Gumboots.</td></tr>
<tr><td>12.</td><td>The PP 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 respect of EMS and risk mitigation measures relating to the project shall be implemented.</td><td>Being Complied. EC 2008& EC 2012: Major recommendations made in EIA report have been implemented per details provided.</td></tr>
<tr><td>13.</td><td>The company will undertake all relevant measure for improving the Socio-economic conditions of the surrounding area. CSR activities will be undertaken by involving local villages and administration.</td><td>Not Complied. EC 2008& EC 2012: CSR activities have also not been undertaken as per the condition.</td></tr>
<tr><td></td><td colspan="2"><u>Clarification / Action plan</u>:
It is gray area and we will focus in this matter.
We committed to strengthen our CSR activities as per the CSR plan of EIA report. Summary of fund allocation are given in next slide.
Budgetary provisions for the next five years (Every Year)
<table>
<tr><th>Sr. No.</th><th>Activities</th><th>Budgetary provision (Lakhs)</th></tr>
<tr><td>1.</td><td>Educational activities</td><td>15</td></tr>
<tr><td>2.</td><td>Preservation of the Environment and Sustainable Development</td><td>7</td></tr>
<tr><td>3.</td><td>Health and family welfare</td><td>5</td></tr>
<tr><td>4.</td><td>Drinking water and sanitation facilities</td><td>10</td></tr>
<tr><td>5.</td><td>Miscellaneous as per the demand of surrounding villages</td><td>13</td></tr>
<tr><td colspan="2">Total</td><td>50</td></tr>
</table></td></tr>
<tr><td>14.</td><td>The company shall undertake eco-developmental measures including community welfare measures in the project area for the overall improvement of the environment.</td><td>Not Complied. EC 2008 & EC 2012: Eco- development measures including community welfare measures have not been taken up.</td></tr>
<tr><td></td><td colspan="2">Clarification / Action plan: Committed to fulfill Eco- development measures including community welfare measures nearby project area to improve the environment.</td></tr>
</table>

15.	A separate EMC equipped with full-fledged laboratory facilities shall be set up to carry out the Environmental Management and Monitoring functions.	**Being Complied. EC 2008 & EC 2012:** The EMC at site was established under Sr. Vice President- Project who is supported by ETP cell-in-charge and supporting staff.
16.	The PA shall earmark adequate funds to implement the conditions stipulated by the MOEF as well as the State Govt. along with the implementation schedule for all the conditions stipulated herein. The funds so provided shall not be diverted for any other purpose.	**Being Complied. EC 2008 & EC 2012:** Rs.3.50 Cr. Was incurred during 2014-15 on EMP (for ETP operation and waste water Recycling/Hazardous waste management).
17.	The implementation of the project vis-à-vis environmental action plans shall be monitored by the concerned RO of Ministry/SPCB/ CPCB. A six monthly compliance status report shall be submitted 10 monitoring agencies and shall be posted on the website of the Company.	**Not Complied. EC 2008 & 2012:** Half yearly compliance with analytical reports has been submitted. RO Bhopal has monitored the project. PA has not uploaded EC. Compliance status, analytical data, ES Form-V, consent the website of the company.
	Clarification/Action plan: Our is small scale unit and IT expert is not appointed. However, we will hire this service and start uploading of compliance report, analytical data, ES Form-V on our website and will update it regularly.	
18.	The PP shall inform the public that the project has been accorded EC by the Ministry and copies of the clearance letter are available with the SPCB/Committee and may also be seen at website the Ministry at http://envfor.nic.in. This shall be advertised within seven days from the date of issue of the clearance letter, atleast in two local newspapers that are widely circulated in the region of which one shall be in the vernacular long age of the locality concerned and a copy of the same shall be forwarded to the concerned RO of the Ministry.	**Not Complied. EC 2008:** PA had informed the public about grant of EC by means of advertisement in only one newspaper namely "The Indian Express" dated 03.05.2008, but clause of seven days was not followed. **Being Complied. EC 2012:** PA had informed the public about grant of EC by means of advertisement in two widely circulated local newspapers namely "The Indian Express" and "Jansatta" dated 22.12.2012 i.e. within fifteen days. Thus, condition was considered as complied.
19.	The PA shall inform the Regional Once 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.	**Not Complied. EC 2008 & EC 2012:** The term loan of RS. 4.50 Cr. was sanctioned by State Bank of India vide letter dated 8.10.08 for EC 2008. With regard to EC 2012, details of financial closure were not submitted either.
20.	The Ministry may revoke or suspend the clearance, if implementation of any other above conditions is not satisfactory.	**EC 2008 & EC 2012: Agreed to Comply.**
21.	The Ministry reserves the right to stipulate additional conditions, if found	**EC 2008 & EC 2012: Agreed to Comply.**

