PREFEASIBILITY REPORT

FOR

“MANUFACTURING OF SYNTHETIC ACRYLIC POLYMER EMULSIONS, INDUSTRIAL SYNTHETIC ADHESIVES AND GLUES, THERMOSETTING ACRYLIC RESINS, POLYMER OF VINYL ACETATE AND VINYL COPOLYMERS, ETHYLENE VINYL ACETATE EMULSIONS”

BY

JESONS INDUSTRIES LTD

AT

VILLAGE: THERROYKANDIGAI
TALUK: GUMMIDIPOONDI
DISTRICT: THIRVALLUR
STATE: TAMIL NADU
Table of Contents

1. EXECUTIVE SUMMARY ............................................................................................................. 3
2. INTRODUCTION OF THE PROJECT ....................................................................................... 4
   2.1 Introduction about the company .......................................................................................... 4
   2.2 Brief Description of the Project ....................................................................................... 4
   2.3 Project Benefits .................................................................................................................. 5
3. PROJECT DESCRIPTION ........................................................................................................... 6
   3.1 Type of the Project ............................................................................................................. 6
   3.2 Project Location .................................................................................................................. 6
   3.3 Products Manufactured ..................................................................................................... 8
   3.4 Manufacturing Process Description .................................................................................. 9
      3.4.1 Synthetic Acrylic Polymer Emulsions - Batch Size 25.0 MT ................................... 9
      3.4.2 Industrial Synthetic Adhesives, Glues - Batch Size 10 MT ...................................... 10
      3.4.3 Thermosetting Acrylic Resins, Ethylene vinyl acetate Emulsions – batch Size 10 MT ... 11
      3.4.4 Polymer of Vinyl Acetate –Batch Size 10 MT .......................................................... 12
      3.4.5 Vinyl Copolymers – Batch Size 10 MT .................................................................... 13
      3.4.6 Water proofing compounds and Construction emulsions – Batch Size 10 MT .......... 14
   3.5 PROCESS FLOW CHART .................................................................................................. 15
   3.6 Raw Material Requirement ............................................................................................... 16
   3.7 Utilities .............................................................................................................................. 16
   3.8 Power and Fuels ............................................................................................................... 16
   3.9 Water Requirement .......................................................................................................... 17
   3.10 Landuse ............................................................................................................................ 18
   3.11 Manpower ....................................................................................................................... 18
   3.12 Liquid Waste Management ............................................................................................. 18
   3.13 Air Pollution Control Measures ...................................................................................... 18
   3.14 Hazardous and Solid waste Management ...................................................................... 19
   3.15 Greenbelt Development .................................................................................................. 19
   3.16 Environment, Safety and Health Monitoring ................................................................. 20
4. SITE ANALYSIS ..................................................................................................................... 21
   4.1 Connectivity ....................................................................................................................... 21
   4.2 Land form, land use, land ownership ............................................................................... 21
   4.3 Existing land use pattern .................................................................................................. 21
List of Tables

Table 1-1 List of products Proposed................................................................. 3
Table 3-1 List of Products Proposed ............................................................... 8
Table 3-4 Water Requirement and Recycling..................................................... 17
Table 3-5 Land Use within the Site................................................................. 18
Table 3-7 Non-Hazardous wastes ................................................................. 19
Table 4-1 Nearby areas from site Boundary....................................................... 21
Table 4-2 Meteorological Observations........................................................... 22

List of Figures

Figure 3-1 Location of Proposed Project Site.................................................... 6
Figure 3-2 Satellite Image of the Site & its 10Km Radius ..................................... 7
Figure 3-3 Satellite Image of site and Surroundings 5 Km Radius ......................... 7
Figure 3-4 Photograph of the Proposed site..................................................... 8
1. EXECUTIVE SUMMARY

Jesons Industries Ltd. is one of the Largest Acrylic Emulsion Manufacturer in India with growing Exports into high growth markets in East Asia, Africa and Middle East and have achieved a turnover of Rs. 4952 Mn (USD 80 Mn).

The Company is in the adhesive business since past three decades having a multi-location manufacturing setup to cater demands from different geographies with proximity to customers. These include 2 manufacturing units at Daman (Western India) and 2 at Roorkee (Northern India).

