

## EXECUTIVE SUMMARY

### 1. INTRODUCTION

M/s. Macro Polymers Pvt. Ltd, previously known as Synthetic Resins and Adhesives industry was established in 1965. The company is having an experience of five decades in manufacturing and formulation of Industrial Polymers and Synthetic Resins. These materials are used in manufacturing of Paints, Printing Inks and Adhesives. Company is proposing to manufacture of Synthetic Organic Resins(by synthesis) at existing unit (Industrial & Decorative Coating Polymers, Purified Butanol / Glycerin by rectification/ distillation / extraction only, different Resin manufacturing by synthesis ) at Plot No. : 21 & 22, B. No.: 395/4 & 396/P, New Ahmedabad Industrial Estate, Village: Moraiya, Taluka: Sanand, District: Ahmedabad, District in state of Gujarat, production details are given below;

Sr. No.	Name of products	Production capacity (MT/MONTH)		
		Existing as per CTO	Proposed	Total after expansion
1	Industrial & Decorative Coating Polymers	30	NIL	30
2	Purified Butanol /Glycerin (By Rectification / Distillation / Extraction Only)	510	NIL	510
3	Resin Solutions (By Formulation)	1500	(-) 1000	500
4	Resin manufacturing by synthesis	NIL	1000	1000
	A. Alkyd Resins			
	B. Polyamide Resins			
	C. Polyester Resins			
	D. Acrylic Resins			
	E. Rosin Esters and Derivatives			
5	Resin manufacturing by synthesis	NIL	500	500
	A. Amino Resins (Melamine resin/ Urea resin/ Phenol Resins)			
	B. Ketonic Resins			
<b>BY-PRODUCT</b>				
1	CAUSTIC LYE (45%)	NIL	870	870


The proposed products falls under Category 5(f) as stated in Environment Impact Assessment Notification Published on 14th September, 2006. Further, the location of proposed project is outside the notified industrial estate and not fall in Small Scale Industrial Unit criteria as per the Notification dated 25th June 2014. Hence, project proponent has to obtain the Environmental Clearance from the Ministry of Environment & Forests and Climate Change, New Delhi. As per requirements of the notification, an application was submitted to Ministry of Environment and Forest on 29th October 2015 along with Form-1, pre-feasibility report and draft Terms of Reference (TOR). The proposal was considered by the 17th December 2015. Subsequently the Committee has issued the TOR wide letter No. J-11011/272 /2015-IA II(I) dated 27th January, 2016. Based on the TOR points issued by MoEF, a Draft Environmental Impact Assessment (EIA) report has been prepared covering all aspects of the TOR.

Baseline monitoring had been carried out in December 2015 & January 2016 to February 2016 as it was mentioned in proposed TOR written in Form-1.

**Details:**

The total land area of company is 4770 Sq. mt. out of which 200 Sq. mt. land used for greenbelt area development. Capital cost of proposed expansion project will be Rs. 118 Lakhs, out of which Rs. 18 Lakhs will be spend for Environmental Management Plan. Total capital cost after proposed expansion will be Rs. 709 Lakhs(Existing Rs. 591 Lakhs + Proposed 118 Lakhs). Total recurring cost will be after proposed expansion will be 36.5 Lakhs (Existing Rs. 15.2 Lakhs + Proposed 21.3 Lakhs). Total 10 persons will be employed including skilled labours, unskilled labours and office staff. M/s. T. R. Associates is carried out EIA/EMP studies for Environmental Clearance from Ministry of Environment and Forests, Govt. of India.

