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| 2 | SIA/GJ/IND2/151592/2020 | **M/s. Chemcrux Enterprises Limited**Plot No.: 4712-14, G.I.D.C., Road South–10,Ankleshwar, Ta. Ankleshwar, Dist. Bharuch, Gujarat. | Appraisal |
| Category of the unit: **5(f)**Project status: **Expansion*** Project proponent (PP) submitted online application vide **SIA/GJ/IND2/151592/2020** on dated 15/05/2020 for obtaining Environmental Clearance (EC).
* Project proponent has submitted *Form – 1, Pre-Feasibility Report & Environment Management Plan* as

per *Notification issued by MoEF&CC vide S.O. 1223(E) dated 27th March, 2020 regarding consideration of proposals or activities in respect of Active Pharmaceuticals Ingredients (API) as B2 category*. |

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| * This proposal is submitted by technical expert of PP, M/s.Aqua Air Environmental Engineering Pvt. Ltd.
* This is an expansion project for manufacturing of synthetic organic chemicals as tabulated below.
 |
|  | **Sr.****no.** | **Name of the Products** | **CAS no. / CI no.** | **Quantity****MT/Month** | **End-use of the products** |  |
| **Existing** | **Proposed** | **Total** |
| **1. BENZOIC ACID DERIVATIVE:** |
| 1 | Para Chloro BenzoicAcid | 74-11-3 | 50 | 250 | 300 | Drug Intermediates |
| 2 | Ortho Chloro BenzoicAcid | 118-91-2 |
| 3 | Meta Chloro BenzoicAcid | 535-80-8 |
| 4 | Para Nitro Benzoic Acid | 62-23-7 |
| 5 | Ortho Nitro BenzoicAcid | 552-16-9 |
| 6 | Meta Nitro Benzoic Acid | 121-92-6 |
| 7 | 2,4 Di Chloro BenzoicAcid | 50-80-0 |
| 8 | 3,4 Di Chloro BenzoicAcid | 51-44-5 |
| 9 | 2,3 Di Chloro BenzoicAcid | 50-45-3 |
| 10 | SODIUM ARABONATE(ARABONIC ACID SODIUM SALT) | 30418-45-2 |
| 11 | Meta Bromo BenzoicAcid | 585-76-2 |
| 12 | Ortho Bromo BenzoicAcid | 88-65-3 |
| 13 | Para Bromo BenzoicAcid | 586-76-5 |
| **2. NITRO BENZOIC ACID DERIVATIVE** |
| 1 | 3 Nitro 4 Chloro BenzoicAcid | 96-99-1 | 33.33 | 66.67 | 100 | Drug Intermediates |
| 2 | 2 Chloro 5 Nitro BenzoicAcid | 2516-96-3 |
| 3 | 2 Chloro 3 Nitro Benzoicacid | 3970-35-2 |
| 4 | 2 Chloro 3,5 Di NitroBenzoic Acid | 2497-91-8 |
| 5 | 4 Chloro 2 Nitro BenzoicAcid | 6280-88-2 |
| **3. AMINO BENZOIC ACID DERIVATIVE** |
| 1 | Para Amino BenzoicAcid | 150-13-0 | 250 | 0 | 250 | Drug Intermediates |
| 2 | Ortho Amino Benzoic | 118-92-3 |

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|  |  | Acid |  |  |  |  |  |  |
| 3 | Meta Amino BenzoicAcid | 99-05-8 |
| 4 | 4 Chloro 3 AminoBenzoic acid | 59158-04-2 |
| 5 | 2 Chloro 5 AminoBenzoic Acid | 89-54-3 |
| 6 | 2 Chloro 3 AminoBenzoic acid | 108679-71-6 |
| 7 | 3,4 Di AminoBenzophenone | 39070-63-8 |
| 8 | 2 Chloro 4 AminoBenzoic Acid | 2457-76-3 |
| 9 | 4 Chloro 2 AminoBenzoic Acid | 89-77-0 |
| **4. BENZOYL CHLORIDE DERIVATIVE** |
| 1 | Benzoyl Chloride | 98-88-4 | 25 | 0 | 25 | Drug Intermediates |
| 2 | Para Chloro BenzoylChloride | 122-01-0 |
| 3 | Ortho Chloro BenzoylChloride | 609-65-4 |
| 4 | Meta Chloro BenzoylChloride | 618-46-2 |
| 5 | Para Nitro BenzoylChloride | 122-04-3 |
| 6 | Ortho Nitro BenzoylChloride | 610-14-0 |
| 7 | Meta Nitro BenzoylChloride | 121-90-4 |
| 8 | 2,4 Di Chloro BenzoylChloride | 89-75-8 |
| 9 | 3,4 Di Chloro BenzoylChloride | 3024-72-4 |
| 10 | 2,3 Di Chloro BenzoylChloride | 2905-60-4 |
| 11 | 3 Nitro 4 Chloro BenzoylChloride | 38818-50-7 |
| 12 | 2 Chloro 5 Nitro BenzoylChloride | 25784-91-2 |
| 13 | 2 Chloro 3 Nitro BenzoylChloride | 34128-16-0 |
| 14 | 2 Chloro 4 Nitro BenzoylChloride | 7073-36-1 |
| 15 | 4 Chloro 2 Nitro BenzoylChloride | 41995-04-4 |
| 16 | Meta Bromo BenzoylChloride | 1711-09-7 |

