

SUMMARY REPORT
OF
M/S. ANAGHA CHEM PVT.LTD.
FOR
NEW MANUFACTURING UNIT
OF
ORGANIC CHEMICAL
PROPOSED SITE

Plot No. D-2/CH/318, Dahej -II SEZ
Taluka Vagra, Dist. Bharuch. Gujarat.

Prepared by



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EXECUTIVE SUMMARY & CONCLUSION

1. INTRODUCTION

The unit has proposed to manufacture chemicals. The requirement is increasing day by day. There will be one constant product i.e. Theobromine and other custom synthesis products. Theobromine is a bitter alkaloid of the cacao plant, with the chemical formula $C_7H_8N_4O_2$. It is found in chocolate, as well as in a number of other foods, including the leaves of the tea plant and the kola (or cola) nut. In modern medicine, theobromine is used as a vasodilator (a blood vessel widener), a diuretic (urination aid) and heart stimulant. The use of theobromine will always increase.

The facility created by the unit will also be used for manufacturing of other custom synthesis products. The concept of custom synthesis is increasing due to ever changing and new discoveries in pharmaceutical markets. There will be good demand for custom synthesis products.

1.1 TYPE OF PROJECT

The products proposed by the unit fall in the Schedule attached to the EIA Notification, i.e. schedule 5(f), Synthetic Organic Chemicals. Since the project will be established in industrial estate, it is classified as Category B project and will be evaluated by State level committee.

1.2 LOCATION OF PROJECT

M/s. Anagha Chem Pvt. Ltd. Dahej-II, has acquired plot no D/2/CH -318, GIDC estate, Dahej-II, Taluka Vagra, and Dist. Bharuch in the state of Gujarat. It is approximately 40 km distance from Dist. Bharuch. The approximate geographical positioning of the project site is at Latitude: $21^{\circ}69'N$, Longitude: $72^{\circ}57'E$.

A railway line connecting Dahej to Bharuch (a main terminal which connects Mumbai, Ahemadabad and Delhi) is already in existence.

The nearest Domestic Airport is Vadodara, about 90 Km away from the proposed project site. The nearest international Airport is Ahemadabad, around 247 Km away from the Dahej GIDC Estate.

2. PROJECT DESCRIPTION

2.1 NEED FOR PROJECT

The unit has proposed to manufacture chemicals. The requirement is increasing day by day. There will be one constant product i.e. Theobromine and other custom synthesis products. The importance of theobromine discussed in chapter-1. Due to various application of theobromine, it will always remain in demand.

The facility created by the unit will also be used for manufacture of other custom synthesis products.

The concept of custom synthesis is increasing due to ever changing and new discoveries in pharmaceutical markets. There will be good demand for custom synthesis products.

2.2 PRODUCTION AND RAW MATERIAL

Total production capacity of proposed unit will be 30 MT/Month and generation of by product will be 37.41 MT/Month. Production capacity of custom synthesis products will be 10 MT/Month and production capacity of Theobromine will be 20 MT/Month. Acetic acid generation will be 37.41 MT/month as by product.

The unit will take adequate control measures for storage and handling of solvent and hydrogen cylinder within premise.

2.3 RESOURCE REQUIREMENT

INFRASTRUCTURE FACILITIES

The plot area of M/s. Anagha Chem Pvt. Ltd., GIDC Estate, Dahej-II is 4563.24 sq.m. within the GIDC estate, Dahej-II. Green belt area proposed is about 920 sq. m.

WATER REQUIREMENT

Average daily water consumption of unit will be 89 KL/day. Water consumption for processes will be 59 KL/day, while 6 KL/day water will be utilized for washing purpose. Water consumption for cooling tower and boiler will be 6 KL/day for each. 2 KL/Day will be used for laboratory section. For each domestic use and gardening purpose, water requirement will be 5 KL /day.

ENERGY REQUIREMENT

The unit will have electricity from Daxin Gujarat Vij Company Ltd. The connected load will be 120 KW.

FUEL

Natural gas consumption will be 240 Nm³/day and diesel consumption will be 8 L/hr.

UTILITIES AND MAN POWER

For the proposed project the utilities to be installed will be Boiler, Cooling tower, D.G set, etc. During construction phase, the unit will employ 30 nos. of workers (Contractual). For commissioning phase 15 nos. of workers on contractual base will be employed. After commissioning of plant, during operation phase 3 nos. managerial level staff, 12 nos. skilled persons and 25-30 nos. un- skilled workers will be recruited.