**Salient Features with in 10 km radius surroundings area as follows:**

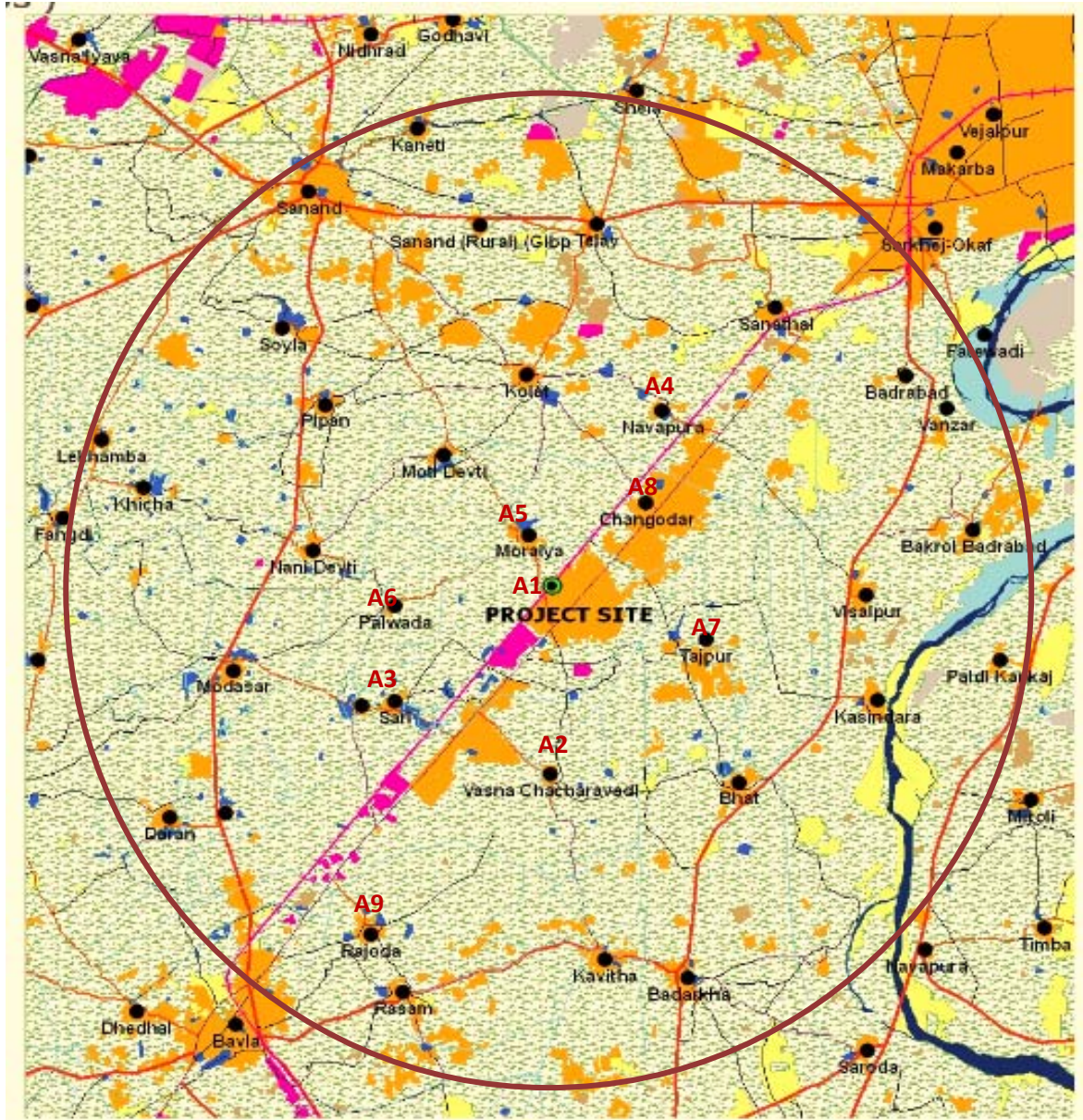
Sr. No.	Important Features	Description															
1	Location	Plot No. : 21 & 22, B. No.: 395/4 & 396/P, New Ahmedabad Industrial Estate, Village: Moraiya, Taluka: Sanand, District: Ahmedabad, Gujarat.															
2	Latitude & Longitude	<table border="1"> <thead> <tr> <th>Node</th> <th>Latitude</th> <th>Longitude</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>22° 54' 54.41" N</td> <td>72° 25' 38.65" E</td> </tr> <tr> <td>B</td> <td>22° 54' 52.42" N</td> <td>72° 25' 40.70" E</td> </tr> <tr> <td>C</td> <td>22° 54' 50.93" N</td> <td>72° 25' 39.46" E</td> </tr> <tr> <td>D</td> <td>22° 54' 53.16" N</td> <td>72° 25' 36.53" E</td> </tr> </tbody> </table>	Node	Latitude	Longitude	A	22° 54' 54.41" N	72° 25' 38.65" E	B	22° 54' 52.42" N	72° 25' 40.70" E	C	22° 54' 50.93" N	72° 25' 39.46" E	D	22° 54' 53.16" N	72° 25' 36.53" E
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4	MSL(Mean Sea Level)	29 meter															
5	Nearest power station	UGVCL (Uttar Gujarat Vij Company Limited)															
6.	Proponent Name	Mr. Mayank Parikh (Director) Contact No. 09898079801															
7	Corporate office address	165, Mahagujarat Industrial Estate, Opp. Nova Petrochem, Sarkhej Bavla Road, P.O. Moraiya, Taluka: Sanand, District: Ahmedabad.															
8	Nearest Road	NH 8A @ 0.5 Km, SE															
9	Nearest Railway station	Moraiya @ 1.2 Km, NE															
10	Nearest city	Ahmedabad @ 10 Km, NE															
11	Nearest village	Moraiya @ 1 Km, NW															
12	National HW	NH 8A @ 0.5 Km, SE															
13	State HW	SH 4 @ 6 Km, East															
14	Seismic Zone	Zone-III (Less Active)															
15	National Parks / Sanctuary	None within 10 Km radius.															