The Company has a Leading market position in Pressure Sensitive Adhesives (PSA) and is amongst five manufacturer of Coating Emulsions in India. Products are used in industries such as Tapes, Labels, Decorative Paints, Construction Chemicals, Textiles, Furniture and Flocking.

With the growing demand, the unit proposes to set up a manufacturing unit at at SF No. 32/2 & 33/2(a), Plot No. A4/2 (Part B), SIPCOT Industrial Complex, Thervoykandigai Village, Gummidipoondi Taluk, Tiruvallur District, and Tamil Nadu in a spread of 7.75 acres land. The site is located within SIPCOT Industrial complex. The nearest railway station is Gummidipoondi which is 14.8 Km.

The cost estimate for the proposed capacity expansion will be around Rs.14 crores and implementation period will be 9 months.

Table 1-1 List of products Proposed

<table>
<thead>
<tr>
<th>S.No</th>
<th>Products</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Synthetic Acrylic Polymer Emulsions</td>
<td>60 Mt./Day (18000MT/annum)</td>
</tr>
<tr>
<td>2</td>
<td>Industrial Synthetic Adhesives and Glues</td>
<td>8Mt./day (2400MT/annum)</td>
</tr>
<tr>
<td>3</td>
<td>Thermosetting Acrylic Resins, Ethylene vinyl acetate Emulsions</td>
<td>30 MT/day (9000 MT/annum)</td>
</tr>
<tr>
<td>4</td>
<td>Polymer of Vinyl Acetate</td>
<td>12MT/day (3600 MT/annum)</td>
</tr>
<tr>
<td>5</td>
<td>Vinyl Copolymers</td>
<td>8 MT/day (2400MT/annum)</td>
</tr>
<tr>
<td>6</td>
<td>Water proofing compounds and Construction emulsions</td>
<td>5MT/day (6000MT/annum).</td>
</tr>
</tbody>
</table>
2. INTRODUCTION OF THE PROJECT

2.1 Introduction about the company

Jesons Industries Ltd. is one of the Largest Acrylic Emulsion Manufacturer in India with growing Exports into high growth markets in East Asia, Africa and Middle East and have achieved a turnover of Rs. 4952 Mn (USD 80 Mn).

The Company is in the adhesive business since past three decades having a multi-location manufacturing setup to cater demands from different geographies with proximity to customers. These include 2 manufacturing units at Daman (Western India) and 2 at Roorkee (Northern India).

The Company has a Leading market position in Pressure Sensitive Adhesives (PSA) and is amongst five manufacturer of Coating Emulsions in India. Products are used in industries such as Tapes, Labels, Decorative Paints, Construction Chemicals, Textiles, Furniture and Flocking.

2.2 Brief Description of the Project

With the growing demand, the unit proposes to set up a manufacturing unit at at SF No. 32/2 & 33/2 (a), Plot No. A4/2 (Part B), SIPCOT Industrial Complex, Thervoykandigai Village, Gummidipoondi Taluk, Tiruvallur District, and Tamil Nadu in a spread of 7.75 acres land. The site is located within SIPCOT Industrial complex.

The proposed project is setting up of a manufacturing facility for synthetic acrylic polymer emulsions, Industrial Synthetic Adhesives and glues, Thermosetting acrylic resins, Vinyl co polymers, water proofing compounds and construction emulsions.

The cost estimate for the proposed capacity expansion will be around Rs.14 crores and implementation period will be 9 months.
2.3 Project Benefits

The proposed production will cater to the needs of South India in the field of Construction materials, adhesives, Resins and emulsions for paint manufacturers, thereby reducing the transportation costs.

The Plant will generate direct employment for 65 staff and 25 contract workers during the operation phase. Apart from this, there will also be a considerable increase in indirect employment on account of this project.
3. PROJECT DESCRIPTION

3.1 Type of the Project
Jesons proposes a new plant at Thervoy Kandigai SIPCOT Industrial Complex, within an area of 7.75 Acres. The proposed project falls under the schedule 5 (f) as per the EIA notification dated September 14, 2006 and its amendments. There is no interlinked project.