WASTE WATER GENERATION AND MANAGEMENT

The total waste water generation (domestic and industrial) will be 82 KL/Day. Boiler blow down will be 2 KL/day and cooling tower blow down will be 2 KL/day. Effluent generation from process will be 69 KL/day and from washing will be 6 KL/day. Sewage generation from domestic use will be 2 KL/day. 1 KL/day of waste water will be generated from laboratory facility. The entire waste water generated will be treated in unit's own Effluent Treatment Plant comprising of primary and secondary treatment facilities. After achieving GPCB norms treated water will be discharge in GIDC drainage pipeline.

GASEOUS EMISSION

The flue gas emission will be from one boiler stack and one D.G. stack. The process emission will be from one stack attached to reactor. There will be provision of Water scrubber followed by Caustic Scrubber to control process emission from stack attached to reactor.

HAZARDOUS WASTE MANAGEMENT

The hazardous waste like process residue /distillation residue (3 MT/Year), ETP sludge (100 MT/Year), spent catalyst (2 MT/Year), Spent carbon (75 MT/Year), discarded bags & Containers (300 #/Year & 45 #/Year) will be generated from proposed project activity.

3. BASELINE ENVIRONMENTAL STATUS

3.1 STUDY AREA INCLUDED IN ENVIRONMENTAL SETTING

Studies were carried out in about 5 km radius area from the proposed site with respect to meteorology, flora, fauna, land and socio-economies of the area. Further sampling and analysis of air quality, water quality, noise level and soil quality were carried out. The air quality, water quality, noise level and soil quality in the study area is evaluated based on this physical sampling and analysis.

The base line data were monitored for study period of October, 2012 to December, 2012. The study team conducted site surveys and field experiments to gathering the information on air quality, water quality, noise quality and soil quality.

3.2 CLIMATE OF THE STUDY AREA

Relative Humidity

The maximum relative humidity is reported around 71 % and minimum relative humidity is reported around 32% during period of October,2012 to December,2012.

Temperature

The maximum temperature is reported 37.4°C and the minimum temperature is reported 13.2°C during period of October,2012 to December,2012.

Rainfall

There was no rain fall during the October to December.

Wind

The average wind speed is reported 1.33 m/s. The minimum and maximum wind speed experienced were 0.5 m/s and 8.8 m/s respectively based on historical data.

3.3 SAMPLING LOCATION DETAILS

Total six locations were selected for Base line status.

3.4 AMBIENT AIR QUALITY

The ambient air monitoring was carried out for 24 hours a day twice a week for 12 week per location in the study area. Ambient Air Quality Monitoring (AAQM) was carried out at six locations during period of October, 2012 to December, 2012.

The maximum and minimum concentrations for PM₁₀ were recorded as 78µg/m³ and 48µg/m³ respectively. The maximum and minimum concentrations for PM_{2.5} were

EXECUTIVE SUMMARY FOR M/S. ANAGHACHEM PVT.LTD., GIDC ESTATE, DAHEJ-II.

recorded as $53\mu\text{g}/\text{m}^3$ and $16\mu\text{g}/\text{m}^3$ respectively. The maximum and minimum concentration for SO_2 was recorded as $27\mu\text{g}/\text{m}^3$ and $9\mu\text{g}/\text{m}^3$. The maximum and minimum concentration for NO_x was recorded as of $34\mu\text{g}/\text{m}^3$ and $12\mu\text{g}/\text{m}^3$. The maximum and minimum concentration for HCl measured during study period was $25\mu\text{g}/\text{m}^3$ and $8\mu\text{g}/\text{m}^3$ respectively.

3.5 WATER QUALITY

Based on data obtained, it could be stated that the value of MPN is found higher than permissible limit in all ground water samples and in all surface water samples. Other parameter are found within permissible limit of drinking water standards.

3.6 NOISE ENVIRONMENT

Noise level monitoring was carried out at six locations during period of October to December ,2012.

During monitoring period, the LEQ (dB (A)) noise levels varied between 52-74 dB(A) and 51- 75 dB(A) during day time in industrial area and residential area respectively.

Noise levels varied between 31-50 dB(A) and 30- 51 dB(A) during night time in industrial area and residential area respectively.

The noise level varied at the same place at different times due to fluctuations in traffic movements as well as commercial and domestic activities going on in the study area but it was under the permissible limit prescribed by CPCB.

3.7 SOIL

On data obtained, it is ensured that the soil quality at around site is appropriate and no abnormality in terms of soil contaminants is reported.