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|  | 17 | Ortho Bromo BenzoylChloride | 7154-66-7 |  |  |  |  |  |
| 18 | Para Bromo BenzoylChloride | 586-75-4 |
| **5. SULFOMOYL BENZOIC ACID DERIVATIVE** |
| 1 | 4 Chloro SulfomoylBenzoic Acid | 1205-30-7 | 25 | 75 | 100 | Drug Intermediates |
| 2 | 2 Chloro SulfomoylBenzoic Acid | 97-04-1 |
| 3 | 3 Chloro SulfomoylBenzoic Acid | 4025-64-3 |
| 4 | 2 Nitro SulfomoylBenzoic Acid | -- |
| 5 | 2,4 Di ChloroSulfomoylBenzoic Acid (Lasamide) | 2736-23-4 |
| 6 | 2,3 Di ChloroSulfomoylBenzoic Acid | -- |
| 7 | 3 Nitro 4ChloroSulfomoyl Benzoic Acid | 22892-96-2 |
| 8 | Acetyl Beta Phenyl EthylAmine (BPEA) Sulfonamide | 35303-76-5 |
| **6. METHOXY BENZOIC ACID DERIVATIVE** |
| 1 | Para Methoxy BenzoicAcid | 100-09-4 | 12.5 | 37.5 | 50 | Drug Intermediates |
| 2 | Ortho Methoxy BenzoicAcid | 579-75-9 |
| 3 | Meta Methoxy BenzoicAcid | 586-38-9 |
| 4 | 3 Nitro 4 MethoxyBenzoic Acid | 89-41-8 |
| 5 | 2 Nitro 4 MethoxyBenzoic Acid | 6280-89-3 |
| 6 | 4 Nitro 2 MethoxyBenzoic Acid | 33234-36-5 |
| 7 | 5 Nitro 2 MethoxyBenzoic Acid | -- |
| **7. CHLORO TOLUENES** |
| 1 | Para Chloro Toluene | 106-43-4/95-49-8/95-49-8 | 2.5 | 197.5 | 200 | Drug Intermediates |
| 2 | Di Chloro Toluene | 95-73-8/95-75-0/32768-54-0 |

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|  | 3 | Mix Di Chloro Toluene | -- |  |  |  |  |  |
| **8. BENZO NITRILE DERIVATIVES** |
| 1 | 2 Chloro 5 Nitro BenzoNitrile | 16588-02-6 | 25 | 0 | 25 | Drug Intermediates |
| 2 | 3 Nitro 4 Chloro BenzoNitrile | 939-80-0 |
| 3 | 2, 3 Di Chloro BenzoNitrile | 6574-97-6 |
| 4 | 3, 4 Di Chloro BenzoNitrile | 6574-99-8 |
| 5 | 2, 4 Di Chloro BenzoNitrile | 6574-98-7 |
| 6 | Meta Nitro Benzo Nitrile | 619-24-9 |
| 7 | Para Nitro Benzo Nitrile | 619-72-7 |
| 8 | Meta Chloro BenzoNitrile | 766-84-7 |
| 9 | Ortho Chloro BenzoNitrile | 873-32-5 |
| 10 | Para Chloro BenzoNitrile | 623-03-0 |
| 11 | 2 Chloro 3 Nitro BenzoNitrile | 34662-24-3 |
| 12 | 2 Chloro 4 Nitro BenzoNitrile | 28163-00-0 |
| 13 | Meta Bromo BenzoNitrile | 6952-59-6 |
| 14 | Ortho Bromo BenzoNitrile | 2042-37-7 |
| 15 | Ortho Nitro Benzo Nitrile | 612-24-8 |
| 16 | Para Bromo BenzoNitrile | 623-00-7 |
| **9. BENZAMIDE DERIVATIVE** | 25 | 0 | 25 | Drug Intermediates |
| 1 | 2 Chloro 3 NitroBenzamide | 117054-76-9 |
| 2 | 2 Chloro 4 NitroBenzamide | 3011-89-0 |
| 3 | 2 Chloro 5 NitroBenzamide | 16588-15-1 |
| 4 | 2, 3 Di ChloroBenzamide | 5980-24-5 |
| 5 | 2, 4 Di ChloroBenzamide | 2447-79-2 |
| 6 | 3, 4 Di ChloroBenzamide | 2670-38-4 |
| 7 | 4 Chloro 3 NitroBenzamide | 16588-06-0 |

