

# **PRE-FEASIBILITY REPORT**

**FOR**

**Expansion of existing Membrane Cell based Caustic Soda (from 400 TPD to 1000 TPD), Chlorine Derivative Chemicals (from 350 TPD to 720 TPD) and installation of Membrane Cell based Caustic Potash Plant (100 TPD), Chloromethanes (150 TPD), Carbon tetrachloride (70 TPD), Chlorofluorocarbons (50 TPD) within the existing plant premises**

**At**

**Village: Balabhadrapuram, Mandal: Biccavolu &  
Village: G.Dontamuru (V), Mandal: Rangampeta,  
District: East Godavari (Andhra Pradesh)**

**APPLICANT**



**M/s. Grasim Industries Limited**

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**District - East Godavari, Andhra Pradesh - 533343, India**

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## PRE-FEASIBILITY REPORT

### 1.0 EXECUTIVE SUMMARY

M/s. Grasim Industries Limited (GIL) has proposed Expansion of existing Membrane Cell based Caustic Soda (from 400 TPD to 1000 TPD), Chlorine Derivative Chemicals (from 350 TPD to 720 TPD) and installation of Membrane Cell based Caustic Potash Plant (100 TPD), Chloromethanes (150 TPD), Carbon tetrachloride (70 TPD), Chlorofluorocarbons (50 TPD) within the existing plant premises at Village: Balabhadrapuram, Mandal: Biccavolu & at Village: G.Dontamuru (V), Mandal: Rangampeta, District: East Godavari (Andhra Pradesh).

- Environmental Clearance (EC) for Membrane Cell based Caustic Soda (400 TPD) and Membrane Cell Based Caustic Potash Plant (100 TPD) at Sy. No. 1-4, 7-8 & 11, Village Balabhadrapuram, Mandal Biccavolu, District East Godavari, Andhra Pradesh was granted vide F. No. J-11011/90/2011-IA II (I) dated 22.03.2013 in the name of M/s K. P. R. Industries (India) Ltd. (Formerly Known as M/s K.P.R. Chemicals Ltd.). Copy of same is enclosed as **Annexure 1A**. EC was further transferred in the name of M/s Grasim Industries Limited from M/s K.P.R Industries (India) Limited on 21.11.2019. Copy of same is enclosed as **Annexure 1B**. Extension of validity (up to 22.03.2023) of the EC letter was obtained vide letter dated 18.08.2020. Copy of same is enclosed as **Annexure 1C**.
- CFE was obtained for Phase 1 under sec. 25 of Water (P & C of P) Act, 197/45 and Under Sec. 21 of Air (P&C of P) Act. 1981 from APPCB vide order no. 359/PCB/CFE/RO-KKD/HO/2013/1238 on 24.05.2013. Copy of same is enclosed as **Annexure 2A**. Extension of Validity (up to 21.03.2020) of CFE was obtained vide Order no. 359/APPCB/CFE/RO-KKD/HO/2013 dated- 11.05.2018. Copy of same is enclosed as **Annexure 2B**. The CTE was further amended for Change of name vide Order no. 359/APPCB/CFE/RO-KKD/HO/2013 dated-21.01.2020. Copy of same is enclosed as **Annexure 2C**. Further 2<sup>nd</sup> Extension in Validity of CFE (upto 20.03.2022) was obtained vide Order no. 359/APPCB/CFE/RO-KKD/HO/2013 dated- 19.06.2020. Copy of same is enclosed as **Annexure 2D**.
- The facilities viz. Caustic Potash Lye (100%) (100 TPD), Caustic Potash Flakes (60 TPD), Calcium Hypochlorite (65% Cl<sub>2</sub>) (60 TPD), Poly Aluminum Chloride (90 TPD) & Hydrogen Peroxide (100%) (30 TPD) granted as per the previous EC letter, have not been installed till date. CFE has been obtained from APPCB vide order no. 359/APPCB /CFE/RO-KKD/HO/2013 dated 21.04.2022 (valid upto 21.04.2029), to establish these facilities for which the work is under progress. Copy of same is enclosed as **Annexure 2E**.
- Consent and Authorization has been obtained for the existing plant from SPCB vide Order No. APPCB/VSP/KKD/11022/136/HO/CFO/2021 on 19.11.2021. Copy of same is enclosed as **Annexure 3**.

GIL is now proposing "Expansion of existing Membrane Cell based Caustic Soda (from 400 TPD to 1000 TPD), Chlorine Derivative Chemicals (from 350 TPD to 720 TPD) and installation of Membrane Cell based Caustic Potash Plant (100 TPD), Chloromethanes (150 TPD), Carbon tetrachloride (70 TPD), Chlorofluorocarbons (50 TPD) within the existing plant premises at Village: Balabhadrapuram,

Expansion of existing Membrane Cell based Caustic Soda (from 400 TPD to 1000 TPD), Chlorine Derivative Chemicals (from 350 TPD to 720 TPD) and installation of Membrane Cell based Caustic Potash Plant (100 TPD), Chloromethanes (150 TPD), Carbon tetrachloride (70 TPD), Chlorofluorocarbons (50 TPD) within the existing plant premises

At Village: Balabhadrapuram, Mandal: Biccavolu, & at Village: G. Dontamuru (V), Mandal: Rangampeta, District: East Godavari (Andhra Pradesh).

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Mandal: Biccavolu & at Village: G.Dontamuru (V), Mandal Rangampeta, District: East Godavari (Andhra Pradesh)”. Detailed project proposal is given in **Table 1**

As per EIA Notification dated 14<sup>th</sup> Sept., 2006 and subsequent amendments, the project falls under Category “A”, Project or Activity 4(d) and 5(f).

Expansion of existing Membrane Cell based Caustic Soda (from 400 TPD to 1000 TPD), Chlorine Derivative Chemicals (from 350 TPD to 720 TPD) and installation of Membrane Cell based Caustic Potash Plant (100 TPD), Chloromethanes (150 TPD), Carbon tetrachloride (70 TPD), Chlorofluorocarbons (50 TPD) within the existing plant premises  
At Village: Balabhadrapuram, Mandal: Biccavolu, & at Village: G. Dontamuru (V), Mandal: Rangampeta, District: East Godavari (Andhra Pradesh).

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Table-1  
Project Proposal

| S. No.                    | Products                           | Production Capacity |        |           |        |               |            |                             |          | Remarks                         |
|---------------------------|------------------------------------|---------------------|--------|-----------|--------|---------------|------------|-----------------------------|----------|---------------------------------|
|                           |                                    | Existing (A)        |        |           |        | Additional(B) |            | Total after expansion (A+B) |          |                                 |
|                           |                                    | Granted as per EC   |        | Operating |        |               |            |                             |          |                                 |
|                           |                                    | TPD                 | TPA*   | TPD       | TPA*   | TPD           | TPA        | TPD                         | TPA      |                                 |
| A. Chlor Alkali Plant     |                                    |                     |        |           |        |               |            |                             |          |                                 |
| Product                   |                                    |                     |        |           |        |               |            |                             |          |                                 |
| 1.                        | Caustic Soda Lye (100%)            | 400                 | 132000 | 400       | 132000 | 600           | 198000     | 1000                        | 330000   | Increase in Production Capacity |
| 2.                        | Caustic Soda Flakes                | 120                 | 40000  | 120       | 40000  | 200           | 66666.6667 | 320                         | 106666.7 | Increase in Production Capacity |
| 3.                        | Caustic Potash Lye (100%)          | 100                 | 33000  | Nil       | Nil    | Nil           | Nil        | 100                         | 33000    | Under implementation            |
| 4.                        | Caustic Potash Flakes              | 60                  | 20000  | -         | -      | Nil           | Nil        | 60                          | 20000    | Under implementation            |
| By-Products               |                                    |                     |        |           |        |               |            |                             |          |                                 |
| 5.                        | Sodium Hypochlorite (LMT)          | 120                 | 40000  | 120       | 40000  | 300           | 100000     | 420                         | 140000   | Increase in Production Capacity |
| 6.                        | Sulphuric acid (78%)               | 15                  | 4950   | 15        | 4950   | 25            | 8250       | 40                          | 13200    | Increase in Production Capacity |
| 7.                        | Liquid Chlorine                    | 200                 | 66000  | 200       | 66000  | 300           | 99000      | 500                         | 165000   | Increase in Production Capacity |
| 8.                        | Hydrogen Gas (Bottling)            | 2                   | 660    | 2         | 660    | 4             | 1320       | 6                           | 1980     | Increase in Production Capacity |
| 9.                        | Hydrochloric Acid (33%) – CA Plant | 600                 | 200000 | 600       | 200000 | 600           | 200000     | 1200                        | 400000   | Increase in Production Capacity |
| B. Chlorine Derivative    |                                    |                     |        |           |        |               |            |                             |          |                                 |
| Water Treatment Chemicals |                                    |                     |        |           |        |               |            |                             |          |                                 |

Expansion of existing Membrane Cell based Caustic Soda (from 400 TPD to 1000 TPD), Chlorine Derivative Chemicals (from 350 TPD to 720 TPD) and installation of Membrane Cell based Caustic Potash Plant (100 TPD), Chloromethanes (150 TPD), Carbon tetrachloride (70 TPD), Chlorofluorocarbons (50 TPD) within the existing plant premises  
At Village: Balabhadrapuram, Mandal: Biccavolu, & at Village: G. Dontamuru (V), Mandal: Rangampeta, District: East Godavari (Andhra Pradesh).

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| S. No. | Products                            | Production Capacity |       |           |       |                |          |                             |          | Remarks                                                |
|--------|-------------------------------------|---------------------|-------|-----------|-------|----------------|----------|-----------------------------|----------|--------------------------------------------------------|
|        |                                     | Existing (A)        |       |           |       | Additional(B)  |          | Total after expansion (A+B) |          |                                                        |
|        |                                     | Granted as per EC   |       | Operating |       |                |          |                             |          |                                                        |
|        |                                     | TPD                 | TPA*  | TPD       | TPA*  | TPD            | TPA      | TPD                         | TPA      |                                                        |
| 10.    | Stable Bleaching Powder             | 50                  | 16500 | 50        | 16500 | 50             | 16500    | 100                         | 33000    | Increase in Production Capacity                        |
| 11.    | Poly Aluminum Chloride              | 90                  | 30000 | Nil       | Nil   | 160 TPD Liquid | 53333.33 | 250 TPD Liquid              | 83333.33 | Under implementation & Increase in Production Capacity |
|        |                                     |                     |       |           |       | 50 TPD Powder  | 16666.67 | 50 TPD Powder               | 16666.67 |                                                        |
| 12.    | Calcium Hypochlorite                | 30                  | 10000 | Nil       | Nil   | 30             | 10000    | 60                          | 20000    | Under implementation & Increase in Production Capacity |
| 13.    | Trichloro Iso Cyanuric Acid         | Nil                 | Nil   | Nil       | Nil   | 60             | 19800    | 60                          | 19800    | To be added                                            |
| 14.    | Sodium di Chloro isocynurate (SDIC) | Nil                 | Nil   | Nil       | Nil   | 30             | 9900     | 30                          | 9900     | To be added                                            |
| 15.    | Anhydrous Aluminum Chloride         | Nil                 | Nil   | 100       | 33000 | Nil            | Nil      | 100                         | 33000    | Operating as per CTO                                   |
| 16.    | Calcium Chloride                    | Nil                 | Nil   | Nil       | Nil   | 150            | 49500    | 150                         | 49500    | To be added                                            |
| Others |                                     |                     |       |           |       |                |          |                             |          |                                                        |
| 17.    | Chlorinated Paraffin Wax            | 30                  | 10000 | 30        | 10000 | 30             | 10000    | 60                          | 20000    | Increase in Production Capacity                        |
| 18.    | Mono-Chloro Acetic Acid             | 20                  | 6600  | 20        | 6600  | 40             | 13200    | 60                          | 19800    | Increase in Production Capacity                        |
| 19.    | Carboxy Methyl Cellulose (CMC)      | Nil                 | Nil   | Nil       | Nil   | 30             | 10000    | 30                          | 10000    | To be added                                            |
| 20.    | Chloro Acetyl Chloride              | Nil                 | Nil   | Nil       | Nil   | 30             | 10000    | 30                          | 10000    | To be added                                            |

Expansion of existing Membrane Cell based Caustic Soda (from 400 TPD to 1000 TPD), Chlorine Derivative Chemicals (from 350 TPD to 720 TPD) and installation of Membrane Cell based Caustic Potash Plant (100 TPD), Chloromethanes (150 TPD), Carbon tetrachloride (70 TPD), Chlorofluorocarbons (50 TPD) within the existing plant premises  
At Village: Balabhadrapuram, Mandal: Biccavolu, & at Village: G. Dontamuru (V), Mandal: Rangampeta, District: East Godavari (Andhra Pradesh).

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| S. No.                          | Products                             | Production Capacity |       |           |      |               |       |                             |       | Remarks              |
|---------------------------------|--------------------------------------|---------------------|-------|-----------|------|---------------|-------|-----------------------------|-------|----------------------|
|                                 |                                      | Existing (A)        |       |           |      | Additional(B) |       | Total after expansion (A+B) |       |                      |
|                                 |                                      | Granted as per EC   |       | Operating |      |               |       |                             |       |                      |
|                                 |                                      | TPD                 | TPA*  | TPD       | TPA* | TPD           | TPA   | TPD                         | TPA   |                      |
| 21.                             | Hydrogen Peroxide                    | 30                  | 10000 | Nil       | Nil  | 30            | 10000 | 30                          | 10000 | Under implementation |
| 22.                             | Acetyl Chloride                      | Nil                 | Nil   | Nil       | Nil  | 30            | 10000 | 30                          | 10000 | Not Installed        |
| 23.                             | Sodium Monochloro Acetate            | Nil                 | Nil   | Nil       | Nil  | 30            | 10000 | 30                          | 10000 | Not Installed        |
| C. Chloromethanes + Value Chain |                                      |                     |       |           |      |               |       |                             |       |                      |
| 24.                             | Methyl Chloride                      | Nil                 | Nil   | Nil       | Nil  | 150           | 49500 | 150                         | 49500 | To be added          |
| 25.                             | Methylene chloride                   | Nil                 | Nil   | Nil       | Nil  |               |       |                             |       |                      |
| 26.                             | Chloroform                           | Nil                 | Nil   | Nil       | Nil  |               |       |                             |       |                      |
| 27.                             | Carbon tetrachloride                 | Nil                 | Nil   | Nil       | Nil  |               |       |                             |       |                      |
| 28.                             | Carbon tetrachloride from Chloroform | Nil                 | Nil   | Nil       | Nil  | 70            | 23100 | 70                          | 23100 | To be added          |
| D. CHLOROFLUOROCARBON           |                                      |                     |       |           |      |               |       |                             |       |                      |
| Products                        |                                      |                     |       |           |      |               |       |                             |       |                      |
| 29.                             | PTFE                                 | Nil                 | Nil   | Nil       | Nil  | 30            | 10000 | 30                          | 10000 | To be added          |
| 30.                             | Chloro di fluoromethane (R22)        | Nil                 | Nil   | Nil       | Nil  | 20            | 6600  | 20                          | 6600  | To be added          |
| By-Products                     |                                      |                     |       |           |      |               |       |                             |       |                      |
| 31.                             | Hydrochloric Acid (as 33%)           | Nil                 | Nil   | Nil       | Nil  | 80            | 26400 | 80                          | 26400 | To be added          |
| 32.                             | Sulphuric Acid (78%)                 | Nil                 | Nil   | Nil       | Nil  | 60            | 19800 | 60                          | 19800 | To be added          |

Note:

\* TPA- Quantity has been calculated based on 330 working days/year except S.No. 5 HCl (As 33%) -CA Plant based on 333 working days/year.

Expansion of existing Membrane Cell based Caustic Soda (from 400 TPD to 1000 TPD), Chlorine Derivative Chemicals (from 350 TPD to 720 TPD) and installation of Membrane Cell based Caustic Potash Plant (100 TPD), Chloromethanes (150 TPD), Carbon tetrachloride (70 TPD), Chlorofluorocarbons (50 TPD) within the existing plant premises  
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**Table - 2**  
**Salient features of the project**

| S. No. | Particulars           | Details                   |                                   |                     |           |                |                |                                                        |
|--------|-----------------------|---------------------------|-----------------------------------|---------------------|-----------|----------------|----------------|--------------------------------------------------------|
| A.     | Nature of the Project | Expansion Project         |                                   |                     |           |                |                |                                                        |
| B.     | Size of the project   | S. No.                    | Products                          | Production Capacity |           |                | Remarks        |                                                        |
|        |                       |                           |                                   | Existing (A)        |           | Additional (B) |                | Total after expansion (A+B)                            |
|        |                       |                           |                                   | Granted as per EC   | Operating |                |                |                                                        |
|        |                       |                           |                                   | TPD                 | TPD       | TPD            |                | TPD                                                    |
|        |                       | E. Chlor Alkali Plant     |                                   |                     |           |                |                |                                                        |
|        |                       | Product                   |                                   |                     |           |                |                |                                                        |
|        |                       | 1.                        | Caustic Soda Lye (100%)           | 400                 | 400       | 600            | 1000           | Increase in Production Capacity                        |
|        |                       | 2.                        | Caustic Soda Flakes               | 120                 | 120       | 200            | 320            | Increase in Production Capacity                        |
|        |                       | 3.                        | Caustic Potash Lye (100%)         | 100                 | Nil       | Nil            | 100            | Under implementation                                   |
|        |                       | 4.                        | Caustic Potash Flakes             | 60                  | -         | Nil            | 60             | Under implementation                                   |
|        |                       | By-Products               |                                   |                     |           |                |                |                                                        |
|        |                       | 5.                        | Sodium Hypochlorite (LMT)         | 120                 | 120       | 300            | 420            | Increase in Production Capacity                        |
|        |                       | 6.                        | Sulphuric acid (78%)              | 15                  | 15        | 25             | 40             | Increase in Production Capacity                        |
|        |                       | 7.                        | Liquid Chlorine                   | 200                 | 200       | 300            | 500            | Increase in Production Capacity                        |
|        |                       | 8.                        | Hydrogen Gas (Bottling)           | 2                   | 2         | 4              | 6              | Increase in Production Capacity                        |
|        |                       | 9.                        | Hydrochloric Acid (33%) –CA Plant | 600                 | 600       | 600            | 1200           | Increase in Production Capacity                        |
|        |                       | F. Chlorine Derivative    |                                   |                     |           |                |                |                                                        |
|        |                       | Water Treatment Chemicals |                                   |                     |           |                |                |                                                        |
|        |                       | 10.                       | Stable Bleaching Powder           | 50                  | 50        | 50             | 100            | Increase in Production Capacity                        |
|        |                       | 11.                       | Poly Aluminum Chloride            | 90                  | Nil       | 160 TPD Liquid | 250 TPD Liquid | Under implementation & Increase in Production Capacity |
|        |                       |                           |                                   |                     |           | 50 TPD Powder  | 50 TPD Powder  |                                                        |
|        |                       | 12.                       | Calcium Hypochlorite              | 30                  | Nil       | 30             | 60             | Under implementation & Increase in Production Capacity |

Expansion of existing Membrane Cell based Caustic Soda (from 400 TPD to 1000 TPD), Chlorine Derivative Chemicals (from 350 TPD to 720 TPD) and installation of Membrane Cell based Caustic Potash Plant (100 TPD), Chloromethanes (150 TPD), Carbon tetrachloride (70 TPD), Chlorofluorocarbons (50 TPD) within the existing plant premises

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|    |                 |                                                                                |                                      |     |     |     |     |                                 |  |  |
|----|-----------------|--------------------------------------------------------------------------------|--------------------------------------|-----|-----|-----|-----|---------------------------------|--|--|
| A. | Category of the | 13.                                                                            | Trichloro Iso Cyanuric Acid          | Nil | Nil | 60  | 60  | To be added                     |  |  |
|    |                 | 14.                                                                            | Sodium di Chloro isocynurate (SDIC)  | Nil | Nil | 30  | 30  | To be added                     |  |  |
|    |                 | 15.                                                                            | Anhydrous Aluminum Chloride          | Nil | 100 | Nil | 100 | Operating as per CTO            |  |  |
|    |                 | 16.                                                                            | Calcium Chloride                     | Nil | Nil | 150 | 150 | To be added                     |  |  |
|    |                 | Others                                                                         |                                      |     |     |     |     |                                 |  |  |
|    |                 | 17.                                                                            | Chlorinated Paraffin Wax             | 30  | 30  | 30  | 60  | Increase in Production Capacity |  |  |
|    |                 | 18.                                                                            | Mono-Chloro Acetic Acid              | 20  | 20  | 40  | 60  | Increase in Production Capacity |  |  |
|    |                 | 19.                                                                            | Carboxy Methyl Cellulose (CMC)       | Nil | Nil | 30  | 30  | To be added                     |  |  |
|    |                 | 20.                                                                            | Chloro Acetyl Chloride               | Nil | Nil | 30  | 30  | To be added                     |  |  |
|    |                 | 21.                                                                            | Hydrogen Peroxide                    | 30  | Nil | 30  | 30  | Under implementation            |  |  |
|    |                 | 22.                                                                            | Acetyl Chloride                      | Nil | Nil | 30  | 30  | Not Installed                   |  |  |
|    |                 | 23.                                                                            | Sodium Monochloro Acetate            | Nil | Nil | 30  | 30  | Not Installed                   |  |  |
|    |                 | G. Chloromethanes + Value Chain                                                |                                      |     |     |     |     |                                 |  |  |
|    |                 | 24.                                                                            | Methyl Chloride                      | Nil | Nil | 150 | 150 | To be added                     |  |  |
|    |                 | 25.                                                                            | Methylene chloride                   | Nil | Nil |     |     |                                 |  |  |
|    |                 | 26.                                                                            | Chloroform                           | Nil | Nil |     |     |                                 |  |  |
|    |                 | 27.                                                                            | Carbon tetrachloride                 | Nil | Nil |     |     |                                 |  |  |
|    |                 | 28.                                                                            | Carbon tetrachloride from Chloroform | Nil | Nil | 70  | 70  | To be added                     |  |  |
|    |                 | H. CHLOROFLUOROCARBON                                                          |                                      |     |     |     |     |                                 |  |  |
|    |                 | Products                                                                       |                                      |     |     |     |     |                                 |  |  |
|    |                 | 29.                                                                            | PTFE                                 | Nil | Nil | 30  | 30  | To be added                     |  |  |
|    |                 | 30.                                                                            | Chloro di fluoromethane (R22)        | Nil | Nil | 20  | 20  | To be added                     |  |  |
|    |                 | By-Products                                                                    |                                      |     |     |     |     |                                 |  |  |
|    |                 | 31.                                                                            | Hydrochloric Acid (as 33%)           | Nil | Nil | 80  | 80  | To be added                     |  |  |
|    |                 | 32.                                                                            | Sulphuric Acid (78%)                 | Nil | Nil | 60  | 60  | To be added                     |  |  |
|    |                 | As per EIA Notification dated 14.09.2006 and as amended from time to time, the |                                      |     |     |     |     |                                 |  |  |

Expansion of existing Membrane Cell based Caustic Soda (from 400 TPD to 1000 TPD), Chlorine Derivative Chemicals (from 350 TPD to 720 TPD) and installation of Membrane Cell based Caustic Potash Plant (100 TPD), Chloromethanes (150 TPD), Carbon tetrachloride (70 TPD), Chlorofluorocarbons (50 TPD) within the existing plant premises

At Village: Balabhadrapuram, Mandal: Biccavolu, & at Village: G. Dontamuru (V), Mandal: Rangampeta, District: East Godavari (Andhra Pradesh).

Pre-Feasibility Report

|           |                                                                                                                                                   |                                                                                                                                                                                                                                                        |
|-----------|---------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|           | Project                                                                                                                                           | project falls in Category 'A', Project activity S. No. – 4(d) [Chlor alkali industry] & 5(f) [Synthetic organic chemicals industry]                                                                                                                    |
| <b>B.</b> | <b>Location Details</b>                                                                                                                           |                                                                                                                                                                                                                                                        |
|           | Plot No./Khasra No.                                                                                                                               | Sy. No. 1,2,3/3,3/2,4/2,4/3,4/4,7/3A,7/1,7/3B,8/1A,8/1C, 7,8,11, 3/1B, 4/2 & 5/14, Village Balabhadrapuram, Mandal Biccavolu & at Sy. No. 178/2,176/1,178/1 & 179/2 Village G.Dontamuru (V), Mandal Ragampeta, District East Godavari (Andhra Pradesh) |
|           | Village                                                                                                                                           | Balabhadrapuram & G. Dontamuru                                                                                                                                                                                                                         |
|           | Mandal                                                                                                                                            | Biccavolu & Rangampeta                                                                                                                                                                                                                                 |
|           | District                                                                                                                                          | East Godavari                                                                                                                                                                                                                                          |
|           | State                                                                                                                                             | Andhra Pradesh                                                                                                                                                                                                                                         |
|           | Latitude                                                                                                                                          | 16°59'19.04 N to 17°00'16.09                                                                                                                                                                                                                           |
|           | Longitude                                                                                                                                         | 82° 00'25.20" E to 82°00'16.60" E                                                                                                                                                                                                                      |
|           | Toposheet No.                                                                                                                                     | E44P16, E44Q4, E44V13, E44W1                                                                                                                                                                                                                           |
|           | Location Map has been shown in Figure – 1                                                                                                         |                                                                                                                                                                                                                                                        |
| <b>C.</b> | <b>Area Details</b>                                                                                                                               |                                                                                                                                                                                                                                                        |
|           | Total Plot Area                                                                                                                                   | Existing as per EC: 178.35 Acres (72.18 Ha)<br>Proposed: 68.1 Acres (27.56 Ha)<br>Total: 246.45 Acres (99.74 Ha)                                                                                                                                       |
|           | Greenbelt / Plantation Area (ha)                                                                                                                  | Out of the total plant area 246.45 acres, 68 acres (27.59%) area has been developed under greenbelt. The same will be ramped up to 82 acres (33.84%) and the plantation density will be maintained @2500/ha via gap plantation.                        |
| <b>D.</b> | <b>Environmental Setting Details (with approximate aerial distance and direction from the plant site)</b>                                         |                                                                                                                                                                                                                                                        |
| 1.        | Nearest Town/City                                                                                                                                 | Biccavolu (~5.5 km in SE direction)<br>Balabhadrapuram (~2.5 km in SSW direction)                                                                                                                                                                      |
| 2.        | Nearest Railway Station                                                                                                                           | <ul style="list-style-type: none"> <li>Balabhadrapuram RS (~2.5 km in South)</li> <li>Biccavolu RS (~3.5 km in SE)</li> <li>Anaparti RS (~8.0 km in SW)</li> <li>Peddu Brahmadevam RS (~8.0 km in ESE)</li> </ul>                                      |
| 3.        | National Highway                                                                                                                                  | <ul style="list-style-type: none"> <li>SH 174 (~1.5 km in NE)</li> <li>SH-17 (~3.0 km in SSE)</li> <li>SH-40 (~4.5 km in SE)</li> </ul>                                                                                                                |
| 4.        | Nearest Airport                                                                                                                                   | Rajahmundry Airport (~23 km in NW Direction)                                                                                                                                                                                                           |
| 5.        | National Park, Wildlife Sanctuary, Biosphere Reserve, Tiger Reserve, Wildlife Corridors, Reserved / Protected Forest (PF)etc. within 10 km radius | There are no ecologically sensitive areas such as National Park, Wildlife Sanctuary, Biosphere Reserve, Tiger Reserve or other protected areas viz. Wildlife Corridors, Reserved / Protected Forest (PF) within a radius of 10 Km from the plant site. |
| 6.        | Water Body within 10 km                                                                                                                           | <ul style="list-style-type: none"> <li>Vedulla Cheruvu (~2.0 km in SW)</li> <li>Lingala Cheruvu (~3.0 km in ESE)</li> </ul>                                                                                                                            |

|    |                                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                   |                                |
|----|--------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------|--------------------------------|
|    | radius                                     | <ul style="list-style-type: none"><li>• Gajalugothi Kaluva (Canal) (~3.0 km in ENE)</li><li>• Samalkot Canal (~3.5 km in SE)</li><li>• Nakkala Channel (~5.5 km in SE)</li><li>• Ulapalli Drain (~6.0 km in SSE)</li><li>• Kalinada Canal (~7.0 km in South)</li><li>• Tossipudi South Side Channel (~ 7.5 km in SSE)</li><li>• Pandalapakobodi Channel (~ 7.5 km in SSW)</li><li>• Tullabhaga Drain (~ 8.0 km in S)</li><li>• Palatodu Branch Channel (~8.5 km in SSW)</li></ul> <p>Apart from the above various small seasonal nallahs and network of minor canals are present in the buffer zone of the plant site.</p> |                                   |                                |
| 7. | Seismic Zone                               | The project falls in Seismic Zone III.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                   |                                |
| E. | Basic Requirements for the project         | Existing                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Additional for proposed expansion | Total after proposed expansion |
|    | Water Requirement (KLD)                    | 2995                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 10020                             | 13015                          |
|    |                                            | Source: Godavari River (17145 KLD) and Ground water (5575 KLD)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |                                   |                                |
|    | Power Requirement (MW)                     | 55.84                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | 99.66                             | 159.50                         |
|    |                                            | Source: Andhra Pradesh Electricity Board, ABG Group Captive renewable solar power and IEX Power.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |                                   |                                |
|    | Manpower Requirement                       | 600                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 1400                              | 2000                           |
|    |                                            | Source: Local as well as outsiders                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                   |                                |
| F. | Cost Details                               |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                   |                                |
|    | Total Cost for the Project                 | Rs. 2450 Crores /-                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |                                   |                                |
|    | Cost for Environmental Protection Measures | Capital Cost: Rs. 200 Crores/-<br>Recurring Cost: Rs. 100 Crore /annum                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                   |                                |

