

# Sai Fertilizers and Phosphates Pvt. Ltd.

## Executive Summary

Environmental Impact Assessment Study  
for

Proposed 56,080 TPA Synthetic Organic  
Chemicals Manufacturing Plant

at

Additional MIDC, Anand Nagar, Ambernath,

Plot No.: N – 45, Village: Ambernath,

Tehsil: Ambernath,

District: Thane – 421506, Maharashtra

*Prepared by*



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## **EXECUTIVE SUMMARY**

### **1.0 INTRODUCTION**

**Sai Fertilizers and Phosphates Pvt. Ltd.** has proposed a new project of 56,080 TPA Synthetic Organic Chemicals Manufacturing Plant Project at Additional MIDC, Anand Nagar, Ambernath, Plot No.: N – 45, Village: Ambernath, Tehsil: Ambernath, District: Thane – 421506, Maharashtra. This project falls under the category of 5 (f) B of the schedule as per EIA Notification, 2006.

**Sai Fertilizers and Phosphates Pvt. Ltd.** has entrusted **Enviro Analysts and Engineers Private Limited (EAEPL), Mumbai** to conduct the Environmental Impact Assessment Study and to prepare the Environmental Impact Assessment (EIA) Report and Environmental Management Plan (EMP) for this project.

### **2.0 LOCATION**

The Proposed Project of **Sai Fertilizers and Phosphates Pvt. Ltd.** is located at Plot No.: N-45, Additional MIDC, Anand Nagar, Ambernath, Tehsil: Ambernath, Dist.: Thane, Maharashtra. The coordinates of the project site are 19<sup>o</sup>10'16.65"N and 73<sup>o</sup>11'47.07"E. Elevation of the project site is 37.0 m above Mean Sea Level (MSL). MIDC road is adjacent to the project site. Nearest Railway Station is Ambernath Railway Station which is about 4.5 km away from the project site towards NNW. Nearest Bus Station is Ambernath Station Bus Sop which is about 4.4 km away from the project site towards NNW. Nearest Town is Ambernath which is about 2.7 km away from the project site towards North. Chhatrapati Shivaji International Airport, Mumbai is about 35.8 km away from the project site towards WSW. No additional area is anticipated for this New Project. Sai Fertilizers and Phosphates (SFP) has the advantage of being next door to its sister concern, A. R. Sulphonates (ARS), which is having its unit on the same boundary wall (Adjacent Plot).

### **3.0 PROJECT DESCRIPTION**

The Plot No.: N – 45 within Additional Ambernath Industrial Area, Thane, Maharashtra was provided to **Inga Pharmaceuticals Ltd.** No Objection Certificate was issued by Area Manager, MIDC Thane on 21<sup>st</sup> February, 2005 to this company against this Plot (Ref No. MIDC/ROT/AMC/N-45/831). Inga Pharmaceuticals Ltd. had received Environmental Clearance from Ministry of Environment & Forests (MoEF) on 8<sup>th</sup> August, 2007 against their Proposal to

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set up a New Pharmaceutical Unit (Bulk Drug) with Capacity of 5.15 TPM at this Plot (File No. J-11011/471/2006-IA II-(I)). Inga Pharmaceuticals Ltd. had sold this plot along with the Constructed Building of the Plant to Sai Fertilizers and Phosphates Pvt. Ltd. on 24<sup>th</sup> June, 2011. Sai Fertilizers and Phosphates Pvt. Ltd. has decided to set up a New Plant at this plot to manufacture **56,080 TPA Synthetic Organic Chemicals** which will be used in home and home care products. Details of the products along with quantity per year of this new project of Sai Fertilizers and Phosphates Pvt. Ltd. is presented in **Table 1**.

**Table 1: List of Products**

Sr. No.	PRODUCTS	QUANTITY (TPA)
1.	LABSA (Liner Alkyl Benzene Sulphonic Acid)	25,920.0
2.	SLES (Sodium Lauryl Ether Sulphate)	5,645.0
3.	AOS (Alpha Olefin Sulfonate)	10,944.0
4.	SLS (Sodium Lauryl Sulphate)	8,147.0
	<b>BYPRODUCTS</b>	
1.	Sodium Sulphite / Sulphate Solution	5124.0
2.	Sulphuric Acid	300.0
	<b>Total</b>	<b>56,080.0</b>

### 3.1 Production Units of the Proposed Plant

The capacities of the Proposed Units and Machineries have been presented in **Table 2**.