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|  | 8 | Meta Bromo Benzamide | 22726-00-7 |  |  |  |  |  |
| 9 | Meta Chloro Benzamide | 618-48-4 |
| 10 | Ortho BromoBenzamide | 4001-73-4 |
| 11 | Ortho ChloroBenzamide | 609-66-5 |
| 12 | Ortho Nitro Benzamide | 610-15-1 |
| 13 | Para Bromo Benzamide | 698-67-9 |
| 14 | Para Chloro Benzamide | 619-56-7 |
| 15 | Para Nitro Benzamide | 619-80-7 |
| **10** | **2 Amino Benzoic****Sulfonamide** | 137-65-5 | 12.5 | 0 | 12.5 | Specialty Chemicals & Drug Intermediates |
| **11** | **Thio Salicylic Acid** | 147-93-3 | 12.5 | 0 | 12.5 |
| **12** | **Aceturic Acid** | 543-24-8 | 2 | 0 | 2 |
| **13** | **Maleic Acid** | 110-16-7 | 13 | 0 | 13 |
| **Total** | **488.33** | **626.67** | **1115** |  |
| * The project falls under Category B2 of project activity 5(f) as per the schedule of EIA Notification 2006 and amendment dated 27th March, 2020.
* The proposal was considered in the SEAC Video conference meeting dated 15/06/2020 as per the submission by PP via E-mail dated 11/06/2020.
* Salient features of the project including Water, Air and Hazardous waste management:
 |
|  | Sr.no. | Particulars | Details |  |
| **A** | Total **cost of Proposed** Project (Rs. in Crores):Break-up of proposed project Cost:* **Cost of Plant and machineries: 3.2 Crores**
* **Cost of building construction: 1.1 Crores**
* **Environment protection measures: 0.7 Crores**
 | Existing: 9 CroresProposed: 5 CroresTotal: 14 Crores |
|  | **Details of Environmental Management Plan (EMP)** | As below: |
| **Details of EMP(Capital cost & Recurring cost)****Brief details of EMP** |
|  |  | **Total Capital cost** | **Total Additional Cost** |  |
| **COMPONENT** | **Existing Capital Cost of EMP** | **Additional Capital Cost of EMP** | **Existing Recurring Cost of EMP (per month)** | **Additional Recurring Cost of EMP (per month)** |
| Cost | 1,04,00,000/-Rs. | 67,60,000/-Rs. | Rs. 50 lakhs | Rs. 72 lakhs |
|  | 1,71,60,000/- Rs. | Rs. 122 Lakhs |

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|  |  |  |
|  | **Sr. No** | **Unit** | **Installed Capacity (KLD)** | **Capital Cost (Rs. in****Lakhs )** | **Operating Cost (Lacs/Mont****h)** | **Maintenance Cost (Lacs/Month)** | **Total Recurring Cost****(Lacs/Month)** |  |
| 1 | Effluent TreatmentPlant | 178.3KLD | 82 | 105 | 5 | 110 |
| 2 | APCM | -- | 29.6 | -- | 0.1 | 0.1 |
| 3 | Hazardous Waste(Expense) | -- | 8 | 3.5 | -- | 3.5 |
| 4 | AWHMonitoring Cost | -- | 20 | -- | 0.2 | 0.2 |
| 5 | Greenbelt | -- | 23 | 4.2 | -- | 4.2 |
| 6 | OHC | -- | 9 | -- | 4 | 4 |
|  | **Total** |  | 171.6 |  |  | 122 |
|  | **Details of CER as per OM dated 01/05/2018** | As below: |
| The unit has planned to spend 2.0 % of the Additional cost of the proposed project (Rs. 500Lakhs) over a period of two years towards CER activity. So, as per the project cost Rs. 10 Lakhs used in the CER activities. Budgetary allocation is given in below table. |
|  | **CER Activities** | **2020-2022** |  |
| We will give contribution in the increase the depth of Umarvada Pond. | 6.0 |
| We will give contribution to develop Solar Street light as a self sustain technology in the Motali Village | 4.0 |
| **Total** | **10,00,000/-** |
| **B** | **Total Plot area**( sq. meter) | Existing: 6144 Sq. m.Proposed: 0 Sq. m. Total: 6144 Sq. m. |
| Brief note on **Area adequacy** in line to proposed project activities:* Unit will carried out vertical expansion for the manufacturing of the products and for the

storage of the raw materials. Unit has capacity to manufacture 1300 MT/Month after expansion. While company has applied for the 1115 MT/Month of the total capacity. |
|  | **Green belt area**( sq. meter) | Existing: 1156 Sq. m. Proposed: 0 Sq. m. Total: 1156 Sq. m.(18.81% of total area) |
|  | Total 6144 m2 land area is available at site; out of this 1156 m2 (i.e. 18.81 % of total area) is developed as greenbelt and other forms of greenery.Company have develop 2500 m2 of additional greenbelt on GIDC Land. |
| **C** | **Employment generation** | Existing: 125Proposed: 75 Total:200 |
| **D** | **Water** |
| i | Source of Water Supply(GIDC Bore well, Surface water, Tanker supply etc...) | GIDC Water Supply |
| Status of permission from the concern authority. | Unit has obtained |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  |  |  | permission for watersupply |  |
| ii | **Water consumption (KLD)** |
|  |  |  | **Existing**KLD | **Proposed (Additional)**KLD | **Total after Expansion**KLD | Remarks |  |
| (D) Domestic | 5.05 | 4.95 | 10 | 5.05 |
| (E) Gardening | -- | 5 | 5 | -- |
| (F) Industrial |  |
| Process | 67.3 | 92.7 | 160 |  |
| Washing | 5 | 5 | 10 |  |
| Boiler | 12 | 12 | 24 |  |
| Cooling | 10 | 10 | 20 |  |
| Others | -- | 3 | 3 |  |
| **Industrial Total** | **94.3** | **122.7** | **217** |  |
| **Grand Total****(A+B+C)** | **99.35** | **132.65** | **232** |  |
| **Brief Note on worst case scenario for water consumption:*** Worst case scenario for water consumption will be from **Group 1** Product No. 2, **Group 2** Product No. 5, **Group 3** Product 4, **Group 5** Product 8, **Group 6** Product No. 3, **Group 8** Product No. 8, **Group 9** Product No. 14, **Group 10, 11 & 13**.
 |
| -**In case of no reuse/recycle of waste water, Give brief note on justification as why no reuse/recycle.*** RO Permeate will be reuse within premises.
 |
| iii | **Waste water generation (KLD)** |
|  |  | Category | **Existing**KLD | **Proposed (Additional)**KLD | **Total after Expansion**KLD | Remarks |  |
| * Domestic
 | 5 | 3 | 8 |  |
| * Industrial
 |  |
| Process | 65.8 | 79.2 | 145 |  |
| Washing | 5 | 5 | 10 |  |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | Boiler | 6 | -- | 6 |  |  |  |
| Cooling | 5 | -- | 5 |  |
| Others | -- | 4.3 | 4.3 |  |
| **Total Industrial****waste water** | **81.8** | **88.5** | **170.3** |  |
|  |  |  |  |  |
| **Brief Note on worst case scenario for waste water generation(Qualitative and Quantitative):*** Worst case scenario for wastewater generation will be from product no **Group 1** Product No. 2, **Group 2** Product No. 5, **Group 3** Product 4, **Group 5** Product 8, **Group 6** Product No. 3,