3.2 Project Location
The proposed project is located at SF No. 32/2 & 33/2(a), Plot No. A4/2 (Part B), SIPCOT Industrial Complex, Thervoykandigai Village, Gummidipoondi Taluk, Tiruvallur District, and Tamil Nadu. The site is located within SIPCOT Industrial Complex. The location of the site is shown in Fig. 3.1. The plot plan of the site with facilities is enclosed in Annexure-3.

The Project site with coordinates is given in Figure 3.1. The 10 Km radius map from the project is given in figure 3.2.

![Figure 3-1 Location of Proposed Project Site](image)
Figure 3-2 Satellite Image of the Site & its 10Km Radius

Figure 3-3 Satellite Image of site and Surroundings 5 Km Radius
3.3 Products Manufactured
The list of products proposed is given in Table 3-1 below.

Table 3-1 List of Products Proposed

<table>
<thead>
<tr>
<th>S.No</th>
<th>Products</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Synthetic Acrylic Polymer Emulsions</td>
<td>60 Mt./Day (18000MT/annum)</td>
</tr>
<tr>
<td>2</td>
<td>Industrial Synthetic Adhesives and Glues</td>
<td>8 Mt./day (2400MT/annum)</td>
</tr>
<tr>
<td>3</td>
<td>Thermosetting Acrylic Resins, Ethylene vinyl acetate Emulsions</td>
<td>30 MT/day (9000 MT/Anuum)</td>
</tr>
<tr>
<td>4</td>
<td>Polymer of Vinyl Acetate</td>
<td>12 MT/day (3600 MT/annum)</td>
</tr>
<tr>
<td>5</td>
<td>Vinyl Copolymers</td>
<td>8 MT/day (2400MT/annum)</td>
</tr>
<tr>
<td>6</td>
<td>Water proofing compounds and Construction emulsions</td>
<td>5 MT/day (6000MT/annum)</td>
</tr>
</tbody>
</table>
3.4 Manufacturing Process Description

The process units for manufacturing are as under:

1. Synthetic Acrylic Polymer Emulsions
2. Industrial Synthetic Adhesives, Glues
3. Thermosetting Acrylic Resins, Ethylene vinyl acetate Emulsions
4. Polymer of Vinyl Acetate
5. Vinyl Copolymers
6. Water proofing compounds and Construction emulsions

A brief process description is given below:

3.4.1 Synthetic Acrylic Polymer Emulsions - Batch Size 25.0 MT

a) REACTOR
   - Charge DM Water (5716.0kgs) in reactor.
   - Heat up to 35 to 40 degree centigrade.
   - Charge Dainol-25, IG Surf -8405 (surfactant 12.0 & 12.0kgs) & Soda ash (7.0kgs) Check Ph (10.0 to 11.0).
   - Heat up to 76 to 78 degree centigrade.

b) OVER HEAD TANK
   - Charge DM Water (3750.0kgs) in Over Head tank.
   - Charge Dainol-25 (surfactant 59.5kgs), Methacrylic Acid (265.0kgs) & Butyl Acrylate Monomer (13156.0kgs).
   - Mix 60 minutes & check Monomer emulsion.

c) INITIATION
   - Add 520 kgs monomer pre-emulsion in reactor.
   - Charge Potassium Per Sulphate (Catalyst) (59.5kgs) + DM water (520.0kgs) solution.
   - Hold for 30 minutes. (temp. should be rise up to 80 to 84 degree centigrade)

d) REGULAR FEEDING
   - After holding start regular feeding of monomer pre-emulsion for 3.5 to 4.0 hours.
   - Control temp. between 87 to 90 degree centigrade.
e) POST ADDITION

- After feeding over hold for 0.5 hour then add Liquor Ammonia (23% concentration) (28.750kgs) & Hold for 15 minutes.
- Add Tertiary Butyl Hydroxy Peroxide (5.0kgs+ig surf 1.250kgs +Dmwater 37.5kgs)solution & Hold for 15 minutes.
- Add Decolite (8.5kgs+DM water 102.5kgs) solution & Hold for 60 minutes.
- Cool up to 75 degree centigrate then add Alphox-300 (surfactant 95.0kgs +Dmwater162.5kgs)& NH3.(88.5kgs)
- Cool up to 45 degree centigrate then add Formaline & adjust Ph 8.0 to 9.0.