**Table 2: Units & Machineries of the Proposed Plant**

Sr. No.	Units & Machineries	Capacity
1.	Sulfur Melter.	45 KL
2.	Sulfur Burner.	520 Kg / hr.of Sulfur Burning.
3.	Interpass Coolers for SO <sub>2</sub> & SO <sub>3</sub> .	a. SO <sub>2</sub> - Cool Down Gas from 680 <sup>o</sup> C to 441 <sup>o</sup> C b. SO <sub>3</sub> - Cool Down Gas from 575 <sup>o</sup> C to 441 <sup>o</sup> C
4.	Convertor.	Volumetric Cap. 15.9 m <sup>3</sup> .
5.	Waste Heat Boiler.	450 Kg / hr. Steam Generation @ 10 Kg / cm <sup>2</sup>
6.	SO <sub>3</sub> Cascade Cooler.	Cool Down Gas from 283 <sup>o</sup> C to 41 <sup>o</sup> C
7.	Mist Eliminator.	Volumetric Cap. 5.4 m <sup>3</sup>
8.	Process Air Blower with Air Chiller.	a. Air Blower - 6900 m <sup>3</sup> / hr of air @ 1.2 Bar b. Air Chiller - Cool Down Air from 129 <sup>o</sup> C to 16 <sup>o</sup> C
9.	Regeneration Air Blower.	13000 Nm <sup>3</sup> / hr
10.	Water Chillers - 2 Nos.	110 TR and 180 TR
11.	D.M. Water Plant	15 m <sup>3</sup> / hr
12.	Water Softener	5 m <sup>3</sup> / hr
13.	Vapor Absorption Machine	59 TR

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14.	Instrument Air Compressor	125 CFM
15.	Cooling Tower	1240 TR
16.	Dual Air Drying Plant with Pre & After Coolers	Drying of 7500 Kg / hr of air to the Dew Point of 60 <sup>0</sup> C
17.	SO <sub>3</sub> Absorber	Volume Capacity 5.6 m <sup>3</sup>
18.	SO <sub>2</sub> Scrubber	Volume Capacity 16.5m <sup>3</sup>
19.	Electro Static Precipitator	To treat 5000 Nm <sup>3</sup> / hr of untreated gas
20.	Sulfonation System consisting of Falling Film Reactor with Cyclone Separator, Digestors, Pumps & Plate Heat Exchangers	5 MT / hr of AM Production
21.	Neutralization System consisting of Mixing Pump, Homogenizer, Pumps & Spiral Heat Exchanger.	5 MT / hr of AM Production
22.	Hydrolyser System consisting of Heat Exchangers, Hydrolyser & Pumps.	5 MT / hr of AM Production
23.	Dioxane Reduction & Destruction System consisting of Stripper, Condenser, Vacuum Pump, Agitating Vessels etc.	5 MT / hr of AM Production
24.	Electrical Equipments like VCB/PCC/MCC/PLC	
	Coal Fired Boiler of 2 MT / hr Steam Generation Capacity with Multiclones, Bag Filter etc.	2 Mt/Hr of Steam Generation @ 10 Kg / cm <sup>2</sup>
25.	Storage Tanks for Raw Materials & Finished Products.	<b>Raw Materials:</b> 40KL X 5 Tanks 50KL X 1 Tanks 100KL X 1 Tank 200KL X 4 Tanks 180KL X 1 Tank  <b>Finished Products</b> 400KL X 2 Tanks 200KL X 1 Tank 150KL X 1 Tank 20KL X 3 Tanks
26.	Weigh Bridge	60 MT
27.	Diesel Generators (2 X 500 kVA)	1000 kVA
28.	Transformer	1500 kVA

### 3.2 Area Statement

Total Plot Area is 16,680 m<sup>2</sup>. Green Belt is estimated to be developed within the project site in 33% of the Total Plot Area i.e 5,504 m<sup>2</sup> area is reserved for green belt development. Details about Area Statement has been presented in **Table 3**.