**Group 8** Product No. 8, **Group 9** Product No. 14, **Group 10 & 11**. |
| **Brief justification in case of no process effluent generation or no industrial effluent generation or no high concentration effluent generation from proposed project (Whichever is applicable).****Not Applicable** |
| iv | Treatment facility within premises with **capacity**[In-house ETP (Primary, Secondary, Tertiary), MEE, Stripper, Spray Dryer, STP etc.* Existing ETP -81.8 KL/Day for Stream-I (Low COD)
* Proposed ETP -70.2 KL/Day for Stream-II (Composite COD)
* ETP & RO-21 KLD Stream-III (Utility & Washing Stream)
 |
| Treatment scheme including segregation at source. **(Give Characteristics of each****stream i.e. COD, BOD, TDS etc.) In case of stream segregation, Separate ETP (ETP-1, ETP-2….) for each stream shall be proposed.****Stream I (Low COD Stream) (81.8 KLD)****DETAILS OF EFFLUENT TREATMENT PLANT (Existing)**First all low COD streams of wastewater shall be passed through O & G Trap (OGT-01) where O & G shall be removed from the Top manually and Collected in O & G Collection Tank (OGCT-01) then effluent will be collected in Equalization cum Neutralization Tank-1 (ENT-01) where the addition and stirring of Acid/Alkali shall be done to maintain neutral pH of wastewater from Acid/Alkali Dosing Tanks (ACDT- 01/ALDT-01) as per requirement. Mixer is provided in ENT-01 for proper mixing and prevent the settling of suspended solids.Then after, neutralized wastewater shall be pumped to Flash Mixer (FM-01) where the continuous addition and stirring of Alum solution is from Alum Dosing Tanks (ADT-01-A/B) as per requirement. Then Polyelectrolyte shall be dosed from Polyelectrolyte Dosing Tank (PEDT-01) to carry out flocculation with help of Mixer Mechanism. Then after, coagulated wastewater shall be settled in Primary Settling Tank-1 (PST-01).Clear supernatant from PST-01 shall be passed in Aeration Tank(AT-01). Here, biodegradation of organic matter of the wastewater shall be carried out by bacteria (suspended growth) in the AT-01 and for that oxygen shall be supplied by 2 nos. of air blowers through diffusers. Air blowers also keep MLSS in suspension.Then after, wastewater shall go to Secondary Settling Tank (SST-01). Here, the suspended solids shall be settled. Sludge shall be removed from bottom of SST-01 and pumped to AT-1 to maintain MLSS and excess activated sludge shall be sent to |