## 2.0 ENVIRONMENT MANAGEMENT PLAN

| S.No. | Particular             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.    | Air Quality Management | <ul style="list-style-type: none"> <li>The stack emissions generated from production process are being kept within the prescribed limits viz. HCl from HCl Plant 1, 2, 3, 4, Waste Chlorine absorption system and Sodium Hypo Plant as &lt;35 mg/Nm<sup>3</sup>; Cl<sub>2</sub> from HCl Plant 1, 2, 3, 4, Waste Chlorine absorption system and Sodium Hypo Plant as 15 mg/Nm<sup>3</sup>.</li> <li>PM emissions from the Husk/ Coal fired boiler and the DG Sets are being kept within 50mg/Nm<sup>3</sup> and 115 mg/Nm<sup>3</sup>, respectively.</li> <li>Alkali Scrubbers have been provided in the Caustic Soda Plant and Chlorine derivated products units to control HCl and Cl<sub>2</sub> emissions.</li> <li>Bag Filters, Electrostatic precipitator and wet scrubbers are being used to control of SPM and control of fugitive emissions.</li> </ul> |

| S.No. | Particular             | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|-------|------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|       |                        | <ul style="list-style-type: none"> <li>Dual mechanical seals on pumps, closed vent systems, closed loop sampling, etc is being and will be installed to control the VOC emissions.</li> <li>Activated Carbon Adsorption System will be provided to control the emission of HC from Hydrogen peroxide plant.</li> <li>Chlorine bearing waste gases from various sections of the plant is being/will be treated in the water scrubber. The gases will be scrubbed with NaOH (18%) and the unabsorbed gases will be vent into atmosphere. The Cl<sub>2</sub> content in the gas leaving the scrubber will be maximum of 15 mg/Nm<sup>3</sup>.</li> <li>An on-line Chlorine analyzer will be installed in the Chlorine section with a minimum reading of 1 ppm and will be connected to the DCS control room. An alarm with indication will also be provided at the field level.</li> <li>The unabsorbed HCl gases is being/will be scrubbed with water in a packed column. The dilute acid from the scrubber will be monitored and in the event of a low flow, the unit will be shut down safely. The HCl content in the gas leaving the scrubber is being/will be maximum of 35 mg/Nm<sup>3</sup>.</li> <li>The emissions from the Boilers are being/will be passed through Bag filters and then discharged into the atmosphere through a chimney.</li> </ul> |
| 2.    | Waste Water Management | <ul style="list-style-type: none"> <li>The existing water requirement of the plant is 2995 KLD including 2635 KLD of Fresh water from Godavari River as well as Ground water and 360 KLD is recycled water.</li> <li>After the proposed expansion, 13015 KLD water will be required for the project including 10955 KLD of fresh water from Godavari River as well as Ground water and 2060 KLD recycled water.</li> <li>The existing industrial effluent generation from the plant is 420 KLD, which is being treated in ETP, ultra-filtration and MEE followed by ATFD.</li> <li>After the proposed expansion the effluent generation from the plant will be 2591 KLD (Including 1251 KLD from Process, 1340 KLD Blowdown from Boiler &amp; Cooling tower makeup due to vapor losses. The same will be treated in ETP, ultra-filtration and MEE followed by ATFD.</li> <li>Domestic/ Sanitary waste water (30 KLD), which is being treated in STP (100 KLD) and treated water is being used for greenbelt development within the premises. After the proposed expansion, 110 KLD of domestic/ Sanitary waste water will be generated, which will be treated in STP (existing 100 KLD &amp; proposed 50 KLD) and treated water will be used for greenbelt development within the premises.</li> </ul>                                                      |

| S.No. | Particular                         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-------|------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|       |                                    | <ul style="list-style-type: none"> <li>No wastewater is being discharged outside the plant premises. Zero Discharge is being maintained through recycling of treated waste water back into the process. The same practice will continue for the proposed expansion project. Therefore, The plant will remain Zero Liquid Discharge Unit after the proposed expansion.</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| 3.    | Noise Management                   | <ul style="list-style-type: none"> <li>Major sources of noise generation in the existing plant are operational plant machinery, compressors, DG Sets, movement of transportation vehicles, material handling etc.</li> <li>Properly insulated enclosures have been provided to equipment generating excessive noise viz. DG Sets, turbines etc.</li> <li>Isolation of continuously vibrating structures/machines by proper and secured mounting.</li> <li>Proper maintenance, oiling and greasing of machines at regular intervals is being done to reduce noise.</li> <li>The employees working near the noise generating sources are being provided with earplugs.</li> <li>Noise absorbing materials are being used in the construction of roofs, walls and floors.</li> <li>The extensive greenbelt development proposed within the plant premises helps in attenuating the noise levels further.</li> <li>Regular monitoring of noise levels at various areas inside plant is carried out.</li> <li>The same practice will continue for the proposed expansion project.</li> </ul> |
| 4.    | Solid & Hazardous Waste Management | <p><b>Solid Waste:</b></p> <ul style="list-style-type: none"> <li>Hazardous waste generated from the existing plant are Brine Sludge (10 TPD), ATFD Salts (7 TPD), Waste/Residues containing oil (1 TPD), Waste/Residues from waste treatment system (12 TPD), sludge from wet scrubbers (6 TPA) routed through M/s APEMC so as to send to TSDF.</li> <li>Used/Spent oil (60 TPA) routed through M/s APEMC so as to send to APPCB authorized agencies for Re-Processing/ Recycling (Recyclable waste)</li> <li>Discarded containers barrels liners contaminated with hazardous wastes/chemicals (10 TPA) after detoxification are routed through M/s. APEMC so as to sent to authorized agencies/sent to TSDF.</li> <li>The Solid Waste generated from the existing plant are E Waste (0.5 TPA) sent to authorized refurbisher/Recyclers, Scrap (5 TPA) sent to waste recycler, Used Lead Acid Batteries (1 TPA) returned to dealer/manufacture on buy back system, Sludge from STP (6.3 kg/day) used as manure.</li> </ul>                                                             |

| S.No. | Particular                         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-------|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|       |                                    | <ul style="list-style-type: none"> <li>Plastic waste (Existing: 50 MTPA, Additional :75 MTPA), Battery Waste (Existing: 100 MTPA, Additional :200 MTPA), E Waste (Existing: 0.5 TPA, Additional :2TPA), Metal Waste (Existing: 50 MTPA, Additional :75 MTPA) and Other Solid Waste (Existing: 10 MTPA, Additional :18 MTPA) is being/will be sold to Authorized Recyclers.</li> <li>Same practice will be continued in future.</li> </ul> <p>Brine sludge is being/ will be generated from Caustic soda plant which is being/ will be disposed through TSDF.</p> <p>Apart from this, small quantity of used oil from rotating equipment's, exhausted resin, exhausted carbon generated on replacement/ cleaning activities is being sold to authorized recyclers.</p> <p>Above wastes are being/will be disposed in a secured land fill facility as per MoEF/CPCB Norms.</p> <p>The Sludge additionally generated will be sent to TSDF.</p> <p><b>Ash</b></p> <p>The ash generated from the boiler is being/will be sold to nearby brick manufacturer.</p> |
| 5.    | Greenbelt Development & Plantation | Out of the total plant area 246.45 acres, 68 acres (27.59%) area has been developed under greenbelt. The same will be ramped up to 82 acres (33.84%) and the plantation density will be maintained @2500/ha via gap plantation.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |

Additionally, the company will ensure compliance of conditions stipulated in the Environment Clearance letter.

### 3.0 INTRODUCTION OF THE PROJECT/ BACKGROUND INFORMATION

#### (i) Identification of Project Proponent

Grasim Industries Limited, a flagship company of the global conglomerate Aditya Birla Group, ranks amongst the top publicly listed companies in India. Incorporated in 1947, it started as a textiles manufacturer in India. Today, it has evolved into a leading diversified player with leadership presence across many sectors. It is a leading global producer of Viscose Staple Fiber, the largest Chlor-Alkali, Linen and Insulators player in India. Through its subsidiaries, UltraTech Cement and Aditya Birla Capital, it is also India's largest cement producer and a leading diversified financial services player. Grasim has also announced foray in decorative Paints business. At Grasim, there is an endeavor to create sustainable value for 24,000+ employees, 230,000+ shareholders, society and customers. The company reported consolidated net revenue of over INR 76,398 Cr, and EBITDA of INR 15,766 Cr. in FY 2021.

The company uses cost-effective membrane cell technology and is 100 per cent self-sufficient in power. For gainful utilization of chlorine, the unit has expanded its operations with the production of Stable Bleaching Powder (SBP) used in water purification, sanitation and as a bleaching agent; Poly Aluminium Chloride (PAC) used in water treatment, paper sizing and effluent treatment; and Chloro

Sulphonic Acid, used in vinyl sulphate, the raw material for dyes and intermediates, saccharin, drugs and pharmaceuticals: Chlorinated paraffin used as Plasticizers, compounding in PVC resins etc.

**(ii) Brief description of nature of the project**

M/s. Grasim Industries Limited, Balabhadrapuram has proposed Expansion of existing Membrane Cell based Caustic Soda (from 400 TPD to 1000 TPD), Chlorine Derivative Chemicals (from 350 TPD to 720 TPD) and installation of Membrane Cell based Caustic Potash Plant (100 TPD), Chloromethanes (150 TPD), Carbon tetrachloride (70 TPD), Chlorofluorocarbons (50 TPD) within the existing plant premises at Village: Balabhadrapuram, Mandal: Biccavolu & at Village: G.Dontamuru (V), Mandal Rangampeta, District: East Godavari (Andhra Pradesh).

As per EIA Notification dated 14.09.2006 and as amended from time to time, the project falls in Category 'A', Project activity S. No. – 4(d) [Chlor alkali industry] & 5(f) [Synthetic organic chemicals industry]

Detailed project proposal is given in Table -1

**(iii) Need for the Project and its Importance to the Country and or Region.**

Caustic soda is an essential ingredient for the VSF production. The new generation chemical plant in India now employs the latest technology for better efficiency, energy conservation and economics of large capacity production. The improved market conditions witnessed recently, after a grip of recession over a long period, are expected to continue due to high priority being given by the Government to fibre, textiles and chemical and also in view of the massive investment proposed in industry and rural sectors. Therefore, there is an urgent need to increase the production capacity in the country in spite of severe resource constraints.

The products proposed have a great demand both global and domestic. The demand is envisaged to increase rapidly in the domestic market.

Hence, the proposal of expansion of Caustic Soda & Caustic Potash Plant by M/s. Grasim Industries Limited will cater the increased demand of chemicals in the country and region.

**(iv) Demand – Supply gap**

Demand - Supply projection for Caustic chemicals on National and State basis reveals that there exists an imbalance between availability and demand of Caustic chemicals in India. Caustic soda is currently experiencing significant price hikes due to the high demand to supply ratio, which could further lead to an enhanced revenue growth of major companies. M/s. Grasim Industries Limited has proposed Expansion of existing Membrane Cell based Caustic Soda (from 400 TPD to 1000 TPD), Chlorine Derivative Chemicals (from 350 TPD to 720 TPD) and installation of Membrane Cell based Caustic Potash Plant (100 TPD), Chloromethanes (150 TPD), Carbon tetrachloride (70 TPD), Chlorofluorocarbons (50 TPD) within the existing plant premises at Village: Balabhadrapuram, Mandal: Biccavolu & at Village: G.Dontamuru (V), Mandal Rangampeta, District: East Godavari (Andhra Pradesh).

**(v) Imports vs. Indigenous Production**

The proposed expansion will utilize indigenous raw materials majorly include: Salt, Barium carbonate,

Sodium Carbonate, Soda ash, Alpha Cellulose, Magna Floc, Sulphuric acid, Potassium Chloride, Hydrochloric acid, Chlorine, Paraffin, Alumina hydrate, Calcium Hydroxide, Aluminum, Normal Paraffin/Heavy normal paraffin, Acetic Acid, Cyanuric Acid and hydrated lime 90%, etc. for the proposed installation.

**(vi) Export Possibility**

Depending upon the demand, products may be exported.

**(vii) Domestic / Export Markets**

Domestic markets include Andhra Pradesh, Telangana, Karnataka, Tamil Nadu, Kerala, Gujarat, Odisha, Chattisgarh, Rajasthan, Madhya Pradesh, Maharashtra and West Bengal region of the country.

**(viii) Employment Generation (Direct and Indirect) due to the project**

At present ~600 Persons are employed (~200 Permanent + ~400 contractual). After the proposed expansion manpower will be increased to ~1400 Persons (~300 Permanent + ~1100 contractual). All the manpower will be sourced from Local talent pool as well as outsiders.

**Table 3**  
**Manpower Requirement**

| S.No.        | Particulars | Existing   | Proposed    | Total after expansion |
|--------------|-------------|------------|-------------|-----------------------|
| 1.           | Permanent   | 200        | 300         | 500                   |
| 2.           | Contractual | 400        | 1100        | 1500                  |
| <b>Total</b> |             | <b>600</b> | <b>1400</b> | <b>2000</b>           |

**4.0 PROJECT DESCRIPTION**

**i. Type of Project including interlinked and independent projects if any**

There is no interlinked or interdependent project.

**ii. Location Map showing general location, specific location, project boundary and project site layout with coordinates**

Location map is given in Figure - 1.

Expansion of existing Membrane Cell based Caustic Soda (from 400 TPD to 1000 TPD), Chlorine Derivative Chemicals (from 350 TPD to 720 TPD) and installation of Membrane Cell based Caustic Potash Plant (100 TPD), Chloromethanes (150 TPD), Carbon tetrachloride (70 TPD), Chlorofluorocarbons (50 TPD) within the existing plant premises

At Village: Balabhadrapuram, Mandal: Biccavolu, & at Village: G. Dontamuru (V), Mandal: Rangampeta, District: East Godavari (Andhra Pradesh).

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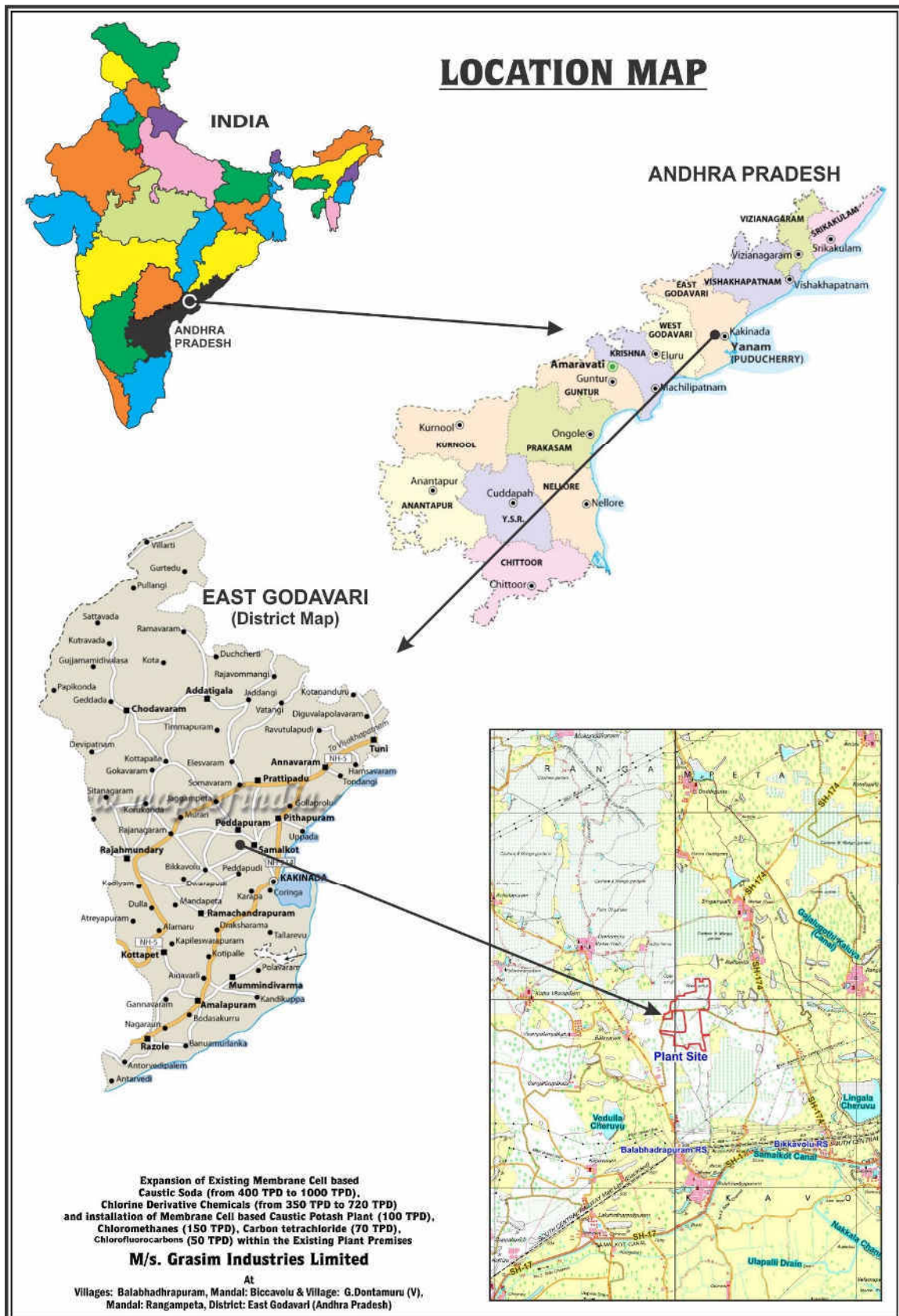


Figure 1: Location Map

Expansion of existing Membrane Cell based Caustic Soda (from 400 TPD to 1000 TPD), Chlorine Derivative Chemicals (from 350 TPD to 720 TPD) and installation of Membrane Cell based Caustic Potash Plant (100 TPD), Chloromethanes (150 TPD), Carbon tetrachloride (70 TPD), Chlorofluorocarbons (50 TPD) within the existing plant premises  
At Village: Balabhadrapuram, Mandal: Biccavolu, & at Village: G. Dantamuru (V), Mandal: Rangampeta, District: East Godavari (Andhra Pradesh).

Pre-Feasibility Report

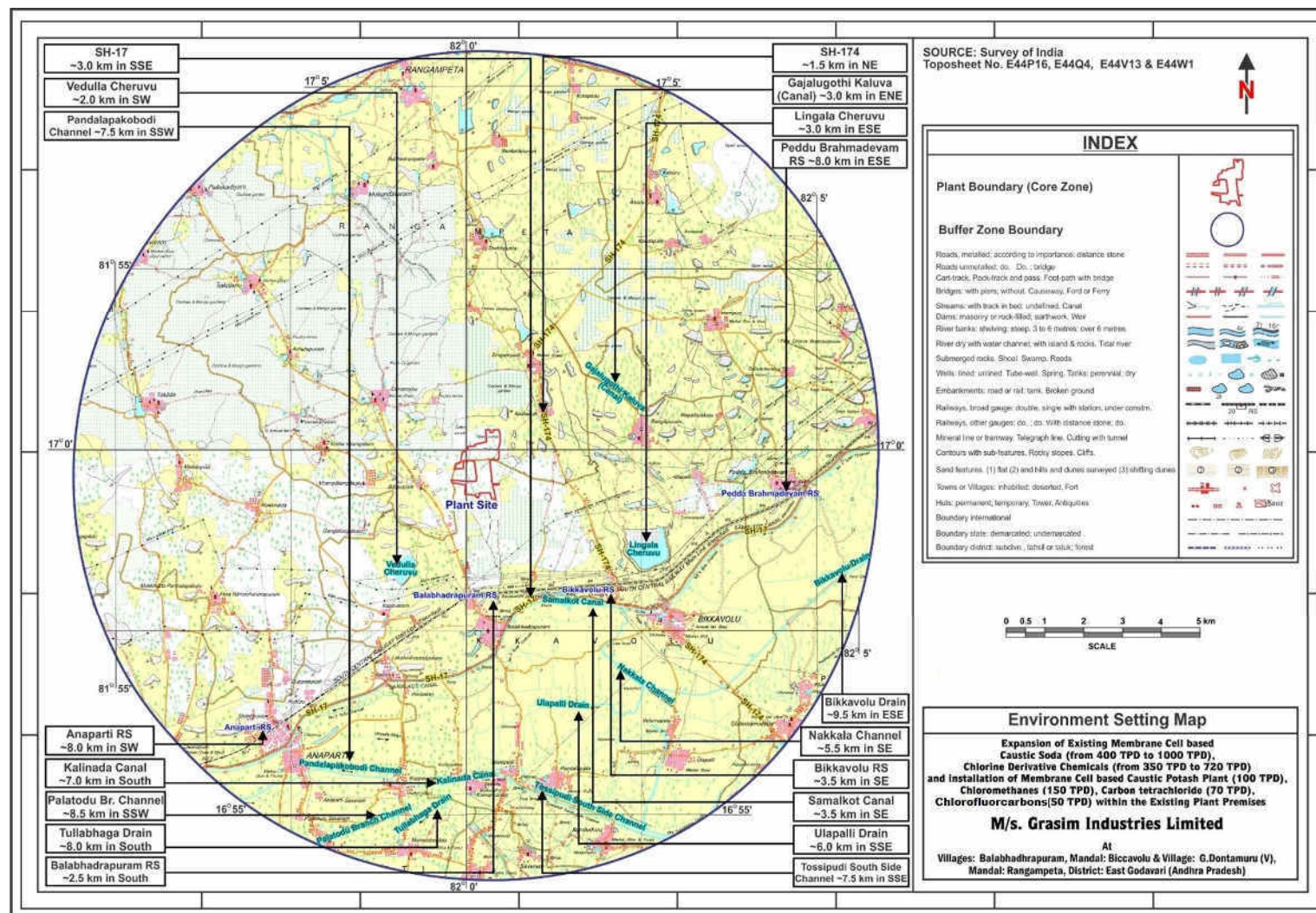


Figure 2: Environmental Setting Map

Expansion of existing Membrane Cell based Caustic Soda (from 400 TPD to 1000 TPD), Chlorine Derivative Chemicals (from 350 TPD to 720 TPD) and installation of Membrane Cell based Caustic Potash Plant (100 TPD), Chloromethanes (150 TPD), Carbon tetrachloride (70 TPD), Chlorofluorocarbons (50 TPD) within the existing plant premises  
At Village: Balabhadrapuram, Mandal: Biccavolu, & at Village: G. Dontamuru (V), Mandal: Rangampeta, District: East Godavari (Andhra Pradesh).

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Figure 3: PLANT LAYOUT

Expansion of existing Membrane Cell based Caustic Soda (from 400 TPD to 1000 TPD), Chlorine Derivative Chemicals (from 350 TPD to 720 TPD) and installation of Membrane Cell based Caustic Potash Plant (100 TPD), Chloromethanes (150 TPD), Carbon tetrachloride (70 TPD), Chlorofluorocarbons (50 TPD) within the existing plant premises

At Village: Balabhadhrapuram, Mandal: Biccavolu, & at Village: G. Dontamuru (V), Mandal: Rangampeta, District: East Godavari (Andhra Pradesh).

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#### Site photographs:

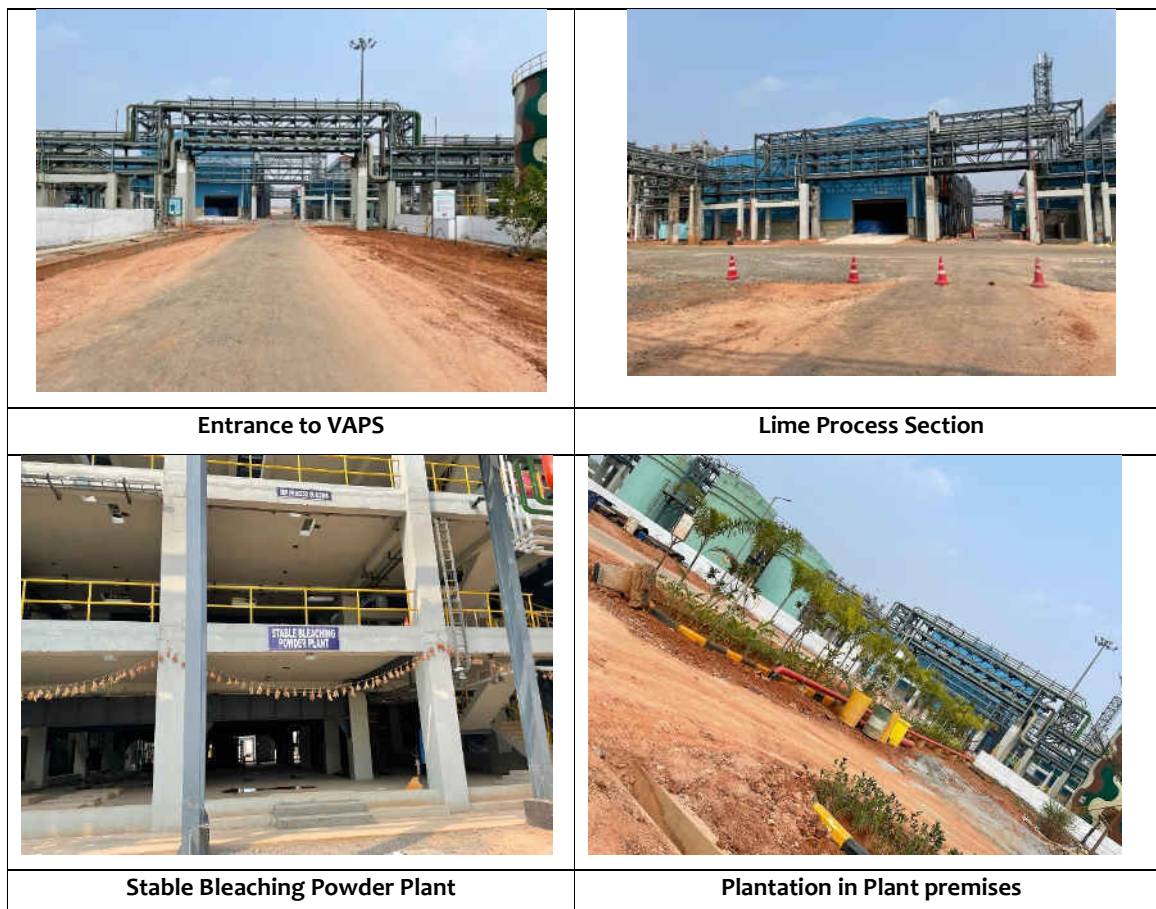


Figure 4: Plant Photographs

- iii. Details of alternative sites consideration and basis of selecting the proposed site, particularly the environmental considerations gone into should be highlighted.

Proposed Expansion will be carried out within the existing premises of 178.35 Acres, as well as 68.1 Acres of land adjacent to the existing Plant and already in possession of the company. Therefore, no alternative site has been taken into consideration.

- iv. Size or magnitude of operation

M/s. Grasim Industries Limited has proposed Expansion of existing Membrane Cell based Caustic Soda (from 400 TPD to 1000 TPD), Chlorine Derivative Chemicals (from 350 TPD to 720 TPD) and installation of Membrane Cell based Caustic Potash Plant (100 TPD), Chloromethanes (150 TPD), Carbon tetrachloride (70 TPD), Chlorofluorocarbons (50 TPD) within the existing plant premises at Village: Balabhadhrapuram, Mandal: Biccavolu, District: East Godavari (Andhra Pradesh). Total capital cost of the expansion project will be Rs. 2450 Crore.

- v. Project description with process details (a schematic diagram/ flow chart showing project layout, components of the project etc. should be given)

#### ❖ Project Description

M/s. Grasim Industries Limited (Chemical Division) has proposed Expansion of existing Membrane

Cell based Caustic Soda (from 400 TPD to 1000 TPD), Chlorine Derivative Chemicals (from 350 TPD to 720 TPD) and installation of Membrane Cell based Caustic Potash Plant (100 TPD), Chloromethanes (150 TPD), Carbon tetrachloride (70 TPD), Chlorofluorocarbons (50 TPD) within the existing plant premises at Village: Balabhadrapuram, Mandal: Biccavolu, District: East Godavari (Andhra Pradesh).

Detailed project proposal is given in above table No. 1.

#### ❖ TECHNOLOGY AND PROCESS DESCRIPTION

The proposed expansion project will consist of the following facilities:

| S. No.                  | Activity / Facility                           | Status                                                                                                                                         |
|-------------------------|-----------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Process plants</b>   |                                               |                                                                                                                                                |
| 1.                      | Chlor Alkali Plant                            |                                                                                                                                                |
|                         | Caustic Soda Plant                            | Expansion in the existing plant                                                                                                                |
|                         | Caustic Potash Plant                          | To be installed                                                                                                                                |
| 2.                      | Chlorine Derivative Plant                     | Expansion in the existing plant                                                                                                                |
| 3.                      | Chloromethane Plant                           | To be installed                                                                                                                                |
| 4.                      | Carbon Tetra Chloride                         | To be installed                                                                                                                                |
| 5.                      | Chlorofluorocarbon                            | To be installed                                                                                                                                |
| <b>Other facilities</b> |                                               |                                                                                                                                                |
| 6.                      | Steam Boilers (Coal fired)                    | Expansion in the existing plant                                                                                                                |
| 7.                      | Gas fired Boiler                              | 1 to be installed                                                                                                                              |
| 8.                      | DG Sets                                       | 3x2000 KVA in the Existing Plant and 4 new to be installed                                                                                     |
| 9.                      | Integrated Water and Effluent treatment plant | 3438 KLD Water treatment plant and 1505 KLD effluent treatment plant is already installed, which shall be sufficient to meet the requirements. |
| 10.                     | STP                                           | 100 KLD sewage treatment plant is already installed.                                                                                           |

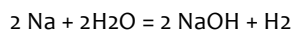
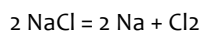
#### 1. PROCESS DESCRIPTION OF CHLOR ALKALI PLANT

##### A. CAUSTIC SODA MANUFACTURING TECHNOLOGIES

Caustic Soda / Potash are generally prepared by two main processes, namely chemical and electrolytic. In the Chemical process, Caustic Soda is being produced by reacting soda ash with lime and in case of electrolytic process; it is produced by electrolysis of sodium chloride solution. Hydrogen & Chlorine are obtained as co-products in the electrolytic process.

##### Electrolytic Process:

In the electrolytic process, caustic soda is being manufactured by electrolysis of brine and subsequent reaction with water to form sodium hydroxide, hydrogen and chlorine. The basic reactions are as follows:



The principal steps in the manufacture by this electrolytic process are:

- Preparation and purification of brine.
- Electrolysis of purified brine solution
- Evaporation and concentration of Caustic solution obtained from electrolyzers.

The electrolysis of brine is being carried out in cells of different types. The Cells are being divided into different classes according to the way they are designed to achieve certain desired result. Simultaneous production of Chlorine, caustic Soda / Potash solution and Hydrogen from aqueous solution of alkaline chlorides by application of direct current, commonly known as the "electrolysis of alkaline chlorides" has been widely adopted in the chemical industry during the past 100 years. Basically three different methods are being employed:

1. The electrolysis using graphite anodes or metal anodes and mercury cathodes – the amalgam process.
2. The electrolysis using graphite anodes or metal anodes and iron cathodes partitioned by diaphragms - the diaphragm process.
3. The electrolysis using metal anodes and cathodes partitioned by cation exchange membranes - the membrane process.

It is an established fact that Mercury cell based Chloro-alkali units are highly polluting. Diaphragm cells have the disadvantage of manufacturing Caustic soda of poorer quality than other technologies and also use diaphragm made of asbestos, which also has known pollution impacts. Worldwide and within our country all the newer units are being set up with Membrane cells and the existing old mercury cells units are also being converted into Membrane cell technology, where ever possible.