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**Table 3: Area Statement**

<b>Sl. No.</b>	<b>Particulars</b>	<b>Area in Sqm.</b>	<b>% of Total Land</b>
1	Total Plot Area	16,680	100
2	Main Plant + Sulphur storage	1920	11.51
3	Utility	988.28	5.92
4	Lorry loading area	332	1.99
5	ETP	146.51	0.88
6	Cooling Tower	52.69	0.32
7	Toilet	27.54	0.17
8	400 KL tanks	93.08	0.56
9	Tank yard	659.48	3.95
10	Boiler House	161.8	0.97
11	D.M Plant	65.3	0.39
12	Office area +Security	88.32	0.53
13	Electrical Area	420	2.52
14	Parking area	750	4.50
15	Weigh Bridge	66	0.40
16	Internal Road area	3516	21.08
17	Open space (Including Drainage)	1756	10.53
18	Green Belt Development (33% of the Total Plot Area)	5637	33.79
	<b>Total</b>	<b>16,680</b>	<b>100</b>

### 3.3 Capital Investment

The Cost of this New Project is 2586.23 Lakhs. Out of the Total Project Cost Rs. 3,32,87,460/- is estimated to be utilized for Environmental Protection Measures. Detailed Break up of Capital Investment for this Proposed Project has been presented by **Table 4**.

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**Table 4: Detailed Break up of Capital Investment for the Project**

<b>Parameters</b>	<b>Proposed Cost (Rs. in Lakhs)</b>
Land (including Site Development)	264.70
Factory Building	429.71
Plant and Machinery , Equipments	1599.13
Furniture, Fixtures & Other Immovable Fixed Assets	292.69
<b>Total</b>	<b>2586.23</b>

### 3.4 Water Requirement:

Water requirement for this Proposed Plant will be 435 m<sup>3</sup>/ day which will be supplied by Additional MIDC Ambernath.

### 3.5 Power Requirement

Power requirement will be fulfilled by MSEDCL. Connected Load will be 1250 kVA and proposed Power Demand will be 850 kVA. Two numbers of D.G. Sets of 500 kVA each are proposed to be kept by the company for backup power for supply during power failure for the proposed plant. Energy conservation techniques and equipments will be used in the project.

### 3.6 Fuel

Coal @ 6.0 TPD will be used as fuel in Boiler in the proposed plant. Two numbers of D.G. Sets of 500 kVA each are proposed to be kept by the company for backup power for supply during power failure for the proposed plant. HSD @ 210 ltr. / day will be consumed for the proposed D.G. sets.

### 3.7 Man Power Requirement

In order to operate and maintain the plant facilities including its technical and general administration the estimated manpower requirement for the proposed project is 45 persons.

### 3.8 Domestic Sewage & Industrial Effluent Generation

About 4.0 KLD domestic sewage and 37.8KLD industrial effluents will be generated in this proposed project. Industrial effluents will be generated from process, utilities and washing. These waste waters will be treated in Effluent Treatment Plant of 50.0 KLD capacity up to Tertiary Level and will be reused in Washing & Cleaning and Scrubber.

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Waste water from Cooling Tower (16.8 KLD) would be stored separately and will not be sent to ETP. Rest 25.0 KLD Waste water would be sent to ETP and the quantity of Treated Effluent will be 23.0 kld. Which will be reused completely –

- a. Washing & Cleaning - 10.0 KLD
- b. Scrubber - 13.0 KLD

### **3.9 Gaseous Emission**

The main sources of gaseous emission will be

- a. Flue gas emission due to combustion of coal in boiler
- b. Process emission from the stack attached to reaction vessel (Scrubber)
- c. D. G. Sets

Coal will be used @ 6.0 TPD as fuel in the boiler and HSD @ 210 ltr. / day will be consumed for the proposed D.G. sets. However the Stack Height of the boiler will be 30.0 mtr. for adequate dispersion of pollutants. The main emitted pollutants will be PM10, PM 2.5 and So2, from flue gas stack. Cyclone Separator and Bag Filter will be provided as Air Pollution Control measure to the stack attached to Boiler. There will be one process stack attached to reaction vessel (Scrubber) where SO2 ( Within permissible limit of MPCB ) will be emitted as pollutants. Emissions will also be generated during handling and transportation. Source of emission from the Sulfonation will be connected to Electrostatic Precipitator (ESP) and Alkali Scrubber. ESP and Alkali scrubber will be provided as Air Pollution Control measure to process emission. The height of the Process Stack will be 31.0 Mtr.

Two numbers of D.G. Sets of 500 kVA each are proposed to be kept by the company for backup power for supply during power failure for the proposed plant. HSD @ 210 ltr. / day will be consumed for the proposed D.G. sets. Height of the stacks of the D.G Sets will be 3.0 mtr.