	necessary. The company in a time bound manner will implement these conditions.	
22.	Any appeal against this EC shall lie with the National Appellate Authority, if preferred, within a period of 30 days as prescribed under section 11 of the NEAA Act. 1997.	**Noted & Agreed as submitted by PA.**
23.	The above conditions will be enforced. Inter-alia under the provisions of the Water (P & CP) Act, 1974, Air (P & CP) Act. 1981, the EP Act.1986 HWMH Rules, 2003 and the PLI Act, 1991 along with their amendments and rules.	**EC 2008 & EC 2012: Being Complied**. It is inferred from the above that the CC&A was obtained from CPCB which is valid up to 14.2.2019. The production was found within the permissible limits as per the details provided. The average water consumption was199.25 KLPD and average waste water generation was 181 KLPD as per environment audit report 2014 which is higher than the prescribed in the ECs of 2009 & 2012. It has observed that process vessels, storage tanks and other associated facilities were in dilapidated condition. The details of generation and disposal of hazardous waste have been provided which show that generation of incineration ash and hydrochloric acid was higher than the permissible limits whereas other categories were found within the limits. Online monitoring system was not installed. With regard to the monitoring of steam boiler, thermic fluid heater, incinerator, process stack 1& 2, it was noted that monitoring was being carried out on monthly basis and reports show parameters within the limits. Gypsum to the tune of 10452.15 MT was supplied to cement manufacture namely M/s. Ambuja Cement Ltd., M/s. J.K. Lakshmi Cement Ltd., M/s. Orient Cement Ltd., M/s. Sanghi Industries Ltd. during Jan. 14 to July 15. Housekeeping in the ETP and hazardous waste storage area needs sincere attention. Copy of PLI was submitted which was valid up to 24.3.2015.

AS per EC no. J-11011/552/2010-IA. II (I) dated 7.12.2012.		
SPECIFICATION CONDITIONS		
1.	All the specific conditions and general conditions specified in the earlier EC letters accorded vide Ministry's letter no. J-11011/1059/2007-IA.II (I) dated 22.9.2008 shall be implemented.	**Being Complied.** It has been inferred from the above mentioned review that majority of conditions have been complied where as conditions pertaining to generation of HW and its storage & disposal, installation of online monitors. Monitoring of fugitive emissions etc., needs sincere efforts.
2.	The national emission standards for organic chemicals manufacturing industry issued by the Ministry vide GSR 608 (E) dated 21.7.2010 and amended time to time shall be followed by the unit.	**Being Complied.** Analytical reports of AAQ and stacks show parameters within the stipulated norms.
3.	As proposed, production capacity shall be increased from 500 TPM to 600 TPM by debottlenecking in the process without adding any equipments/utilities.	**Being Complied.** The production was found within the permissible limits as per the details provided.
4.	Bag filter along with stack of adequate height will be provided to proposed coal/ lignite fired Boiler. Two stage chilled water/caustic scrubber should be provided to process vents to control HCl. Two stage scrubbers with caustic lye media solution should be provided to process vents to control SO_2. The scrubbing media should be sent to ETP for treatment. The scrubbing solution shall be sent to ETP for treatment. Efficiency of scrubber shall be monitored regularly and maintained properly-scrubbers vent shall be provided with online 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 shall be interlocked with the pollution control equipments so that in case of any increase in pollutants beyond permissible limits, plant shall be automatically stopped. Stack monitoring shall be done regularly and report be submitted to the Ministry's RO at Bhopal.	**Being Complied.** Bag filters have been provided to boiler stack and monthly monitoring reports do no1 show any anomaly. Besides three stage scrubbing system with chilling water circulation system was installed **(Photo 10).** Caustic lye solution was being circulated in third stage scrubber to control SO_2 emissions. The scrubbed solution was being treated in the ETP. Interlocking system was provided. However, online monitors have not been installed.
5.	The National AAQ emission standards issued by the Ministry vide GSR No. 826(E) dated 16.11.2009 shall be followed.	**Same as above mentioned specific condition No. 2 of EC 2012.**
6.	In plant control measures of checking fugitive emissions from all the vulnerable sources shall be provided. All the	**Being Complied.** PA has submitted the following: ● All the reactors have been provided with