3.8 LAND USE OF THE STUDY AREA

Sr. No.	Classes	Area in Sq. Km	Area in Percentage
1.	Dense Scrub	8.25	2.63%
2.	Sea	98.26	31.27%
3.	Fallow Land	6.35	2.01 %
4.	Salt Farming	13.71	4.37%
5.	Open Scrub	40.42	12.86%
6.	Swampy Area	9.47	3.01%
7.	Crop Land	76.67	24.40%
8.	Inland Water bodies	21.59	6.87 %
9.	Built-up Area	39.54	12.58 %
Total		314.285	100.00%

3.9 BIOLOGICAL ENVIRONMENT

Bharuch area is characterized by tropical dry deciduous forests. The study area does not have any identified endangered species and also does not have any designated forest, national park, sanctuaries.

3.10 DEMOGRAPHIC AND SOCIO-ECONOMIC PROFILE

Vagra taluka has population is 1,00,044 person and the population density of about 113 persons per sq.km. Literacy rate is about 70.47 % and employment is around 39.46%.

4 IDENTIFICATION & ASSESSMENT OF IMPACT

4.1 WATER ENVIRONMENT

The source of water will be GIDC water supply scheme; there will be no extraction of ground water. The unit will discharge treated effluent to GIDC drainage line after achieving the GPCB norms. . If any CETP is created in that area, the unit will become member of that CETP. So, there will be no deterioration of surface and ground water quality.

4.2 AIR ENVIRONMENT

Dust, NO_x, SO₂, VOC and HC may be slightly released into the local ambient air due to vehicular traffic movement in construction activities of proposed project.

From the dispersion modeling studies conducted, it is concluded that the maximum ground level concentration will occur in the South direction. The maximum incremental increase in concentration for SO₂ & NO_x will be 0.54 and 0.98µg/m³ at a distance of about 940 mt in the South.

These predicted ground level concentrations when added to baseline scenario, the overall scenario levels of PM, NO_x and SO₂ are well within the permissible limits specified by CPCB.

4.3 NOISE ENVIRONMENT

Noise will be generated during the intermittent operation of machineries for site clearing and construction work. Vehicular movement will be also a source of noise generation. There will be sort term, localized and reversible impact on ambient noise levels during the construction activities.

Adequate noise control measures such as mufflers, silencers at the air inlet/outlet, anti vibration pad for equipment with high vibration etc. shall be provided. PPE like earmuff and ear plugs will be provided to the operators/worker exposed to high noise.

4.4 LAND ENVIRONMENT

Construction activities will disturb soil profile but impact will be insignificant. The unit will take adequate measure for storage, handling and disposal of hazardous waste. Hence, there will be no significant adverse impact on land environment.

4.5 ECOLOGICAL ENVIRONMENT

The project site is at a far distance from the forest land, wild life sanctuaries and national parks. The unit is located in Dahej GIDC Estate. There will be not significant impact on crops & vegetation as the proposed APCM will take care of flue gas emission and process emission. As the unit will discharge treated effluent through GIDC drainage pipeline to sea, so no significant impact on fisheries and aquatic life. Hence, no adverse impact on this account is anticipated.

4.6 INFRA STRUCTURE AND SERVICES

This will be a beneficial impact on the local infrastructure services e.g. roads, post and telegraph, communication, medical facilities, education, housing will be improved in surrounding area.

4.7 SOCIO-ECONOMIC IMPACT

This will be a beneficial impact on the local socio-economic environment as increase in demand for essential utilities and employment during both construction and operational phase.

5. ENVIRONMENT MONITORING PROGRAMME

There will be provision of online monitoring of HCl, SO₂, NO_x and PM for process stack. SO_x, NO_x and PM will be monitored monthly for heat recovery boiler. Waste water will be monitored daily.

Ambient air monitoring, noise level monitoring and hazardous waste monitoring will be done monthly.

6. RISK ASSESMENT AND DISATSTER MANAGEMENT PLAN

6.1 RISK ASSESSMENT

Scenarios identified for consequence analysis are released of toxic chemical and explosion. In case of catastrophic failure of acetic acid storage drum and pool fire, 65 m in down wind direction is considered as evacuation area. In case of catastrophic failure of hydrogen cylinder and pool fire, effect of explosion of hydrogen will be destruction of the building up to 12 m. serious injury likely to happen up to 13 m and glasses shatter up to 20 m.

6.2 DISASTER MANAGEMENT PLAN

M/s. Anagha Chem. Pvt. Ltd. shall be developed the emergency management system to tackle the emergency situation, apart from its emergency management system. The detail of disaster management system is discussed in the section 6.2 of Chapter-6.

6.3 OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT SYSTEM

Details of occupational health and safety are covered in section 6.3. It covers planning at construction & erection stage and operation & maintenance stage. Also, other details like hospital facilities, FMO, OHC, Ambulance van, periodical medical examination, work place monitoring plan, safety plan, safety organization, safety circle and safety training.