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | Sludge Drying Beds (SDB-01) and Clear supernatant from SST-01 shall be collected in Treated Effluent Tank (TET-01) before sent to CETP of M/s ETL for further treatment and disposal.Sludge settled in PST-01 and excess sludge from SST-01 shall be sent to Sludge Beds (SDB-01) for sludge dewatering. Then, dewatered sludge shall be stored in HWSA and then ultimate disposal to TSDF.**Stream III (RO Streams- 21 KLD)**Effluent from Utilities shall be collected in Collection tank (CT-01) then Thereafter, the wastewater shall be passed through Pressure Sand Filter (PSF-01) to remove left out TSS and Activated Carbon Filter (ACF-01) for final effluent polishing. After tertiary treatment, effluent shall be collected in RO Feed Tank (ROFT-01). Then it will be passed through RO Unit and RO permeate water shall be reuse in plant and RO reject water will be mixed with High COD effluent in HCCT-01 for further treatment.**Stream II (Composite COD stream-II) – 70.2 KLD (Proposed)**All Composite COD & TDS streams of wastewater shall be collected in Composite COD Collection tank (CCCT-01). Mixer is provided in the tank to keep all suspended solids in suspension. Then effluent shall be pumped to Neutralization Tank-2 (NT-02) where the continuous addition and stirring of Alkaline solution is done to maintain neutral pH of wastewater from Alkaline Dosing Tanks (ADT-01-A/B) as per requirement with help of Alkaline Dosing Pumps. Then after, neutralized wastewater shall go to Flash Mixer (FM-01) by gravity. Coagulant shall be dosed from Coagulant Dosing Tanks (CDT-01-A/B) with help of Dosing Pumps. and Polyelectrolyte Dosing Tank (PEDT-01) respectively into FM-1 to carry out coagulation by using a Flash Mixer. Then after, coagulated wastewater shall be settled in Primary Settling Tank-2 (PST-02).Clear supernatant from PST -02 shall be Collected In Holding Tank (HT-01). before sent to Common MEE for further treatment and disposal.Sludge settled in PST-02 shall be sent to SS-01 for further dewatering.**Sr Boiler & After RO****No Parameters Utility and Neutralizati Permeate RO Reject****Washing on**1 pH 5.5-7 6-8 6-8 6-82 COD (mg/L) 700 600 <50 19003 BOD3 (mg/L) 200 180 <20 5504 TDS (mg/L) 1000 1100 <100 3100 |  |
|  | **Sr No** | **Paramete rs** | **Untreated Effluent Characteri stic****(Process Low COD)** | **Primary Treated Effluent Characteristic (Process Low COD)** | **Secondary Treated Effluent Characteristic****(Process Low COD)** | **ETL****Norms** |  |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  | 1 | pH | 2-9 | 6-8 | 6-8 | 6-8 |  |  |
| 2 | COD(mg/L) | 12000 | 11000 | 5000 | 11000 |
| 3 | BOD3(mg/L) | 4500 | 4400 | 1000 | 3600 |
| 4 | TDS(mg/L) | 25000 | 27000 | 27000 | -- |
| 5 | Ammonic al Nitrogen(mg/L) | 40 | 40 | 40 | 100 |
|  |
|  | **Sr No** | **Parameters** | **Untreated Effluent Characteristic (Process****Composite COD)** | **Primary Treated Effluent Characteristic****(Process Composite COD)** |  |
| 1 | pH | 1-10 | 6-8 |
| 2 | COD (mg/L) | 35000 | 30000 |
| 3 | BOD (mg/L)3 | 12000 | 11000 |
| 4 | TDS (mg/L) | 55000 | 58000 |
| 5 | Ammonical Nitrogen (mg/L) | 100 | 100 |
| Note: (In case of CETP discharge) :**Management of waste water keeping in view direction under section 18 (1) (b) of the Water (Prevention and Control of Pollution) act, 1974 issued by CPCB regarding compliance of CETP**.* Unit will send its existing load of effluent to CETP of M/s. ETL for further treatment

and disposal. |
| Brief note on adequacy of ZLD (In case of Zero Liquid Discharge):* Additional load of Effluent will be treated in primary ETP and then sent to Common MEE of M/s. BEIL.
 |
| v | Mode of Disposal & Final meeting point**(Existing and Proposed)** |
| Domestic: | It is disposed off through septic/soak pit tank. |
| Industrial: | * Existing Load of effluent 81.8 KLD will be treated in ETP consist of primary & Secondary Treatment, Treated effluent will be sent to CETP of M/s. ETL through tanker.
* Additional load of effluent 61.2 KLD (54.8 KLD effluent + 7 KLD RO Reject) will be treated in ETP consist of primary treatment and treated effluent will be sent to Common MEE.
* 21 KLD of boiler blow down, Cooling & washing will be recycled by RO. 7 KLD of RO reject will be treated in ETP and then treated effluent will be sent

to Common MEE. |
| vi | In case of Common facility (CF) like CETP, Common Spray dryer, Common MEE, CHWIF etc.**Name of Common facility (CF)(For waste water treatment)** |
| * CETP of M/s. ETL for existing load of effluent.
* Common MEE of M/s. BEIL, Dahej for additional load.
 |

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|  |  | Membership of Common facility (CF) |  |
| **(For waste water treatment)*** Unit is member of CETP of M/s. ETL for existing load of effluent.
* Unit has obtained membership of Common MEE of M/s. BEIL, Dahej
 |
| vii | **Simplified water balance diagram with reuse / recycle of waste water(Existing****and Proposed)** |
| **Water Balance Diagram** |
| vii | Reuse/Recycle details (KLD) **with feasibility.**[Source of reuse & application area] |
| **Total reuse 14 KLD**- |
|  | **Source of waste water for reuse with quantity in KLD (From where it is****coming)** | **Application area with quantity in KLD (Where it is used)** | **Characteristics of waste water to be reused (COD, BOD, TDS etc.)** | **Remarks regarding feasibility to reuse i.e.** |  |
| RO Permeate 14 KLD | Boiler: 14 KLD | COD: 50 mg/LBOD: 20 mg/LTDS: 100 mg/L | -- |
| **E** | **Air** |
| i | **Brief Note on fuel based heat energy requirement and worst case scenario thereof:*** Boiler is required for the reaction to be carried out @ 70-80oC.
* THF is required to dry products.
 |
| Flue gas emission details |

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | No. of Boilers/TFH/Furnaces/DG sets etc. with capacities viz. TPH, Kcal/hr, MT/hr, |  |
| KVA etc. |
| **Existing & Proposed** |
| - |
| Existing: |
| Proposed |
| - |
| ii | Process gas i.e. Type of pollutant gases (SO2, HCl, NH3, Cl2, NOx etc.) |
|  | **Existing & Proposed** |
|  | -**Existing:****Sr.****no. Source of emission**1. Reaction Vessels R-109, R-110, R-111 & R-112