f) QUALITY CONTROL CHECK

g) PACKING IN 50 KG AND 240 KG HDPE BARRELS AND TANKERS

3.4.2 Industrial Synthetic Adhesives and Glues - Batch Size 10 MT

a) REACTOR

- Charge DM water (4075.504 kgs) in reactor.
- Heat up to 45 to 50 degree centigrade.
- Charge GH-17R. (Polyvinyl alcohol 248.745kgs)
- Heat up to 92 to 94 degree centigrade & hold for 1.0 hour.

b) OH TANK

- Charge Vinyl Acetate Monomer (3538.181kgs) in Over head tank.

c) REGULAR FEEDING IN REACTOR

- Charge (Sodium Lauryl Sulfate) surfactant (Alphox-500 7.658kgs,SLS 0.751kgs).
- Charge Buffers (Mono Sodium Phosphate 0.751kgs, Di Sodium Phosphate 1.502kgs,SBC 8.258kgs+ DM water 58.988kgs)
- Charge Defoamer (SAPCO 1907B)
- Charges Potassium Per Sulphate(PPS) (4590kgs)+DM water (27.885kgs) solution.
- Start regular monomer feeding for 4.5 hour to 5.5 hour.
- Control temp 78 degree centigrade to 84 degree centigrade.
• Add PPS (2.295kgs) + Dmwater (225.225kgs) solution in every 30 minutes during monomer addition.
• After vinyl acetate monomer addition hold for 1.0 hour.
• Cool up to 50 degree centigrade.

d) POST ADDITION IN REACTOR
• Add formaldehyde (9.331kgs)
• Add Di Butyl Phthalate (232.969kgs)
• Add polyvinyl alcohol 17% solution (1477.091kgs)
• Add octonal (46.632kgs)

e) QUALITY CONTROL CHECK

f) PACKING IN 50 KG AND 220 KG HDPE BARRELS

3.4.3 Thermosetting Acrylic Resins, Ethylene vinyl acetate Emulsions – batch Size
10 MT

a) REACTOR
• Add Methanol (3800.0kgs) in reactor.
• Heat up to 40 degree centigrade.

b) OH TANK
• Charge Methyl Methacrylate Monomer (2000.0kgs)
• Charge Butyl Acrylate Monomer (3000.0kgs)
• Charge 2 Hydroxy Ethyl Acrylate (1000.0kgs)

c) REACTION
• Charge benzyl peroxide (4.0kgs) + methanol (60.0kgs)
• Charge 800kgs monomer mix.
• Heat slowly up to 80 degree centigrade & hold for 30 minutes
• Charge benzyl peroxide (1.50kgs) + methanol (40.0kgs)
• Charge 1300kgs monomer mix in 30 minutes. Hold for 30 minutes
• Charge benzyl peroxide (1.50kgs) + methanol (40.0kgs)
• Charge 1300kgs monomer mix in 30 minutes. Hold for 30 minutes
• Charge benzyl peroxide (1.50kgs) + methanol (40.0kgs)
• Charge 1300kgs monomer mix in 30 minutes. Hold for 30 minutes
- Charge benzyl peroxide (1.5.0kgs)+methanol ( 40.0kgs)
- Charge 1300kgs monomer mix in 30 minutes . Hold for 30 minutes
- Charge benzyl peroxide (1.5.0kgs)+methanol ( 40.0kgs)
- Hold for 30minutes
- Cool up to 50 degree centigrade.

**d) Quality control Check**

**e) Packing in 240 Kg.**

### 3.4.4 Polymer of Vinyl Acetate –Batch Size 10 MT

**a) REACTOR**
- Charge DM Water (4931.5kgs) in reactor.
- Heat up to 45 to 50 degree centigrade.
- Charge GH-17R (Polyvinyl alcohol 292.100kgs).
- Heat up to 92 to94 degree centigrade & hold for 1.0 hour.
- Charge Sodium Lauryl Sulphate (Surfactant 1.3 kgs) ,Defoamer (SAPCO 1907b 0.800kgs) & Buffer (Sodium Bi Carbonate 12.600kgs)

**b) OH TANK**
- Charge Vinyl Acetate Monomer (4185.5kgs) in OH tank.

**c) REGULAR FEEDING IN REACTOR**
- Charge Potassium Per Sulphate (PPS) ( 5.5kgs) + DMwater (67.400kgs) solution in reactor.
- Start regular Vinyl Acetate Monomer feeding for 4.5 hour to 5.5 hour.
- Control temp 78 degree centigrade to 84 degree centigrade.
- Add PPS (3.8kgs)+DM water (225.2kgs) solutionin every 30 minutes during monomer addition.
- After monomer addition hold for 1.0 hour.
- Cool up to 50 degree centigrade.