7. PROJECT BENEFITS

The company is committed for contribution of funds and provides the services for the upliftment of local community in the nearby villages. The unit has planned to spent Rs. 5 lacs per year during construction phase and Rs.5 lacs per year during operational phase and spent Rs. 10 lacs per year for third year.

8. ENVIRONMENTAL MANAGEMENT PLAN

8.1 ENVIRONMENT MANAGEMENT CELL

M/s. Anagha Chem will assign responsibility to officers from various disciplines to co-ordinate the activities concerned with management and implementation of environmental control measures.

8.2 ENVIRONMENTAL MANAGEMENT PLAN

A) ENVIRONMENT MANAGEMENT PLAN FOR CONSTRUCTION PHASE

During construction it is necessary to control uplift of dust during the excavation, leveling and transportation by spraying water over the paths, land, and along the temporary roads. The workers involved in the construction will be provided proper sanitation facilities. The construction workers on site will be provided with necessary noise protection devices like earmuffs whenever they have to work near the noise generating equipment/sources. The vehicles will be maintained properly so as to minimize the emissions from exhaust. The hazardous wastes of oil will be sold to reprocessor. The empty containers of paints shall be sold to authorized buyers/incineration. The construction wastes shall be used for leveling purpose.

B) ENVIRONMENT MANAGEMENT PLAN FOR OPERATIONAL PHASE

AIR

The unit will use natural gas as fuel for boiler and there will be provision of adequate stack height to boiler. There will be provision of water scrubber followed by Caustic scrubber to control process emission from stack attached to reactor vent.

The vent of solvent storage tank will be attached to carbon absorption column. It will be insured that there will be no leakages in the system. Adequate preventive & corrective maintenance and proper storage and handling will be undertaken to ensure no VOC emission takes place. Solvent/raw-material feeding will be carried out by pumps.

The ambient air quality monitoring and stack monitoring will be carried out periodically by an approved external agency to ensure that it is meeting the statutory limits. Work area ambient air quality monitoring will be carried out as per Gujarat Factories Rule.

WATER

- Process optimization, reduction, reuse and recycle of water, rain water harvesting will be carried out.
- Waste water generated from different plant sections at the site and sewage will be treated through conventional ETP, which consist of primary and secondary treatment facility. After achieving GPCB norms treated effluent will be disposed to GIDC drainage.
- Proper housekeeping, record of the waste water generation/treatment/disposal and record of hazardous waste generation/disposal will be maintained.

NOISE

Audio metric test should be conducted periodically for employees working close to the high noise sources. D.G. set will be sound proof and located in an enclosure. Adequate noise control measures such as mufflers, silencers at the air inlet/outlet, anti vibration pad for equipment with high vibration, earmuff and ear plugs to the operators, etc. shall be provided. Housing/casing shall be provided for all noise generating machines.

LAND

Raw materials will be stored in separeate storage room. Solvent will be stored in under ground storage tanks. Solvent transfer will be done through the pipelines in closed circuit. Flame arrester will be provided for solvent storage tank vent. Secondary condensors will be provided in the distillation set up to arrest the vent losses. Solvent will be recovered in closed loop & recycled in the process.

The hazardous wastes generated from the industry will be residue from distillation/process, ETP sludge, spent catalyst/spent carbon, discarded containers and bags which will properly stored in a hazardous waste storage area and then transported and properly disposed.

GREEN BELT

The company has proposed 920.44 sq. m. area to carry out the plantation out of 4563.24 sq. m. of total premises area. The unit will plant 200-250 trees and shrubs in green belt area.

CLEANER PRODUCTION

Hydrogen gas will be used instead of the conventional acid-iron reduction process. The unit will implement green chemistry. Due to use of hydrogen there will be no solid generation and no by-product generation.

ENERGY CONSERVATION PROGRAMME

Use of solar energy will be explored to generate hot water and electricity for the canteen and office lighting. The energy audit will be carried out by unit to optimize electricity and fuel.

BUDGETARY PROVISION PROPOSED FOR ENVIRONMENT POLLUTION CONTROL MEASURES

The unit has proposed 126 lacs as capital cost and 33 lacs as recurring cost for environment pollution control measures.

HEALTH & SAFETY

There will be provision of PPE, antidotes, periodic inspection & testing of pressure vessels, equipments, machineries, pre-employment medical checkup, periodic health checkup, training of fire fighting, work permits system, first aid, safe handling of hazardous chemicals and integrating safety. Hazardous processes will be operated by trained workers and will be looked after by qualified & experienced supervisors.

8.3 CONCLUSION

It can be concluded on positive note that after implementation of proper mitigation measures and environment management plan this project will have insignificant impact on environment and economic.