The membrane process has, indeed, passed through various stages of design and development. It has become the consensus of expert opinion that the membrane electrolysis will be the predominant process for chloro-alkali production in the future. This is based on the following advantages:

- Membrane cells offer the advantage of much lower power consumption. The latest “5<sup>th</sup> Generation cells” coupled with “High performance Membranes” can lower the AC power consumption by 800-1000 KWh from present values.
- The 5th generation Membrane Cell electrolyzers operate under pressure, thereby eliminating the requirement of Chlorine and Hydrogen Blowers. Further, brine flow to cells will be about 40 – 50 % of that of Mercury Cells and hence reduced pumping requirements. These together, will lead to substantial savings in auxiliary power consumption.
- Chemical consumption in Membrane cell plants is lesser due to reduced brine flow rates.
- The latest Membrane Cells require very little maintenance. Some of the cell elements have operated more than 6-7 years without opening.
- Manpower requirements for a typical membrane cell plant are much lower than Mercury Cell plant. This is due to the high degree of automation and lower maintenance requirements.
- The products from the membrane cell plant do not contain any mercury. Hydrogen from membrane cell plants readily finds usage in food processing industries.

- Caustic from membrane Cells contain very little chlorides and is Mercury free.
- HCl produced in Membrane Cell plants will be free of Mercury.
- Lower investment cost due to simplicity of electrolysis cell and less space requirements for electrolyzers.

The details of the Membrane cell technology is as per below.

#### **Membrane Cell:**

The membrane cells are either of mono-polar or bipolar type. A typical bipolar membrane Electrolyser consists of plurality of individual cells, clamped between two end plates by means of tie rods forming filter press type unit. Purified brine enters the anodic compartment of individual cell and will be electrolysed at the anode to form Chlorine and Sodium Ions. While the sodium ions are transported through the Membrane to the cathodic compartment the passage of chlorine ions (negatively charged) will be prevented. The chlorine gas leaves the anodic compartments together with the anolyte and enters into a gas separator. The sodium ions are transported in the cathodic compartments with water to form sodium hydroxide.

The Hydrogen gas formed in the reaction that leaves the compartment together with the catholyte of concentration about 32 – 33% pure. This will be further concentrated up to 50 % caustic soda in a Caustic Soda evaporation plant having series of evaporators. The Caustic Lye produced by membrane process will be pure and rayon grade.

The main parts of the membrane electrolyzers are as follows:

- Bipolar cell units consisting of anodic chamber on one side and cathodic chamber on the other.
- Anode assembly made of titanium with DSA (R) coating.
- Cathode Assembly made of Nickel with DSA (R) coating
- Anolyte (Depleted Brine), Chlorine Collection header.
- Catholyte (Caustic) and Hydrogen Gases collection headers.
- Supporting frame, insulators, tie rods etc.,

One of the unique features of Membrane cell technology is the single element design, i.e., each element will be sealed individually with flanges and bolts and nuts. The distinct advantages of single element design are as per below.

- It needs only low compressive forces for assembly of elements in an electrolyser, mainly for electrical contact.
- Dismantling of one element does not disturb the sealing of other elements - lower downtime.
- Elements can be pre-assembled and tested outside the electrolyser.
- Since the elements are sealed individually, the electrolyser can be safely operated under pressure thus eliminating the need for chlorine and hydrogen blowers.

Typical membrane cell comprises of an anode compartment and cathode compartment separated by a membrane. The brine will be fed to the anode compartment and weak caustic soda will be fed to the cathode compartment.

$\text{Na}^+$  /  $\text{K}^+$  ions migrate from anode compartment to cathode compartment; combine with  $\text{OH}^-$  ions to form  $\text{NaOH}$  /  $\text{KOH}$ . Chlorine will be liberated on the anode side and hydrogen will be liberated on the cathode side resulting in overall reaction as mentioned below (example:  $\text{KOH}$ ):

Anode Reaction :  $2 \text{KCl} \rightarrow 2 \text{K}^+ + \text{Cl}_2 + 2 \text{e}^-$

Cathode Reaction :  $2 \text{H}_2\text{O} + 2 \text{e}^- \rightarrow \text{H}_2 + 2 \text{OH}^-$

Overall Reaction :  $2 \text{KCl} + 2 \text{H}_2\text{O} \rightarrow 2 \text{KOH} + \text{Cl}_2 + \text{H}_2$

## Process Description

### Caustic Soda Plant

#### ✓ Membrane Cell working

The caustic soda lye is manufactured by electrolysis of Brine (Sodium Chloride solution of concentration 310 gpl). For satisfactory operation of the membrane electrolysis cell, high purity of brine is required. Brine is recycled continuously and the cycle consists of the following steps:-

1. Brine Saturation
2. Brine Purification
3. Brine Settling, Filtering, Polishing
4. Secondary Brine Purification (Ion Exchange)
5. Electrolysis

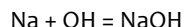
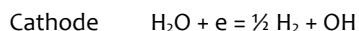
After treatment in above steps, the brine meets the requirements and is fed into the anode chamber of electrolyser cells. The brine flow in each electrolyser is regulated by means of rotameters. Uniform distribution of brine into the different elements of the electrolyser is ensured by means of long thin inlet hoses.

The cathode chamber of the electrolytic cells receives weak caustic from the catholyte head tank. The anode and cathode chambers of the cell are isolated from each other by membrane which is selective to the migration of sodium ions.

As a result of electrochemical reactions taking place in the cathodic chamber,  $\text{H}_2$  is generated at the cathode surface and  $\text{OH}^-$  ions combine with the  $\text{Na}^+$  ions diffusing through the membrane. A two-phase mixture of 33%  $\text{NaOH}$  and Hydrogen overflows from the cathode chamber into the catholyte header. The water required for cathodic reaction is partly supplied by the water transported through the membrane and the rest is made up by addition of purified water in the re-circulation catholyte loop.  $\text{Cl}_2$  is being liberated at the anode surface and the brine in the anode chamber is being depleted to about 200–220 gpl. The two-phase mixture of depleted brine and chlorine overflows from the anode chamber via an insert pipe into the anolyte header.

The electrochemical reactions in the cell are as follows:

Anode  $2\text{Cl}^- = \text{Cl}_2 + 2\text{e}^-$



The two-phase mixture of 33% NaOH and Hydrogen primarily gets separated in the catholyte header itself. Sodium chlorate, which is formed in the process, is decomposed into chlorine and sodium chloride by reaction with hydrochloric acid.

The saturated brine is treated with chemicals to remove impurities of salt and brine purification operations consisting of settling, filtration, polishing, ion exchange etc. are carried out.

✓ **Caustic concentration Plant**

The 32% membrane cell NaOH liquor at 80° C is fed & passed through the three stage evaporators & heat ex-changers, where caustic lye is heated up to remove water in the form of vapours & caustic solution gets concentrated to 48%.

The generated water vapours are fed via the duct to a surface condenser, where they are indirectly condensed by cooling water. Inert gases are extracted by vacuum pumps.

The unit is being/ will be equipped with a control system enabling a fully automatic operation of the unit by controlling the important process parameters, such as temperatures, feed rate and liquid levels and monitoring the critical parameters with pre-alarms and interlocks for personal safety and material protection.

✓ **Chlorine Plant**

Chlorine gas generated at anode is cooled and passed through mist eliminator [washer]. The gas is further chilled to 13°C-17°C and dried in FRP drying towers with counter current of concentrated Sulphuric Acid. Dried chlorine gas is then fed to the chlorine gas compressors where chlorine gas is compressed to 3 Kg/cm<sup>2</sup> pressure. The compressed gas is then fed to the shell and tube type liquefiers of different capacity. Dry chlorine is fed through the tubes and chilled Freon is circulated from the shell side resulting into liquefaction of chlorine to liquid chlorine at 5°C. Liquid chlorine is then stored in five special steel storage tanks each of 60 MT capacity. The liquid chlorine is subsequently bottled in the small cylinders of 900kg for sale.

✓ **Hydrochloric Acid Plant**

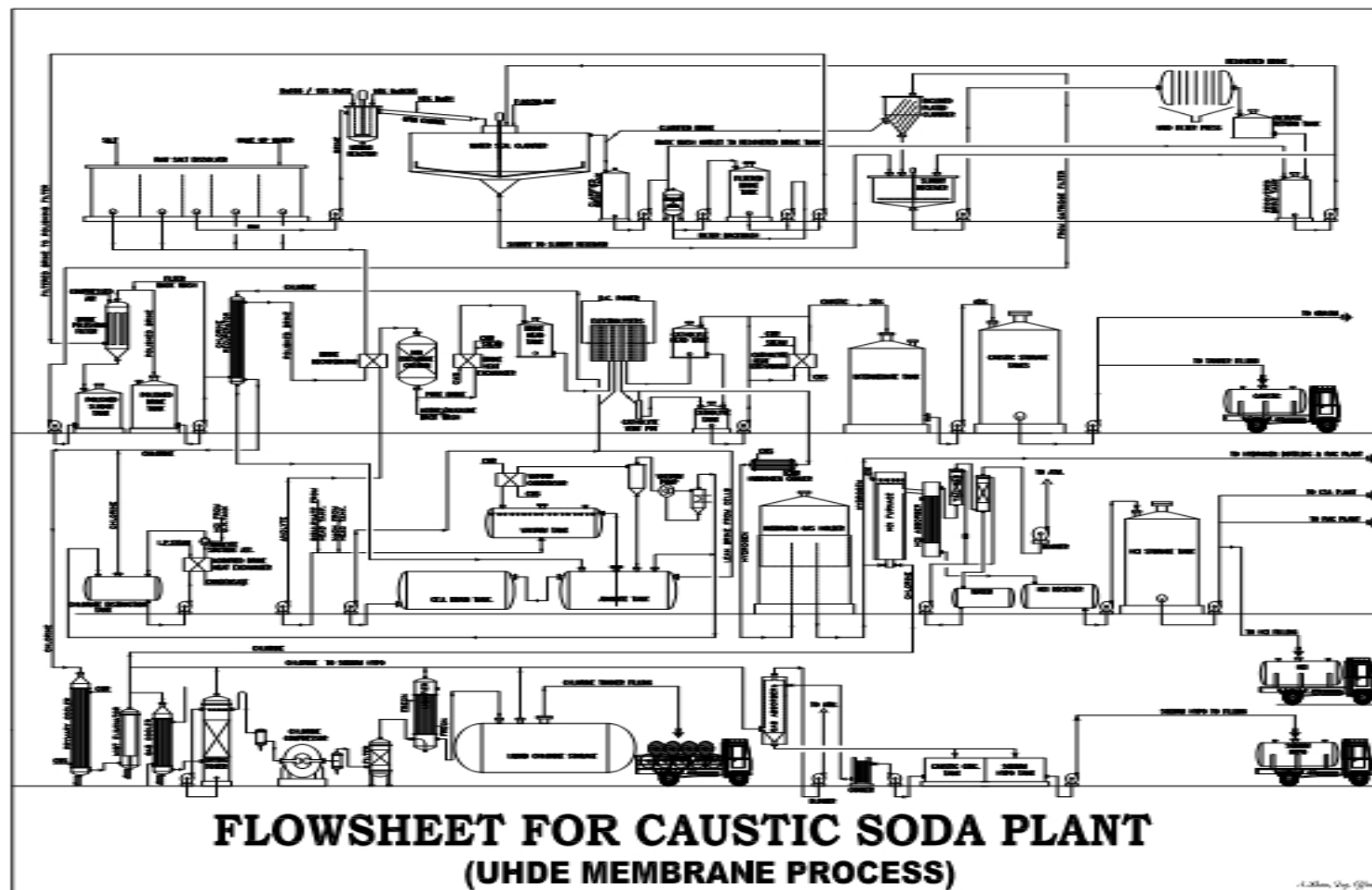
There are three MS & two graphite furnaces in hydrochloric acid plant. Chlorine gas & hydrogen gas are burned /reacted to form HCl. The capacity of each MS furnace is about 22 MT of HCl/day. The feeding rate of hydrogen and chlorine is manually adjusted. Tail gas blower keeps the furnace under suction. Photo cell is provided on each furnace, which trips the furnace if the intensity of flame goes down. Hydrochloric acid gas is then scrubbed/ absorbed with water in absorption tower to obtain 33% HCl. If furnace is tripped, chlorine gas is automatically diverted to chlorine absorption plant.

Hydrochloric acid produced is stored in receiving tanks (2 Nos.) and pumped to the MSRL storage tanks for dispatch.

Expansion of existing Membrane Cell based Caustic Soda (from 400 TPD to 1000 TPD), Chlorine Derivative Chemicals (from 350 TPD to 720 TPD) and installation of Membrane Cell based Caustic Potash Plant (100 TPD), Chloromethanes (150 TPD), Carbon tetrachloride (70 TPD), Chlorofluorocarbons (50 TPD) within the existing plant premises

At Village: Balabhadrapuram, Mandal: Biccavolu, & at Village: G. Dontamuru (V), Mandal: Rangampeta, District: East Godavari (Andhra Pradesh).

Pre-Feasibility Report



Caustic Soda plant process flow sheet

At Village: Balabhadhrapuram, Mandal: Biccavolu, & at Village: G. Dontamuru (V), Mandal: Rangampeta, District: East Godavari (Andhra Pradesh).

## Pre-Feasibility Report



### Caustic Soda plant (AKCC) process flow sheet

## B. CAUSTIC POTASH

The following will be the Process Description for the manufacture of Caustic Potash with the Membrane cell electrolysis process.

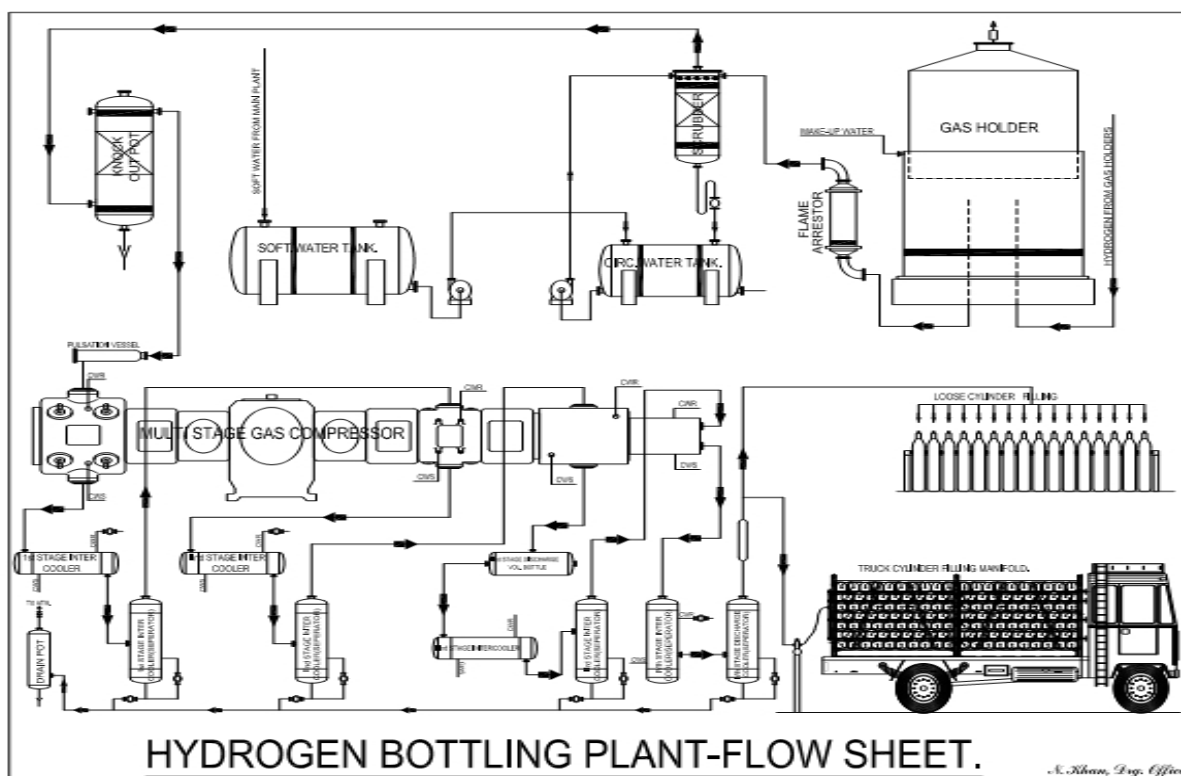
Steps involved in the manufacturing process of Caustic Potash are

- Brine System
- Electrolysis
- Catholyte system
- Anolyte Dechlorination
- Chlorine system
- Hydrogen system

## C. Hydrogen Bottling Plant

No chemical reaction is involved in the manufacturing process, only compression of hydrogen gas is done in multistage compressors. Hydrogen gas produced in membrane cells flows to gas holder. From gas holder hydrogen gas is taken to hydrogen compressors, where it is compressed to a pressure of 150Kg/cm<sup>2</sup> at ambient temp.

Gas holder works as a buffer vessel for compressors and also maintains constant pressure of hydrogen gas on upstream side. Hydrogen gas so compressed is filled in manifold trucks in filling section. Manifold truck is a permanent fixture of a set of hydrogen gas cylinders, connected with a bank of manifold headers and pigtails. However, alternate facility for individual cylinder filling is also provided. Filled cylinders are stored/ dispatched to the consumers.



Hydrogen Bottling plant process flowsheet

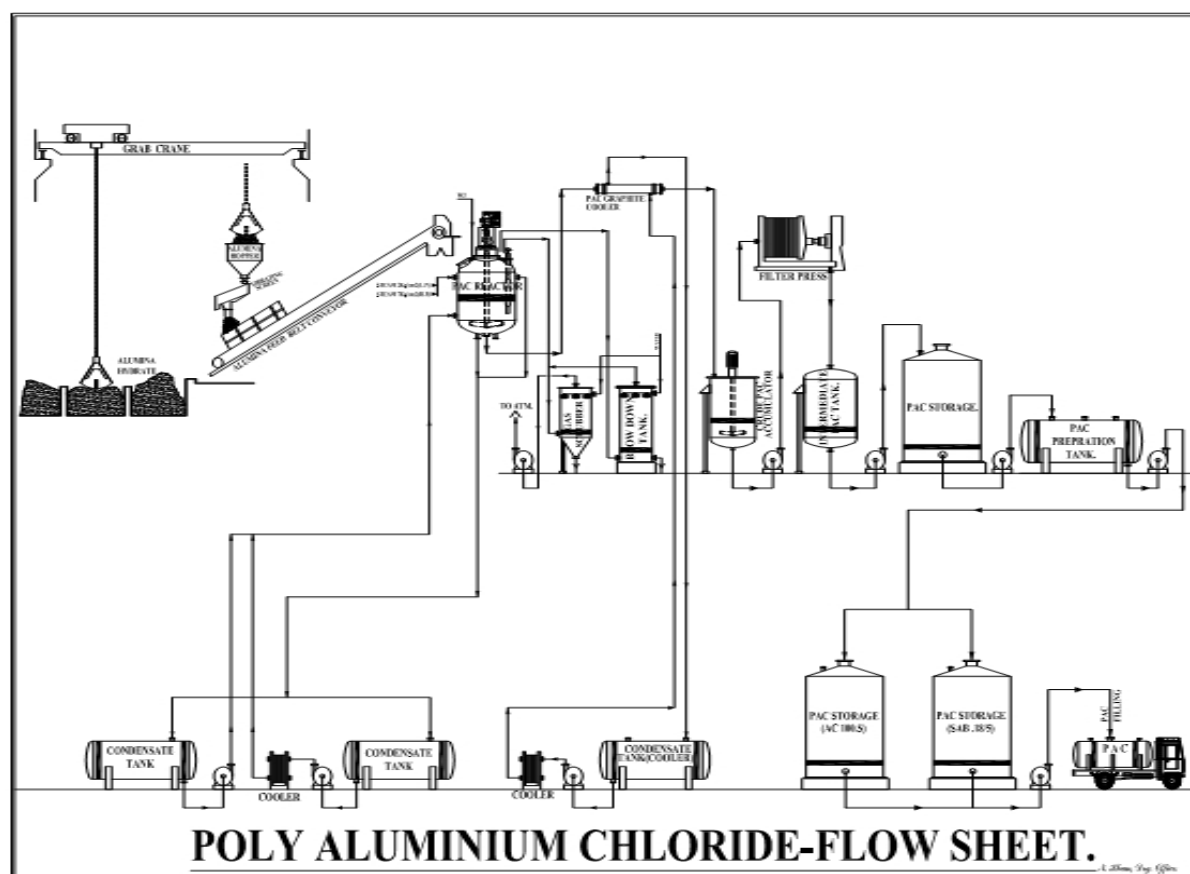
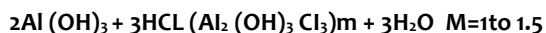
## 2. CHLORINE DERIVATE PLANT

### A. Poly Aluminium Chloride Plant

Raw materials Hydrochloric acid (30-32% conc.) and Alumina Hydrate are mixed in a glass lined reactor at specified temperature and pressure conditions. After completion of reaction the product is fed to the dilution tank.

Un-reacted Alumina Hydrate is removed by filtering the product with the filter press. The filtered product is fed to the formulation tanks, where water and chemicals are added and dissolved by agitation. The solution is diluted by adding process water, to precisely adjust the concentration of Aluminium Oxide. The product thus formed is fed to the storage tank.

The reaction in the reactor is as follows:



Poly Aluminium Chloride (liquid) process flow sheet

### Poly Aluminium Chloride (Powder)

Liquid Poly Aluminium chloride is converted into powder PAC in a spray dryer. Hot air is generated in combustion chamber by burning Hydrogen Gas. In the main drying chamber PAC liquid is sprayed into very fine droplets and hot air for drying is supplied co-currently. Water is evaporated from liquid droplets and PAC powder obtained is collected in conical bottom.

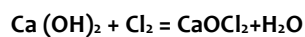
Air from drying chamber is exhausted by an exhaust fan through a cyclone separator (where

**PAC POWDER PLANT - FLOW SHEET**

### Poly Aluminium Chloride (powder) process flow sheet

Stable Bleaching Powder is a chlorinated lime and is manufactured as a consequence of composite chemical reaction between fully slaked lime of very high quality and liquid chlorine. The hydrated lime is dosed in to the chlorination drum and the liquid chlorine is fed into the drum. The conditions for vacuum and temperature are maintained. The chlorination drum where the chemical reaction occurs, heat of reaction generated which is controlled by circulating water in jacket. After complete chlorination reaction, the product is dried under vacuum, cooled and discharged to packing hopper via vibrating screen, which separates oversized material. The oversized material is further pulverized and mixed with product.

The reaction in the drum is as follows:



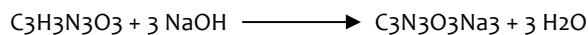


#### D. TRICHLORO ISPO CYANURIC ACID

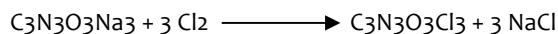
Water, cyanuric acid, NaOH will be added in accordance with a certain proportion in the reactor. The mass will be sent for chlorination where in chilling water will be circulated to maintain desired temperature. The materials released by the reactor will be pumped directly into the sealed filter, the filter cake will be washed with water. Salt of sodium chloride solution will be generated after filtration. Wet cake will be taken for the air drying. Air dried mass will be sent for granulation and packing.

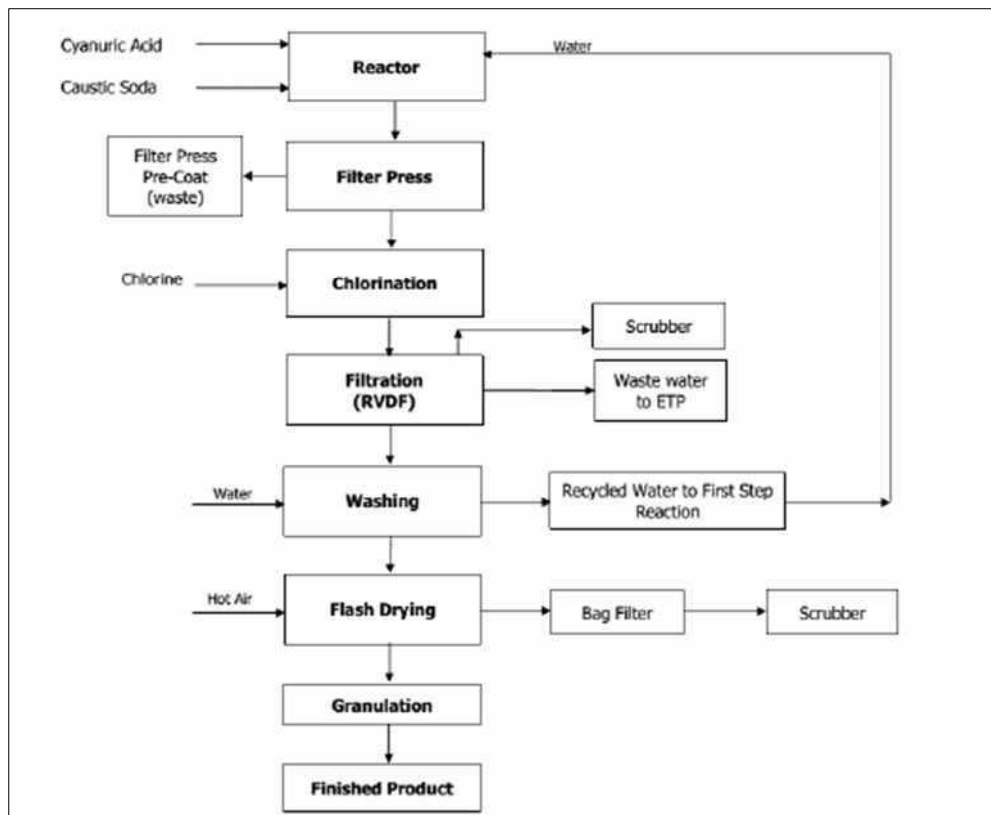
## Reactions

- 1) Salt of Cyanuric Acid



- ## 2) Chlorination





Process Flow Chart of Trichloro Iso Cyanuric Acid

#### E. CARBOXY METHYL CELLULOSE

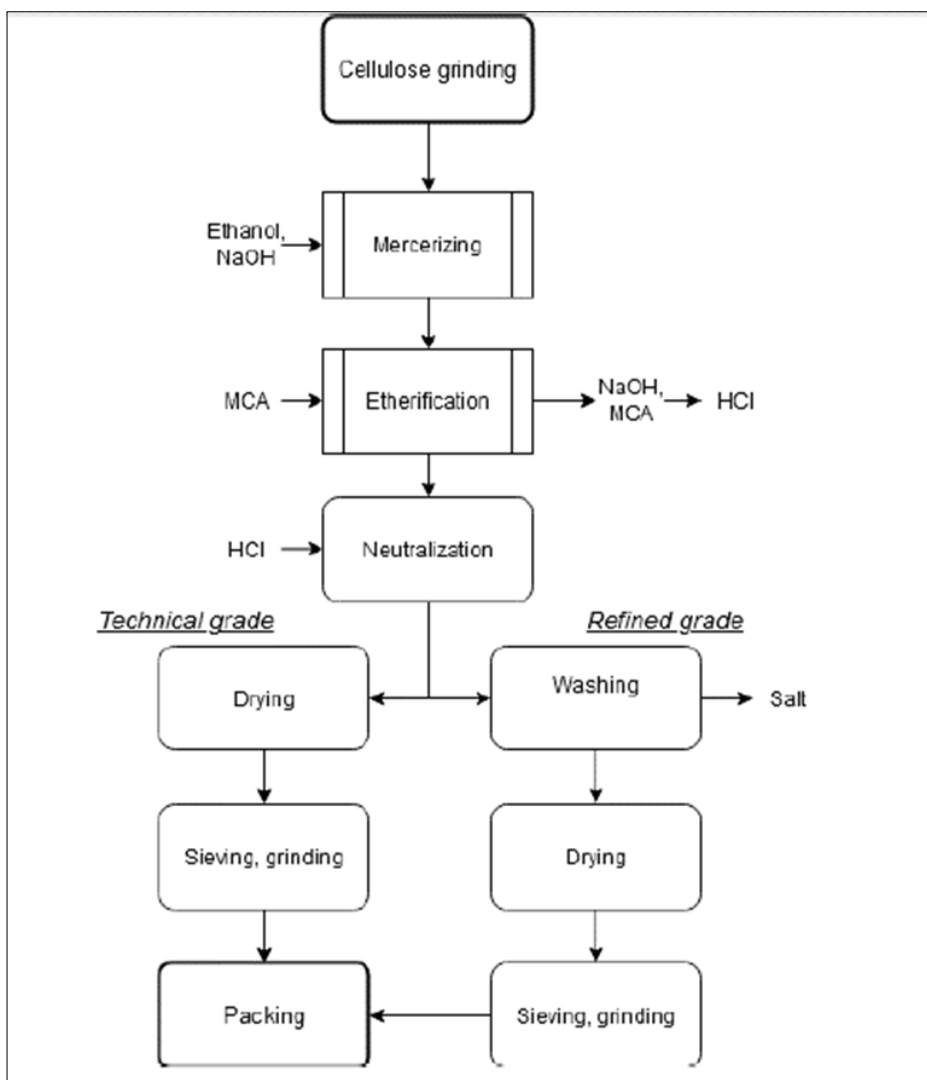
##### Sodium Carboxy Methyl Cellulose (CMC)

The process is by anionic polyelectrolyte prepared by the reaction of cellulose with Monochloro Acetic Acid in the presence of NaOH. The Process can be summarized into 11 subprocesses: pulp milling, mercerization, etherification, neutralization, washing, solvent recovery, granulation, drying, screening, grinding, and packing.

##### **Pretreatment of pulp by NaOH:**

Using knife mill the wood pulp is initially grounded to fine powder. The dry powder is then mixed well with 18 % NaOH corresponding to 29 mol NaOH. The material is then shaken well for 30 minutes at room temperature in an anaerobic atmosphere. The material will then be washed with ordinary water followed by DI water to a neutralize pH, then air dried and then stored at room temperature. The material consists of 91 % Cellulose.

Cellulose will be mixed with ordinary water and isopropanol. The impeller will be held at 300 rpm throughout the reaction. The reaction will be purged with nitrogen to remove oxygen. After fifteen minutes NaOH will be mixed with ordinary water, finally isopropanol will be added to the solution. The mixture will be left at room temperature for one hour.