**d) POST.ADDITION**
- Add formaldehyde (9.4kgs) & DM water (97.8kgs)

**e) QUALITY CONTROL CHECK**

**f) PACKING IN 220 KG HDPE BARRELS**
3.4.5 Vinyl Copolymers – Batch Size 10 MT

a) REACTOR
- Charge DM Water (3872.5kgs) in reactor.
- Heat up to 45 to 50 degree centigrade.
- Charge GH-17R (Polyvinyl alcohol 69.8kgs) & LR (Hydroxy Ethyl Cellulose 69.8kgs).
- Heat up to 92 to 94 degree centigrade & hold for 60 minutes.
- Charge Alphox 500, SR-610 (surfactant 47.9 & 95.8kgs) & Ammonia (29.8kgs) at 83 degree centigrade to 84 degree centigrade.

b) OH TANK
- Charge Di Octyl Maleate (1881.4kgs), 2 Hydroxyl Ethyl Acrylate (1059.1kgs), Vinyl Acetate Monomer (1849.9) & Di Allyl Maleate (4.3kgs) in OH tank.
- Mix for 30 minutes.

c) REGULAR FEEDING
- Charge Potassium per sulphate - PPS (8.7kgs)+DM water (164.7kgs) solution in reactor.
- Start regular monomer feeding for 4.0 hour to 4.5 hour.
- Control temp 78 degree centigrade to 84 degree centigrade.
- After monomer mix addition hold for 0.5 hour.
- Prepare PPS (9.6kgs)+Dmwater (164.7kgs) solution.
- Add 1/3 part of PPS & hold for 30 minutes.
- Add 1/3 part of PPS & hold for 30 minutes.
- Add 1/3 part of PPS & hold for 1.5 hour.
- Cool up to 65 degree centigrade.

d) POST ADDITION
- Add Di Butyl Phthalate (349.5kgs), Caustic Potash (6.8kgs+DM water 49.8) & mergal K9N (7.8kgs).
- Add PA-40(surfactant 130.7kgs), Octonal (98.7kgs) & Defoamer (sapco NDW9.4kgs+Dmwater 9.4kgs). Mix 1.5 hour.
• Cool up to 40 to 45 degree centigrade.

e) Quality control Check

f) Packing in 0.5 Kg, 1 Kg, 5 Kgs, 7.5 Kg, 20 Kg, 50 Kg and 220 Kg.

3.4.6 Water proofing compounds and Construction emulsions – Batch Size 10 MT

a) REACTOR

• Charge DM water (1797.143kgs) in reactor.
• Start heating.
• At 45 degree centigrade charge Dainol-25P (surfactant 30.733kgs)+Dmwater (190.524kgs) & Sod. Sulphate(4.09kgs)+ DM water (49.092kgs),
• Heat up to 82 to 88 degree centigrade.

b) OH TANK

• Charge DM Water (1763.810kgs) in OH tank.
• Charge Dainol - 25P(surfactant 51.529kgs)+Dmwater(30.0kgs), X-405 (surfactant 97.305kgs)+DM water (68.095kgs) & mix 5 minutes.
• Charge Styrene (2340.724kgs) ,BA(2002.076& Acrylic acid (155.086kgs) +DMwater( 47.72kgs).
• Mix 15 minutes & check .

c) INITIATION IN REACTOR

• Add 300kgs monomer pre-emulsion in reactor.
• Charge (Potassium Per Sulphate- PPS) catalyst (16.886kgs)+DM water(247.619kgs) solution.
• Hold for 30minutes.(temp. should be rise up to 80 to 84 degree centigrade)

d) REGULAR FEEDING IN REACTOR

• Prepare PPS (6.657kgs)+ DM water (333.333kgs) solution in Catalyst tank.
• start regular feeding of PPS solution & monomer pre-emulsion for 3.5 to 4.0 hours.
• Control temp. between 80 degree centigrade to 85 degree centigrade.
• After feeding over hold fo 0.5 hour.