### **3.10 Non Hazardous Solid Waste**

Non Hazardous Solid Wastes from this factory will be from office and plant like waste paper, corrugated box, broken glass / plastic non-contaminated, used but decontaminated drums, plastic decontaminated bags, domestic waste garden leaves. Sweepers / workers will collect such wastes separately (Biodegradable and Non biodegradable) from the source and would store in solid waste collection enclosure (to be located suitably within the project site).

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Recyclable non-biodegradable solid wastes will be sold to prospective buyers. Biodegradable solid waste will be used for composting within the plant premises.

### 3.11 Generation of Noise

The main sources of noise pollution during the operational phase will be Boiler, reactor, process plant, D. G.Set and other machineries. The noise level of the plant will be within prescribed limit.

## 4.0 DESCRIPTION OF ENVIRONMENT

The area falling within the radius of 10 km around the proposed project has been considered as the Study Area. On-site environmental quality monitoring was carried out from 1<sup>st</sup> March, 2013 to 31<sup>st</sup> May, 2013.

### 4.1 Air Environment:

The wind pattern is mostly influenced by the seasonal winds which imparts a specific wind pattern at various time intervals throughout the year. An assessment of baseline air quality was undertaken to establish the status of exposure of the major sensitive receptors and to assess the background air quality at the project location. Locations selected for Ambient Air Quality Monitoring has been presented in **Table 5**.

**Table 5: Locations selected for Ambient Air Quality Monitoring**

Sr. No.	Location Code	Description	Latitude	Longitude	Distance from the project boundary (km)	Direction from the project site	
1.	A1	Project Site	19°10'15.05"N	73°11'45.32"E	--	--	
2.	A2	Chikhaloli	19°11'0.39"N	73°12'49.43"E	North East	1.5	
3.	A3	Jambhivali	19°11'43.91"N	73°11'38.19"E	North	2.0	Upwind
4.	A4	GIP Tank	19°10'17.08"N	73°11'18.44"E	South-West	1.0	
5.	A5	Kharvai	19° 8'55.35"N	73°14'46.70"E	South-East	3.6	Downwind
6.	A6	Shirgaon	19° 9'27.61"N	73°13'53.62"E	East	6.7	Downwind
7.	A7	Bohonoli	19° 9'7.38"N	73°11'27.64"E	North-East	9.3	
8.	A8	Pritam Hotel	19°11'19.04"N	73°11'29.07"E	North	3.0	Upwind

### Sampling Frequency

The frequency of monitoring was 24 hrs twice a week at each station spread over the season, with gaseous samples being changed six times.

Results of Ambient Air Quality Monitoring are given in **Table 6**.



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**Table 6: Ambient Air Quality Monitoring Result**

Location of Monitoring	A1	A2	A3	A4	A5	A6	A7	A8	NAAQS
Duration of Monitoring	24 hrs								
<i>Pollution Parameters:-</i>									
PM <sub>10</sub> (µg/m <sup>3</sup> )	53	47	51	51	55	57	58	64	100
PM <sub>2.5</sub> (µg/m <sup>3</sup> )	28	32	37	29	36	36	35	45	60
SO <sub>2</sub> (µg/m <sup>3</sup> )	38	38	38	34	36	34	39	30	80
NO <sub>x</sub> (µg/m <sup>3</sup> )	60	61	59	56	59	55	59	57	80
NH <sub>3</sub> (µg/m <sup>3</sup> )	1.4	1.7	1.7	1.6	1.9	2	1.7	1.8	400
Air Pollution Index	45	45	47	42	47	46	48	50	

**API Classification:**

- a. 0-25 :Clean Air      b. 26-50 : Light Air Pollution    c. 51-75 : Moderate Air Pollution  
d. 76-100 : Heavy Air Pollution    e. > 100 : Severe Air Pollution

The results show that ambient air quality at all location is within the statutory limits and the air pollution index shows light air pollution at all places.

#### 4.2 Water Environment

Three Ground Water Samples and three Surface Water Samples have been collected within the study area of 10 km. Water samples have been drawn at a frequency of once in the study period. Locations selected for Water Sampling has been presented in **Table 7**.