## 2. AIR ENVIRONMENT

To know the status of air quality in the study area Levels of pollutants such as PM<sub>10</sub>, PM<sub>2.5</sub>, SO<sub>2</sub>, NO<sub>x</sub>, CO and VOC are selected for the sampling.

### Ambient Air monitoring locations

Code	Ambient Air Quality Location Name of Village	Distance in km	Direction	GPS Coordinates
A1	Project site	0	--	22°54'52.56"N 72°25'38.67"E
A2	Vasna Chancharwadi	4.0	SSW (downwind)	22° 52' 47.54" N 72° 25' 40.87" E
A3	Matoda	3.7	SW (downwind)	22° 53' 29.53" N 72° 25' 30.75" E
A4	Navapura	4.1	NNE	22° 56' 52.65" N 72° 27' 09.74" E
A5	Moraiya	0.8	NW	22° 55' 20.51" N 72° 25' 18.15" E
A6	Palwada	3.0	W	22° 54' 44.58" N 72° 24' 05.91" E
A7	Tajpur	2.6	ESE	22° 54' 06.25" N 72° 27' 03.40" E
A8	Changodar	1.2	E	22° 54' 17.95" N 72° 50' 27.42" E
A9	Rajoda	7.8	SSW (downwind)	22° 51' 03.02" N 72° 23' 39.17" E