e) POST ADDITION IN REACTOR-

• Add PPS( 0.100kgs)+Dmwater (30.476kgs) & hold for 1.0 hour.
- Cool up to 65 degree centigrade.
- Add Tertiary Butyl Hydroxyl Peroxide (2.043kgs), Dainol -25p (0.505kgs) + DM water (20.476kgs) solution in 15 minutes & hold for 15 minutes.
- Add Decolite (2.043kgs) + DM water (26.667kgs) solution in 15 minutes & hold for 30 minutes.
- Cool up to 45 degree centigrade.
- Add Liquor Ammonia (160.0kgs) & adjust pH 8.0 to 9.0.
- Add x405 (surfactant 20.476kgs) + DM water (20.476kgs).
- Add Sodium Sulphate (123.810kgs) + DM water (238.095kgs) solution.
- Add Texanol (190.476kgs)

f) QUALITY CONTROL CHECK

g) PACKING IN 240 KG HDPE BARRELS

3.5 PROCESS FLOW CHART

The process flow for all the manufacturing is the same

- Testing of raw materials
- Over head tank preparation
- Reaction
- Intermediate formation
- Stirring and Blending
- Finished Product
- Lab Testing
- Packing
- Supply to Customers
3.6 **Raw Material Requirement**

The raw material requirements given below

- Butyl Acrylate Monomer (liquid) : stored in SS – 35 Mt. tank – total storage – 70 MT.
- Vinyl acetate Monomer (Liquid) stored in SS - 35 Mt. tank – total storage – 35 MT
- Styrene Monomer (Liquid) stored in SS – 35 Mt. tank – Total storage 35 MT
- Other Miscellaneous Material in Drums (Liquid and semi liquids) and Powder Form: stored in shaded area in Factory Premises separately.

3.7 **Utilities**

The utility requirements for the proposed capacity expansion will be met from existing facility which have capacity margins. Details of the utilities are listed in Table 3.3

**Table 3-2 Capacity of DG, Thermopack**

<table>
<thead>
<tr>
<th>Details</th>
<th>Proposed</th>
<th>Fuel</th>
</tr>
</thead>
<tbody>
<tr>
<td>Thermopack</td>
<td>1 x 850 Kg/ Hour</td>
<td>Furnace Oil</td>
</tr>
<tr>
<td>DG Sets</td>
<td>1 x 250 KVA</td>
<td>HSD</td>
</tr>
</tbody>
</table>

3.8 **Power and Fuels**

Power requirement is being met from TNEB. However, DG sets are available to back-up power requirement during power restrictions by TNEB. The power requirement is proposed as 250 KVA.

The unit uses furnace oil as the main fuel for its package steam boilers and thermic fluid heaters. Diesel fuel is used for DG generators based on the utilization. The Fuel consumption for DG is proposed as 1.2*KL/month of Diesel. Details of the power and fuel requirements are listed in Table 3-3
Table 3-3 Power and Fuel requirement

<table>
<thead>
<tr>
<th>Details</th>
<th>Proposed</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Requirement</td>
<td>250 KVA</td>
<td>TNEB</td>
</tr>
<tr>
<td>Fuel oil for Diesel generators (HSD)</td>
<td>1.2 * KL/month</td>
<td>PSU Oil companies</td>
</tr>
<tr>
<td>Fuel oil for Thermopack (Furnace Oil)</td>
<td>30 KL/month</td>
<td>PSU Oil companies</td>
</tr>
</tbody>
</table>

* Consumption based on current power restrictions @ 4 hrs of operation s/ day.