Flow Chart of Carboxy Methyl Cellulose

#### F. HYDROGEN PEROXIDE

##### Manufacturing Process Description

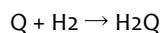
This process is based on circulating working solution, known as the auto oxidation process for Hydrogen Peroxide production. The steps for the Hydrogen Peroxide manufacturing are Hydrogenation, Oxidation, Extraction and Distillation. The working solution consists of two organic solvents AB and tributylurea and 2 EAQ (Ethyl Anthra Quinone).

Hydrogen peroxide ( $H_2O_2$ ) is a weakly acidic, colourless liquid, miscible with water in all proportions. It is the simplest peroxide (molecules containing two oxygen atoms covalently bonded to one another) and is commercially available in aqueous solution over a wide concentration range. The main uses of hydrogen peroxide are in the preparation of other peroxides and as an oxidising agent. The manufacturing process involves the catalysis of the reaction of  $H_2$  with atmospheric  $O_2$  to give  $H_2O_2$ . Anthraquinone (Q) is used as a  $H_2$  carrier.

## Hydrogenation

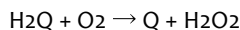
Working solution and Hydrogen are fed to hydrogenator and in the presence of palladium catalyst, 2 EAQ will be converted to 2 Ethyl hydro anthrax quinine. The working solution, excess hydrogen and catalyst discharge from the top of the hydrogenator. Gas and liquid streams are separated with the Hydrogen being returned to hydrogenator via a recycle compressor. The working solution and catalyst flow to primary filters. Here a forward flow of liquid is separated from catalyst and passes to an oxidizer feed tank while the reaming working solution and catalyst are returned to hydrogenator.

Palladium catalyses the reaction between H<sub>2</sub> and anthraquinone to create anthrahydroquinone (H<sub>2</sub>Q).



## Oxidation

The hydrogenated working solution is oxidized with air (oxygen) in an oxidizer. In this step of process Hydrogen Peroxide is produced which is dissolved in working solution. The depleted air from the oxidizer will pass through the solvent recovery system before discharge to the atmosphere.



## Extraction

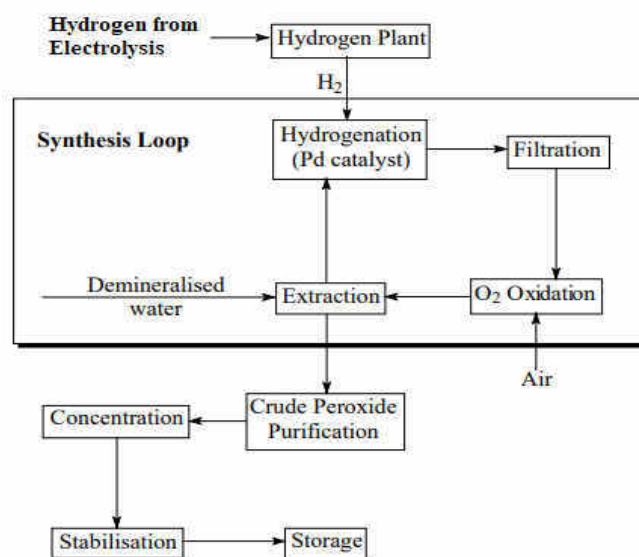
Working solution from the oxidizer degases into the bottom and demineralized water into the top of an extractor. Due to different densities of the two phases, this working solution flows upwards and discharges from the top of the extractors after being tripped of it hydrogen peroxide. The aqueous phase discharging from the bottom of the extractor contains up to 35% Hydrogen Peroxide.

## Product treatment

Hydrogen peroxide passes through coalesces, where traces of solvents are separated from Hydrogen Peroxide. Purified Hydrogen Peroxide is pumped to the product day tank to the distillation.

## Distillation

Crude Hydrogen Peroxide with a concentration of 35% is pumped to vaporizer system. The steam is supplied to vaporizer for boil up to Hydrogen peroxide. The vapour from the vaporiser passes through the mist separator prior to entering the bottom of an absorption columns. Hydrogen Peroxide, having a high boiling temperature than after is the “Heavy” key component in the still, so it concentrated in the bottom at strength from 50% to 70%. Demineralized water is use for the reflux in the column. The product is drawn from the bottom of the column and pumped to the storage tanks.



Process Flow diagram of Hydrogen Peroxide

#### Waste Gas System

The oxidiser can produce an exit gas containing trace levels of solvents. The solvent entrained gas is fed to a bed of activated carbon where the solvents are absorbed onto the carbon. The activated carbon is purged with nitrogen gas and the solvent is stripped off and recovered for reuse in the synthesis loop.

#### Effluent generation

Liquid effluent generation will be 4.5 m3 per MT of Product. 50 % of the liquid effluent will be recycled/reused within plant by using a polishing column. We have Zero liquid discharge plant with MEE and ATFD to recover the effluent.

#### Solid waste

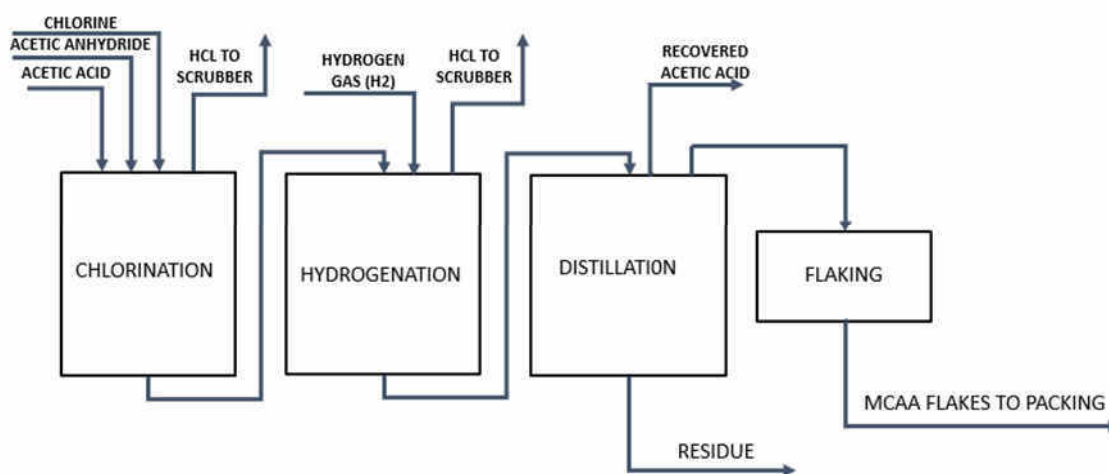
Spent alumina will be disposed through Hazardous waste TSDF party.

#### Mono Chloro Acetic acid

Monochloro Acetic acid is belonging to Halogenated aliphatic carboxylic acid / halo alkanoic acid / chlorinated carboxylic acid / chloro acetic acid family. The manufacture of MCA involves the reaction of Chlorine and acetic acid in Chlorinators using a suitable catalyst under high temperature. The reaction mix leaving the Chlorinators will have 60 % to 80 % MCA, un reacted acetic acid and a fraction of dichloro acetic acid (DCA).

The HCl generated from the reaction will pass through the gas coolers and then scrubbed with water to get HCl and then with Caustic soda lye to eliminate chlorine. The MCA is purified by distillation and crystallization. Unreacted acetic acid is recycled. DCA is obtained as a by-product and easily utilized for other applications.

MCA is used to manufacture caboxy methyl cellulose and several esters. It is also used in manufacturing of herbicides (phenoxy acetic acid derivatives), textile auxiliaries, pharmaceutical products and cosmetics, surface agents including shampoos, liquid soaps, and cleaning agents for metals, glycerine, synthetic caffeine, sarcosine, thyoglycolic acid and EDTA. The growth rate of MCA has been very impressive and the setting up of an MCA plant is also very advantageous as it is a direct chlorine based chemical industry with an attractive pay-back period in a growing market especially in an integrated Chloro-alkali industry. Schematic diagram of monochloro acetic acid manufacturing process is presented in Figure below.



**Manufacturing process flow of MCAA**

### Manufacturing of Calcium Chloride Plant

#### Process Description

Calcium Chloride is produced from reaction of lime stone and hydrochloric acid in a reactor. Calcium chloride liquid is passed through the filter press to remove the sludge. Filtered Calcium Chloride liquid is concentrated in evaporation unit and thereafter dried in granulator to produce granules as end product. Granules are passed through the vibrating screens to separate the powder which gets recycled, and granules are filled in Jumbo bags 1000 kg or 25 Kg bags. Liquid calcium chloride is also sold in market by tanker filling. Carbon Di Oxide generated during reaction as a byproduct which is in gaseous form. Gaseous CO<sub>2</sub> is scrubbed, compressed, filtered, dried and liquefied as product. Liquefied CO<sub>2</sub> is sold as a byproduct. Reaction in the Calcium chloride Reactor is as follows:



CaCl<sub>2</sub> – 0.90 MT and HCl - 0.66 MT (on 100% basis) will be required to produce 1 MT of CaCl<sub>2</sub>



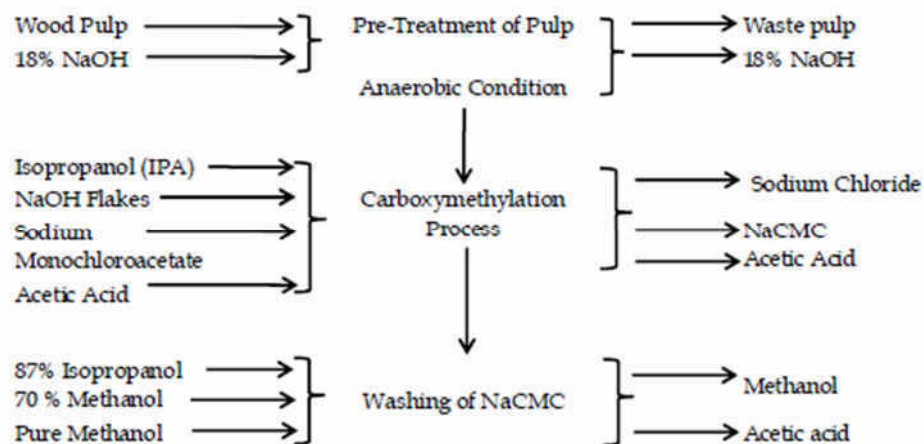


Fig. Process flow chart of Carboxymethyl Cellulose

### Manufacturing of Calcium Hypochlorite

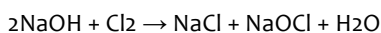
#### Lime slurry preparation:

First lime slurry is prepared in the concentration of 38%. Water is taken in agitated vessel. Lime powder is charged in vessel and mixture is agitated for 30 min. After sample analysis and getting desired concentration, is transferred to reaction section.

#### First stage chlorination:

Mother liquor that is recycled from third stage centrifuge is taken in agitated reactor. 32% Caustic is then taken in reactor. Then chlorine is added maintaining temperature of less than 25 degC. Temperature is controlled by chilled water utility in coils present in reactor. After batch is over and sample analysis, batch is transferred through centrifuge to get salt which is discarded and mother liquor which transfer into agitated dosing tank.

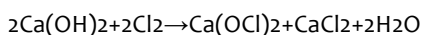
#### First Stage:



#### Second stage chlorination:

Mother liquor that is recycled from third stage centrifuge is taken in agitated reactor. 38% lime slurry is then taken in reactor. The mixture is heated to 38 degC with the help of hot water in jacket. Then chlorine is added maintaining temperature of less than 55 degC. Temperature is controlled by chilled water utility in jacket present in reactor. After batch is over and sample analysis, batch is transferred through centrifuge to get bleach which is discarded and cake which transfer into agitated dosing tank.

#### Second Stage:

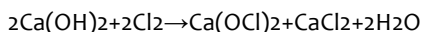
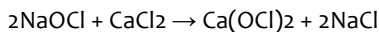


#### Third stage chlorination:

Slurry from dosing tank is transferred in third stage reactor and then water is taken in reactor. Chlorine is added in reactor maintaining temperature less than 25 degC. Temperature is maintained via chilled brine (-15 degC) as utility. After batch is over. Sample analysis is done.

After getting desired result the batch is transferred to centrifuge. Cake is charge in dryer for drying. Mother liquor is recycled back to first and second stage reactor.

#### Third Stage:

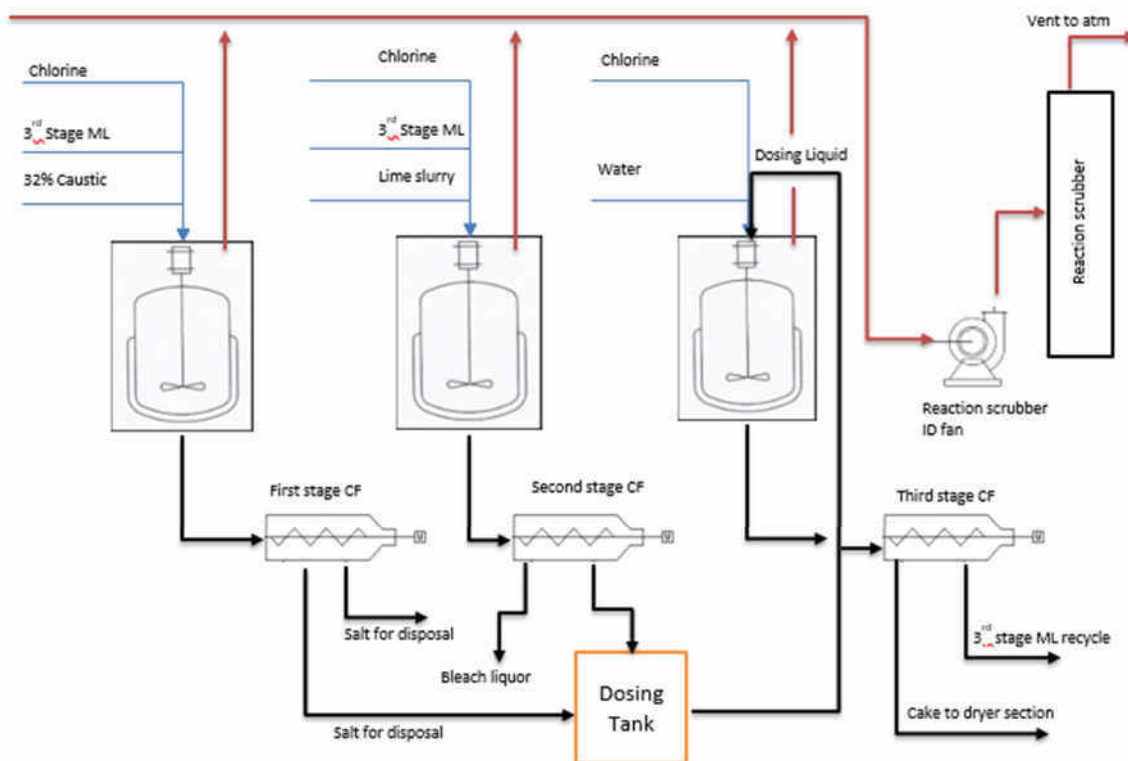


#### Dryer:

Cake along with recycle dust from dust collector is dried in spin flash dryer (hot air via steam heating). Temperature is maintained 60-65 degC via feed control. The air takes the dried product and powder collected in cyclone. The fines carryover get trapped in dust collector/bag house and then vent air goes in scrubber.

#### Granulation Unit:

The powder from cyclone is fed to roller mill for compaction. The compacted granules after crushed in crusher is charged in vibrating screen from where product is filled. The fines and oversize are again recycled back to roller mill.



Manufacturing Process Flow diagram of HSBP

### 3. CHLOROMETHANE PLANT

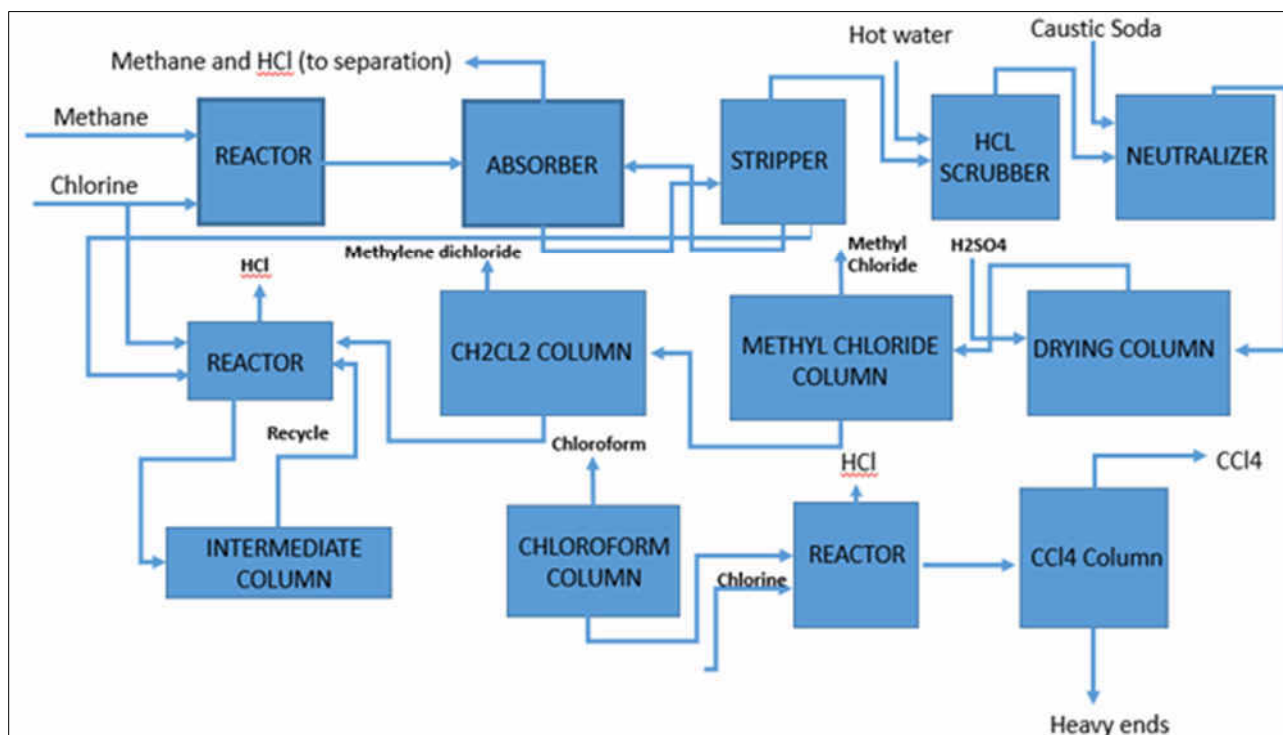
#### I. Methyl Chloride Production

A part of HCl stream from Photo-chlorination section is sent to Hydro-chlorination reactor where it reacts with methanol ( $\text{CH}_3\text{OH}$ ) to produce Methyl Chloride ( $\text{CH}_3\text{Cl}$ ).



Catalyst (160° C)

Methyl Chloride thus produced, along with other products is purified, cooled, neutralized, and dried for compression and liquefaction. The liquid Chloromethane (Methyl chloride) is sent to Photo-chlorination section for production of higher Chloromethanes. The by-product water is recovered with excess Hydrochloric Acid as HCl solution.

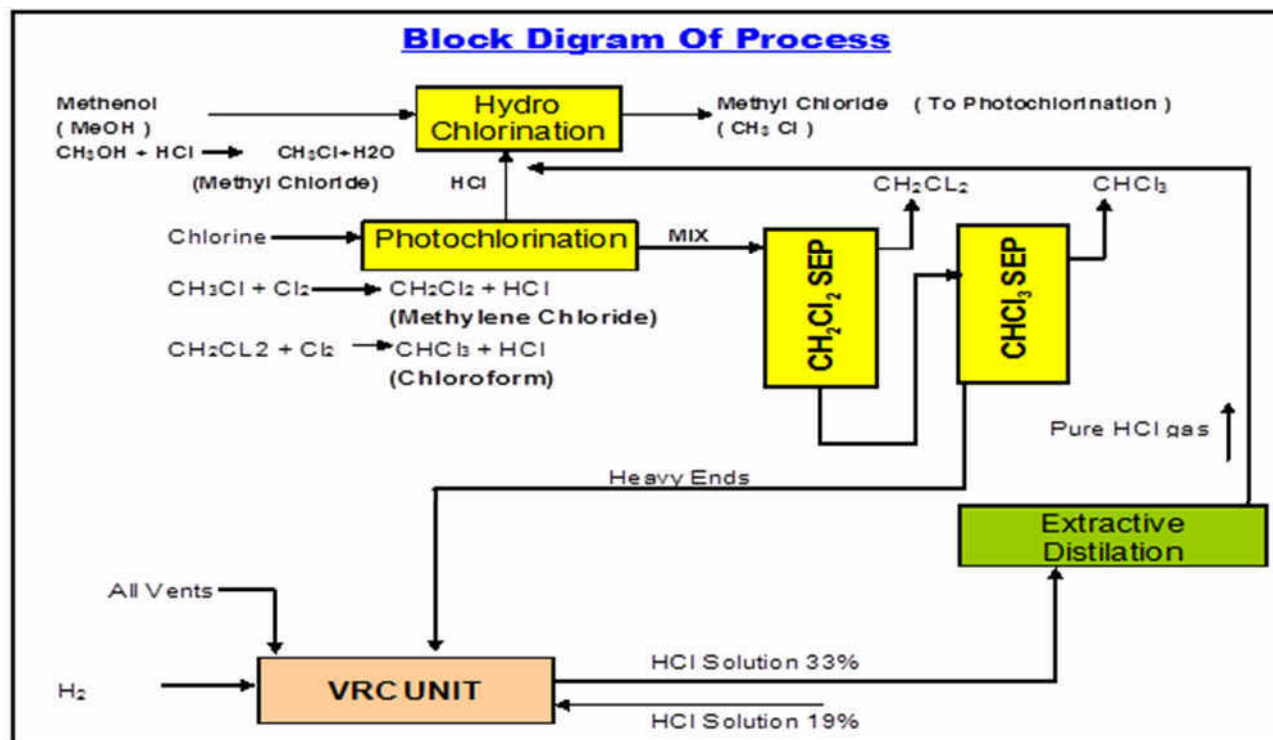


Chloromethane Process Overview

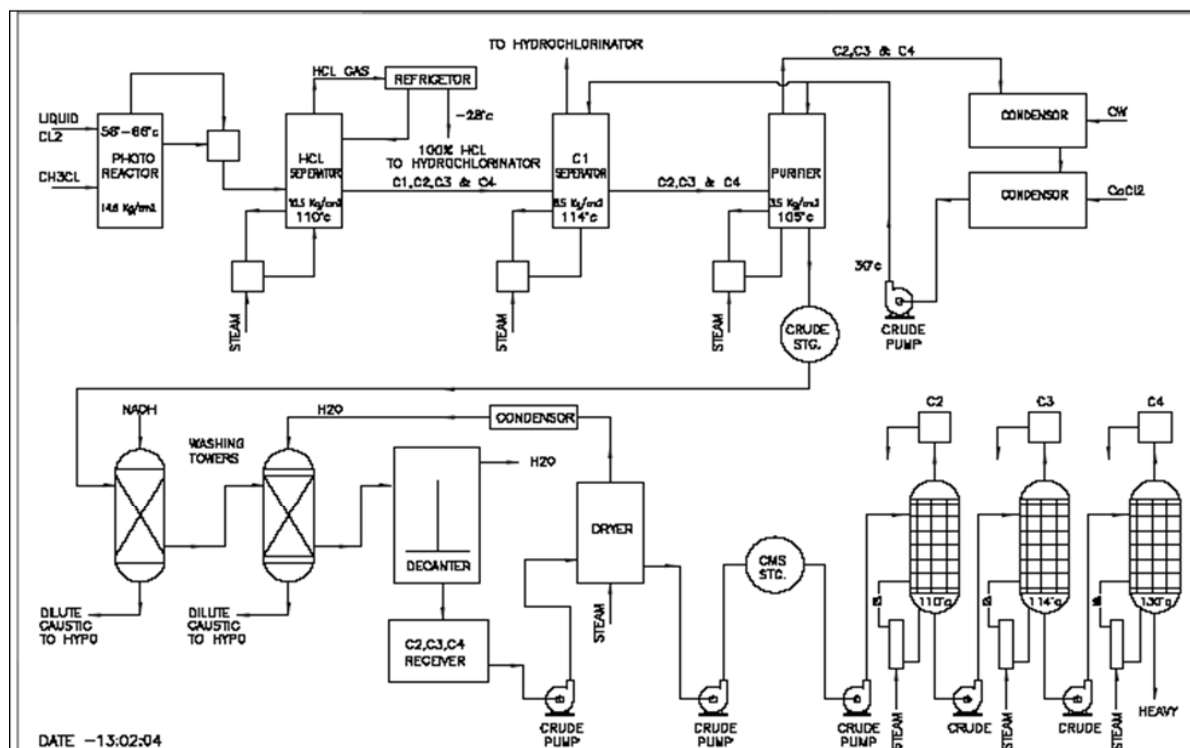
Expansion of existing Membrane Cell based Caustic Soda (from 400 TPD to 1000 TPD), Chlorine Derivative Chemicals (from 350 TPD to 720 TPD) and installation of Membrane Cell based Caustic Potash Plant (100 TPD), Chloromethanes (150 TPD), Carbon tetrachloride (70 TPD), Chlorofluorocarbons (50 TPD) within the existing plant premises

At Village: Balabhadrapuram, Mandal: Biccavolu, & at Village: G. Dontamuru (V), Mandal: Rangampeta, District: East Godavari (Andhra Pradesh).

Pre-Feasibility Report



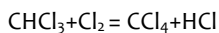
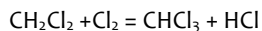
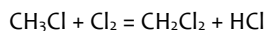
### Chloromethane Process



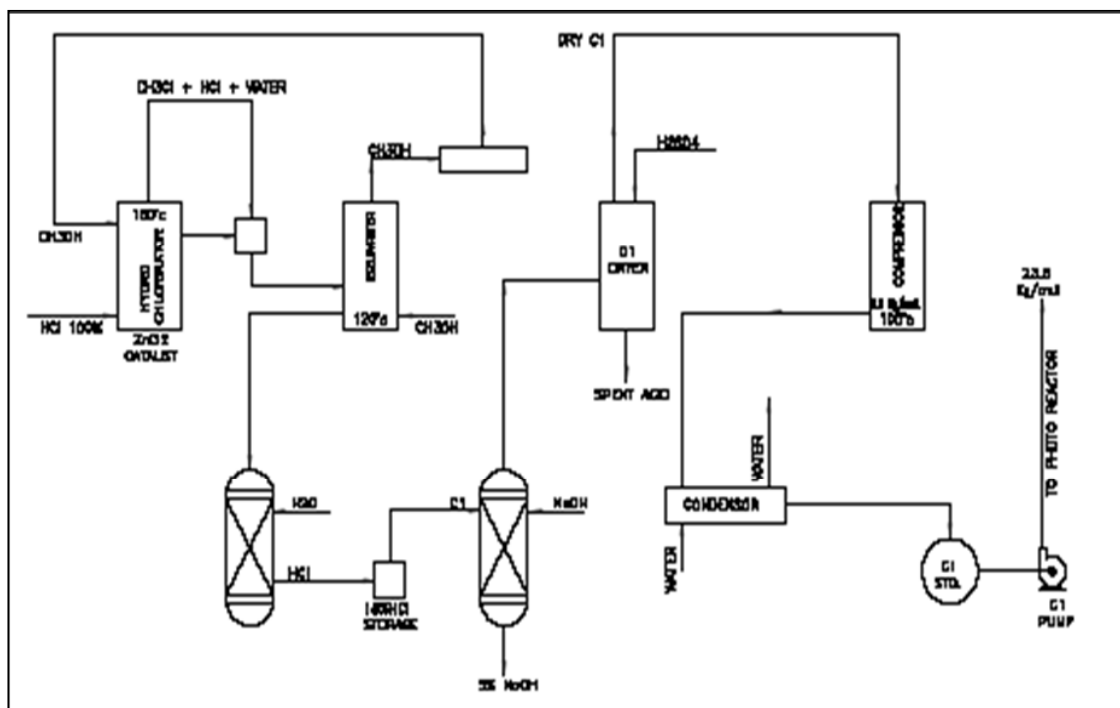
### Photo-chlorination – Chloromethane process

#### II. Methylene Chloride & Chloroform Production:

Methyl chloride formed in Hydorchlorination reaction along with Methanol is chlorinated under U.V. Radiation. Following reactions take place:



The chlorination process is controlled to obtain higher yield of Methylene Chloride (about 75%) and lower yield of Chloroform (25%). HCl generated in this stage is used in Hydro chlorination of Methanol in first stage. Higher chloromethanes such as Methylene Chloride, Chloroform & small quantity of Carbon tetrachloride are also produced. These heavier chlorinated products are withdrawn from bottom chloroform distillation column and fed to VRC unit for burning.



Hydro-chlorination - Chloromethane process

#### 4. CHLOROFLUOROCARBONS

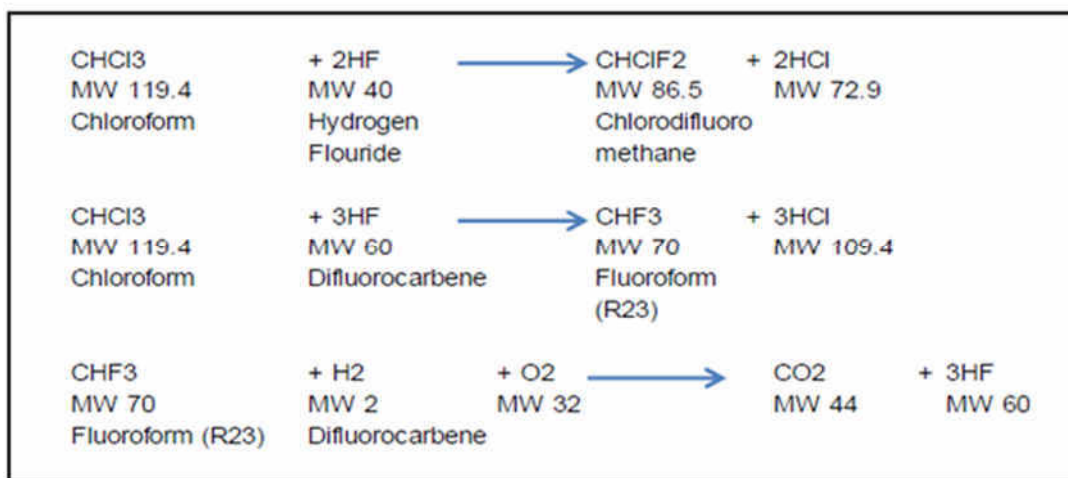
##### R22

##### Process Description:

Chloroform ( $\text{CHCl}_3$ ) is reacted with Hydrogen Fluoride (HF) in presence of  $\text{SbCl}_5$  catalyst. On reaction, Chlorodifluoromethane (R22) & minor quantities of Fluoroform (R23) is formed along with HCl. Product Gas Mix containing HCl will pass through HCl absorbers where Fresh water will circulate in absorber to absorb HCl gas & make product Gas HCl free. In this stage 30 % HCl solution will generate as product of the process. Gas will be washed with Alkali solution & dried before sending to Compressor section. Product gas will be compressed at High pressure to achieve condensation of the Gas mix. In Liquid form which will be fed to Distillation section for separation of products. Distillation Section: In this section, Chlorodifluoromethane (R22) & minor quantities of Fluoroform (R23) will separate out from product gas mix. R23 from the Distillation section will send

for Incineration with H<sub>2</sub> & O<sub>2</sub> gas & with flue gas scrubbing dilute hydrofluoric acid (DHF) will be produced. R22 will be the main product of the plant.