**Table 7: Locations selected for Water Sampling**

Sr.No.	Code	Location	Latitude	Longitude	Distance in km from Boundary	Direction from Project Site
1.	GW1	Chikhaloli Well water	19°11'0.58"N	73°12'48.85"E	2.33	NE
2.	GW2	Shirgaon Bore well water	19° 9'27.76"N	73°13'53.68"E	4.04	SE
3.	GW3	Bohonoli Bore well water	19° 9'24.85"N	73°11'26.36"E	1.59	SW
4.	SW1	GIP Tank	19°10'16.56"N	73°11'6.76"E	1.21	W
5.	SW2	Chikhaloli Dam	19°10'34.37"N	73°12'39.18"E	1.71	NE
6.	SW3	Ulhas River	19°10'28.02"N	73°14'51.42"E	6.04	E

#### Surface Water Quality

- Colour: All the water samples were colourless.
- pH: All the samples ( in the pH range between 7.2-7.5) meet the desirable standards.
- Dissolved oxygen (DO) ranged between 4.8-5.2 mg/lit.

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- Total Dissolved Solids (TDS): TDS in samples were in the range of 134-138 mg/lit during the study.
- Calcium: Calcium hardness content in the water ranged from 17.3-25.9 mg/lit during the study.
- Magnesium: Magnesium hardness ranged from 23.8-29.5 mg/lit. as CaCO<sub>3</sub>
- Chlorides: Ranged from nil to 4.7-19.0 mg/lit
- Sulphate: Ranged from 16.3-25.7 mg/lit.
- Nitrate ranged from 6-8.6 mg/lit
- Fluoride ranged from 0.4-0.9 mg/lit
- Lead and Iron were found nil during the study.

### **Ground Water Quality**

- pH: All the samples meet the desirable standards (pH ranged from 7.2-7.5) during the study.
- Total Dissolved Solids (TDS): TDS in samples ranged from 215.0-225.0 mg/lit during the study.
- Calcium (Hardness) : Calcium hardness content in the water ranged from 41.0-57.6 mg/lit during the study.
- Magnesium: Magnesium hardness ranged from 56.2-80.6 mg/lit during the study.
- Chlorides: Ranged from 49.0-56.3 mg/lit throughout the study.
- Sulphate: ranged from 60.0-63.7 mg/lit throughout the study.
- Total alkalinity 192.0-198.7 mg/lit
- Nitrate ranged from 1.0-1.7 mg/lit.
- The remaining metals found nil at the study area.

All the parameters are below prescribed standards.

### **4.3 Soil Characteristics**

It is essential to determine the potentiality of soil in the area and to identify the impacts of the project on soil quality. Accordingly, the soil quality assessment of the study area has been carried out. Four Soil Samples have been collected within the study area of 10 km. Soil samples have been drawn at a frequency of once in the study period. Locations selected for Soil Sampling has been presented in **Table 8**.

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**Table 8: Locations selected for Soil Sampling**

Sr. No	Code	Monitoring Locations	Lat	Long	Distance	Direction
1	S1	GIP Tank	19°10'16.56"N	73°11'6.76"E	1.21	W
2	S2	Chikhaloli Dam	19°10'34.37"N	73°12'39.18"E	1.71	NE
3	S3	On Site- Near Main Gate	19°10'15.05"N	73°11'45.32"E	--	--
4	S4	Bohonoli	19° 9'24.85"N	73°11'26.36"E	1.59	SW

Result of Soil Monitoring has been presented by **Table 9**.

**Table 9: Result of Soil Monitoring**

Parameter	Units	S-1	S-2	S-3	S-4
		GIP Tank	Chikhaloli Dam	On Site (Near Main Gate)	Bohonoli
<b>[1] Physical Parameter</b>					
Moisture Content	%	1	1.3	1.1	1.1
Ash Content	%	88.8	90.6	89.7	87.1
Volatile Compound	%	10.2	8.4	9	12.2
Bulk Density	gm/cc	1.8	1.4	1.7	1.7
<b>[3] Chemical Parameter</b>					
By Water Leachate					
Sulphates, as SO <sub>4</sub>	mg/Kg	65.9	65.9	71.3	63.1
Chlorides, as Cl <sup>-</sup>	mg /Kg	73	83.3	90	73.3
<b>[4] Metals/ Heavy Metals</b>					
Copper, as Cu	mg /Kg	Nil	Nil	Nil	Nil
Chromium, as Cr	mg /Kg	Nil	Nil	Nil	Nil
Lead, as Pb	mg /Kg	Nil	Nil	Nil	Nil
Mercury, as Hg	mg /Kg	Nil	Nil	Nil	Nil
Zinc, as Zn	mg /Kg	Nil	Nil	Nil	Nil
Iron, as Fe	mg /Kg	Nil	Nil	Nil	Nil
Manganese, as Mn	mg /Kg	Nil	Nil	Nil	Nil
Boron, as B	mg /Kg	Nil	Nil	Nil	Nil
Total Phosphate as PO <sub>4</sub>	%	Nil	Nil	Nil	Nil
Kjeldhal Nitrogen as N	%	Nil	Nil	Nil	Nil
<b>Exchangeable Cations</b>					
Calcium as Ca	meq/ 100 gm	23.7	23.6	32.1	28
Magnesium as Mg	meq/ 100 gm	32.7	46.2	42.8	50.2

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Sodium as Na	meq/gm	100	Nil	Nil	Nil	Nil
Potassium as K	meq/gm	100	Nil	Nil	Nil	Nil

#### 4.4 Noise Environment

Methodology for monitoring of noise levels is presented in **Table 10**.