Reaction Vessels GLR-1. 301, GLR-317 Dumping Reactor R - 318 &

Reactor R -319.1. Reaction Vessel R- 106

and R -307**Total Proposed:** | **Vent Height (m)**252525 | **APCM** | **Emission Standards** |
| 3- Caustic | SO2-20 mg/NM3 |
| Scrubber | HCl-150 mg/NM3 |
| In series | NOx-25 mg/NM3 |
| 4- Water |  |
| Scrubber | SO2-20 mg/NM3 |
| Followed By | HCl-150 mg/NM3 |
| Caustic | NOx-25 mg/NM3 |
| scrubber |  |
| Two Dil. |  |
| Sulphuric Acid |  |
| scrubber inseries with | NH3-175 mg/NM3 |
| stand by facility |  |

|  |  |  |  |  |  |
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| **SR.****No.** | **Source of emission** | **Stack Height (m)** | **Fuel** | **APCM** | **Emission Standards** |
| 1 | Boiler (3 TPH) | 12 | Natural Gas: 2000 M3/Day | Adequate Stack Height | PM < 150mg/Nm3 SO2 < 100 ppm NOX< 50 ppm |
| 2 | Thermopack (2 Lac Kcal) | 12 | Natural Gas: 647 M3/Day |
| 3 | DG Set (750 KVA) | 9 | HSD: 2000Lit/Day |

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| **SR.****No** | **Source of emission** | **Stack Height (m)** | **Fuel** | **APCM** | **Emission Standards** |
| 1 | Boiler (3 TPH) | 12 | Natural Gas: 4000 M3/Day | Adequate Stack Height | PM < 150mg/Nm3 SO2 < 100 ppm NOX< 50 ppm |
| 2 | Thermopack (2 Lac Kcal) | 12 | Natural Gas: 1324 M3/Day |
| 3 | Thermopack (2 Lac Kcal) | 12 | Natural Gas: 1323 M3/Day |
| 4 | DG Set (750 KVA) | 9 | HSD: 2000 Lit/Day |
| 5 | DG Set (750 KVA) | 9 | HSD: 2000 Lit/Day |

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|  |  |  | **Sr.****no.** | **Source of emission** | **Vent Height (m)** | **APCM** | **Emission Standards** |  |  |
| 1 | Reaction Vessels R- 110, R-111, R-112 & R-113 | 25 | 3- Caustic Scrubber In series withstand by facility | NOx-253mg/NM |
| 2 | Reaction Vessels GLR-301, GLR-317Dumping Reactor R - 318 & Reactor R -319. | 25 | 4- Water Scrubber Followed By Caustic scrubber with stand by facility | SO -2023mg/NMHCl-1503mg/NM |
| 3 | Reaction Vessel R- 106 and R -307 | 25 | Two Dil. Sulphuric Acid scrubber in series withstand by facility | NH -17533mg/NM |
| **Note:*** **Details of gaseous raw materials used in proposed project:** Hydrogen, Chlorine & Ammonia
* **Estimation of process gas emission (Product wise and Total)** for **NOx Group 2**

Product 3, for SO2 & HCl **Group 4** Product 6 & for Ammonia **Group 2** Product 3.* **Requirement of the scrubbing media (KL per Day) considering solubility (Product wise and Total)**
* **Yearly generation of all bleed liquors (MT/KL per Annum) as mentioned above and its sound management in HW matrix. Attached**
 |
| iii | **Fugitive emission** details with its mitigation measures. |
|  | **Following measures will be adopted to prevent and control fugitive emissions…**1. Airborne dust at all transfers operations/ points will be controlled either by spraying water or providing enclosures.
2. Care will be taken to store construction material properly to prevent fugitive emissions, if any.
3. Regular maintenance of valves, pumps, flanges, joints and other equipment

will be done to prevent leakages and thus minimizing the fugitive emissions of |

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| **Sr.****No.** | **Emissions** | **Quantity of Gaseous Emissions (MT/Day)** | **Water required to scrub pollutants****(KL/Day)** | **% of solution** | **Quantity of bleed liquors (KL/Day)** |
| 1 | NOx (Group 2Product 3) | 0.33 | 0.68 | 30% Sodium Nitrite Solution | 1.01 |
| 2 | SO2(Group 4Product 6) | 0.26 | 0.49 | 28% Sodium bysulfite Solution | 0.75 |
| 3 | HCl (Group 4Product 6) | 0.43 | 0.98 | 25% HClSolution | 1.41 |
| 4 | NH3(Group 9Product 11) | 0.28 | 0.85 | 22%Ammonium SulphateSolution | 1.13 |
| **Total** | **3.0 KL/Day** |  | **4.3 KL/Day** |