### Chemical Reactions



### PTFE

#### Process Description:

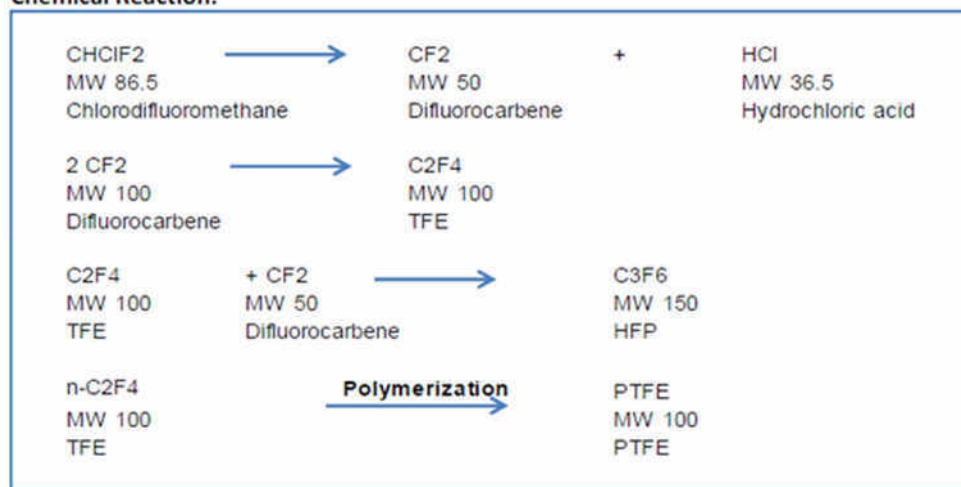
Chlorodifluoromethane (R22) will pyrolyse at High Temp. In electrically or mixed with superheated steam in heated furnace. On pyrolysis, R22 breaks in to No. of products with HCl gas as product. Product Gas Mix containing HCl will pass through HCl absorbers where Fresh water will circulate in absorber to absorb HCl gas & make product Gas HCl free. In this stage 30 % HCl solution will generate as product of the process. Gas will be washed with Alkali solution & dried before sending to Compressor section. Product gas will be compressed at High pressure to achieve condensation of the Gas mix. In Liquid form which will be fed to Distillation section for separation of products. Distillation Section: In this section Tetrafluoroethylene (TFE) & Hexafluoropropylene (HFP) will separate out from product gas mix. Unreacted R22 will separate & recycle back to Reaction section. Residue from the Distillation section will treat with solvent & send for Incineration. Polymerization: TFE is polymerized in media containing DM water, Paraffinic wax, Ammonium perfluorooctanoate, Oxalic acid, Succinic acid, KMnO<sub>4</sub> and N<sub>2</sub>. After completion of reaction coagulation is done by Ammonium Carbonate and then PTFE is filtered out & dried to meet final product specification.

Expansion of existing Membrane Cell based Caustic Soda (from 400 TPD to 1000 TPD), Chlorine Derivative Chemicals (from 350 TPD to 720 TPD) and installation of Membrane Cell based Caustic Potash Plant (100 TPD), Chloromethanes (150 TPD), Carbon tetrachloride (70 TPD), Chlorofluorocarbons (50 TPD) within the existing plant premises

At Village: Balabhadrapuram, Mandal: Biccavolu, & at Village: G. Dontamuru (V), Mandal: Rangampeta, District: East Godavari (Andhra Pradesh).

Pre-Feasibility Report

#### Chemical Reaction:



- vi. Raw material required along with estimated quantity, likely source, marketing area of final products, mode of transport of raw material and finished product.

#### a) Raw Material Requirements:

Details regarding raw material are given in table below:

Table -4

#### Raw Material Requirements

| S. No.               | Name of Raw Material | Required Quantity (MTPA)   |            |                                | Source              | Mode of Transportation |
|----------------------|----------------------|----------------------------|------------|--------------------------------|---------------------|------------------------|
|                      |                      | Existing as per granted EC | Additional | Total after proposed expansion |                     |                        |
| Caustic Soda Plant   |                      |                            |            |                                |                     |                        |
| 1.                   | NaCl                 | 207240                     | 310860     | 518100                         | Indigenous          | By Road                |
| 2.                   | Caustic Soda         | 1320                       | 1980       | 3300                           | Indigenous          | By Road                |
| 3.                   | Barium Carbonate     | 660                        | 990        | 1650                           | Indigenous          | By Road                |
| 4.                   | Soda Ash             | 396                        | 594        | 990                            | Internal Generation | Pipeline               |
| 5.                   | Alpha Cellulose      | 19.8                       | 29.7       | 49.5                           | Internal Generation | Pipeline               |
| 6.                   | Hydrochloric Acid    | 6600                       | 9900       | 16500                          | Indigenous          | By Road                |
| 7.                   | Sodium Sulphite      | 66                         | 99         | 165                            | Indigenous          | By Road                |
| 8.                   | Coagulant            | 1.32                       | 1.98       | 3.3                            | Indigenous          | By Road                |
| Caustic Potash Plant |                      |                            |            |                                |                     |                        |
| 9.                   | KCl Brine            | 52800                      | Nil        | 52800                          | Indigenous          | By wagon               |
| 10.                  | Calcium              | 36.3                       | Nil        | 36.3                           | Indigenous          | By road.               |
| 11.                  | Magnesium            | 23.1                       | Nil        | 23.1                           | Indigenous          | By road.               |
| 12.                  | Sulphate             | 66                         | Nil        | 66                             | Indigenous          | By road.               |
| 13.                  | Insoulubles          | 834.9                      | Nil        | 834.9                          | Indigenous          | By road                |
| 14.                  | Potassium Carbonate  | 125.4                      | Nil        | 125.4                          | Indigenous          | By road                |
| 15.                  | Barium Carbonate     | 135.3                      | Nil        | 135.3                          | Indigenous          | By road                |
| 16.                  | HCl                  | 138.6                      | Nil        | 138.6                          | Internal generation | Pipeline               |

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Pre-Feasibility Report

| S. No.                                 | Name of Raw Material           | Required Quantity (MTPA)   |            |                                | Source               | Mode of Transportation |
|----------------------------------------|--------------------------------|----------------------------|------------|--------------------------------|----------------------|------------------------|
|                                        |                                | Existing as per granted EC | Additional | Total after proposed expansion |                      |                        |
| 17.                                    | Potassium Hydroxide            | 320.1                      | Nil        | 320.1                          | Indigenous           | Indigenous             |
| <b>Stable bleaching powder</b>         |                                |                            |            |                                |                      |                        |
| 18.                                    | Hydrated Lime 90%              | 12325.5                    | 13632.75   | 25958.25                       | Indigenous           | By road.               |
| 19.                                    | Chlorine                       | 6765                       | 7482.5     | 14247.5                        | Internal generation  | Pipeline               |
| <b>Poly Aluminum Chloride Liquid</b>   |                                |                            |            |                                |                      |                        |
| 20.                                    | Alumina hydrate                | 8553.6                     | 15206.4    | 23760                          | Indigenous           | By road                |
| 21.                                    | Hydrochloric Acid (32%)        | 21473.1                    | 38174.4    | 59647.5                        | Internal generation  | Pipeline               |
| <b>Poly Aluminum Chloride Powder</b>   |                                |                            |            |                                |                      |                        |
| 22.                                    | Poly aluminium Chloride Liquid | Nil                        | 29700      | 29700                          | Internal generation  | internal               |
| <b>Trichloro Iso cyanuric Acid</b>     |                                |                            |            |                                |                      |                        |
| 23.                                    | Cyanuric Acid                  | Nil                        | 20790      | 20790                          | Indigenous/ Import   | By road/ by Sea        |
| 24.                                    | Caustic Soda (32%)             | Nil                        | 15642      | 15642                          | Internal Generation  | Pipeline               |
| 25.                                    | Chlorine Gas                   | Nil                        | 30690      | 30690                          | Internal Generation  | Pipeline               |
| <b>Sodium di Chloro isocynurate</b>    |                                |                            |            |                                |                      |                        |
| 26.                                    | Sodium di Chloro isocynurate   | Nil                        | 30         | 30                             | Internal Generation  | Pipeline               |
| <b>Calcium Chloride</b>                |                                |                            |            |                                |                      |                        |
| 27.                                    | Limestone                      | Nil                        | 47421      | 47421                          | Indigenous           | By Road                |
| 28.                                    | Hydrochloric Acid (100% basis) | Nil                        | 32571      | 32571                          | Internal generation  | Pipeline               |
| <b>Chlorinated Paraffin Wax</b>        |                                |                            |            |                                |                      |                        |
| 29.                                    | Paraffin                       | 4455                       | 4455       | 8910                           | Indigenous           | By road                |
| 30.                                    | Chlorine                       | 12375                      | 12375      | 24750                          | Internal generation  | Pipeline               |
| <b>Mono -Chloro Acetic acid (MCAA)</b> |                                |                            |            |                                |                      |                        |
| 31.                                    | Acetic Anhydride               | 5313                       | 11753      | 17066                          | Indigenous           | By road                |
| 32.                                    | Chlorine                       | 6270                       | 13870      | 20140                          | Internal Generation  | Pipeline               |
| 33.                                    | Caustic                        | 132                        | 292        | 424                            | Internal generation  | Pipeline               |
| <b>Carboxy methyl Cellulose</b>        |                                |                            |            |                                |                      |                        |
| 34.                                    | Wood Pulp                      | Nil                        | 8654       | 8654                           | Internal generation  | Pipeline               |
| 35.                                    | Isopropanol                    | Nil                        | 1967       | 1967                           | Indigenous/ Imported | By Road/ by sea        |
| 36.                                    | 18% NaOH                       | Nil                        | 4917       | 4917                           | Internal generation  | Pipeline               |
| 37.                                    | NaOH flaker                    | Nil                        | 1082       | 1082                           | Indigenous           | -                      |
| 38.                                    | Methanol                       | Nil                        | 1180       | 1180                           | Indigenous/ Imported | By Road/ by sea        |
| 39.                                    | Acetic Acid                    | Nil                        | 164        | 164                            | Indigenous/          | By Road/ by sea        |

Expansion of existing Membrane Cell based Caustic Soda (from 400 TPD to 1000 TPD), Chlorine Derivative Chemicals (from 350 TPD to 720 TPD) and installation of Membrane Cell based Caustic Potash Plant (100 TPD), Chloromethanes (150 TPD), Carbon tetrachloride (70 TPD), Chlorofluorocarbons (50 TPD) within the existing plant premises

At Village: Balabhadrapuram, Mandal: Biccavolu, & at Village: G. Dontamuru (V), Mandal: Rangampeta, District: East Godavari (Andhra Pradesh).

Pre-Feasibility Report

| S. No.                        | Name of Raw Material          | Required Quantity (MTPA)   |            |                                | Source               | Mode of Transportation |
|-------------------------------|-------------------------------|----------------------------|------------|--------------------------------|----------------------|------------------------|
|                               |                               | Existing as per granted EC | Additional | Total after proposed expansion |                      |                        |
|                               |                               |                            |            |                                | Imported             |                        |
| 40.                           | Sodium monochloro Acetate     | Nil                        | 6556       | 6556                           | Indigenous/ Imported | By Road/ by sea        |
| <b>Hydrogen Peroxide</b>      |                               |                            |            |                                |                      |                        |
| 41.                           | Hydrogen                      | 643.5                      | Nil        | 643.5                          | Internal generation  | Pipeline               |
| 42.                           | Oxygen                        | 9262.44                    | Nil        | 9262.44                        | Indigenous           | By road                |
| 43.                           | Stabilizer                    | 9.9                        | Nil        | 9.9                            | Indigenous/ Imported | By road                |
| 44.                           | Phosphoric acid               | 9.9                        | Nil        | 9.9                            | Indigenous/ Imported | By road                |
| 45.                           | Aromatic solvent              | 9.9                        | Nil        | 9.9                            | Indigenous/ Imported | By Road                |
| 46.                           | Ethyl anthra quinon           | 11.88                      | Nil        | 11.88                          | Indigenous/ Imported | By Road                |
| 47.                           | Tetra butyl urea              | 9.9                        | Nil        | 9.9                            | Internal generation  | Pipeline               |
| 48.                           | Tri Octyl Phosphate           | 1.98                       | Nil        | 1.98                           | Indigenous/ Imported | By Road                |
| 49.                           | Treated alumina               | 113.85                     | Nil        | 113.85                         | Indigenous/ Imported | By Road                |
| 50.                           | Catalyst                      | 79.2                       | Nil        | 79.2                           | Indigenous           | By road                |
| <b>Chloro Acetyl Chloride</b> |                               |                            |            |                                |                      |                        |
| 51.                           | Mono Chloro Acetic Acid (MCA) | Nil                        | 6930       | 6930                           | Internal generation  | Pipeline               |
| 52.                           | Benzo Tri Chloride (BTC)      | Nil                        | 14850      | 14850                          | Internal generation  | Pipeline               |
| 53.                           | Caustic as 100%               | Nil                        | 247.5      | 247.5                          | Indigenous/ Import   | By road                |
| <b>PTFE</b>                   |                               |                            |            |                                |                      |                        |
| 54.                           | Chlorodifluoromethane (R22)   | Nil                        | 20790      | 20790                          | Internal generation  | Pipeline               |
| 55.                           | Sulphuric Acid (98%)          | Nil                        | 8415       | 8415                           | Indigenous           | By Road                |
| 56.                           | Caustic Lye (48%)             | Nil                        | 2583.9     | 2583.9                         | Internal generation  | Pipeline               |
| 57.                           | Paraffin Wax                  | Nil                        | 19.8       | 19.8                           | Indigenous/ Imported | By Road                |
| 58.                           | Ammonium                      | Nil                        | 9.9        | 9.9                            | Indigenous/ Imported | By Road                |
| 59.                           | Perfluorooctanoate            | Nil                        | 9.9        | 9.9                            | Indigenous/ Imported | By Road                |
| 60.                           | Oxalic Acid                   | Nil                        | 9.9        | 9.9                            | Indigenous/ Imported | By Road                |
| 61.                           | Succinic Acid                 | Nil                        | 19.8       | 19.8                           | Indigenous/ Imported | By Road                |
| 62.                           | Potassium Permanganate        | Nil                        | 19.8       | 19.8                           | Indigenous/ Imported | By Road                |
| 63.                           | Activated Alumina balls       | Nil                        | 9.9        | 9.9                            | Indigenous/ Imported | By Road                |

Expansion of existing Membrane Cell based Caustic Soda (from 400 TPD to 1000 TPD), Chlorine Derivative Chemicals (from 350 TPD to 720 TPD) and installation of Membrane Cell based Caustic Potash Plant (100 TPD), Chloromethanes (150 TPD), Carbon tetrachloride (70 TPD), Chlorofluorocarbons (50 TPD) within the existing plant premises

At Village: Balabhadrapuram, Mandal: Biccavolu, & at Village: G. Dontamuru (V), Mandal: Rangampeta, District: East Godavari (Andhra Pradesh).

Pre-Feasibility Report

| S. No.                             | Name of Raw Material            | Required Quantity (MTPA)   |            |                                | Source               | Mode of Transportation |
|------------------------------------|---------------------------------|----------------------------|------------|--------------------------------|----------------------|------------------------|
|                                    |                                 | Existing as per granted EC | Additional | Total after proposed expansion |                      |                        |
| 64.                                | Molecular sieve                 | Nil                        | 9.9        | 9.9                            | Indigenous/ Imported | By Road                |
| 65.                                | Silical gel                     | Nil                        | 9.9        | 9.9                            | Indigenous/ Imported | By Road                |
| 66.                                | Process Water                   | Nil                        | 68656.5    | 68656.5                        | Internal             | Pipeline               |
| 67.                                | Nitrogen                        | Nil                        | 2623.5     | 2623.5                         | Indigenous/ Imported | By Road                |
| <b>Chloromethanes</b>              |                                 |                            |            |                                |                      |                        |
| 68.                                | Methanol                        | Nil                        | 18315      | 18315                          | Indigenous           | By road                |
| 69.                                | Chlorine                        | Nil                        | 55440      | 55440                          | Internal generation  | Pipeline               |
| 70.                                | Caustic                         | Nil                        | 495        | 495                            | Indigenous           | By road                |
| <b>Acetyl Chloride</b>             |                                 |                            |            |                                |                      |                        |
| 71.                                | Acetic Anhydride                | Nil                        | 28957.5    | 28957.5                        | Indigenous/ Imported | By road                |
| 72.                                | Hydrogen Chloride (Gas)         | Nil                        | 10403.25   | 10403.25                       | Internal generation  | Pipeline               |
| 73.                                | Caustic as 100%                 | Nil                        | 536.25     | 536.25                         | Indigenous/ Imported | By road                |
| <b>Chlorodifluoromethane (R22)</b> |                                 |                            |            |                                |                      |                        |
| 74.                                | Chloroform (CHCl <sub>3</sub> ) | Nil                        | 5115       | 5115                           | Internal generation  | Pipeline               |
| 75.                                | Hydrogen Fluoride               | Nil                        | 1984       | 1984                           | indigenous           | By Road                |
| 76.                                | Hydrogen                        | Nil                        | 3          | 3                              | Internal generation  | Pipeline               |
| 77.                                | Sulphuric acid 98%              | Nil                        | 1650       | 1650                           | indigenous           | By Road                |
| 78.                                | Caustic Lye 48%                 | Nil                        | 660        | 660                            | Internal generation  | Pipeline               |
| 79.                                | Chlorine                        | Nil                        | 33         | 33                             | Internal generation  | Pipeline               |
| 80.                                | Antimony trichloride            | Nil                        | 17         | 17                             | indigenous           | By Road                |
| 81.                                | Activated alumina balls         | Nil                        | 3          | 3                              | indigenous           | By Road                |
| 82.                                | Molecular sieve                 | Nil                        | 3          | 3                              | indigenous           | By Road                |
| 83.                                | Process Water                   | Nil                        | 5463       | 5463                           | Internal             | Pipeline               |
| 84.                                | Nitrogen                        | Nil                        | 875        | 875                            | internal             | Internal               |

**b) Fuel Requirements:**

**Table - 5**  
**Unit-Wise Fuel Requirement**

| S. No. | Particular                             | Unit | Quantity |            |                       | Probable transportation |                   |
|--------|----------------------------------------|------|----------|------------|-----------------------|-------------------------|-------------------|
|        |                                        |      | Existing | Additional | Total After expansion | Source                  | Distance and mode |
| 1.     | Steam Boiler-1 (Coal or Rice husk fed) | TPA  | 25000    | 0          | 25000                 | Indigenous/ Imported    | Trucks            |
| 2.     | Steam boiler-2 (Coal or Rice husk fed) | TPA  | 30000    | 0          | 30000                 | Indigenous/ Imported    | Trucks            |

Expansion of existing Membrane Cell based Caustic Soda (from 400 TPD to 1000 TPD), Chlorine Derivative Chemicals (from 350 TPD to 720 TPD) and installation of Membrane Cell based Caustic Potash Plant (100 TPD), Chloromethanes (150 TPD), Carbon tetrachloride (70 TPD), Chlorofluorocarbons (50 TPD) within the existing plant premises

At Village: Balabhadrapuram, Mandal: Biccavolu, & at Village: G. Dontamuru (V), Mandal: Rangampeta, District: East Godavari (Andhra Pradesh).

Pre-Feasibility Report

| S. No. | Particular                             | Unit      | Quantity |            |                       | Probable transportation |                    |
|--------|----------------------------------------|-----------|----------|------------|-----------------------|-------------------------|--------------------|
|        |                                        |           | Existing | Additional | Total After expansion | Source                  | Distance and mode  |
| 3.     | Steam Boiler-3 (Coal or Rice husk fed) | TPA       | 0        | 55000      | 55000                 | Indigenous/ Imported    | Trucks             |
| 4.     | Gas fired steam boiler-4               | Cum/annum | 0        | 3500       | 3500                  | Godavari Gas            | Dedicated pipeline |

### c) Mass balance

The mass balance for the existing & proposed for complete plant is given in the Table below: -

|   | Caustic Soda production |                   |                            |                   |
|---|-------------------------|-------------------|----------------------------|-------------------|
|   | Input                   | MT/ MT of Product | Output                     | MT/ MT of Product |
| 1 | NaCl                    | 1.57              | Caustic Soda               | 1                 |
|   | Water                   | 0.45              |                            |                   |
|   | Caustic Soda            | 0.01              | Chlorine Gas               | 0.8875            |
|   | Barium Carbonate        | 0.005             |                            |                   |
|   | Soda Ash                | 0.003             | Hydrogen Gas               | 0.025             |
|   | Alpha Cellulose         | 0.00015           |                            |                   |
|   | Hydrochloric Acid       | 0.05              | Brine Sludge               | 0.176             |
|   | Sodium Sulphite         | 0.0005            |                            |                   |
|   | Coagulant               | 0.00001           |                            |                   |
|   | <b>Total</b>            | <b>2.089</b>      | <b>Total</b>               | <b>2.089</b>      |
|   | Caustic Potash Plant    |                   |                            |                   |
|   | Input                   | MT/ MT of Product | Output                     | MT/ MT of Product |
| 2 | KCl Brine               | 1.6               | Potassium hydroxide        | 1                 |
|   | Calcium                 | 0.0011            | Chlorine                   | 0.633             |
|   | Magnesium               | 0.0007            | Hydrogen                   | 0.0179            |
|   | Sulphate                | 0.002             |                            |                   |
|   | Insolubles              | 0.0253            |                            |                   |
|   | Potassium Carbonate     | 0.0038            |                            |                   |
|   | Barium Carbonate        | 0.0041            |                            |                   |
|   | HCl                     | 0.0042            |                            |                   |
|   | Potassium Hydroxide     | 0.0097            |                            |                   |
|   | <b>Total</b>            | <b>1.6509</b>     | <b>Total</b>               | <b>1.6509</b>     |
|   | SBP                     |                   |                            |                   |
|   | Input                   | MT/ MT of Product | Output                     | MT/ MT of Product |
| 3 | Hydrated lime           | 0.747             | Stable bleaching powder    | 1                 |
|   | Chlorine                | 0.41              | Effluent water to ETP      | 0.141             |
|   |                         |                   | Unreacted Chlorine to Hypo | 0.016             |
|   | <b>Total</b>            | <b>1.157</b>      | <b>Total</b>               | <b>1.157</b>      |
|   | MCAA                    |                   |                            |                   |
|   | Input                   | MT/ MT of Product | Output                     | MT/ MT of Product |
| 4 |                         |                   |                            |                   |

Expansion of existing Membrane Cell based Caustic Soda (from 400 TPD to 1000 TPD), Chlorine Derivative Chemicals (from 350 TPD to 720 TPD) and installation of Membrane Cell based Caustic Potash Plant (100 TPD), Chloromethanes (150 TPD), Carbon tetrachloride (70 TPD), Chlorofluorocarbons (50 TPD) within the existing plant premises

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|   |                                       |                          |                                       |                          |
|---|---------------------------------------|--------------------------|---------------------------------------|--------------------------|
|   | Acetic Anhydride                      | 0.805                    | Monochloro acetic acid                | 1                        |
|   | Chlorine                              | 0.95                     | Hydrochloric Acid (33%)               | 1.65                     |
|   | Caustic                               | 0.02                     | Scrubbed effluent                     | 0.475                    |
|   | Water                                 | 1.35                     |                                       |                          |
|   | <b>Total</b>                          | <b>3.125</b>             | <b>Total</b>                          | <b>3.125</b>             |
| 5 | <b>CPW</b>                            |                          |                                       |                          |
|   | <b>Input</b>                          | <b>MT/ MT of Product</b> | <b>Output</b>                         | <b>MT/ MT of Product</b> |
|   | Paraffin                              | 0.45                     | Chlorinated Paraffin                  | 1                        |
|   | Chlorine                              | 1.25                     | HCl (100% basis)                      | 0.6875                   |
|   |                                       |                          | Unreacted Chlorine (to Hypo Scrubber) | 0.0125                   |
|   | <b>Total</b>                          | <b>1.7</b>               | <b>Total</b>                          | <b>1.7</b>               |
| 6 | <b>Calcium Chloride plant</b>         |                          |                                       |                          |
|   | <b>Input</b>                          | <b>MT/ MT of Product</b> | <b>Output</b>                         | <b>MT/ MT of Product</b> |
|   | Limestone                             | 0.958                    | Calcium Chloride                      | 1                        |
|   | Hydrochloric Acid (100% basis)        | 0.658                    | Carbon dioxide                        | 0.396                    |
|   |                                       |                          | Water                                 | 0.162                    |
|   |                                       |                          | Sludge                                | 0.058                    |
|   | <b>Total</b>                          | <b>1.616</b>             | <b>Total</b>                          | <b>1.616</b>             |
| 7 | <b>Chloromethanes</b>                 |                          |                                       |                          |
|   | <b>Input</b>                          | <b>MT/ MT of Product</b> | <b>Output</b>                         | <b>MT/ MT of Product</b> |
|   | Methanol                              | 0.37                     | Chloromethanes                        | 1                        |
|   | Chlorine                              | 1.12                     | Hydrochloric acid                     | 0.5                      |
|   | Caustic                               | 0.01                     |                                       |                          |
|   | <b>Total</b>                          | <b>1.5</b>               | <b>Total</b>                          | <b>1.5</b>               |
| 8 | <b>Poly aluminium Chloride Liquid</b> |                          |                                       |                          |
|   | <b>Input</b>                          | <b>MT/ MT of Product</b> | <b>Output</b>                         | <b>MT/ MT of Product</b> |
|   | Alumina Hydrate                       | 0.288                    | Poly aluminium chloride (18%)         | 1                        |
|   | Hydrochloric acid (32%)               | 0.723                    | To scrubber                           | 0.0034                   |
|   |                                       |                          | Sludge                                | 0.008                    |
|   | <b>Total</b>                          | <b>1.011</b>             | <b>Total</b>                          | <b>1.011</b>             |
|   | <b>Poly aluminium Chloride Powder</b> |                          |                                       |                          |
|   | <b>Input</b>                          | <b>MT/ MT of Product</b> | <b>Output</b>                         | <b>MT/ MT of Product</b> |
|   | Poly aluminium Chloride Liquid        | 1.8                      | Polyaluminium Chloride powder         | 1                        |
|   |                                       |                          | Water Vapour                          | 0.8                      |
|   | <b>Total</b>                          | <b>1.8</b>               | <b>Total</b>                          | <b>1.8</b>               |
| 9 | <b>Hydrogen Peroxide</b>              |                          |                                       |                          |
|   | <b>Input</b>                          | <b>MT/ MT of Product</b> | <b>Output</b>                         | <b>MT/ MT of Product</b> |
|   | Hydrogen                              | 0.065                    | Hydrogen peroxide                     | 1                        |

Expansion of existing Membrane Cell based Caustic Soda (from 400 TPD to 1000 TPD), Chlorine Derivative Chemicals (from 350 TPD to 720 TPD) and installation of Membrane Cell based Caustic Potash Plant (100 TPD), Chloromethanes (150 TPD), Carbon tetrachloride (70 TPD), Chlorofluorocarbons (50 TPD) within the existing plant premises

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|    |                                   |                          |                                                           |                          |
|----|-----------------------------------|--------------------------|-----------------------------------------------------------|--------------------------|
|    | Oxygen                            | 0.9356                   | Water with product                                        | 1                        |
|    | Stabilizer                        | 0.001                    | Stabilizer with product                                   | 0.001                    |
|    | Phosphoric acid                   | 0.001                    | Phosphoric acid with product                              | 0.001                    |
|    | Aromatic solvent                  | 0.001                    | Vent Losses                                               | 0.0006                   |
|    | Ethyl anthra quinon               | 0.0012                   | Spent Alumina                                             | 0.0149                   |
|    | Tetra butyl urea                  | 0.001                    | Spent Catalyst                                            | 0.008                    |
|    | Tri Octyl Phosphate               | 0.0002                   | Liquid effluent                                           | 4                        |
|    | Treated alumina                   | 0.0115                   |                                                           |                          |
|    | Catalyst                          | 0.008                    |                                                           |                          |
|    | Water                             | 5                        |                                                           |                          |
|    | <b>Total</b>                      | <b>6.0255</b>            | <b>Total</b>                                              | <b>6.0255</b>            |
| 10 | <b>PTFE</b>                       |                          |                                                           |                          |
|    | <b>Input</b>                      | <b>MT/ MT of Product</b> | <b>Output</b>                                             | <b>MT/ MT of Product</b> |
|    | Chlorodifluoromethane (R22)       | 2.1                      | Polytetrafluoroethylene                                   | 1                        |
|    | H <sub>2</sub> SO <sub>4</sub>    | 0.85                     | Hexa fluoro Propylene                                     | 0.25                     |
|    | Caustic Lye (48%)                 | 0.261                    | Paraffinic wax                                            | 0.001                    |
|    | Paraffin wax                      | 0.002                    | H <sub>2</sub> SO <sub>4</sub>                            | 0.85                     |
|    | Ammonium                          | 0.001                    | Caustic lye                                               | 0.261                    |
|    | Perfluorooctanoate                | 0.001                    | HCL (30%)                                                 | 2.9                      |
|    | Oxalic acid                       | 0.001                    | Spent organic Residue                                     | 0.1                      |
|    | Succinic Acid                     | 0.002                    | Activated Alumina Balls                                   | 0.001                    |
|    | Potassium permagagnate            | 0.002                    | Molecular Sieve                                           | 0.001                    |
|    | Activated Alumina balls           | 0.001                    | Silica Gel                                                | 0.001                    |
|    | Molecular Sieve                   | 0.001                    | Wastewater                                                | 4.792                    |
|    | Silica gel                        | 0.001                    | Nitrogen gas emissions                                    | 0.265                    |
|    | Process Water                     | 6.935                    |                                                           |                          |
|    | Nitrogen                          | 0.265                    |                                                           |                          |
|    | <b>Total</b>                      | <b>10.42</b>             | <b>Total</b>                                              | <b>10.42</b>             |
| 11 | <b>R22</b>                        |                          |                                                           |                          |
|    | <b>Input</b>                      | <b>MT/ MT of Product</b> | <b>Output</b>                                             | <b>MT/ MT of Product</b> |
|    | Chloroform                        | 1.55                     | Chlorodifluoromethane (R22)                               | 1                        |
|    | Hydrogen Fluoride                 | 0.6012                   | Fluoroform                                                | 0.02                     |
|    | Hydrogen                          | 0.0009                   | Dilute HCL                                                | 0.0857                   |
|    | H <sub>2</sub> SO <sub>4</sub>    | 0.5                      | Sulphuric Acid                                            | 0.5269                   |
|    | Caustic lye (48%)                 | 0.2                      | Hydrochloric Acid                                         | 2.8514                   |
|    | Chlorine                          | 0.01                     | SbCl <sub>5</sub>                                         | 0.005                    |
|    | SbCl <sub>3</sub>                 | 0.005                    | Activated Alumina Balls                                   | 0.001                    |
|    | Activated Alumina Balls           | 0.001                    | Molecular Sieve                                           | 0.001                    |
|    | Molecular Sieve                   | 0.001                    | Waste water Effluent                                      | 0.15                     |
|    | Process Water                     | 1.6554                   | Emissions (Nitrogen, Co <sub>2</sub> , HF and HCL traces) | 0.149                    |
|    | Nitrogen                          | 0.265                    |                                                           |                          |
|    | <b>Total</b>                      | <b>4.79</b>              | <b>Total</b>                                              | <b>4.79</b>              |
| 12 | <b>Tri chloro Isocynuric Acid</b> |                          |                                                           |                          |