3.9 **Water Requirement**

The total requirement of raw water for the unit is 107 KLD. Entire water requirement will be met from SIPCOT and there is no bore well source inside the Plant premises. Water requirement for the proposed project is given in Table 3.5

Table 3-4 Water Requirement and Recycling

<table>
<thead>
<tr>
<th>S. No</th>
<th>Description</th>
<th>Proposed KLD</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td><strong>Quantity of raw water consumption</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 Process</td>
<td>70</td>
</tr>
<tr>
<td></td>
<td>2 Cooling tower</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>3 Thermo Pack</td>
<td>4</td>
</tr>
<tr>
<td></td>
<td>4 Potable water</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>5 Washings</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>6 Green Belt</td>
<td>20</td>
</tr>
<tr>
<td>6</td>
<td><strong>Total raw water consumption</strong></td>
<td>107</td>
</tr>
<tr>
<td>B</td>
<td><strong>Quantity of effluent generation</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 Effluent from Washings</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td>2 Sewage</td>
<td>5</td>
</tr>
<tr>
<td></td>
<td><strong>Total effluent generation</strong></td>
<td>10</td>
</tr>
<tr>
<td>C</td>
<td><strong>Effluent Recycle</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>1 Water recycle for green belt</td>
<td>10</td>
</tr>
</tbody>
</table>
3.10 Landuse

The existing land distribution details are as given in below:

<table>
<thead>
<tr>
<th>Land allocation details</th>
<th>Area in Sq.m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ground Coverage Area</td>
<td>3069.5</td>
</tr>
<tr>
<td>Roads and Pavements Area</td>
<td>7355.72</td>
</tr>
<tr>
<td>Greenbelt development</td>
<td>10632.16 (33.9 %)</td>
</tr>
<tr>
<td>Future Development Area</td>
<td>8381.81</td>
</tr>
<tr>
<td>Vacant land</td>
<td>765.6</td>
</tr>
<tr>
<td>Parking Area</td>
<td>365</td>
</tr>
<tr>
<td><strong>Total Area</strong></td>
<td><strong>31363.07</strong></td>
</tr>
</tbody>
</table>

3.11 Manpower

The man power requirement during construction phase is 200 nos. and during operation phase is 100 nos. including staff and contract laborers.

3.12 Liquid Waste Management

Sewage generated from the proposed project will be treated in STP of 6 KLD capacity. Treated water is used for green belt development.

The effluent generated from washings of reactors and HDPE Drums will be treated in ETP of 5 KLD capacity. There is no effluent generation from the process for the proposed production. The treated effluent will be used for Green belt development. The ETP will be Activated sludge Process.

3.13 Air Pollution Control Measures

The Thermo pack will be provided with a stack of 15 m from ground level and DG will be provided with stack of 11 m.
The process vents from intermediates (components) manufacturing facilities are scrubbed in scrubbers for key pollutants before being discharged to atmosphere.

3.14 Hazardous and Solid waste Management

Hazardous wastes from the proposed products along with the method of disposal are given in Table 3.6. The hazardous wastes generated from the unit will be collected, stored and disposed through authorized disposal cum recycle facilities. There is no internal disposal facility availability within the site.

Table 3-6 Hazardous wastes Generation

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Hazardous waste</th>
<th>Proposed</th>
<th>Treatment Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Gel Scrap</td>
<td>6000 Kg/Annum</td>
<td>Will be sent to TSDF facility</td>
</tr>
<tr>
<td>2</td>
<td>Process Waste</td>
<td>6000 Kg/Annum</td>
<td>Will be sent to TSDF facility</td>
</tr>
<tr>
<td>3</td>
<td>ETP sludge</td>
<td>6000 Kg/Annum</td>
<td>Will be sent to TSDF facility</td>
</tr>
<tr>
<td>4</td>
<td>Used oil</td>
<td>500 K/Annum</td>
<td>Will be sold to Reprocessors</td>
</tr>
<tr>
<td>5</td>
<td>Plastic Drums</td>
<td>4800 Kg/Annum</td>
<td>Will be reused after washing</td>
</tr>
</tbody>
</table>

Table 3-7 Non-Hazardous wastes

<table>
<thead>
<tr>
<th>Details of waste</th>
<th>Proposed</th>
<th>Method of Disposal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Used paper waste</td>
<td>50 Kg/ month</td>
<td>Sold as scrap to authorized buyers</td>
</tr>
<tr>
<td>Food waste</td>
<td>100 Kg/ month</td>
<td>Taken back by outsourced catering service provider for appropriate disposal</td>
</tr>
</tbody>
</table>