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|  |  | VOCs.1. Entire process will be carried out in the closed reactors with proper maintenance of pressure and temperature.
2. Periodic monitoring of work area will be carried out to check the fugitive emission.
3. Breather valves will be provided on solvent tanks.
4. Solvent tank vents will be connected to vent chillers.
5. To eliminate chances of leakages from glands of pumps, mechanical seal will be provided at all solvent pumps.
6. Close feeding system will be provided for centrifuges. Centrifuge and filtrate tank vents will be connected to vent chillers.
7. Minimum number of flanges, joints and valves in pipelines.
8. Enclosures to chemical storage area, collection of emission from loading of raw materials in particular solvents through hoods and ducts by induced draft, and control by scrubber / dust collector to be ensured.
9. Nitrogen blanketing will be provided, besides special care needs to be taken for control in respect of odorous chemicals.
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| **F** | **Hazardous waste**(As per the Hazardous and Other Wastes (Management and Transboundary Movement) Rules 2016.Note:* **Priorities for HW Management:** Pre-processing, Co-Processing, Reuse/Recycle within premises, Sell out to actual users having Rule-9 permission, TSDF/CHWIH.
* **Quantification of hazardous waste shall be based on mass balance and calculations shall be incorporated in EMP details separately.**
* **Disposal to scrap vendors/vendors/traders is not allowed**

**Existing & Proposed** |
| i |  | **S****r. n o****.** | **Type/Name of Hazardous waste** | **Source of generatio n** | **Categor y and Schedu le as per HW Rules.** | **Quantity (MT/Annum)** |  |  |
| **Exist ing** | **Additi onal** | **Tot al** |  |
| 1 | Empty Barrels/cont ainers/liners contaminate d with hazardous chemicals/w astes | Process, Storage and Handling | Schedul e- I-33.1 | 19.2 | 20.8 | 40 | Collection, Storage, Transportation, &send to authorized decontamination facility / recycler or reuse or send backto supplier. |
| 2 | Used Oil/Spent Oil | Equipment and Maintenan ce | Schedul e- I-5.1 | 0.06 | 0.14 | 0.2 | Collection, Storage, Transportation and Sale to authorizedtraders. |
| 3 | Chemical Sludge fromwastewater treatment | ETP | Schedul e- I-35.3 | 195 | 205 | 400 | Collection, Storage,Transportation and sent to |

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|  |  |  |  |  |  |  |  |  |  | common TSDF of BEIL. |  |  |
| 4 | Process Residue | Process (From Product No. 13) | Schedul e- I-28.1 | 5 | 355 | 360 | Collection, Storage, Transportation and sent to common Incineration facilityof M/s. BEIL. |
| 5 | 30 %Sodium Nitrite Solution | Process (From Product No. 2,16)and Scrubber | Schedul e- II-B- 36 | 1800 | 5000& 365 | 6800 &365 | Collection, Storage, Transportation and sold to end users having rule 9. |
| 6 | Dilute Sulfuric Acid | Process (From Product No. 59) | Schedul e- II-B- 15 | 10800 | 19920 | 30720 |
| 7 | 22%Ammonium Sulphate Solution | Process (From Product No. 60)& Scrubber | Schedul e- II-B- 36 | 9600 | 29520& 410 | 39120& 410 | Collection, Storage, Transportation and sold to end users having rule 9. |
| 8 | 25% HClsolution | Process (From Product No.30,69,86)& Scrubber | Schedul e- II-B- 15 | 960 | 5733& 510 | 6693 &510 |
| 9 | 33 % Dilute Nitric Acid | Process (From Product No. 13) | Schedul e- II-B- 15 | 2400 | 6276 | 8676 | Collection, Storage, Transportation and 8640 MT/Annum will be Reuse within premises in the production of OrthoChloro Benzoic Acid |
| 10 | Liquor Ammonia | Process (From Product No. 104) | Schedul e- II-A- 10 | -- | 31200 | 31200 | Collection, Storage, Transportation and 21600 MT/Annum will be Reuse within premises in the production of Acetyl Beta Phenyl Ethyl Amine (BPEA) Sulfonamide and other quantity will beconverted into Ammonuim |

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|  |  |  |  |  |  |  |  |  |  | Sulphate and then Ammonium Sulphate Solution will be sell to end users having Rule 9Permission |  |  |
| 11 | 28% Sodium bysulfite Solution | Scrubber | Schedul e- II-B- 36 | -- | 270 | 270 | Collection, Storage, Transportation and sold to end users having rule 9. |
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| ii | Membership details of **TSDF, CHWIF** etc.**(For HW management)** | Common TSDF & CommonIncineration Facility of M/s. BEIL. |
| iii | Details of Non-Hazardous waste & itsdisposal(MSW and others) | No non hazardous waste willbe generated |
| **G** | **Solvent management**, VOC emissions etc. |
| i | Types of solvents, Details of Solvent recovery, % recovery, reuse of recoveredSolvents etc. (Details in Table Format) |
|  | * Toluene, Para Chloro Toluene, Ortho Chloro Toluene, etc is used as a reactant.
* Solvent recovery is not applicable.
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| ii | **Brief Note on LDAR proposed:*** LDAR is not applicable
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| iii | **VOC emission** sources and its mitigation measures |
|  | * All the solvents are directly distillate from product mix and purified in packed column with the help of reflux and therefore there is no generation of any distillation residue from the solvent distillation.
* The solvent distillation system is designed so as to achieve minimum 95% recovery of solvent.
* Pure solvent, crude solvent and distilled (recovered) solvent shall be stored only in storage tanks and we shall not be using drums at any stage in the Solvent Management System.
* Wherever required, the solvents shall be directly pumped into day tanks from the storage tanks and shall be charged into the reactors without involving any manual handling.
* All the pumps shall be mechanical seal type to avoid any leakage of solvent.
* All necessary fire fighting systems shall be provided with alarm system. Flame proof wiring and flame proof electrical accessories shall be provided to avoid any mishap.
* All the storage tank and day tank shall be connected to a vent system through chilled water condensers to prevent loss of solvents in the atmosphere.
* All the distillation column vents are also connected to chilled water condensers for maximum possible recovery of the solvents.
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| H | **SAFETY details** |
| i | * **Details regarding storage of Hazardous chemicals (For tank storages only)**
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| Storage details | Name of majorHazardous chemicals | Remarks |
| Storage tanks (If any) | Caustic Lye, Weak Nitric Acid, Concentrated Nitric Acid, Liquor Ammonia, Sulphuric Acid & ChloroSulfonic Acid |  |