Expansion of existing Membrane Cell based Caustic Soda (from 400 TPD to 1000 TPD), Chlorine Derivative Chemicals (from 350 TPD to 720 TPD) and installation of Membrane Cell based Caustic Potash Plant (100 TPD), Chloromethanes (150 TPD), Carbon tetrachloride (70 TPD), Chlorofluorocarbons (50 TPD) within the existing plant premises

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|    | Input                           | MT/ MT of Product | Output                     | MT/ MT of Product |
|----|---------------------------------|-------------------|----------------------------|-------------------|
|    | Cyanuric acid                   | 1.05              | Tri chloro isocynuric acid | 1                 |
|    | Caustic soda                    | 0.79              | Hypo                       | 0.001             |
|    | Chlorine                        | 1.55              | Waste water                | 13.06             |
|    | Water                           | 10.682            | Vent loss                  | 0.001             |
|    |                                 |                   | Filter press waste         | 0.01              |
|    | <b>Total</b>                    | <b>14.072</b>     | <b>Total</b>               | <b>14.072</b>     |
| 13 | <b>Carboxy methyl Cellulose</b> |                   |                            |                   |
|    | Input                           | MT/ MT of Product | Output                     | MT/ MT of Product |
|    | Wooden Pulp                     | 0.87              | Na CMC                     | 1.00              |
|    | Isopropanol                     | 0.20              | Acetic acid                | 0.02              |
|    | NaOH (18%)                      | 0.50              | Methanol                   | 0.11              |
|    | NaOH flaker                     | 0.11              | Sodium Chloride            | 0.02              |
|    | Methanol                        | 0.12              | 18% NaOH                   | 0.41              |
|    | Acetic Acid                     | 0.02              | Isopropanol                | 0.18              |
|    | Sodium Monochloroacetate        | 0.66              | Waste Pulp                 | 0.75              |
|    | <b>Total</b>                    | <b>2.48</b>       | <b>Total</b>               | <b>2.48</b>       |
| 14 | <b>Acetyl Chloride</b>          |                   |                            |                   |
|    | Input                           | MT/ MT of Product | Output                     | MT/ MT of Product |
|    | Acetic Anhydride                | 1.350             | Acetyl Chloride            | 1                 |
|    | Hydrogen Chloride (Gas)         | 0.485             | Acetic Acid                | 0.7               |
|    | Caustic as 100%                 | 0.025             | Sludge                     | 0.16              |
|    | <b>Total</b>                    | <b>1.860</b>      | <b>Total</b>               | <b>1.7</b>        |
| 15 | <b>CAC</b>                      |                   |                            |                   |
|    | Input                           | MT/ MT of Product | Output                     | MT/ MT of Product |
|    | Mono Chloro Acetic Acid (MCA)   | 0.7               | CAC                        | 1                 |
|    | Benzo Tri Chloride (BTC)        | 1.5               | Benzoyl Chloride           | 1.2               |
|    | Caustic as 100%                 | 0.025             |                            |                   |
|    | <b>Total</b>                    | <b>2.2</b>        | <b>Total</b>               | <b>2.2</b>        |

#### d) Storage Facilities

Adequate storage facilities have been already provided within the plant premises separately for raw materials and fuels. Additional storage facilities will be required for the proposed Expansion.

Details of existing storage facilities are given in table below: -

Expansion of existing Membrane Cell based Caustic Soda (from 400 TPD to 1000 TPD), Chlorine Derivative Chemicals (from 350 TPD to 720 TPD) and installation of Membrane Cell based Caustic Potash Plant (100 TPD), Chloromethanes (150 TPD), Carbon tetrachloride (70 TPD), Chlorofluorocarbons (50 TPD) within the existing plant premises

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Table- 6A

Storage Facility for Products & By-Products

| S. No. | Product                      | Type of Storage                                               | Storage Capacity in number of Days |                        |
|--------|------------------------------|---------------------------------------------------------------|------------------------------------|------------------------|
|        |                              |                                                               | Existing                           | Proposed for expansion |
| 1      | Caustic Soda lye             | Mild steel tank                                               | 14 days                            | 14 days                |
| 2      | Caustic soda flakes          | Warehouse                                                     | 21 days                            | 21 days                |
| 3      | Caustic Potash               | Mild steel tank                                               | NA                                 | 14 days                |
| 4      | Caustic Potash flakes        | Warehouse                                                     | NA                                 | 21 days                |
| 5      | Liquid Chlorine              | MS bullets (capsule tank)<br>Thermally insulated &<br>Tonners | 7 days                             | 7 days                 |
| 6      | Hydrochloric acid (100%)     | FRP Tank                                                      | 14 days                            | 14 days                |
| 7      | Sodium Hypochlorite (100%)   | FRP Tank                                                      | 7 days                             | 7 days                 |
| 8      | Hydrogen                     | Mild steel gas Holder                                         | 7 days                             | 7 days                 |
| 9      | Compressed Hydrogen          | Mild steel gas holder                                         | 7 days                             | 7 days                 |
| 10     | Poly aluimnium chloride      | FRP tank/MSRL/ Bag                                            |                                    |                        |
| 11     | Stable bleaching powder      | Warehouse                                                     | 14 days                            | 14 days                |
| 12     | Chlorinated paraffin wax     | Epoxy coated MS<br>Tank/Warehouse                             | 14 days                            | 14 days                |
| 13     | Sulphuric acid               | FRP tank                                                      | 7 days                             | 7 days                 |
| 14     | Calcium Chloride             | Epoxy coated MS<br>Tank/Warehouse                             | NA                                 | NA                     |
| 15     | Mono Chloro acetic acid      | Warehouse, FRP Tank                                           | 14 days                            | 14 days                |
| 16     | Hydrogen Peroxide            | FRP tank                                                      | NA                                 | NA                     |
| 17     | Calcium Hypochlorite         | Warehouse                                                     | 7 days                             | 7 days                 |
| 18     | Anhydrous Aluminium chloride | FRP tank                                                      | 14 days                            | 14 days                |

Table- 6B

Storage Facility for Raw Material and Fuel

| S. No. | Product                                      | Type of Storage | Storage Capacity in number of Days |                        |
|--------|----------------------------------------------|-----------------|------------------------------------|------------------------|
|        |                                              |                 | Existing                           | Proposed for expansion |
| 1.     | NaCl salt                                    | Open yard       | 14 days                            | 14 days                |
| 2.     | Barium Carbonate                             | Bags            | 30 days                            | 30 days                |
| 3.     | Sodium Carbonate                             | Bags            | 30 days                            | 30 days                |
| 4.     | Soda ash                                     | Bags            | 30 days                            | 30 days                |
| 5.     | Alpha cellulose                              | Bags            | 30 days                            | 30 days                |
| 6.     | Magna floc                                   | Bags/ Warehouse | 30 days                            | 30 days                |
| 7.     | KCl salt                                     | Sheds           | 14 days                            | 14 days                |
| 8.     | Potassium Carbonate                          | sheds           | 14 days                            | 14 days                |
| 9.     | Potassium bisulphite                         | Tanks           | 14 days                            | 14 days                |
| 10.    | Hydrated Lime 90%                            | Bags            | 14 days                            | 14 days                |
| 11.    | Normal paraffin/<br>Heavy normal<br>paraffin | MS tank         | 14 days                            | 14 days                |

Expansion of existing Membrane Cell based Caustic Soda (from 400 TPD to 1000 TPD), Chlorine Derivative Chemicals (from 350 TPD to 720 TPD) and installation of Membrane Cell based Caustic Potash Plant (100 TPD), Chloromethanes (150 TPD), Carbon tetrachloride (70 TPD), Chlorofluorocarbons (50 TPD) within the existing plant premises

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|     |                          |           |         |         |
|-----|--------------------------|-----------|---------|---------|
| 12. | Epoxidized soya bean oil | HDPE drum | 14 days | 14 days |
| 13. | Acetic acid              | Tanks     | 14 days | 14 days |
| 14. | CAC                      | Tanks     | 14 days | 14 days |
| 15. | 2 Ethyl anthraquinone    | Tanks     | 14 days | 14 days |
| 16. | Aluminium                | Shed      | 14 days | 14 days |
| 17. | Methanol                 | Tanks     | 14 days | 14 days |
| 18. | Limestone                | Bags      | 14 days | 14 days |

Table- 6C

Storage Facility for Solid and Hazardous Waste

| S. No. | Product                                             | Type of Storage | Storage Capacity in number of Days |                        |
|--------|-----------------------------------------------------|-----------------|------------------------------------|------------------------|
|        |                                                     |                 | Existing                           | Proposed for expansion |
| 1.     | Brine Sludge from Caustic soda plant                | Shed            | 90 days                            | 90 days                |
| 2.     | Brine Sludge from Caustic potash plant              | Shed            | 90 days                            | 90 days                |
| 3.     | Sludge from Calcium Hypochlorite                    | Bags            | 90 days                            | 90 days                |
| 4.     | PAC process waste and residues                      | Bags            | 90 days                            | 90 days                |
| 5.     | SBP process waste and residues                      | Bags            | 90 days                            | 90 days                |
| 6.     | Sludge from Hydrogen Peroxide                       | Bags/ Warehouse | 90 days                            | 90 days                |
| 7.     | Sludge from waste water treatment                   | Sheds           | 90 days                            | 90 days                |
| 8.     | ATFD salts                                          | sheds           | 90 days                            | 90 days                |
| 9.     | Process waste from Calcium chloride plant           | Tanks           | 90 days                            | 90 days                |
| 10.    | Anhydrous aluminium chloride dross waste            | Bags            | 90 days                            | 90 days                |
| 11.    | Anhydrous aluminium chloride residues waste         | MS tank         | 90 days                            | 90 days                |
| 12.    | Electrolyzers waste membrane                        | MS tank         | 90 days                            | 90 days                |
| 13.    | CPW residues                                        | HDPE drum       | 90 days                            | 90 days                |
| 14.    | Bleach liquor from HSBP plant                       | MS tank         | 90 days                            | 90 days                |
| 15.    | Residue and sludge from HSBP plant                  | Tanks           | 90 days                            | 90 days                |
| 16.    | Rejected lime from Plants                           | tanks           | 90 days                            | 90 days                |
| 17.    | Reactor/tanks cleaning residues from various plants | cylinders       | 90 days                            | 90 days                |
| 18.    | Oil soaked/contaminated waste                       | Shed            | 90 days                            | 90 days                |
| 19.    | used or spent oil                                   | Shed            | 90 days                            | 90 days                |
| 20.    | Spent ion exchange resins and other resins          | Shed            | 90 days                            | 90 days                |
| 21.    | Discarded contaminated containers and liners/bags   | Shed            | 90 days                            | 90 days                |
| 22.    | Oil and grease skimming residues                    | Shed            | 90 days                            | 90 days                |
| 23.    | Asbestos waste                                      | Shed            | 90 days                            | 90 days                |
| 24.    | Glasswool insulation waste                          | Shed            | 90 days                            | 90 days                |

| S. No. | Product                     | Type of Storage | Storage Capacity in number of Days |                        |
|--------|-----------------------------|-----------------|------------------------------------|------------------------|
|        |                             |                 | Existing                           | Proposed for expansion |
| 25.    | Used RO filters and candles | Shed            | 90 days                            | 90 days                |

**vii. Resources optimization/ recycling and reuse envisaged in the project, if any, should be briefly outlined.**

- Waste water from Process, Boiler Blow down, Cooling tower blow down, DM Plant is being/will be generated. This waste water is being/will be treated in Effluent treatment plant. This treated effluent after ensuring compliance with norms of APPCB / CPCB is being/will be used for dust suppression, ash conditioning & for greenbelt development.
- Domestic wastewater generated from colony is being / will be treated in STP and treated water is being/will be used for greenbelt/ plantation development.
- The ash generated from the boiler is being/will be sold to nearby brick manufacturer.

**viii. Availability of water its source, energy /power requirement and source should be given.**

**a) Water Requirement and Source**

Existing water requirement is 2995 KLD; Additional Water requirement is 10020 KLD; Total water requirement after expansion will be 13015 KLD, which will be sourced from Godavari River (17145 KLD) and Ground water (5575 KLD). Existing water permission for drawl of 17,145 KLD water from river Godavari has been obtained from vide Memo. No. CE/GDS/DWM/OT-1/AEE1/703 dated 12.11.15. Permission for withdrawal of 5575 KLD ground water has been obtained from APWALTA vide Lr.No:PRR05-11028/5/2020-SLNA-GIS-CORD, dated 25.11.2020. The existing permissions will suffice for the proposed expansion project. Therefore, no additional water withdrawal permission will be required for the proposed expansion project. Copy of the Surface as well as Ground water Permissions have been enclosed as **Annexure 5a & 5b**, respectively, with this PFR.

Break-up of water requirement is given below

**Table – 7**  
**Water Requirement**

| S. No. | Plant Name                                      | Existing (KLD) | Additional (KLD) | Total after proposed Expansion (KLD) |
|--------|-------------------------------------------------|----------------|------------------|--------------------------------------|
| 1.     | Caustic Soda plant its products and By products | 1222           | 3055             | 4277                                 |
| 2.     | Caustic Potash Plant                            | 0              | 320              | 320                                  |
| 3.     | Stable Bleaching Powder                         | 30             | 60               | 90                                   |
| 4.     | Poly Aluminium Chloride                         | 0              | 378              | 378                                  |
| 5.     | Calcium Hypochlorite                            | 0              | 90               | 90                                   |
| 6.     | Trichloro Iso cynuric acid                      | 0              | 600              | 600                                  |
| 7.     | Sodium di chloro isocynurate                    | 0              | 60               | 60                                   |
| 8.     | Anhydrous Aluminium Chloride                    | 0              | 30               | 30                                   |
| 9.     | Chlorinated Paraffin wax                        | 48             | 96               | 144                                  |
| 10.    | Monochloroacetic acid                           | 60             | 60               | 120                                  |
| 11.    | Acetyl Chloride                                 | 0              | 40               | 40                                   |
| 12.    | Carboxy Methyl Cellulose                        | 0              | 25               | 25                                   |

Expansion of existing Membrane Cell based Caustic Soda (from 400 TPD to 1000 TPD), Chlorine Derivative Chemicals (from 350 TPD to 720 TPD) and installation of Membrane Cell based Caustic Potash Plant (100 TPD), Chloromethanes (150 TPD), Carbon tetrachloride (70 TPD), Chlorofluorocarbons (50 TPD) within the existing plant premises

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| S. No.                   | Plant Name                                                              | Existing (KLD) | Additional (KLD) | Total after proposed Expansion (KLD) |
|--------------------------|-------------------------------------------------------------------------|----------------|------------------|--------------------------------------|
| 13.                      | Chloro Acetyl Chloride                                                  | 0              | 100              | 100                                  |
| 14.                      | Hydrogen Peroxide                                                       | 0              | 90               | 90                                   |
| 15.                      | Chloromethanes                                                          | 0              | 750              | 750                                  |
| 16.                      | Carbon tetra chloride                                                   | 0              | 45               | 45                                   |
| 17.                      | PTFE                                                                    | 0              | 207              | 207                                  |
| 18.                      | Chlorodifluoromethane (R22)                                             | 0              | 17               | 17                                   |
| 19.                      | Fire hydrant system                                                     | 5              | 10               | 15                                   |
| 20.                      | Utilities (Boiler Blow down, cooling tower makeup due to vapour losses) | 1390           | 3688             | 5078                                 |
| 21.                      | Greenbelt                                                               | 200            | 200              | 400                                  |
| 22.                      | Domestic                                                                | 40             | 100              | 140                                  |
| <b>Total Requirement</b> |                                                                         | <b>2995</b>    | <b>10020</b>     | <b>13015</b>                         |

Existing and Proposed Water Balance Chart are given below in figure -5

Expansion of existing Membrane Cell based Caustic Soda (from 400 TPD to 1000 TPD), Chlorine Derivative Chemicals (from 350 TPD to 720 TPD) and installation of Membrane Cell based Caustic Potash Plant (100 TPD), Chloromethanes (150 TPD), Carbon tetrachloride (70 TPD), Chlorofluorocarbons (50 TPD) within the existing plant premises

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Water Balance for Existing as well as proposed expansion of existing Membrane Cell based Caustic Soda (from 400 TPD to 1000 TPD), Chlorine Derivative Chemicals (from 350 TPD to 720 TPD) and installation of Membrane Cell based Caustic Potash Plant (100 TPD), Chloromethanes (150 TPD), Carbon tetrachloride (70 TPD), Chlorofluorocarbons (50 TPD) within the existing plant premises at Village: Balabhadrapuram, Mandal: Biccavolu & at Village: G. Dontamuru (V), Mandal: Rangampeta, District: East Godavari (Andhra Pradesh)"

| Sl. No. | Name of the Products                                                    | Existing Water Requirement (KLD) |              |                | Proposed Water Requirement (KLD) |              |                | Total Water Requirement after Proposed Expansion (KLD) |              |                | Effluent / Blowdown (KLD) |            |                       | Evaporation losses and steam trap losses |                 |
|---------|-------------------------------------------------------------------------|----------------------------------|--------------|----------------|----------------------------------|--------------|----------------|--------------------------------------------------------|--------------|----------------|---------------------------|------------|-----------------------|------------------------------------------|-----------------|
|         |                                                                         | Water Required                   | With Product | With ByProduct | Water Required                   | With Product | With ByProduct | Total Water Required after Expansion                   | With Product | With ByProduct | Existing                  | Additional | Total after Expansion | Existing                                 | After expansion |
| 1       | Caustic Soda plant its products and By products                         | 1222                             | 433          | 648            | 3055                             | 1083         | 1620           | 4277                                                   | 1516         | 2268           | 105                       | 352        | 457                   | 36                                       | 37              |
| 2       | Caustic Potash Plant                                                    | 0                                | 0            | 0              | 320                              | 136          | 160            | 320                                                    | 136          | 160            | 0                         | 24         | 24                    | 0                                        | 0               |
| 3       | SBP                                                                     | 30                               | 0            | 0              | 60                               | 0            | 0              | 90                                                     | 0            | 0              | 5                         | 20         | 25                    | 25                                       | 65              |
| 4       | PAC                                                                     | 0                                | 0            | 0              | 378                              | 190          | 0              | 378                                                    | 190          | 0              | 0                         | 10         | 10                    | 0                                        | 178             |
| 5       | Calcium Hypochlorite                                                    | 0                                | 0            | 0              | 90                               | 0            | 0              | 90                                                     | 0            | 0              | 0                         | 0          | 0                     | 0                                        | 90              |
| 6       | Trichloro Iso cynuric acid                                              | 0                                | 0            | 0              | 600                              | 60           | 100            | 600                                                    | 60           | 100            | 0                         | 440        | 440                   | 0                                        | 0               |
| 7       | Sodium di chloro isocynurate                                            | 0                                | 0            | 0              | 60                               | 20           | 30             | 60                                                     | 20           | 30             | 0                         | 10         | 10                    | 0                                        | 0               |
| 8       | Anhydrous Aluminium Chloride                                            | 0                                | 0            | 0              | 30                               | 0            | 0              | 30                                                     | 0            | 0              | 0                         | 10         | 10                    | 0                                        | 20              |
| 9       | Chlorinated Paraffin wax                                                | 48                               | 0            | 15             | 96                               | 0            | 15             | 144                                                    | 0            | 30             | 5                         | 10         | 15                    | 28                                       | 99              |
| 10      | Monochloroacetic acid                                                   | 60                               | 0            | 50             | 60                               |              | 30             | 120                                                    | 0            | 80             | 5                         | 10         | 15                    | 5                                        | 25              |
| 11      | Acetyl Chloride                                                         | 0                                | 0            | 0              | 40                               | 20           | 20             | 40                                                     | 20           | 20             | 0                         | 0          | 0                     | 0                                        | 0               |
| 12      | Carboxy Methyl Cellulose                                                | 0                                | 0            | 0              | 25                               | 15           | 0              | 25                                                     | 15           | 0              | 0                         | 10         | 10                    | 0                                        | 0               |
| 13      | Chloro Acetyl Chloride                                                  | 0                                | 0            | 0              | 100                              | 0            | 0              | 100                                                    | 0            | 0              | 0                         | 10         | 10                    | 0                                        | 90              |
| 14      | Hydrogen Peroxide                                                       | 0                                | 0            | 0              | 90                               | 50           | 0              | 90                                                     | 50           | 0              | 0                         | 10         | 10                    | 0                                        | 30              |
| 15      | Chloromethanes                                                          | 0                                | 0            | 0              | 750                              | 0            | 275            | 750                                                    | 0            | 275            | 0                         | 85         | 85                    | 0                                        | 390             |
| 16      | Carbon tetra chloride                                                   | 0                                | 0            | 0              | 45                               | 0            | 0              | 45                                                     | 0            | 0              | 0                         | 20         | 20                    | 0                                        | 25              |
| 17      | PTFE                                                                    | 0                                | 0            | 0              | 207                              | 0            | 150            | 207                                                    | 0            | 150            | 0                         | 0          | 0                     | 0                                        | 57              |
| 18      | Chlorodifluoromethane (R22)                                             | 0                                | 0            | 0              | 17                               | 0            | 0              | 17                                                     | 0            | 0              | 0                         | 0          | 0                     | 0                                        | 17              |
| 19      | Fire hydrant system                                                     | 5                                | 0            | 0              | 10                               | 0            | 0              | 15                                                     | 0            | 0              | 0                         | 0          | 0                     | 5                                        | 15              |
| 20      | Utilities (Boiler Blow down, cooling tower makeup due to vapour losses) | 1390                             | 0            | 0              | 3688                             | 0            | 0              | 5078                                                   | 0            | 0              | 300                       | 1040       | 1340                  | 1090                                     | 3738            |
| 22      | Greenbelt                                                               | 200                              | 0            | 0              | 200                              | 0            | 0              | 400                                                    | 0            | 0              | 0                         | 0          | 0                     | 200                                      | 400             |
| 23      | Domestic                                                                | 40                               | 0            | 0              | 100                              | 0            | 0              | 140                                                    | 0            | 0              | 30                        | 80         | 110                   | 10                                       | 30              |
| Total   |                                                                         | 2995                             | 433          | 713            | 10020                            | 1574         | 2400           | 13015                                                  | 2007         | 3113           | 450                       | 2141       | 2591                  | 1399                                     | 5305            |

| particular              | Existing | Proposed | Total after proposed expansion |
|-------------------------|----------|----------|--------------------------------|
| Total Water Requirement | 2995     | 10020    | 13015                          |
| Fresh water consumption | 2635     | 8320     | 10955                          |
| Effluent Generation     | 450      | 2141     | 2591                           |
| Recycled water          | 360      | 1700     | 2060                           |

|  |                                                   |
|--|---------------------------------------------------|
|  | Operating as per CTO                              |
|  | Granted as per EC, Under consutruction as per CTE |
|  | Proposed expansion                                |

Note\* The plant is Zero Liquid Discharge and will remain Zero Liquid Discharge Unit after the proposed expansion.

Figure 5: Existing and Proposed Water Balance Diagram

**b) Steam Requirement**

Existing total steam requirement of the plant is 24.53 TPH. The additional steam required for the expansion project will be 33.05 TPH, which will be fulfilled from the existing boilers of 15 TPH and 20 TPH and proposed Boilers of 150 TPH (3 x 50 TPH) capacity.

**Table 8**  
**Steam Requirement and Source**

| Steam Requirement and Source                 |                                      |                                  |                  |                             |
|----------------------------------------------|--------------------------------------|----------------------------------|------------------|-----------------------------|
| S. No.                                       | Plant Name                           | Existing (TPH) as per granted EC | Additional (TPH) | Total after Expansion (TPH) |
| Chlor-Alkali Plant                           |                                      |                                  |                  |                             |
| 1                                            | Caustic Soda                         | 11.7                             | 16.95            | 28.25                       |
| 2                                            | Caustic Soda Flakes                  |                                  |                  |                             |
| 3                                            | Caustic Potash                       | 7                                | 0                | 7                           |
| 4                                            | Caustic Potash Flakes                |                                  |                  |                             |
| Chlorine Derivated Water treatment chemicals |                                      |                                  |                  |                             |
| 1.                                           | Stable Bleaching Powder              | 0.2                              | 0.27             | 0.54                        |
| 2.                                           | Poly Aluminum Chloride               | 1                                | 2                | 3                           |
| 3.                                           | Calcium Hypochlorite                 | 0.8                              | 0.8              | 1.6                         |
| 4.                                           | Trichloro Iso Cyanuric Acid          | Nil                              | 2                | 2                           |
| 5.                                           | Sodium di Chloro isocynurate (SDIC)  | Nil                              | 0.2              | 0.2                         |
| 6.                                           | Anhydrous Aluminum Chloride          | 2                                | 0                | 2                           |
| 7.                                           | Calcium Chloride                     | Nil                              | 4                | 4                           |
| Others                                       |                                      |                                  |                  |                             |
| 8.                                           | Chlorinated Paraffin Wax             | 0.08                             | 0.08             | 0.16                        |
| 9.                                           | Mono-chloro Acetic Acid              | 1.75                             | 3.5              | 5.25                        |
| 10.                                          | Acetyl Chloride                      | Nil                              | 1                | 1                           |
| 11.                                          | Sodium mono chloro acetate           | Nil                              | 1                | 1                           |
| 12.                                          | Carboxy Methyl Cellulose (CMC)       | Nil                              | 0.05             | 0.05                        |
| 13.                                          | Chloro Acetyl Chloride               | Nil                              | 0.05             | 0.05                        |
| Chloromethanes + Value Chain                 |                                      |                                  |                  |                             |
| 14.                                          | Methyl Chloride                      | Nil                              | 3                | 3                           |
| 15.                                          | Methylene chloride                   | Nil                              |                  |                             |
| 16.                                          | Chloroform                           | Nil                              |                  |                             |
| 17.                                          | Carbon tetra chloride                | Nil                              |                  |                             |
| 18.                                          | Carbon tetrachloride from Chloroform | Nil                              | 0.05             | 0.05                        |
| Chlorofluorocarbon                           |                                      |                                  |                  |                             |
| 19.                                          | PTFE                                 | nil                              | 0.05             | 0.05                        |
| 20.                                          | Chlorodifluoromethane (R22)          | nil                              | 0.05             | 0.05                        |
| Total Steam Requirement                      |                                      | 24.53                            | 35.05            | 59.25                       |

Expansion of existing Membrane Cell based Caustic Soda (from 400 TPD to 1000 TPD), Chlorine Derivative Chemicals (from 350 TPD to 720 TPD) and installation of Membrane Cell based Caustic Potash Plant (100 TPD), Chloromethanes (150 TPD), Carbon tetrachloride (70 TPD), Chlorofluorocarbons (50 TPD) within the existing plant premises

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**Table 9**  
**Steam Generation**

| Steam generation capacity                         |                |                  |                             |
|---------------------------------------------------|----------------|------------------|-----------------------------|
| Unit                                              | Existing (TPH) | Additional (TPH) | Total after expansion (TPH) |
| Steam boiler-1 (Coal or rice husk fired)          | 15             | Nil              | 15                          |
| Steam boiler-2 (Coal or rice husk fired) stand by | 20             | Nil              | 20                          |
| Steam boiler-3 (Coal or Rice Husk Fired) stand by | Nil            | 50               | 50                          |
| Steam boiler-4 (Gas fired)                        | Nil            | 100 (2 x 50)     | 100                         |
| Total                                             | 35             | 150              | 185                         |

**c) Power Requirement and Source**

The existing power requirement is 59.84 MW. Additional 99.66 MW power will be required for proposed expansion project. Thus, the total power requirement after proposed expansion will be 159.50 MW.

Source: Andhra Pradesh Electricity Board, ABG Group Captive renewable solar power and IEX Power.