showing Network of Ambient Air Quality Monitoring locations

**Table no. 3.1.6 Ambient Air monitoring results**

Pollutant	Particular	LOCATION								Rajoda
		PROJECT SITE	Vasna Chanchar wadi	Matoda	Navapura	Moraiya	Palwada	Tajpur	Changodar	
PM <sub>2.5</sub> µg/m <sup>3</sup>	Min	25.6	24.0	23.6	22.1	24.5	23.4	24.1	25.3	24.1
	Max.	33.6	34.8	34.5	34.5	33.3	34.1	33.5	34.5	32.5
	Mean	28.8	28.3	28.2	27.8	28.4	28.8	28.8	29.5	27.7
60	98 percentile	33.6	34.5	33.6	33.6	33.3	33.6	33.5	34.0	32.0
PM <sub>10</sub> µg/m <sup>3</sup>	Min	70.5	69.3	69.3	68.5	68.0	69.9	71.2	68.3	73.6
	Max.	81.5	81.5	82.3	82.3	80.5	81.4	81.4	81.5	78.9
	Mean	76.8	75.9	75.5	75.3	74.9	76.2	76.7	77.3	75.9
100	98 percentile	81.0	81.4	81.8	81.8	80.4	81.3	81.4	81.4	78.9
SO <sub>x</sub> µg/m <sup>3</sup>	Min	5.8	5.2	6.2	6.2	6.0	4.8	4.8	5.8	6.5
	Max.	12.4	12.4	11.0	11.0	12.8	12.1	12.1	10.7	11.3
	Mean	8.8	8.6	8.0	8.1	7.8	8.1	7.8	8.3	8.6
80	98 percentile	11.62	12.1	10.9	10.9	11.7	11.6	11.4	10.7	11.1
NO <sub>x</sub> µg/m <sup>3</sup>	Min	4.0	6.2	5.5	5.5	4.5	5.3	5.3	4.3	11.7
	Max.	17.0	20.1	16.1	15.4	15.5	15.4	16.1	16.8	15.5
	Mean	11.9	13.4	12.6	12.1	12.0	12.3	12.8	13.0	13.7
80	98 percentile	16.73	19.5	15.6	15.4	15.5	15.2	15.8	16.8	15.4

CO: Not Detected; VOC: Not Detected

### 3. WATER ENVIRONMENT

Analysis of Ground Water & Surface Water samples revealed that the both ground water quality & surface water quality is satisfactory to serve for domestic purposes as per drinking water quality standards IS: 10500.

### 4. ENVIRONMENTAL IMPACTS AND MITIGATION MEASURES

#### 4.1 AIR ENVIRONMENT

In this proposed unit, flue gas emission will be the main source of air pollution. There will not be any type of process gas emissions during the manufacturing of resins.

In the proposed project, flue gas emission will be occurred from stack attached to existing Thermic Fluid Heater (15 Lac Kcal/hr) in which Imported Coal / Briquettes will be utilized as fuel in proposed expansion. Additional 8MT/day of imported coal/briquettes will be used as fuel in existing Thermic Fluid Heater. There will also a provision of D. G. Set (360 KVA (200 KVA existing + 160 KVA proposed)) as a stand-by source to the main power supply. High Speed Diesel (HSD) will be used as fuel in D. G. Set. Unit has already provided multicyclone / dust collector followed by bag filter to the Thermic Fluid Heater as an Air Pollution Control Measures to control the

emission of particulate matter in the flue gas. Adequate stack height will be provided for the proper dispersion of pollutants into atmosphere.