**Table 10: Noise Monitoring Methodology**

Environment Component	Sampling Location	Sampling Parameter	Sampling Frequency	Sampling Equipment
<b>Ambient Noise Level</b>	8 locations within 10 km study area	Decibels dB(A)	Once during the study period 24 hours at each location	Noise Level Meter

Noise Monitoring Locations have been presented in **Table 11**.

**Table11: Noise Monitoring Locations**

Sr. No	Sampling Location		w.r.t. Sai Fertilizers and Phosphates Pvt. Ltd.			
			Direction	Dist. (Km)	Lat	Long
1.	Location N1	Project Site	--	--	19°10'15.05"N	73°11'45.32"E
2.	Location N 2	Chikhaloli	North East	1.5	19°11'0.39"N	73°12'49.43"E
3.	Location N3	Jambhivali	North	2.0	19°11'43.91"N	73°11'38.19"E
4.	Location N4	GIP Tank	South-West	1.0	19°10'17.08"N	73°11'18.44"E
5.	Location N5	Kharvai	South-East	3.6	19° 8'55.35"N	73°14'46.70"E
6.	Location N6	Shirgaon	East	6.7	19° 9'27.61"N	73°13'53.62"E
7.	Location N7	Bohonoli	North-East	9.3	19° 9'7.38"N	73°11'27.64"E
8.	Location N8	Pritam Hotel	North	3.0	19°11'19.04"N	73°11'29.07"E

Noise readings were taken at eight different locations within the study area. The readings are presented in **Table 12**.

**Table 12: Noise Monitoring Results**

Sr. No.	Sampling Location	Noise Levels dB(A)		Ambient Noise Quality standards of CPCB dB(A)	
		Day	Night	Day	Night
1	N1	43.6	33.3	75	70
2	N2	46	37	55	45
3	N3	50	39	55	45
4	N4	43	33	55	45
5	N5	42	31	55	45
6	N6	50	42	55	45

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7	N7	47	33	55	45
8	N8	55	32	55	45

### **Conclusion:**

The results shows that the ambient noise level at all monitoring location are within statutory limits.

## **4.5 Biological Environment:**

### **4.5.1 Flora:**

The Project site is within Additional MIDC, Anand Nagar, Ambernath but the region have variety of Flora with ample of different species of trees, Shrubs, Herbs, grasses, climbers, and Agricultural crops.

### **4.5.2 Fauna**

Commensurate with low rainfall, plain grounds and moderate flora, the District observes medium wildlife on eastern and central side where forests are also scanty. As we go towards west the number of species somewhat increase. We find species of Mammals, Avifauna, Snakes, Amphibians, Insects, and Butterflies in variable degrees.

### **4.5.3 Fisheries**

The rivers and streams of Thane district are only moderately stocked with fish .Fishing is done mainly by means of cast nets, fixed nets, drag nets and hook and line. In addition many other methods are locally used including use poisonous substances to dope the fish, with the result that there is immense destruction of fish and depletion of fish stock. Vamb, Aheer, Amlt .Singhara, Valunj and Murrals are some of the commercially important varieties of fish caught in the district .Fast growing varieties of major carps like Rohu, .Katla and Mrigal are imported from Kolkata and are stocked in reservoirs and tanks.

## **4.6 Socio-Economic Environment**

As of 2001 India census, 1) Ambernath had a population 203,795 Males constitute 53% of the population and females 47%. Ambernath has an average literacy rate of 73%, higher than the national average of 59.5%; with 57% of the males and 43% of females literate. 13% of the population is over 60 years of age.