**Table - 10**  
**Power Requirement**

| S. No.                                       | Plant Name                          | Existing (MW)<br>as per granted<br>EC | Additional (MW) | Total after Expansion<br>(MW) |
|----------------------------------------------|-------------------------------------|---------------------------------------|-----------------|-------------------------------|
| Chlor-Alkali Plant                           |                                     |                                       |                 |                               |
| 1                                            | Caustic Soda                        | 36.67                                 | 55.00           | 91.67                         |
| 2                                            | Caustic Soda Flakes                 |                                       |                 |                               |
| 3                                            | Caustic Potash                      | 20                                    | 0               | 20                            |
| 4                                            | Caustic Potash Flakes               |                                       |                 |                               |
| Chlorine Derivated Water treatment chemicals |                                     |                                       |                 |                               |
| 1.                                           | Stable Bleaching Powder             | 0.23                                  | 0.23            | 0.46                          |
| 2.                                           | Poly Aluminum Chloride              | 0.46                                  | 0.46            | 0.92                          |
| 3.                                           | Calcium Hypochlorite                | Nil                                   | 0.4             | 0.4                           |
| 4.                                           | Trichloro Iso Cyanuric Acid         | Nil                                   | 0.6             | 0.6                           |
| 5.                                           | Sodium di Chloro isocynurate (SDIC) | Nil                                   | 0.8             | 0.8                           |
| 6.                                           | Anhydrous Aluminum Chloride         | Nil                                   | 0.59            | 0.59                          |
| 7.                                           | Calcium Chloride                    | Nil                                   | 0.2             | 0.2                           |
| Others                                       |                                     |                                       |                 |                               |
| 1.                                           | Chlorinated Paraffin Wax            | 0.08                                  | 0.08            | 0.16                          |
| 2.                                           | Mono-chloro Acetic Acid             | 2.4                                   | 4.8             | 7.2                           |
| 3.                                           | Carboxy Methyl Cellulose (CMC)      | Nil                                   | 1.2             | 1.2                           |
| 4.                                           | Acetyl Chloride                     | Nil                                   | 0.8             | 0.8                           |
| 5.                                           | Sodium Mono chloro acetate          | Nil                                   | 0.5             | 0.5                           |
| 6.                                           | Chloro Acetyl Chloride              | Nil                                   | 0.8             | 0.8                           |
| Chloromethanes + Value Chain                 |                                     |                                       |                 |                               |
| 7.                                           | Methyl Chloride                     | Nil                                   | 25              | 25                            |
| 8.                                           | Methylene chloride                  | Nil                                   |                 |                               |
| 9.                                           | Chloroform                          | Nil                                   |                 |                               |

Expansion of existing Membrane Cell based Caustic Soda (from 400 TPD to 1000 TPD), Chlorine Derivative Chemicals (from 350 TPD to 720 TPD) and installation of Membrane Cell based Caustic Potash Plant (100 TPD), Chloromethanes (150 TPD), Carbon tetrachloride (70 TPD), Chlorofluorocarbons (50 TPD) within the existing plant premises

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| S. No.                         | Plant Name                           | Existing (MW) as per granted EC | Additional (MW) | Total after Expansion (MW) |
|--------------------------------|--------------------------------------|---------------------------------|-----------------|----------------------------|
| 10.                            | Carbon tetra chloride                | Nil                             |                 |                            |
| 11.                            | Carbon tetrachloride from Chloroform | Nil                             | 5               | 5                          |
| <b>Chlorofluorocarbon</b>      |                                      |                                 |                 |                            |
| 12.                            | PTFE                                 | Nil                             | 1.2             | 1.2                        |
| 13.                            | Chlorodifluoromethane (R22)          | Nil                             | 2               | 2                          |
| <b>Total Power Requirement</b> |                                      | <b>59.84</b>                    | <b>99.66</b>    | <b>159.50</b>              |

ix. Quantity of waste to be generated (liquid and solid) and scheme for their management/disposal

a) **SOLID / HAZARDOUS WASTE GENERATION**

The details of Solid/Hazardous waste generation from the Plant are given below:

**Table – 11**  
**Solid and Hazardous Waste Generation (as per existing EC products and Proposed products)**

| S. No | Hazardous waste Type                                                                    | Quantity                   |          |                       | Method of Treatment and Disposal          |
|-------|-----------------------------------------------------------------------------------------|----------------------------|----------|-----------------------|-------------------------------------------|
|       |                                                                                         | Existing as per granted EC | Proposed | Total after Expansion |                                           |
| 1.    | Brine Sludge (TPD)                                                                      | 10                         | 50       | 60                    | Sent to TSDF                              |
| 2.    | ATFD salts (TPD)                                                                        | 7                          | 15       | 22                    | Sent to TSDF                              |
| 3.    | Brine Sludge from Caustic potash plant (TPD)                                            | 5                          | -        | 5                     | Sent to TSDF                              |
| 4.    | Sludge from Calcium Hypochlorite (TPD)                                                  | 1                          | 1        | 2                     | Sent to TSDF                              |
| 5.    | PAC process waste and residues (TPD)                                                    | 2                          | 4        | 6                     | Sent to TSDF                              |
| 6.    | SBP process waste and residues (TPD)                                                    | 1                          | 1        | 2                     | Sent to TSDF                              |
| 7.    | Sludge/ Residue from Hydrogen Peroxide (TPD)                                            | 1                          | -        | 1                     | Sent to TSDF                              |
| 8.    | Sludge from waste water treatment (TPD)                                                 | 6.88                       | 15.12    | 22                    | Sent to TSDF                              |
| 9.    | Residue/ sludge and filter cakes (TPD)                                                  | 6                          | 6        | 12                    | Sold to authorized Recycler/ Incinerator  |
| 10.   | Wastes/ Residues containing oil (TPD)                                                   | 1                          | 2        | 3                     | Sold to authorized Recycler/ Incinerator. |
| 11.   | Discarded containers barrels liners contaminated with hazardous wastes/ chemicals (TPD) | 0.02                       | 9.98     | 10                    | Sold to authorized Recycler/ Incinerator. |
| 12.   | Sludge from wet scrubbers (TPD)                                                         | 0.016                      | 1.5      | 1.516                 | Sent to TSDF                              |
| 13.   | Spent Catalyst (TPD)                                                                    | 4                          | 5        | 9                     | Sent to TSDF                              |

Expansion of existing Membrane Cell based Caustic Soda (from 400 TPD to 1000 TPD), Chlorine Derivative Chemicals (from 350 TPD to 720 TPD) and installation of Membrane Cell based Caustic Potash Plant (100 TPD), Chloromethanes (150 TPD), Carbon tetrachloride (70 TPD), Chlorofluorocarbons (50 TPD) within the existing plant premises

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| S. No              | Hazardous waste Type                                      | Quantity                   |          |                       | Method of Treatment and Disposal   |
|--------------------|-----------------------------------------------------------|----------------------------|----------|-----------------------|------------------------------------|
|                    |                                                           | Existing as per granted EC | Proposed | Total after Expansion |                                    |
| 14.                | Process waste from Calcium chloride plant (TPD)           | 2                          |          | 2                     | Sent to TSDF                       |
| 15.                | Anhydrous aluminium chloride dross waste (TPD)            | 5                          | -        | 5                     | Sent to TSDF                       |
| 16.                | Anhydrous aluminium chloride residues waste (TPD)         | 5                          | -        | 5                     | Sent to TSDF                       |
| 17.                | Electrolyzers waste membrane (TPD)                        | 1                          | 4        | 5                     | Sent to TSDF                       |
| 18.                | CPW residues (TPD)                                        | 1                          | 1        | 2                     | Sent to TSDF                       |
| 19.                | Bleach liquor from HSBP plant (TPD)                       | 1                          | 1        | 2                     | Sent to TSDF                       |
| 20.                | Residue and sludge from HSBP plant (TPD)                  | 1                          | 1        | 2                     | Sent to TSDF                       |
| 21.                | Rejected lime from Plants                                 | NIL                        | 1        | 1                     | Sent to TSDF                       |
| 22.                | Reactor/tanks cleaning residues from various plants (TPD) | NIL                        | 2        | 2                     | Sent to TSDF                       |
| 23.                | Oil soaked/contaminated waste (TPD)                       | NIL                        | 1        | 1                     | Sent to TSDF                       |
| 24.                | Bagfilter clothes (TPD)                                   | NIL                        | 1        | 1                     | Sent to TSDF                       |
| 25.                | Spent acid (TPD)                                          | NIL                        | 2        | 2                     | Sent to TSDF                       |
| 26.                | Spent ion exchange resins and other resins(TPD)           | NIL                        | 2        | 2                     | Sent to TSDF                       |
| 27.                | Sent to TSDF Oil and grease skimming residues (TPD)       | NIL                        | 2        | 2                     | Sent to TSDF                       |
| 28.                | Asbestos waste (TPD)                                      | NIL                        | 2        | 2                     | Sent to TSDF                       |
| 29.                | Glasswool insulation waste (TPD)                          | NIL                        | 2        | 2                     | Sent to TSDF                       |
| 30.                | Used RO filters and candles (TPD)                         | NIL                        | 2        | 2                     | Sent to TSDF                       |
| 31.                | Residue/ Sludge from TISC and SDIC(TPD)                   | NIL                        | 1        | 1                     | Sent to TSDF                       |
| 32.                | Spent ion exchange resins and other resins (TPD)          | NIL                        | 2        | 2                     | Sent to TSDF                       |
| 33.                | Sent to TSDF Oil and grease skimming residues (TPD)       | NIL                        | 2        | 2                     | Sent to TSDF                       |
| 34.                | Residue/ Sludge from Chloromethanes (TPD)                 | NIL                        | 4        | 4                     | Sent to TSDF                       |
| 35.                | Residue/ Sludge from CFC's (TPD)                          | NIL                        | 2        | 2                     | Sent to TSDF                       |
| <b>Other Waste</b> |                                                           |                            |          |                       |                                    |
| 36.                | E waste (TPA)                                             | 0.5                        | 2        | 2.5                   | Sold to authorized Recycler only.  |
| 37.                | Scrap (TPA)                                               | 5                          | 5        | 10                    | Sold to Scrap handling agencies.   |
| 38.                | FRP Waste (TPA)                                           | 5                          | 5        | 10                    | Co-processing in Cement industry / |

Expansion of existing Membrane Cell based Caustic Soda (from 400 TPD to 1000 TPD), Chlorine Derivative Chemicals (from 350 TPD to 720 TPD) and installation of Membrane Cell based Caustic Potash Plant (100 TPD), Chloromethanes (150 TPD), Carbon tetrachloride (70 TPD), Chlorofluorocarbons (50 TPD) within the existing plant premises

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| S. No | Hazardous waste Type           | Quantity                   |          |                       | Method of Treatment and Disposal                                                                     |
|-------|--------------------------------|----------------------------|----------|-----------------------|------------------------------------------------------------------------------------------------------|
|       |                                | Existing as per granted EC | Proposed | Total after Expansion |                                                                                                      |
|       |                                |                            |          |                       | Disposal to Common TSDF.                                                                             |
| 39.   | Used Lead Acid Batteries (TPA) | 1                          | 5        | 6                     | Will go in buy back scheme.                                                                          |
| 40.   | Sludge from STP (TPM)          | 0.19                       | 0.21     | 0.4                   | Used in Gardening purpose.                                                                           |
| 41.   | Plastic Waste (MT)             | 50                         | 75       | 125                   | Through Authorized recyclers only.                                                                   |
| 42.   | Battery waste (MT)             | 100                        | 200      | 300                   | Will go in buy back scheme.                                                                          |
| 43.   | Metal waste (MT)               | 50                         | 75       | 125                   | Sold to Authorized Recyclers only.                                                                   |
| 44.   | Other Solid waste (MT)         | 10                         | 18       | 28                    | Organic waste will be made to compost, while non organic waste will be sold to authorized recyclers. |

**a) LIQUID WASTE GENERATION**

- No wastewater is being/ will be discharged outside the plant.
- The existing water requirement of the plant is 2995 KLD including 2635 KLD of Fresh water from Godavari River as well as Ground water and 360 KLD is recycled water.
- After the proposed expansion, 13015 KLD water will be required for the project including 10955 KLD of fresh water from Godavari River as well as Ground water and 2060 KLD recycled water.
- The existing industrial effluent generation from the plant is 420 KLD, which is being treated in ETP, ultra-filtration and MEE followed by ATFD.
- After the proposed expansion the effluent generation from the plant will be 2591 KLD (Including 1251 KLD from Process, 1340 KLD Blowdown from Boiler & Cooling tower makeup due to vapor losses. The same will be treated in ETP, ultra-filtration and MEE followed by ATFD.
- Domestic/ Sanitary waste water (30 KLD), which is being treated in STP (100 KLD) and treated water is being used for greenbelt development within the premises. After the proposed expansion, 110 KLD of domestic/ Sanitary waste water will be generated, which will be treated in STP (existing 100 KLD & proposed 50 KLD) and treated water will be used for greenbelt development within the premises.
- The plant will remain Zero Liquid Discharge Unit after the proposed expansion.

## 5.0 SITE ANALYSIS

### i. Connectivity

- Road: The plant site falls near SH-174 (~1.5 Km in NE direction) & SH-17 (~3.0 Km in SSE direction).
- Rail: The nearest railway is Balabhadrapuram RS (~2.5 km in South), Biccavolu Railway Station (~3.5 km in SE direction), Peddu Brahmadevam RS (~8.0 km in ESE) and Aanaparti RS (~8.0 km in SW) from the plant site.
- Social infrastructure facilities like education, health, transportation, electricity, drinking water, market, bank, post office, petrol pump, etc. are available in nearby villages. The study area has road network, which includes major district roads, State highways and other roads. The study area has a moderate level of postal services and is served by adequate telephone & mobile network.

### ii. Land form Land use and land ownership

Proposed Expansion will be carried out within the existing premises of 178.35 Acres, as well as 68.1 Acres of land adjacent to the existing Plant and already in possession of the company.

Out of the total plant area 246.45 acres, 68 acres (27.59%) area has been developed under greenbelt. The same will be ramped up to 82 acres (33.84%) and the plantation density will be maintained @2500/ha via gap plantation.

The plant area break- up is given in below table:

**Table – 12**  
**Plant Area Break- Up**

| S. No.                          | Plant                        | Existing (Acres) | Proposed Expansion (Acres) | Total after proposed expansion (Acres) |
|---------------------------------|------------------------------|------------------|----------------------------|----------------------------------------|
| 1.                              | Plant Built up area          | 48.57            | 52.7                       | 101.27                                 |
| 2.                              | Reservoir                    | 8.12             | Nil                        | 8.12                                   |
| 3.                              | Product tanker handling area | 10               | Nil                        | 10                                     |
| 4.                              | Ancillary units              | 12               | Nil                        | 12                                     |
| 5.                              | Salt Yard                    | 7.7              | Nil                        | 7.7                                    |
| 6.                              | 132 KV Switch Yard           | 2                | Nil                        | 2                                      |
| 7.                              | Greenbelt                    | 68               | 15.4                       | 83.4                                   |
| 8.                              | Boundary Road                | 21.96            | Nil                        | 21.96                                  |
| <b>Total Plant Area (Acres)</b> |                              | <b>178.35</b>    | <b>68.1</b>                | <b>246.45</b>                          |
| <b>Total Plant Area (Ha)</b>    |                              | <b>72.18</b>     | <b>27.55</b>               | <b>99.73</b>                           |

### iii. Topography

The topography of East Godavari consists of hills in the North West and fertile plains in the central part and towards the east. The plains are drained by Godavari River and its landscape is filled with evergreen paddy fields all along the delta.

It is the largest producer of Paddy in whole of Andhra Pradesh. Papikondalu part of Eastern Ghats is the hilly terrain in located the north western part of this district, it consists of hills running on both the sides of river Godavari till Bhadrachalam, Telangana.

- iv. Existing land use pattern (agriculture, non-agriculture, forest, water bodies (including area under CRZ), shortest distances from the periphery of the project to periphery of the forests, national park, wild life sanctuary, eco sensitive areas, water bodies (distance from the HFL of the river), CRZ. In case of notified industrial area, a copy of the gazette notification should be given

Table - 13

Environmental Settings of the Area

| S. No. | Particulars                                                                                                                                                                      | Details<br>(With approx. distance & direction from the plant site)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|--------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.     | Nearest Town /City/Village                                                                                                                                                       | Nearest Town: Biccavolu (~5.5 km in SE direction)<br>Nearest Village: Balabhadrapuram (~2.5 km in SSW direction)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| 2.     | Nearest National Highway / State Highway                                                                                                                                         | SH 174 (~1.5 km in NE)<br>SH-17 (~3.0 km in SSE)<br>SH-40 (~4.5 km in SE)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 3.     | Nearest Railway station                                                                                                                                                          | <ul style="list-style-type: none"> <li>• Balabhadrapuram RS (~2.5 km in South)</li> <li>• Biccavolu RS (~3.5 km in SE)</li> <li>• Peddu Brahmadevam RS (~8.0 km in ESE)</li> <li>• Anaparti RS (~8.0 km in SW)</li> </ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| 4.     | Nearest Airport                                                                                                                                                                  | Rajahmundry Airport (~23 km in NW Direction)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| 5.     | Archaeological important site                                                                                                                                                    | None                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| 6.     | National Parks, Wild Life Sanctuaries, Biosphere Reserves, Tiger/ Elephant Reserves, Wildlife Corridors/ Reserved Forests (RF) / Protected Forests (PF) etc. within 10 km radius | There are no National Parks/Sanctuaries National Park / wildlife sanctuary / biosphere reserves within 10 Km. radius of Project site.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| 7.     | River / Water Body (within 10 km radius)                                                                                                                                         | <ul style="list-style-type: none"> <li>• Vedula Cheruvu (~2.0 km in SW)</li> <li>• Lingala Cheruvu (~3.0 km in ESE)</li> <li>• Gajalugothi Kaluva (Canal) (~3.0 km in ENE)</li> <li>• Samalkot Canal (~3.5 km in SE)</li> <li>• Nakkala Channel (~5.5 km in SE)</li> <li>• Ulapalli Drain (~6.0 km in SSE)</li> <li>• Kalinada Canal (~7.0 km in South)</li> <li>• Tossipudi South Side Channel (~ 7.5 km in SSE)</li> <li>• Pandalapakobodi Channel (~ 7.5 km in SSW)</li> <li>• Tullabhaga Drain (~ 8.0 km in S)</li> <li>• Palatodu Branch Channel (~8.5 km in SSW)</li> </ul> <p>Apart from the above various small seasonal nallahs and network of minor canals are present in the buffer zone of the plant site.</p> |

| S. No. | Particulars  | Details<br>(With approx. distance & direction from the plant site)                                   |
|--------|--------------|------------------------------------------------------------------------------------------------------|
| 8.     | Soil Type    | sandy loam to clayey loam                                                                            |
| 9.     | Seismic Zone | The project falls in Seismic Zone III [as per IS 1893 (Part-I): 2002] i.e. Moderate Damage Risk Zone |

**v. Existing Infrastructure**

Being an existing plant, all infrastructural facilities like workshop, machinery stores, cranes, conveyor system, training hall, security office etc. are already provided within the plant premises. No major change is proposed in the Utility and common facilities of the area for this expansion project apart from the following Major Installation in the existing plant as;

1. Installation of Chlorine Derivative unit and others which includes the production of Trichloro Iso Cyanuric Acid, Sodium di Chloro isocynurate (SDIC), Carboxy Methyl Cellulose (CMC) and Chloro Acetyl Chloride.
2. Installation of Chloromethane unit and the value-added chain includes the production of Methyl Chloride, Methylene Chloride, Chloroform and Carbon Tetra Chloride, Production of Carbon tetra chloride from Chloroform.
3. Installation of unit for Chlorofluorocarbons for the manufacturing of PTFE, Chlorodifluoromethane and by products of Chloromethanes and Chlorofluorocarbons.

**vi. Soil Classification**

Soil of East Godavari are as follows:

- Clayey soil
- Deltaic Alluvial Soil
- Coastal Sandy Soil
- Lateritic Soil

Red clayey soils with sandy loam to clayey loam in texture and occur around Rampachodavaram, Yeleshwaram, Prathipadu, Peddapuram, Rangampeta, Kakinada, Rajahmundry, Tuni, Korukonda, Pithapuram and Tallarevu areas. The deltaic alluvium which is grey brown to black in colour with fine to medium texture, moderate to poorly permeable and are prevalent in the canal irrigated areas as seen around Kothapeta, P.Gannavaram, Ramachandrapuram, Rajahmundry, Amalapuram, Razole and Pithapuram areas. The coastal sandy soils occur all along the coast with a width of about 6 to 10 kms and is highly porous and lack of binding material. Lateritic soils, deep reddish in colour, but differ from red soils in composition and are characterised by free drainage condition and acidic in reaction. These soils are mostly confined to parts of Rajahmundry and Peddapuram areas of the district.

**vii. Climatic Data from Secondary Sources**

The district is hot subtropical with very hot summer climate. The temperature variation is from 20°C and 40°C. The average annual rainfall of the district is 1100 mm, which ranges between nil rainfall in

January and 207 mm in July. July and October are the wettest months of the year. The mean seasonal rainfall distribution is 704 mm in southwest monsoon (June-September), 277 mm in northeast monsoon (Oct to Dec), 10 mm rainfall in Winter (Jan-Feb) and 109 mm in summer (March – May).

The temperature remains humid for most of the months as it is located in the coastal belt. This district is referred as the green belt of Andhra due to its greenery spread all around.

#### viii. Social Infrastructure available

Social infrastructure facilities like education, health, transportation, electricity, drinking water, market, bank, post office, petrol pump, etc. are available in nearby villages. The study area has road network, which includes major district roads, State highways and other roads. The study area has a moderate level of postal services and is served by adequate telephone & mobile network.

### 6.0 PLANNING BRIEF

#### (i) Planning Concept (type of industries, facilities, transportation etc.) / Town and country Planning/ Development authority classification.

The existing industry is chemical industry and proposed expansion and new installation will be done. Facilities required for the proposed expansion and new installation project will be provided as per requirement.

Transportation of raw material and final product will be done via road network.

#### (ii) Population Projection

Temporary influx of people will be there as the managerial and supervisory staff will generally be outsider.

#### (iii) Land use planning

Existing plant area is 178.35 Acres and area required for the proposed expansion & new installation will be 68.1 Acres. Total Plant area will be 246.45 Acres after proposed expansion project.

Out of total plant area i.e, 246.45 Acres, 48.57 Acres will be under built up area, 8.12 Acres under Water reservoir, 10 Acres under product tanker handling area, 52.27 Acres for proposed expansion in Built up Area, 12 acres under Ancillary units, 7.7 Acres under Salt yard, 2 Acres under 132KV switch yard and 21.96 acres under Boundary Road.

Out of the total plant area 246.45 acres, 68 acres (27.59%) area has been developed under greenbelt. The same will be ramped up to 82 acres (33.84%) and the plantation density will be maintained @2500/ha via gap plantation.

#### (iv) Assessment of infrastructure demand (Physical & Social)

M/s. Grasim Industries Limited has assess the demand of infrastructure (Physical & Social) in the nearby area of the plant site and development activities are being undertaken under corporate social responsibilities program for rural development initiatives for the upliftment of the nearby communities from time to time.

#### (v) Amenities/Facilities

Following facilities are being/will be proposed for the smooth working of the Plant:

- Admin Building Plant office
- Command and control Centre
- Project office
- Occupational Health Centre
- Toilet facility
- Drinking water facility
- Rest shelters
- Dispensary
- Emergency operation centers
- Alarm system
- Personal protection equipment

## 7.0 PROPOSED INFRASTRUCTURE

### (i) Industrial Area (Processing Area)

Total area will be 246.45 Acres (Existing plant area: 178.35 Acres). Additional area (68.1 Acres) will be required for the proposed expansion and new installation which is already in possession of the company.

### (ii) Greenbelt -

Out of the total plant area 246.45 acres, 68 acres (27.59%) area has been developed under greenbelt. The same will be ramped up to 82 acres (33.84%) and the plantation density will be maintained @2500/ha via gap plantation.

Photographs showing the existing Greenbelt





### (iii) Social Infrastructure

Proposed expansion and new installation project will result in growth of the surrounding areas by increased direct and indirect employment opportunities in the region including ancillary development and supporting infrastructure.

### (iv) Connectivity

The plant site is well connected to State Highways i.e., SH-174 (~ 1.5 Km in NE direction) & SH-17 (~3.0 Km in SSE direction). The nearest railway is Biccavolu Railway Station is ~ 3.5 km in SE direction and Balabhadrapuram RS (~2.5 km in South)

The site is suitably located with respect to availability of raw material, water, road network, skilled / semi-skilled / unskilled and professional manpower etc. All communication facilities such as telephone, telefax & internet are available in the vicinity of the plant site.

### (v) Drinking Water

Existing water requirement is 2995 KLD; Additional Water requirement is 10020 KLD; Total water requirement after expansion will be 13015 KLD. Which will be fulfilled from the existing sources i.e. Godavari River (17145 KLD) and Ground water (5575 KLD).

### (vi) Sewerage system

Domestic/ Sanitary waste water (30 KLD), which is being treated in STP (100 KLD) and treated water is being used for greenbelt development within the premises. After the proposed expansion, 110 KLD of domestic/ Sanitary waste water will be generated, which will be treated in STP (existing 100 KLD & proposed 50 KLD) and treated water will be used for greenbelt development within the premises.

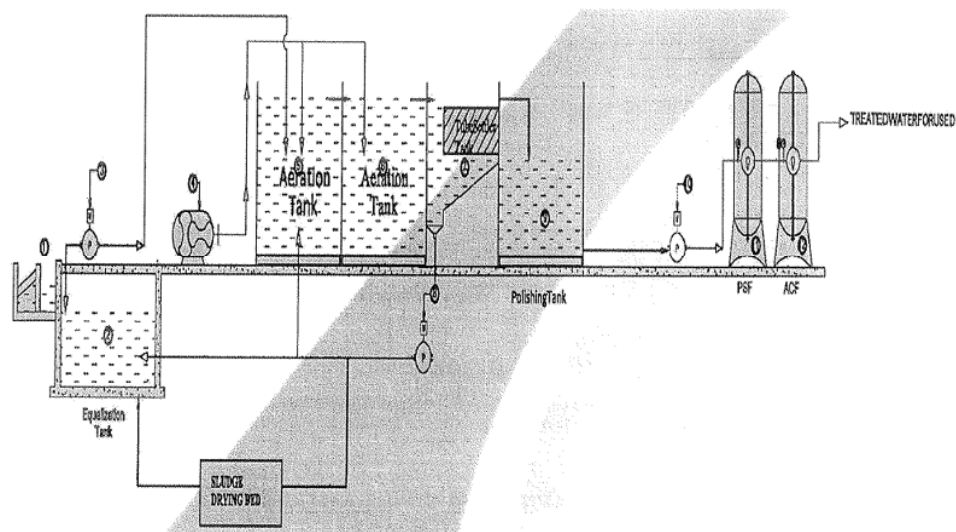


Figure 6: Schematic Diagram of STP

#### (vii) Industrial waste management

##### ❖ Solid & Hazardous Waste:

- ✓ Hazardous waste generated from the existing plant are Brine Sludge (10 TPD), ATFD Salts (7 TPD), Waste/Residues containing oil (1 TPD), Waste/Residues from waste treatment system (12 TPA), sludge from wet scrubbers (6 TPA) routed through M/s APEMC so as to send to TSDF.
- ✓ Used/Spent oil (60 TPA) routed through M/s APEMC so as to send to APPCB authorized agencies for Re-Processing/ Recycling (Recyclable waste)
- ✓ Discarded containers barrels liners contaminated with hazardous wastes/chemicals (10 TPA) after detoxification routed through M/s. APEMC so as to sent to authorized agencies/sent to TSDF.
- ✓ The Solid Waste generated from the existing plant are E Waste (0.5 TPA) sent to authorized refurbisher /Recyclers, Scrap (5 TPA) sent to waste recycler, Used Lead Acid Batteries (1 TPA) returned to dealer/manufacture on buy back system, Sludge from STP (0.19 TPM) used as manure.
- ✓ Plastic waste (Existing: 50 MTPA, Additional :75 MTPA), Battery Waste (Existing: 100 MTPA, Additional :200 MTPA), E Waste (Existing: 0.5 TPA, Additional :2TPA), Metal Waste (Existing: 50 MTPA, Additional :75 MTPA) and Other Solid Waste (Existing: 10 MTPA, Additional :18 MTPA) is being/will be sold to Authorized Recyclers.
- ✓ Same practice will be continued in future.
- ✓ ETP Sludge generated which is being/will be sent to TSDF.
- ✓ The ash generated from the boiler is being/will be sold to nearby brick manufacturer.

❖ **Liquid Effluents:**

- ✓ The existing water requirement of the plant is 2995 KLD including 2635 KLD of Fresh water from Godavari River as well as Ground water and 360 KLD is recycled water.
- ✓ After the proposed expansion, 13015 KLD water will be required for the project including 10955 KLD of fresh water from Godavari River as well as Ground water and 2060 KLD recycled water.
- ✓ The existing industrial effluent generation from the plant is 420 KLD, which is being treated in ETP, ultra-filtration and MEE followed by ATFD.
- ✓ After the proposed expansion the effluent generation from the plant will be 2591 KLD (Including 1251 KLD from Process, 1340 KLD Blowdown from Boiler & Cooling tower makeup due to vapor losses. The same will be treated in ETP, ultra-filtration and MEE followed by ATFD.
- ✓ Domestic/ Sanitary waste water (30 KLD), which is being treated in STP (100 KLD) and treated water is being used for greenbelt development within the premises. After the proposed expansion, 110 KLD of domestic/ Sanitary waste water will be generated, which will be treated in STP (existing 100 KLD & proposed 50 KLD) and treated water will be used for greenbelt development within the premises.
- ✓ The plant will remain Zero Liquid Discharge Unit after the proposed expansion.

**(viii) Power requirement and source**

The existing power requirement is 59.84 MW. Additional 99.66 MW power will be required for proposed expansion and new installation. Thus, the total power requirement after proposed expansion and new installation will be 159.50 MW which will be sourced from the Andhra Pradesh Electricity Board, ABG Group Captive renewable solar power and IEX Power.

**8.0 REHABILITATION AND RESETTLEMENT (R & R) PLAN**

**(i) Policy to be adopted (Central/State) in respect of the project affected persons including home oustees, land oustees and landless labourers**

The Proposed expansion project will be carried in the existing plant having 178.35 Acres area. Additional land of 68.1 Acres area will be required for the same, which is already in possession of the company. Acquisition of land is already done; therefore, no R&R is envisaged.

**9.0 PROJECT SCHEDULE AND COST ESTIMATES**

**(i) Likely date of start of construction and likely date of completion**

The proposed expansion project will be commenced only after obtaining all the statutory Clearances and consents.

Time bound Implementation schedule of the project has been given as under:

**(ii) Estimated project cost:**

| Activities                        | START DATE | FINISH DATE | MONTHS REQUIRED |
|-----------------------------------|------------|-------------|-----------------|
| Pre Project-Activities            | Aug-22     | Aug-23      | 12              |
| Plant Project Completion          | Aug-22     | Mar-26      | 32              |
| Detailed Engineering              | Aug-22     | Mar-23      | 8               |
| Assigning Major Service Contracts | Jan-23     | Aug-23      | 8               |
| Procurement Process               | Aug-23     | Jan-25      | 18              |
| Issuing PO of all materials       | Aug-23     | Mar-24      | 8               |
| Material Receipt                  | Apr-24     | Nov-24      | 7               |
| Civil construction work           | Mar-24     | Mar-25      | 12              |
| Construction of pipe racks        | Aug-23     | Mar-24      | 8               |
| Plant Erection (CAPS and VAPS)    | Jul-24     | Jul-25      | 18              |
| Commissioning of Plant            | Jul-25     | Mar-26      | 9               |

❖ Capital Cost of the project is Rs. 2450 Crores/-

❖ Environment Management Protection Cost:

- Capital Cost: Rs. 200 Crores/-
- Recurring Cost: Rs. 100 Crores/annum

**10.0 ANALYSIS OF PROPOSAL**

**(i) Financial and social benefits with special emphasis on the benefit to the local people including tribal, population, if any in the area**

Proposed expansion project will and new installation project will result in growth of the surrounding areas by increased direct and indirect employment opportunities in the region including ancillary development and supporting infrastructure.