	reactors shall be connected to an efficient condenser system with cooling/chilling brine circulation. Fugitive emission 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 emission in the work zone environment, product, raw materials storage area eta. Fugitive emission 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.	cooling chilling condenser; ●All the liquid raw materials were being transferred pneumatically and entire process was being taken in close vessel; ● Mostly liquid raw materials have been used and transfer pneumatically with taken care to zero laminated bags hence sprinkling system in material handling area may not require; ● Work zone monitoring has been carried out regularly and analysis report was being submitted regularly. But, it was observed that process vessels and other associated facilities including incinerator were in dilapidated condition and lots of emissions were observed during the visit. PA was directed to rectify the same.
7.	For further control of fugitive emissions, following steps shall be followed: 1. Closed handling system shall be provided for chemicals. 2. Reflux condenser shall be provided over reactor. 3. System of leak detection and repair of pump/pipeline based on preventive maintenance. 4. 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. 5. Cathodic protection shall be provided to the underground solvent storage tanks.	**Being Complied.** PA has submitted the following: ● Closed pneumatic system has been already provided with pump of mechanical seal to avoid any leakages. ● There was no need of any reflux condenser, since solvents were not being used. ● Leak detection system was not found although PA has claimed that they are having an elaborative preventive maintenance schedule. ● Acid handling transfer through closed pipeline was in practice. ● Overhead tanks were provided with proper earthing facility.
8.	The gaseous emissions from DG set shall be dispersed through adequate stack height as per CPCB guideline. Acoustic enclosure shall be provided to the DG sets to mitigate the noise pollution.	**Being Complied.** DG sets were installed in closed rooms with adequate stack height.
9.	The company shall upload the status of compliance of the stipulated EC conditions, including results of monitored data on its website and shall update the same periodically. It shall simultaneously be sent to the RO of MOEF, the respective Zonal Office of CPCB and the	**Not Complied.** PA has not uploaded compliance report including results of monitored data on company's website. Half yearly reports were being submitted to MoEF, Bhopal, CPCB and GPCB. Sign board has been provided as per condition.

	GPCB. The levels of PM_{10}, SO_2, NOx, CO, VOC and HC in ambient air shall be monitored & displayed at a convenient location near the main gate of the company and at important public places.	
10.	Solvent management shall be carried out as follows: a) Reactor shall be connected to chilled ne condenser system. b) Reactor and solvent handling pump shall have mechanical seals to prevent leakages. c) The condensers shall be provided with sufficient HTA and residence time so as to achieve more than 95% recovery. d) Solvents shall be stored in a separate space specified with all safety measures. e) Proper earthing shall be provided in all the electrical equipment wherever solvent handling is done. f) Entire plant shall be flame proof. The solvent storage tanks should be provided with breather valve to prevent losses. g) All the solvent storage tanks should be connected with vent condensers with chilled brine circulation.	**Not pertains to project.** As mentioned above solvent has not been used in the process, the condition may not be applicable to the project as argued by PA. However, earthing was provided to EO storage tanks.
11.	Total fresh water requirement from groundwater source shall not exceed 145 m^3/day and prior permission shall be obtained from the CGWA/SCWA. A copy of permission to the Ministry's RO at Bhopal.	**Not Complied.** The average water consumption was 199.25 KLPD and average waste water generation was 181 KLPD as per environment audit report 2014 which is higher than the prescribed limits. There were two bore within the premises for which permission for drawl of ground water was not obtained from CGWA/ SGWA.
	Water consumption As per our last EC issued in 2012, total ground water requirement from 132 m^3/day to 145 m^3/day after expansion. Detailed water balance is given on page no. 2 of this document. Water balance diagram indicate that 40 m^3/day recycle water from condensate of MEE. So total water requirements is tune around 185 m^3/day. As per Environmental audit report its tune around 199.25 KLPD which is little higher because less water consumption submitted by us for domestic & greenbelt development in our earlier EC proposal and actual consumption in both the head is high. We have modified it in our current proposal.	
12.	Industrial effluent generation shall not exceed 82m^3/day. Industrial effluent will be segregated into high TDS/high COD & low TDS/low COD streams. High	**Same as above mentioned specific condition no. I of EC 2008.**