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## 5.0 ANTICIPATED ENVIRONMENTAL IMPACTS & MITIGATION MEASURES

### 5.1 Air Environment:

Impact on ambient air due to plant operations of **Sai Fertilizers and Phosphates Pvt Ltd.** will be due to operation of Boiler, D.G set (Stand by) and fugitive emission due to raw material handling and gaseous emission from the process. For the proposed project activity, unit will install one boiler of capacity 2 MT/hr and two D.G set of capacity 500 KVA . The consumption of Coal and HSD for Boiler and D.G set will be only 6 Ton/Day and 210 liters/day respectively.

Multi cyclone separator with bag filter will be installed as air pollution control system with the boiler and alkali scrubber along with electrostatic precipitator will be installed in the process stack. Unit will provide 30 m stack for boiler, 3 meter stack above building height will be provided to D.G set and 31.0 meter process stack for the proper dispersion of pollutants. Thus, impact on air environment due to boiler & process will be a long term for a short distance only. Proposed Mitigation Measures have been presented in **Table 13**.

**Table 13: Proposed Mitigation Measures**

Sr. No.	Type	Characteristics	Mitigation Measure
1.	Air Emission from Burning of Fuel	Air Pollutant –SO <sub>2</sub> , NO <sub>x</sub> , PM <sub>10</sub> and PM <sub>2.5</sub>	Sufficient height to stack will be provided & regular monitoring will be carried out to check emission that should remain well within statutory limit. Bag Filter with MDC will also be provided.
2.	Process Emission	Emission generated during handling, transportation & actual process	Source of emission will be connected to Alkali scrubber to reduce emission from air via ESP

### 5.2 Water Environment

About 4.0 KLD domestic sewage and 37.8KLD industrial effluents will be generated in this proposed project. Industrial effluents will be generated from process, utilities and washing. These waste waters will be treated in Effluent Treatment Plant of 50.0 KLD capacity up to Tertiary Level and will be reused in Washing & Cleaning and Scrubber.

Waste water from Cooling Tower (16.8 KLD) would be stored separately and will not be sent to ETP. Rest 25.0 KLD Waste water would be sent to ETP and the quantity of Treated Effluent will be 23.0 kld. Which will be reused completely –

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- a. Washing & Cleaning - 10.0 KLD
- b. Scrubber - 13.0 KLD

U.V system will be applied for maximum reuse of the treated water in the plant.

The unit will take all necessary precautions to make its solid waste storage area impervious to water and leachate migration. All production and raw material storage area will be having RCC flooring to avoid any land contamination and ground penetration. From proposed activity, there shall be no direct discharge of industrial effluent into ground or surface water or on land.

### **5.3 Noise Environment**

During installation of new machineries, noise will generate which is short term impact. The major sources contributing to Noise pollution during the plant operation will include turbo-generators, air compressors, feed pumps, condensate pumps, reflux pumps, recycle pumps, diluents pumps, tempering pumps, air blowers, I.D. Fans, cooling towers, manufacturing utility and transportation etc. The operation of the equipment will generate noise ranging 70-80 dB (A).

The usage of the D.G sets will be only during the power failures. The noise generated due to the traffic will be mitigated by plantation around the area of the site. D.G set will be covered with acoustic enclosure so that large amount of noise cannot be generated during the working period of the D.G sets. The thick green belt or shelter belt will act as the barrier for cutting the noise generated in the factory premises.

Therefore, it can be concluded that there shall be reversible impact on noise environment due to proposed project activity. With the implementation of the mitigation measures proposed, the noise levels at plant boundaries will be well below the limits specified for industrial areas.

### **5.4 Land Environment**

The proposed project will be located at Additional MIDC area and for this project no construction will be required. There will be only installation of new machineries which will not damage the present condition of land. The site is well connected by road, water supply & drainage facility. Due to availability of all physical infrastructures, the topography of existing land will not change. The unit will take all reasonable precautions to make its solid waste storage area impervious to water and leachate migration. This will prevent soil contamination. The unit will provide pucca RCC flooring at production, raw material storage and at finished product storage to avoid any contamination with soil during handling, spillages or curing activity. The impact on land

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environment due to boiler emission and it's dispersion can be a long term impact on nearby crop area. Company will install multi clone Dust collector along with online Bag Filter. This unit will be zero discharge unit therefore the soil quality will not be adversely impacted by **Sai Fertilizer and Phosphates Pvt. Ltd.** plant operations.