3.15 Greenbelt Development

Greenbelt is already developed inside the factory premises covering a total area of about 10632.16 Sq.m which is more than 33% of the total area. The species and plantation norms are followed as per the CPCB/PCB directions.
3.16 Environment, Safety and Health Monitoring

The environment, safety and health-monitoring programme in the factory will be as follows:

- Daily monitoring of water and wastewater
- Online monitoring of stack, ambient air, weather and effluent parameters
- Fortnight monitoring of ambient air
- Monthly monitoring of noise and work place air
- Monitoring of occupational safety
- Yearly monitoring of occupational health.
4. SITE ANALYSIS

4.1 Connectivity
The proposed site is connected through on the SH – 51 along Puttur – Periyapalayam Road and SH – 52 - Sathyavedu Road.

4.2 Land form, land use, land ownership
The Plant is located at SF No. 32/2 & 33/2(a), Plot No. A4/2 (Part B), SIPCOT Industrial Complex, Thervoykandigai Village, Gummipoondi Taluk, Thiruvallur District, Tamil Nadu. The present land use is industrial. The land documents related to the site is enclosed in Annexure-2.

4.3 Existing land use pattern
The present land use is in industrial zone. The details of sensitive areas from the site boundary is given in Table 4.1. The site does not fall with in CRZ area.

Table 4-1 Nearby areas from site Boundary

<table>
<thead>
<tr>
<th>Water bodies</th>
<th>Distance in Km &amp; direction w.r.t site</th>
</tr>
</thead>
<tbody>
<tr>
<td>Senkarai Ammaneri Lake</td>
<td>0.86 Km (North)</td>
</tr>
<tr>
<td>Thervoy Kandigai Lake</td>
<td>0.87 (East)</td>
</tr>
<tr>
<td>Poovilambedu Pond</td>
<td>5.6 Km (North east)</td>
</tr>
<tr>
<td>Kakkavakkam Lake</td>
<td>6.5 Km (South)</td>
</tr>
<tr>
<td>Arani River</td>
<td>8.2 Km (South)</td>
</tr>
</tbody>
</table>
4.4 Climatic Conditions

The study region receives rainfall predominantly during monsoon season with an average annual rainfall of about 1211 mm per year. The South west monsoon season is from July – September and North east monsoon is from October to December. The relative humidity recorded in the district is about 49-79%. The wind directions during the study period are SW-W-WSW and SE. Accordingly, the impact zone will be spread in NE-E-ENE and NW directions. The average wind speed observed during the study period is 3 m/sec with the considerable frequency of a wind range of calm to about 22 km/hour. Due to its proximity with the Bay of Bengal, the ambient temperature at project site ranged between 25-40°C. The area has a tropical climate with the highest and lowest temperatures recorded is Maximum of 40.3°C and Minimum of 25°C respectively.

Table 4-2 Meteorological Observations

<table>
<thead>
<tr>
<th>S.No</th>
<th>Parameter</th>
<th>Observation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Wind Direction</td>
<td>SW-SE-W-WSW</td>
</tr>
<tr>
<td>2</td>
<td>Wind Speed Range</td>
<td>2 to 8.8 m/sec</td>
</tr>
<tr>
<td>3</td>
<td>Annual Average Rainfall</td>
<td>1211 mm</td>
</tr>
<tr>
<td>4</td>
<td>Average Wind Speed</td>
<td>3 m/sec</td>
</tr>
<tr>
<td>5</td>
<td>Temperature Range</td>
<td>Max. Temp: 40°C</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Min. Temp: 25°C</td>
</tr>
<tr>
<td>6</td>
<td>Average Temperature</td>
<td>32°C</td>
</tr>
<tr>
<td>7</td>
<td>Humidity Range (24hr)</td>
<td>49 to 79 %</td>
</tr>
<tr>
<td>8</td>
<td>Cloud cover</td>
<td>Partly cloudy</td>
</tr>
</tbody>
</table>
5. Conclusion

- Since the proposed project is coming up in the existing SIPCOT Industrial area, there will not be any change in land use.
- The treated waste water will be reused for gardening within the facility.
- There will be positive impact on Social conditions in and around the site due to the proposed project.
- The marginal impact of proposed project will be fully mitigated by the Environment Management Plans (EMP).