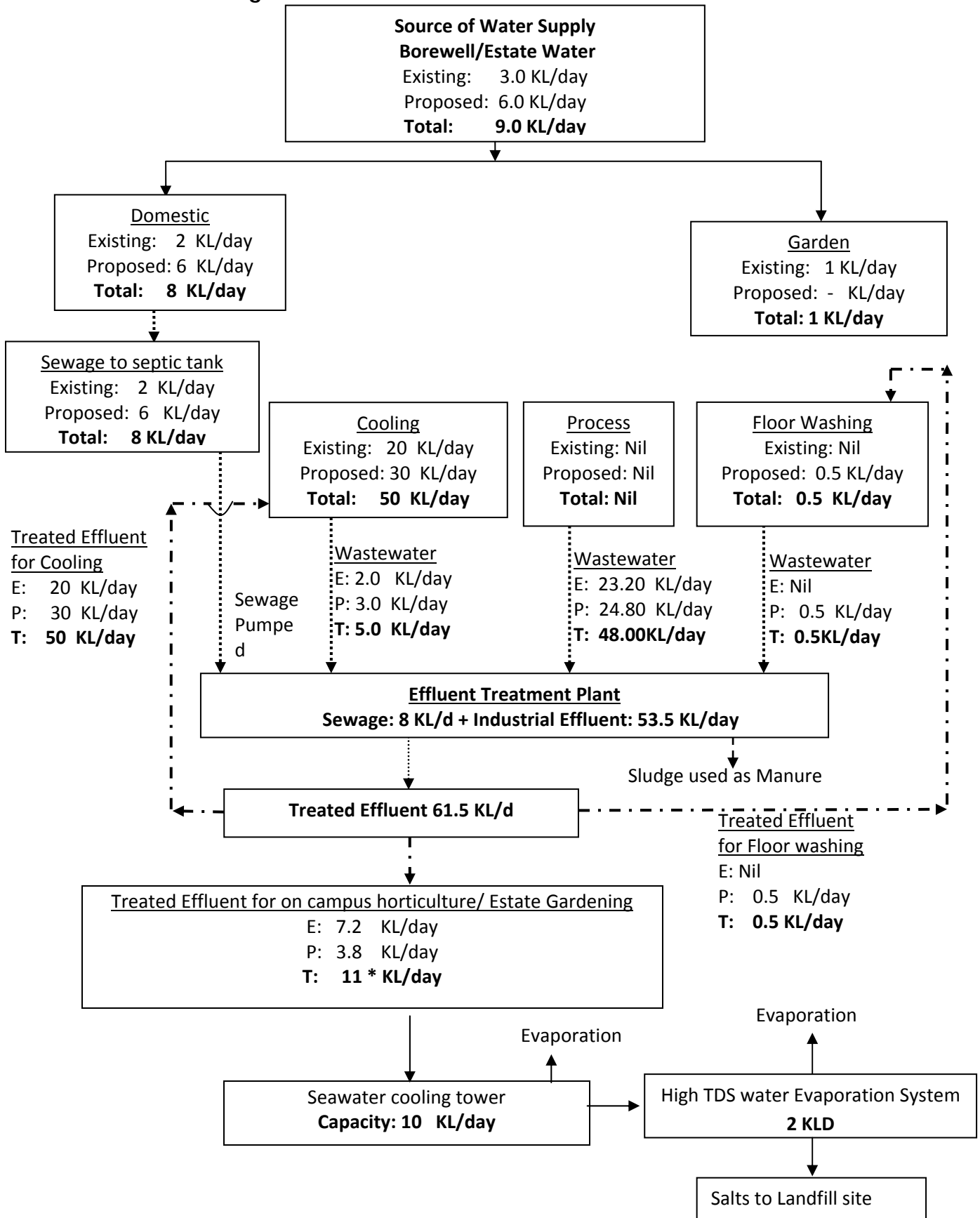
#### 4.2 WATER ENVIRONMENT

Total freshwater requirement after proposed expansion will be 9 KL/day (existing 3 KL/day+ 6 KL/day proposed expansion). Total effluent generation after proposed expansion will be 61.5 KL/day (existing 27.2 KL/day + proposed 34.3 KL/day). 30KL/day of treated effluent generated from the proposed expansion will be reused in cooling purposed. Therefore there will not be requirement for fresh water any industrial activities for proposed expansion.

Domestic waste water: Additional 6 KL/day sewage (domestic wastewater) will be generated which will be send to Septic tank and treated domestic waste water 6 KL/day will be sent to ETP for further process.

Industrial wastewater: Additional 24.8 KL/day effluent will be generated from the manufacturing process. However, there will not be any requirement of fresh water in manufacturing activities for proposed expansion. Additional 0.5 KL/day wastewater from floor washing. 3.0 KL/day wastewater will be generated from cooling blow down. Total Treated waste water 30 KL/ day will be reuse in cooling tower from make - up same as existing practice. Unit will utilize treated effluent for road – side area tree plantation within the Estate. Additionally, Industry will provide seawater cooling tower followed by evaporation system, if in case treated effluent not used for gardening purpose. Water balance diagram is given in **figure below**.