## **5.5 Biological Environment**

Project site and its nearby area which has mixed type of land use i.e., industrial, commercial and residential. No loss of flora & fauna is envisaged. There will be a development of green belt area within & at the periphery of the plot area. There will not be any discharge of effluent from the existing & proposed project activity into any water body; hence there will not be any impact on aquatic ecology of the surrounding study area. Air emissions generated, due to proposed project activity will be always kept within the prescribed standards and therefore no significant impact on terrestrial ecology is envisaged. Existing & proposed green belt development within the premises will leads to reversing the various negative impacts associated with plant operation as well as it can also help to develop terrestrial and avian ecology with positive effect in the long term.

## **5.6 Socio Economic Environment**

Due to proposed project, employment generation will increase for skilled, semi skilled and unskilled workers. It is expected that direct and indirect employment likely to be generated due to proposed activities for local people. The local surrounding people will get maximum benefit of this project due to their reduction of travelling time & cost. Moreover it will result into the improvement in the economy of the local vendors. This will ultimately boost the employment opportunity. Impact in terms of displacement of habitation and settlements due to the proposed project is totally absent as the unit is located within notified industrial zone.

## **6.0 ENVIRONMENT MONITORING PROGRAMME**

The continuous monitoring of environmental parameters like air, water, noise and performance of pollution control facilities in the plant will be carried out for the proper Environmental Monitoring. Therefore, the company will create environmental monitoring facilities by the environment department to monitor air and water pollutants as per the guideline of MPCB and CPCB. Moreover, air, water and noise would be monitored by outside agencies authorized by MoEF at regular frequencies. The environment monitoring



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plan would enable Environmental Management System with early sign of need for additional action for environment management, improvement and conservation. It will provide exact idea for mitigation measures to be implemented as it is linked with actual distraction of environmental quality due to the project activities.

## 7.0 ADDITIONAL STUDIES

Sai Fertilizers and Phosphates Pvt. Ltd. has prepared Onsite Emergency Plan & HAZOP Study for all products. **Public Consultation is being carried out.**

## 8.0 PROJECT BENEFITS

This project has limited impacts on environment and has good potential for profitable business leading to improvement of quality of life around the project. This company will produce Synthetic Organic Chemicals (Surfactants) which will be used in home and home care products. The company has a good national & international market and they will export their products to United States, Canada, Brazil, Australia, Shrilanka, Iran, Africa etc. In the constructional phase, direct and indirect manpower will be involved. Therefore temporary and permanent employment will be generated during constructional phase. The unit will require about 15 workers during constructional phase. After commissioning of the proposed project the plant will require about 45 numbers of skilled and unskilled manpower. This will ultimately boost the employment opportunity.

## 9.0 ENVIRONMENTAL MANAGEMENT PLAN

Sai Fertilizers and Phosphates Pvt. Ltd. will develop various management activities for the Environmental Management Programme which will meet all statutory requirements and will help to improve environmental quality. Environmental Management Plan (EMP) has been developed to mitigate the potential adverse impacts and to strengthen the beneficial environmental impacts during the constructional and operational phases. In order to improve the aesthetic look of the area and to enhance the land use as well as to compensate for any loss in ecology during construction, adequate plantation programmes around the project site have been planned and will be adopted. Development of green belt will include plantation of trees along boundary of the factory, roads, raw material yard and other available spaces. About 33.79% of the Total Plot Area i.e 5637 m<sup>2</sup> area is reserved for green belt development.

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A detailed monitoring for different environmental parameters will be carried out as per the direction of State Pollution Control Board. An Environmental Management Group will be established to implement the Management Plan. Environmental Management Plan Budget of Sai Fertilizers and Phosphates Pvt. Ltd for Environmental Protection Measures has been presented in **Table 14**.

**Table 14: Environmental Management Plan Budget**

<b>Sr. No.</b>	<b>Particulars</b>	<b>Capital Cost(Rs.)</b>	<b>Recurring Cost Per Annum (Rs.pa)</b>
1	Air Pollution Control	1,48,00,000	15,00,000
2	Water Pollution Control	62,75,000	15,00,000
3	Solid / Hazardous Waste Control	5,00,000	1,72,460
4	Noise Pollution Control	35,00,000	5,00,000
5	Environmental Monitoring	--	5,00,000
6	Occupational Health & Safety	5,00,000	5,00,000
7	Green Belt Development	25,40,000	5,00,000
<b>8</b>	<b>TOTAL</b>	<b>2,81,15,000</b>	<b>51,72,460</b>

## 10. CONCLUSION

It can be concluded that on positive implementation of Mitigation Measures and Environmental Management Plan during the constructional and operational phase, there will be negligible impact on the environment and the proposed project will be beneficial to the Local People, State & Nation.