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|  |  | * Safety details of Hazardous chemicals (To be stored in storage tanks)
* **Applicability of PESO** :
* PESO is not applicable
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| Ii | **Process safety details: (If applicable)****1. Hydrogenation process*** FLP type area will be provided.
* Total enclosed process system.
* Instrument & Plant Air System.
* Nitrogen blanketing in Hydrogenation reactor.
* Safety valve and Rupture disc provided on reactor.
* Cooling Chilling and power alternative arrangement have been made on reactor.
* Hydrogen and Nitrogen Cylinder bank away from the auto clave reactor.
* PRV station with shut off valve, safety valve provision will be made for hydrogenation reaction safety.
* Before Hydrogen Gas charging in to reactor and after completion of reaction Nitrogen flushing will be done.
* Flame arrestor will be provided on vent line of reactor and it will be extended up to roof level.
* Open well ventilated and fragile roofs will be provided to on reactor.
* Safe Catalyst charging method will be adopted.
* SOP will be prepared and operators will be trained for the same.
* Static earthing and electric earthing (Double) provided.
* Reactor vent extended outside the process area and flame arrestor provided on vent line.
* Dumping vessel arrangement will be made.
* Jumpers for static earthing on pipeline flanges of flammable chemical will be provided.

**2. Nitration process*** Total enclosed process system.
* Instrument & Plant Air System.
* Safety valve and Rupture disc provided on reactor.
* Cooling and power alternative arrangement have been made on reactor.
* Emergency cooling alternative arrangement have been made on reactor.
* Nitric acid storage away from the auto clave reactor.
* Open well ventilated and fragile roofs will be provided to on reactor.
* Scrubbing system will be installed to scrub nitrous gases generated during reaction.
* SOP will be prepared and operators will be trained for the same.
* Employees will be trained to handle nitric acid and continuous training schedule will be made.
* Dumping vessel arrangement will be made.

**3. Chlorination process*** FLP type area will be provided.
* Total enclosed process system.
* Instrument & Plant Air System.
* Nitrogen blanketing in Chlorination reactor.
* Safety valve and Rupture disc provided on reactor.
* Cooling Chilling and power alternative arrangement have been made on reactor.
* Chlorine and Nitrogen Cylinder bank away from the auto clave reactor.
* PRV station with shut off valve, safety valve provision will be made for chlorination
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|  |  | reaction safety.* Flame arrestor will be provided on vent line of reactor and it will be extended up to roof level.
* Open well ventilated and fragile roofs will be provided to on reactor.
* Safe Catalyst charging method will be adopted.
* SOP will be prepared and operators will be trained for the same.

**4. Exothermic Reaction*** All the Plant Personnel will be provided with Personal Protection.
* Safety Valve and pressure gauge will be provided on reactor and its jacket (if jacket is provided).
* All solvents and flammable material storage tanks will be stored away from the process plant and required quantity of material will be charge in reactor by pump.
* Utility like Chilling, cooling, vacuum, steaming and its alternative will be provided to control exothermic reaction parameters in a safe manner.
* Equipments to protect against any adverse health effect during operations, leakage, spillages or splash. PPE like Helmets, Safety Shoes, Safety
* Glasses, Acid-Alkali Proof Gloves etc. will be provided to the employees.
* All employees will be given and updated in Safety aspects through periodic training in safety.
* Material Safety Data Sheets of Raw Materials & Products will be readily available that the shop floor
* Caution note, safety posters, stickers, periodic training & Updation in safety and emergency preparedness plan will be displayed and conducted.
* Flame proof light fittings will be installed in the plant.
 |  |
| * During the video conference meeting dated 15/06/2020, the project was appraised based on the information furnished in Form – 1, Pre-Feasibility Report & relevant documents.
* Project proponent along with technical expert remains present during Video conference meeting.
* During video conference meeting, Committee deliberated on Product profile and observed that all proposed products are basic organic chemicals instead of API intermediates. PP informed that they have mentioned each proposed products specific end- use as API. Committee disagrees with specific end use of proposed products as API. Committee informed PP that proposal is as B1 category and why as to consider proposed products in line with the amended EIA Notification dated 27/03/2020 regarding B2 Category in respect of Active Pharmaceutical Ingredients (API).
* **After detailed discussion, it was decided that proposed products are basic organic chemicals and not considered as B2 category and informed technical expert of PP to apply as B1 category as per EIA *Notification issued by MoEF&CC* for proposed products along with submission of EIA**

**report for proposed products.** |
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