**Water Balance Diagram**



\* Note: Unit will utilize treated effluent for road – side area tree plantation within the Estate. Additionally, Industry will provide seawater cooling tower followed by evaporation system, if in case treated effluent not used for gardening purpose. Permission Letter from estate for accepting treated effluent for plantation is attached as Annexure: 12



### **Industrial wastewater Treatment and Disposal**

Total 53.5 KL/day effluent will be generated from the manufacturing of process after expansion. However, there will not be any requirement of water in manufacturing activities. 0.5 KL/day wastewater from floor washing. 5.0 KL/day wastewater will be generated cooling blow down. Total Treated water 50 KL/ day water will be reuse in cooling tower requirement as existing practice.

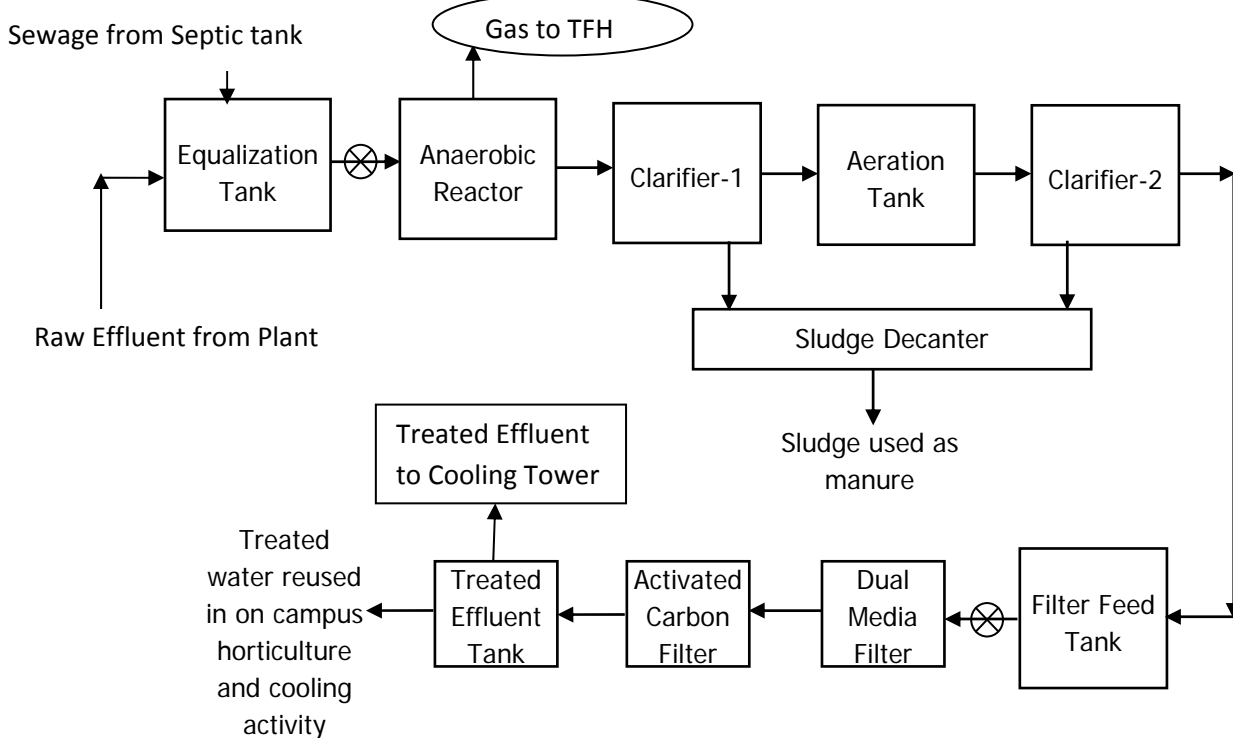
#### **Details of Effluent Treatment Plant:**

The resin manufacturing wastewater shall be treated with H<sub>2</sub>O<sub>2</sub>(Fenton process) to decompose Phenol at source and then transferred to ETP through pipe line. Other streams like from Glycerin / Butanol purification and cooling activities and sewage will be transferred to ETP without any pre-treatment. The ETP contains following unit processes / operations:

#### **Details of Effluent Treatment Plant Units:**

<b>Sr. No.</b>	<b>Unit</b>	<b>Volume/Capacity</b>
1.	Equalization tank	45 m <sup>3</sup>
2.	Anaerobic Reactor	200 m <sup>3</sup>
3.	Clarifier-1	20 m <sup>3</sup>
4.	Aeration tank	83 m <sup>3</sup>
5.	Clarifier-2	20 m <sup>3</sup>
6.	Filter feed tank	11 m <sup>3</sup>
7.	Dual Media Filter	0.3m dia x 1.5m ht.
8.	Activated Carbon Filter	0.3m dia x 1.5m ht.
9.	Treated effluent storage tank	40 m <sup>3</sup>
10.	Sludge decanter	1.5 m <sup>3</sup> /d capacity

***Schematic Flow Diagram of Effluent Treatment Plant***



**4.3 HAZARDOUS WASTE MANAGEMENT**

The entire quantity of hazardous waste will be handled & disposed as per Hazardous and Other Wastes (Management and Transboundary Movement) Rules, 2016. The main hazardous waste generation will be process waste residue, used oil & Discarded Plastic Bags. The hazardous waste categories will include 1) waste and residue formed during formulation process, 2) waste and residue formed during synthesis process; 3) filler residue formed during formulation process and 4) Inorganic process sludge. These wastes will be sent to common hazardous waste incineration facility at M/s Bharuch Enviro Infrastructure Limited (BEIL). The industry has already obtained membership of the said facility for the waste generated from existing products. The said membership will be upgraded for the proposed additional quantity of hazardous waste after the proposed expansion. Used oil will be reused within premises as a lubricant or sold to registered recycler, discarded plastic bags will be sold to authorized vendor.

Industry has already provided isolated area for the storage of hazardous waste. This area is sufficient to store additional hazardous waste generated after the proposed expansion. Thus, hazardous waste management system provided by the unit will be adequate and there will not be any major impact on the environment due to generation, storage and disposal of hazardous waste

#### **4.4 GREEN BELT DEVELOPMENT**

The unit has provided Green belt area of 200 Sq. mts within premises. Industry has already acquired land from Changodar Grampanchayat for green belt development. The plantation in this area is already started.

#### **5. ENVIRONMENT MONITORING PROGRAMME**

Monitoring of environmental factors will enable us to identify the changes in the environment at various locations. To ensure the effective implementation of the EMP, monitoring of ambient air quality, stack emissions, analysis & monitoring of water environment and noise level will be carried out as existing practice specified by statutory authority.

#### **6. QUALITATIVE RISK ANALYSIS**

Risk analysis and study have been carried out for identification of hazards, selection of credible scenarios, Risk Mitigation measures etc. All the hazardous chemicals will be stored and handled as per MSDS guidelines. Personal protective equipments will be provided to the labors.

#### **7. PROJECT BENEFITS:**

The proposed project will become beneficial to the surrounding area or community in terms of infrastructural development, social development, employment and other benefits.

The proposed project has a potential for employment of skilled, semiskilled and unskilled employees during construction phase as well as operation phase. A total of 10 nos. of person is likely to get employment due to the proposed expansion project. The project will spend 2.5 % of project cost for socio-economic development & for nearby educational institutes.

**8. Conclusion:**

- Negligible impacts will occur on air quality. However, all the necessary air pollution control measures will be provided.
- No ecological damage will occur.
- No adverse impacts will occur on water environment.
- Local employment opportunities will increase.
- Various other environment parameters like Forest/ National Park/ Sanctuary and Religious / Historical Places will not be affected.
- Environment Management Plan has been formulated to control all the pollutant parameters and Environment Management Cell has been set-up to ensure that these parameters do not exceed the norms set out by the concerned authorities.
- After commissioning of the proposed project the Environmental Management Cell will take care of all the pollution control measures.

It can be concluded that positive implementation of mitigation measures and environmental management plan during the construction & operational phase, there will be negligible impact on the environment.