	TDS/high COD effluent streams will be treated in stripper, MEE and incinerator. Low TDS/low COD effluent stream will be treated in the ETP. Condensate from evaporation will be reused/recycled for cooling tower make up water.	
	Wastewater Generation Pl. refer water balance diagram for existing set up which shows that actual wastewater generation is tune around 168 KLD (82 m^3/day Effluent + 86 m^3/day ML) whereas as per the Audit report it is tune around 169 KLD. It is very marginal difference and we have further reduced it to control excess use of water.	
13.	No effluent shall be discharged outside the premises and 'Zero' discharge concept shall be adopted.	**Not Complied.** Although PA has claimed that the effluent was not being discharged outside the premises, but it was observed that solar evaporation pond does not have adequate capacity with regard to generation of effluent. Since detailed water balance was not submitted, zero discharge could not be ensured. Thus, condition is considered as not complied.
	Clarification/Action plan: Currently our solar evaporation pond is used for storage of treated effluent before evaporate it in our evaporator. We have one solar evaporation pond of average 410 sqm area. We wish to inform you that, this pond is intermediate storage before evaporate it in our evaporator and has capacity of 820 m^3 and retention is tune around 5.0 days and it is adequate as per our requirement.	
14.	Process effluent/any wastewater shall not be allowed to mix with storm water. Storm water drain shall be passed through guard pond.	**Being Complied.** It was observed that storm water channel was developed but mixing from the washing area/ETP could not be avoided during monsoon as evident from the **Photo 11.**
15.	Incinerator comprising primary and secondary chamber shall be designed as per CPCB guidelines.	**Not Complied.** Incinerator was not designed as per CPCB guidelines. **Photo 1** shows the status of the incinerator which has only one chamber.
	Clarification/Action plan: Our Incinerator is too old and installed in the year of 1998 at that time mechanical evaporator (MEE) was not so popular and industries were installed and operate Incinerator for evaporation of effluent rather than incinerator for decomposed of toxic compound. In the same philosophy, we have installed it and operate as evaporator. So practically, installed incinerator with single chamber is not incinerator but evaporator/dryer to dry concentrated slurry/ML of MEE.	
16.	As proposed, gypsum shall be sent to cement industries. ETP sludge, evaporated residue and incinerated ash shall be disposed off to the TSDF.	**Being Complied.** Gypsum to the tune of 10452.15 MT was supplied to cement manufacturers namely M/s Ambuja Cement Ltd., M/s J.K. Lakshmi Cement Ltd. M/s Orient Cement Ltd., M/s Sanghi Industries Ltd. during Jan. 14 to July 15. Incinerator ash/salt was being is disposed

		off to TSDF site of M/s BEIL, Ankleshwar.
17.	The company shall obtain authorization for collection, storage and disposal of hazardous waste under the HWMH and Trans-Boundary Movement Rules. 2008 and amended as on date for management of hazardous wastes and prior permission from CPCB shall be obtained for disposal of solid/hazardous waste in the TSDF. Measures shall be taken for firefighting facilities in case of emergency.	Same as above mentioned specific condition no. 5 of EC 2008. **Being Complied.**
18.	The company shall strictly comply with the rules and guidelines under MSIHC Rules, 1989as amended in Oct., 1994 & January, 2000. All transportation of hazardous chemicals shall be as per the Motor Vehicle Act (MVA), 1989.	Same as above mentioned specific condition no. 5 of EC 2008. **Being Complied.**
19.	Necessary precaution should be taken during transportation of ethylene oxide. Entire risk should lie with the authorized supplier till the delivery at project site. It should be mentioned clearly in the contract documents. For bulk transportation of Ethylene Oxide & the traders carrying them must follow: a) A fixed route after conducting a route survey, from the EO/Acrylonitrile suppliers/ storage premises to plan. b) GPS system for constant monitoring of the truck movement.	**Being Complied.** PA has argued that supply of ethylene oxide is in the scope of manufacturer of EO till delivery at the project sire. This has been included as part of purchase order issued to EO supplied. Thus, condition is considered as complied.
20.	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	**Being Complied.** Fire-fighting system at EO storage area and foam/CO_2 extinguishers has been provided in the process area to control the fires. PA was directed to install adequate no. of sensors at the strategic locations 10 make system more effective.
21.	Fire hydrant system shall be provided along with fire monitor and flame detection system in the process as well as storage areas.	**Not Complied.** Fire monitor and flame detector system was not provided.
	Clarification / Action plan: Fire monitor and flame detector system will be installed.	
22.	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	**Being Complied.** Since project was commissioned long back and expansion was implemented by means of "debottlenecking of the process system",

	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 surrounding environment.	thus, condition could not be verified. PA has intimated during the discussion that construction labours were coming from nearby villages. Therefore, condition is considered as complied.
GENERAL CONDITIONS		
1.	A copy of the clearance letter shall be sent by the PP to concerned Panchayat, Zila Parisad/ Municipal Corporation. Urban local body and the local NGO, if any, from who suggestions/ representations. If any were received while processing the proposal.	**Not Complied.** Although PA has submitted that condition is compiled but no documentary evidence was submitted.
	Clarification / Action plan: Copy of the clearance letter forwarded to Village Panchayat-Indrad, Zila Parisad-Mehsana and other plausible stack holder from representations received during public hearing.	
2.	The ES for each financial year ending 31st March in Form-V as is mandated shall be submitted to the concerned SPCB as prescribed under the EP Rules, 1986, as amended subsequently, shall also be put on the website of the company along with the status of compliance of EC conditions and shall also be sent to the respective RO of MoEF by email.	**Complied.** PA has submitted ES Form-V to GPCB regularly. With regard to uploading on the website the implementation is **same as above mentioned general condition no. 17 of EC 2008.**