Special emphasis on financial and social benefits will be given to the local people in the area. Development of social amenities will be in the form of medical facilities, education to underprivileged and creation of self-help groups.

Also, the state will get revenues in terms of taxes and local people will get opportunities in terms of indirect employment. Business opportunities for the local people will be enhanced like transport of cement in the market, maintenance & housekeeping contract work etc.

No adverse effect on environment is envisaged as proper mitigation measure will be taken up for the same.



### **LIST OF ANNEXURES**

| <b>Annexure</b>   | <b>Particular</b>                                                                                                                                   | <b>Page no.</b>  |
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| <b>Annexure 1</b> | <b>Existing Environmental Clearances</b>                                                                                                            | <b>70 - 79</b>   |
| Annexure 1a       | Environmental Clearances (EC) was obtained vide no. J-11011/90/2011-IA II (I) dated 22.03.2013                                                      | 70 – 75          |
| Annexure 1b       | Transfer of EC from M/s K.P.R Industries (India) Limited to M/s Grasim Industries Limited vide order no. J-11011/90/2011-IA II (I) dated 21.11.2019 | 76 – 77          |
| Annexure 1c       | Extension of validity of Environmental Clearances (EC) was obtained vide no. J-11011/90/2011-IA II (I) dated 18.08.2020                             | 78 - 79          |
| <b>Annexure 2</b> | <b>Existing CFEs</b>                                                                                                                                | <b>80 - 99</b>   |
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| <b>Annexure 3</b> | <b>Consent and Authorization letter obtained vide Order no. APPCB/VSP/KKD/11022/136/HO/CFO/2021 dated- 19.11.2021</b>                               | <b>100 - 108</b> |
| <b>Annexure-4</b> | <b>Land Documents</b>                                                                                                                               | <b>109 - 143</b> |
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| Annexure-5a       | Water permission from Godavari Delta System, Dowlaiswaram vide Letter no. CE/GDS/DWM/OT-1/AEE1/703 dated 12.11.2015                                 | 144              |
| Annexure-5b       | Permission for withdrawal of 5575 KLD ground water has been obtained from APWALTA vide Lr.No:PRR05-11028/5/2020-SLNA-GIS-CORD, dated 25/11/2020.    | 145 – 148        |
| Annexure-5c       | Name change Application from KPR Industries Limited to Grasim Industries Limited                                                                    | 149 - 150        |

\*\*\*\*

F. No. J-11011/90/2011- IA II (I)  
**Government of India**  
**Ministry of Environment and Forests**  
**(I.A. Division)**

**Paryavaran Bhawan**  
**CGO Complex, Lodhi Road**  
**New Delhi – 110 003**

E-mail : [aditya.narayan@nic.in](mailto:aditya.narayan@nic.in)

Telefax : 011: 2436 0549

Dated 22<sup>nd</sup> March, 2013

To,

Shri K. Rajshekar Reddy, Executive Director  
M/s K.P.R. Chemicals Ltd.  
D.No.8-256, Tata Nagar, Balabhadrapura-533 343,  
Mandal Bikkavolu, District East Godavari,  
Andhra Pradesh.

**E-mail: [ksr@kprgroup.in](mailto:ksr@kprgroup.in); Fax No.: 08857-237333.**

**Subject:** Membrane Cell based Caustic Soda (400 TPD) and Membrane Cell Based Caustic Potash Plant (100 TPD) at Sy. No. 1-4, 7-8 & 11, Village Balabhadrapauram, Mandal Bikkavolu, District East Godavari, Andhra Pradesh by **M/s K. P. R. Industries (India) Ltd. (Formerly Known as M/s K.P.R. Chemicals Ltd.) - Environmental Clearance reg.**

**Ref. : Your letter no. KPR-CC/CAU/EC/2012 dated 1<sup>st</sup> March, 2012.**

Sir,

Kindly refer to your letter dated 1<sup>st</sup> March, 2012 alongwith project documents including Form I, Terms of References, Pre-feasibility Report, EIA/EMP Report alongwith public hearing report and your subsequent communications dated and 17<sup>th</sup> September, 2012 and 3<sup>rd</sup> November, 2012 regarding above mentioned project.

2.0 The Ministry of Environment and Forests has examined the application. It is noted that the proposal is for setting up of Membrane Cell based Caustic Soda (400 TPD) and Membrane Cell Based Caustic Potash Plant (100 TPD) at Sy. No. 1-4, 7-8 & 11, Village Balabhadrapauram, Mandal Bikkavolu, District East Godavari, Andhra Pradesh by M/s K. P. R. Industries (India) Ltd. (Formerly Known as M/s K.P.R. Chemicals Ltd.). Total plant area is 178.35 acres. No national park/wildlife sanctuary/reserve forest is located within 10 Km. No rehabilitation and resettlement is involved. Total cost of the project is Rs. 600.00 Crores. Rs 600 lakhs and Rs. 300.00 Lakhs are earmarked towards capital cost and recurring cost per annum for pollution control measures. Following products will be manufactured:

| S.N | Products                                     | Capacity (TPD) | Annual Capacity (TPA) |
|-----|----------------------------------------------|----------------|-----------------------|
| 1.  | Caustic Soda Lye (100%)                      | 400            | 1,32,000              |
| 2.  | Caustic Soda Flakes                          | 120            | 40,000                |
| 3   | Caustic Potash Lye (100%)                    | 100            | 33,000                |
| 4   | Caustic Potash Flakes                        | 60             | 20,000                |
| 5   | Hydrogen Gas (Filled)                        | 2              | 660                   |
| 6   | Liquid Chlorine                              | 200            | 66,000                |
| 7   | Hydrochloric Acid (32%)                      | 600            | 2,00,000              |
| 8   | Sodium Hypochlorite (15% Cl <sub>2</sub> )   | 120            | 40,000                |
| 9   | Calcium Hypochlorite (65 % Cl <sub>2</sub> ) | 30             | 10,000                |

|    |                          |    |        |
|----|--------------------------|----|--------|
| 10 | Chlorinated Paraffin Wax | 30 | 10,000 |
| 11 | Mono Chloro Acetic Acid  | 20 | 6,600  |
| 12 | Poly Aluminum Chloride   | 90 | 30,000 |
| 13 | Stable Bleaching Powder  | 50 | 16,500 |
| 14 | Hydrogen Peroxide (100%) | 30 | 10,000 |

3.0 Bag filter alongwith adequate stack will be provided to rice husk/coal fired boilers boiler. Adequate scrubbing system will be provided to provided to control  $\text{Cl}_2$  emissions less than  $15 \text{ mg/Nm}^3$  and control HCl emissions less than  $35 \text{ mg/Nm}^3$  respectively. Proper hood alongwith suction facility and scrubbing arrangement will be provided in the chlorine storage area. Total fresh water requirement from Godavari River will be  $3800 \text{ m}^3/\text{day}$ . Total industrial wastewater generation will be  $620 \text{ m}^3/\text{day}$ . Industrial effluent will be treated in effluent treatment plant (ETP). Treated effluent will be recycled/reused within the factory premises. No effluent will be discharged outside the premises and 'Zero' discharge concept will be adopted. Process sludge and ETP sludge will be sent to Treatment Storage Disposal Facility (TSDF) for hazardous waste. Waste oil and used batteries will be sold to authorized recyclers/re-processors.

4.0 Public hearing was conducted by AP Pollution Control Board on 15<sup>th</sup> February, 2011.

5.0 All the Chlor-alkali plants with  $\geq 300$  TPD are listed at S.N. 4(d) under Category 'A' of EIA Notification 2006 and appraised by the Expert Appraisal Committee (Industry) in the Ministry.

6.0 The proposal was considered by the Expert Appraisal Committee (Industry-2) in its 23<sup>rd</sup> meeting and 2<sup>nd</sup> REAC (I) held during 30<sup>th</sup>– 31<sup>st</sup> May, 2011 and 29<sup>th</sup> – 31<sup>st</sup> October, 2012 respectively. The Committee recommended the proposal for environmental clearance.

7.0 Based on the information submitted by the project proponent, the Ministry of Environment and Forests hereby accords environmental clearance to above project under the provisions of EIA Notification dated 14<sup>th</sup> September 2006, subject to the compliance of the following Specific and General Conditions:

**A. SPECIFIC CONDITIONS:**

- i) No mercury cell shall be used. Manufacturing process of chlor alkali shall be based on membrane cell.
- ii) Bag filter alongwith adequate stack shall be provided to rice husk/coal fired boilers boiler to control particulate emissions within  $50 \text{ mg/Nm}^3$ . The waste gasses shall be discharged into atmosphere through stack of adequate height as per CPCB/APPCB guidelines.
- iii) As proposed adequate scrubbing system shall be provided to control  $\text{Cl}_2$  emissions less than  $15 \text{ mg/Nm}^3$  and control HCl emissions less than  $35 \text{ mg/Nm}^3$  respectively. Online Chlorine analyser alongwith alarm indicator shall be installed in the chlorine stack with a minimum reading of 1 ppm and will be connected to the DCS control room. The scrubbing media shall be sent to effluent treatment plant (ETP) for treatment. Efficiency of scrubber shall be monitored regularly and maintained properly.
- iv) The gaseous emissions ( $\text{SO}_2$ ,  $\text{NO}_x$ ,  $\text{Cl}_2$ , HCl) and particulate matter from boiler and process stack shall conform to the norms prescribed by the CPCB/ APPCB from time to time. At no time, the emission levels shall go beyond the prescribed standards. The system shall be interlocked with the pollution control equipments so that in case of any increase in pollutants beyond permissible limits, plant should be automatically stopped. In the event of failure of any pollution control system adopted by the unit, the respective unit shall not be restarted until the control measures are rectified to achieve the desired efficiency. Stack monitoring shall be done regularly and report shall be submitted to APPCB and the Ministry's regional office at Bangalore.
- v) In plant control measures for checking fugitive emissions from all the vulnerable sources shall be provided. Fugitive emissions shall be controlled by providing closed storage, closed handling & conveyance of chemicals/materials, multi cyclone separator and water sprinkling system. Dust suppression system including water sprinkling system shall be provided at loading and unloading

areas to control dust emissions. Fugitive emissions in the work zone environment, product, raw materials storage area etc. shall be regularly monitored and records maintained. The emissions shall conform to the limits stipulated by the APPCB.

- vi) A proper Leak Detection and Repair (LDAR) Program for pesticide industry shall be prepared and implemented as per CPCB guidelines. Focus shall be given for prevention of fugitive emissions for which preventive maintenance of pumps, valves, pipelines are required. Proper maintenance of mechanical seals of pumps and valves shall be given. A preventive maintenance schedule for each unit shall be prepared and adhered to.
- vii) Proper hood alongwith suction facility and scrubbing arrangement should be provided in the chlorine storage area. Alarm for chlorine leakage if any in the liquid chlorine storage area shall be provided alongwith automatic start of the scrubbing system.
- viii) The gaseous emissions from DG set shall be dispersed through adequate stack height as per CPCB standards. Acoustic enclosure shall be provided to the DG sets to mitigate the noise pollution.
- ix) The company shall upload the status of compliance of the stipulated environmental clearance conditions, including results of monitored data on its website and shall update the same periodically. It shall simultaneously be sent to the Regional office of MOEF, the respective Zonal office of CPCB and the APPCB. The levels of PM<sub>10</sub>, SO<sub>2</sub>, NO<sub>x</sub>, Cl<sub>2</sub>, HCl, and CO in ambient air and emissions from the stacks shall be monitored and/ displayed at a convenient location near the main gate of the company and at important public places.
- x) Total fresh water requirement from Godavari River shall not exceed 3800 m<sup>3</sup>/day and prior permission shall be obtained from the Competent Authority.
- xi) Efforts shall be made to reduce the fresh water requirement by adopting 3 R's (Reduce, Reuse and Recycle) concept.
- xii) Industrial effluent generation shall not exceed 620 m<sup>3</sup>/day and treated in ETP. Treated effluent shall be recycled/reused within the factory premises. Treated effluent shall be collected in the guard pond. Regular water quality monitoring of guard pond shall be carried out and Water quality of treated effluent shall meet the norms prescribed by CPCB/APPCB. Domestic wastewater shall be treated in STP. Water quality of treated effluent shall be monitored regularly.
- xiii) No effluent shall be discharged outside the premises and 'Zero' discharge concept shall be adopted.
- xiv) Process effluent/any wastewater shall not be allowed to mix with storm water. Storm water drain shall be passed through guard pond.
- xv) The company shall obtain Authorization for collection, storage and disposal of hazardous waste under the Hazardous Waste (Management, Handling and Trans-Boundary Movement) Rules, 2008 and amended as on date for management of Hazardous wastes and prior permission from APPCB shall be obtained for disposal of solid / hazardous waste in the TSDF. Measures shall be taken for fire fighting facilities in case of emergency. Membership of TSDF for hazardous waste disposal shall be obtained.
- xvi) As proposed, ETP sludge and process sludge shall be sent to TSDF site. High calorific value waste shall be sent to cement factory/incinerated.
- xvii) The Company shall strictly comply with the rules and guidelines under Manufacture, Storage and Import of Hazardous Chemicals (MSIHC) Rules, 11989 as amended in October, 1994 and January, 2000. All Transportation of Hazardous Chemicals shall be as per the Motor Vehicle Act (MVA), 1989.
- xviii) The company shall undertake following waste minimization measures :-
  - a. Metering and control of quantities of active ingredients to minimize waste.

- b. Reuse of by-products from the process as raw materials or as raw material substitutes in other processes.
- c. Use of automated filling to minimize spillage.
- d. Use of Close Feed system into batch reactors.
- e. Venting equipment through vapour recovery system.
- f. Use of high pressure hoses for equipment clearing to reduce wastewater generation.
- xix) The unit shall make the arrangement for protection of possible fire hazards during manufacturing process in material handling. Fire fighting system shall be as per the norms.
- xx) Occupational health surveillance of the workers shall be done on a regular basis and records maintained as per the Factories Act.
- xxi) Green belt shall be developed in 60 acres as per the CPCB guidelines in consultation with DFO. Thick greenbelt with suitable plant species shall be developed around the proposed pesticide unit to mitigate the odour problem. Selection of plant species shall be as per the CPCB guidelines.
- xxii) All the commitments made during the Public Hearing / Public Consultation meeting held on 15<sup>th</sup> February, 2012 shall be satisfactorily implemented and adequate budget provision should be made accordingly.
- xxiii) At least 5 % of the total cost of the project should be earmarked towards the Enterprise Social Commitment based on locals need and item-wise details along with time bound action plan should be prepared and submitted to the Ministry's Regional Office at Bhopal. Implementation of such program should be ensured accordingly in a time bound manner.
- xxiv) The Company shall submit within three months their policy towards Corporate Environment Responsibility which shall inter-alia address (i) Standard operating process/ procedure to being into focus any infringement/deviation/violation of environmental or forest norms/conditions, (ii) Hierarchical system or Administrative order of the Company to deal with environmental issues and ensuring compliance to the environmental clearance conditions and (iii) System of reporting of non compliance/violation environmental norms to the Board of Directors of the company and/or stakeholders or shareholders.
- xxv) Provision shall be made for the housing for the construction labour within the site with all necessary infrastructure and facilities such as fuel for cooking, mobile toilets, safe drinking water, medical health care, crèche etc. The housing may be in the form of temporary structure to be removed after the completion of the project. All the construction wastes shall be managed so that there is no impact on the surrounding environment.

#### **B. GENERAL CONDITIONS:**

- i. The project authorities shall strictly adhere to the stipulations made by the AP Pollution Control Board.
- ii. The National Ambient Air Quality Emission Standards issued by the Ministry vide G.S.R. No. 826(E) dated 16<sup>th</sup> November, 2009 shall be followed by the unit.
- iii. No further expansion or modifications in the plant shall be carried out without prior approval of the Ministry of Environment and Forests. In case of deviations or alterations in the project proposal from those submitted to this Ministry for clearance, a fresh reference shall be made to the Ministry to assess the adequacy of conditions imposed and to add additional environmental protection measures required, if any.
- iv. The locations of ambient air quality monitoring stations shall be decided in consultation with the AP Pollution Control Board (APPCB) and it shall be ensured that at least one station is installed in the upwind and downwind direction as well as where maximum ground level concentrations are anticipated.

- v. The overall noise levels in and around the plant area shall be kept well within the standards by providing noise control measures including acoustic hoods, silencers, enclosures etc. on all sources of noise generation. The ambient noise levels shall conform to the standards prescribed under Environment (Protection) Act, 1986 Rules, 1989 viz. 75 dBA (day time) and 70 dBA (night time).
- vi. The Company shall harvest rainwater from the roof-tops of the buildings and storm water drains to recharge the ground water and use the same water for the process activities of the project to conserve fresh water.
- vii. During transfer of materials, spillages shall be avoided and garland drains be constructed to avoid mixing of accidental spillages with domestic wastewater and storm water drains.
- viii. Usage of Personnel Protection Equipments by all employees/ workers shall be ensured.
- ix. Training shall be imparted to all employees on safety and health aspects of chemicals handling. Pre-employment and routine periodical medical examinations for all employees shall be undertaken on regular basis. Training to all employees on handling of chemicals shall be imparted.
- x. The company shall also comply with all the environmental protection measures and safeguards proposed in the project report submitted to the Ministry. All the recommendations made in the EIA/EMP in respect of environmental management, risk mitigation measures and public hearing relating to the project shall be implemented.
- xi. The company shall undertake CSR activities and all relevant measures for improving the socio-economic conditions of the surrounding area.
- xii. The company shall undertake eco-developmental measures including community welfare measures in the project area for the overall improvement of the environment.
- xiii. A separate Environmental Management Cell equipped with full fledged laboratory facilities shall be set up to carry out the Environmental Management and Monitoring functions.
- xiv. The company shall earmark sufficient funds for recurring cost per annum to implement the conditions stipulated by the Ministry of Environment and Forests as well as the State Government along with the implementation schedule for all the conditions stipulated herein. The funds so earmarked for environment management/ pollution control measures shall not be diverted for any other purpose.
- xv. A copy of the clearance letter shall be sent by the project proponent to concerned Panchayat, ZilaParisad/Municipal Corporation, Urban local Body and the local NGO, if any, from who suggestions/ representations, if any, were received while processing the proposal.
- xvi. The project proponent shall also submit six monthly reports on the status of compliance of the stipulated Environmental Clearance conditions including results of monitored data (both in hard copies as well as by e-mail) to the respective Regional Office of MoEF, the respective Zonal Office of CPCB and the AP Pollution Control Board. A copy of Environmental Clearance and six monthly compliance status report shall be posted on the website of the company.
- xvii. The environmental statement for each financial year ending 31<sup>st</sup> March in Form-V as is mandated shall be submitted to the Gujarat Pollution Control Board as prescribed under the Environment (Protection) Rules, 1986, as amended subsequently, shall also be put on the

website of the company along with the status of compliance of environmental clearance conditions and shall also be sent to the Bangalore Regional Offices of MoEF by e-mail.

xviii. The project proponent shall inform the public that the project has been accorded environmental clearance by the Ministry and copies of the clearance letter are available with the SPCB/Committee and may also be seen at Website of the Ministry at <http://envfor.nic.in>. This shall be advertised within seven days from the date of issue of the clearance letter, at least in two local newspapers that are widely circulated in the region of which one shall be in the vernacular language of the locality concerned and a copy of the same shall be forwarded to the concerned Regional Office of the Ministry.

xix. The project authorities shall inform the Regional Office as well as the Ministry, the date of financial closure and final approval of the project by the concerned authorities and the date of start of the project.

8.0 The Ministry may revoke or suspend the clearance, if implementation of any of the above conditions is not satisfactory.

9.0 The Ministry reserves the right to stipulate additional conditions, if found necessary. The company in a time bound manner will implement these conditions.

10.0 The above conditions will be enforced, inter-alia under the provisions of the Water (Prevention & Control of Pollution) Act, 1974, Air (Prevention & Control of Water Pollution) Act, 1981, the Environment (Protection) Act, 1986 Hazardous Waste (Management, Handling and Trans-boundary Movement) Rules, 2008 and the Public Liability Insurance Act, 1991 along with their amendments and rules.

**(A.N. Singh)**  
**Dy. Director (S)**

**Copy to :-**

1. The Principal Secretary, Department of Environment, Forest, Science & Technology, Government of Andhra Pradesh, Hyderabad, A.P.
2. The Chief Conservator of Forests, Regional Office (Southern Zone, Bangalore) Kendriya Sadan, 4th Floor, E&F Wing, II Block Koramangala, Bangalore-560034.
3. The Chairman, Central Pollution Control Board Parivesh Bhavan, CBD-cum-Office Complex, East Arjun Nagar, New Delhi - 110 032.
4. The Chairman, Andhra Pradesh Pollution Control Board, Paryavaran Bhawan, A-III, Industrial Estate, Sanath Nagar, Hyderabad - A.P.
5. The Joint Secretary, IA II(I), Ministry of Environment and Forests, Paryavaran Bhavan, CGO Complex, New Delhi.
6. Monitoring Cell, Ministry of Environment and Forests, Paryavaran Bhavan, CGO Complex, New Delhi.
7. Guard File/Monitoring File/Record File.

**(A.N. Singh)**  
**Dy. Director (S)**

F.No.J-11011/90/2011-IA-II (I)  
Government of India  
Ministry of Environment, Forest and Climate Change  
(IA- II Section)

Indira Paryavaran Bhawan  
Jorbagh Road, New Delhi -3  
Dated 21<sup>st</sup> November, 2019

To,

M/s Grasim Industries Limited  
Survey No.1 to 4, Near Kanedu Metta Road,  
Balabhadrapuram, District- East Godavari  
(Andhra Pradesh)

**Sub: Membrane Cell based Caustic Soda (400 TPD) and Membrane Cell Based Caustic Potash Plant (100 TPD) at Sy. No.1-4, 7-8 & 11, Village Balabhadrapauram, Mandal Bikkavolu, District East Godavari, Andhra Pradesh – For Transfer of EC reg.**

Sir,

This has reference to your online proposal No.IA/AP/IND2/118245/2019 dated 17<sup>th</sup> September, 2019 regarding transfer of Environmental Clearance to the above project, from M/s K.P.R Industries (India) Limited to M/s Grasim Industries Limited.

2. The Ministry had earlier issued environmental clearance to the project for membrane Cell based Caustic Soda (400 TPD) and Membrane Cell Based Caustic Potash Plant (100 TPD) at Sy. No.1-4, 7-8 & 11, Village Balabhadrapauram, Mandal Bikkavolu, District East Godavari (Andhra Pradesh) in favour of M/s K.P.R Industries (India) Limited.
3. M/s Grasim Industries Limited has informed that they have purchased the unit of M/s K.P.R Industries (India) Limited located at Sy. No.1-4, 7-8 & 11, Village Balabhadrapauram, Mandal Bikkavolu, District East Godavari (Andhra Pradesh) on slump sale basis, pursuant to the Business Transfer Agreement signed on 18.2.2019 and thus necessitating transfer of all requisite approvals in the name of new company.
4. The Director of M/s K.P.R Industries (India) Limited has given a copy of No Objection Certificate to transfer the said environmental clearance dated 22<sup>nd</sup> March, 2013, in the name of new Company. M/s Grasim Industries Limited has submitted an affidavit to abide by the terms and conditions stipulated in the above environmental clearance dated 22<sup>nd</sup> March, 2013.
5. As per the relevant provisions of the EIA Notification, 2006, the environmental clearance to the project 'membrane Cell based Caustic Soda (400 TPD) and Membrane Cell Based Caustic Potash Plant (100 TPD)' at Sy. No.1-4, 7-8 & 11, Village Balabhadrapauram, Mandal Bikkavolu, District East Godavari (Andhra Pradesh) granted by the Ministry vide letter No.J-11011/90/2011-IA-II(I) dated 22<sup>nd</sup> March, 2013 is hereby transferred from M/s K.P.R Industries (India) Limited to M/s Grasim Industries Limited, on the same terms and conditions as mentioned in earlier EC dated 22<sup>nd</sup> March 2013.

6. This issues with approval of the competent authority.

(Dr. R. B. Lal)  
Scientist E

**Copy to:-**

1. The Principal Secretary, Department of Environment and Forests, Government of Andhra Pradesh, Hyderabad (Andhra Pradesh)
2. The Additional Principal Chief Conservator of Forests(Central), Ministry of Environment & Forests, Regional Office(Southern Zone, Bangalore) Kendriya Sadan, 4<sup>th</sup> Floor, E&F Wing, II Block Koramangala, Bangalore-560034.
3. The Member Secretary, Andhra Pradesh Pollution Control Board, Paryavaran Bhawan, A-III, Industrial Estate, Sanath Nagar, Hyderabad(Andhra Pradesh)
4. The Member Secretary, CPCB, Parivesh Bhavan, CBD-cum-Office Complex, East Arjun Nagar, Delhi- 32
5. M/s K.P.R Industries (India) Limited, Door no.8-2416, Stone Valley Apartment, C-Block C-2, Banjarahills Road No.4, Hyderabad, Andhra Pradesh-500 034
6. Monitoring Cell, MoEF&CC, Indira Paryavaran Bhavan, Jorbagh Road, New Delhi
7. Guard File/Monitoring File/Record File

(Dr. R.B. Lal)  
Scientist E

(डा. आर. बा. लाल)  
(Dr. R. B. LAL)

वैज्ञानिक ई/Scientist E  
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय  
Min. of Environment, Forest and Climate Change  
भारत सरकार, नई दिल्ली  
Govt. of India, New Delhi

By Speed Post/Online

**F.No. J-11011/90/2011- IA II(I)**  
**Government of India**  
**Ministry of Environment, Forest and Climate Change**  
**Impact Assessment Division**

\*\*\*

Indira Paryavaran Bhawan  
 Jorbagh Road, New Delhi - 110003

**Dated: 18<sup>th</sup> August, 2020**

To

**M/s Grasim Industries Limited**  
 Village Balabhadrapauram, Mandal Bikkavolu  
 District East Godavari, Andhra Pradesh

Email: rg.krishnan@adityabirla.com

**Sub: Membrane Cell based Caustic Soda (400 TPD) and Membrane Cell Based Caustic Potash Plant (100 TPD) at Sy. No. 1-4, 7-8 & 11, Village Balabhadrapauram, Mandal Bikkavolu, District East Godavari, Andhra Pradesh by M/s Grasim Industries Limited - Extension of validity of EC- reg.**

Sir,

This has reference to your proposal No. IA/AP/IND2/133608/2019 dated 23<sup>rd</sup> April 2020, for extension of validity of the environmental clearance (EC) to the above project.

2. The Ministry has earlier issued environmental clearance vide letter dated 22<sup>nd</sup> March, 2013 in favour of M/s K P R Industries (India) Ltd to the project for Membrane Cell based Caustic Soda (400 TPD) and Membrane Cell Based Caustic Potash Plant (100 TPD) at Sy. No. 1-4, 7-8 & 11, Village Balabhadrapauram, Mandal Bikkavolu, District East Godavari, Andhra Pradesh, which was later transferred in favour of M/s Grasim Industries Limited, vide Ministry's letter dated 21<sup>st</sup> November, 2019.

3. Now it has been informed that due to financial issues, the project came to standstill after completion of 35% of the civil and mechanical work. It has been informed that, after taking possession by the present proponent, the project has been revived and is scheduled to be executed in two phases within three years. The extension of validity of the EC has been sought so as to complete the project as per the approved scope of the work.

4. The proposal was considered by the Expert Appraisal Committee (Industry-2) in its meeting held on 11-13 May, 2020 in the Ministry. The Committee has made a detailed deliberation on the progress of the project and found to be satisfactory. The Committee after hearing the submissions of the project proponent and noting the preparedness for implementation of the project, has recommended for extension of validity of the EC dated 22<sup>nd</sup> March, 2013 for a period of three years, i.e. till 22<sup>nd</sup> March, 2023 to complete the work as per the scope of the project, with all other terms and conditions remain unchanged.

5. Based on recommendations of the EAC, the Ministry hereby accords approval for extension of validity of the environmental clearance dated 22<sup>nd</sup> March, 2013 for a period of three years, i.e. till 22<sup>nd</sup> March, 2023, with all other terms and conditions stipulated therein remain unchanged.

6. This issues with approval of the competent authority.

(डा. आर. बी. लाल) (Dr. R. B. Lal)  
(Dr. R. B. Lal)  
Scientist 'E'/Additional Director  
पर्यावरण, वन एवं जलवायु परिवर्तन मंत्रालय  
Min. of Environment, Forest and Climate Change  
भारत सरकार, नई दिल्ली  
Govt. of India, New Delhi

**Copy to:-**

1. The Deputy DGF (C), MoEF&CC, Regional Office (SEZ), 1<sup>st</sup> & II<sup>nd</sup> Floor, Handloom Export Promotion Council, 34, Cathedral Garden Road, Nungambakkam, Chennai
2. The Secretary, Department of Environment, Forests, Science and Technology, Government of Andhra Pradesh, A.P Secretariat Office, Velagapudi, Guntur (AP)
3. The Member Secretary, Central Pollution Control Board, Parivesh Bhawan, CBD-cum-Office Complex East Arjun Nagar, Delhi - 32
4. The Member Secretary, Andhra Pradesh Pollution Control Board, D.No. 33-26-14 D/2, Near Sunrise Hospital, Pushpa Hotel Centre, Chalamvari Street, Kasturibaipet, Vijayawada – 8
2. Guard File/Monitoring File/Website/Record File

(Dr. R. B. Lal)  
Scientist 'E'/Additional Director  
Tele-fax: 011-24695362  
Email-rb.lal@nic.in



ANDHRA PRADESH POLLUTION CONTROL BOARD  
PAKYAYARAN BHAVAN, A-3, INDUSTRIAL ESTATE,  
SANATHNAGAR, HYDERABAD - 500 018

Phone: 24887300  
Fax: 044-24815611  
Gram: Kachipeta, Nizampet  
Website: www.appcb.org.in

REGD. POST WITH ACK. DUE

CONSENT ORDER FOR ESTABLISHMENT

Order No. 359/PCB/CFE/RO-KKD/HO/2013 | 1238

Dt. 24.05.2013

Subj: PCB - CFE - M/s. KPR Industries (India) Limited (Caustic Division)  
[Formerly M/s. KPR Chemicals Ltd., (Caustic Division)] Sy.No. 1 to  
4, 7, 8 & 11, Balabhadrapuram (V), Biccavolu (M), East Godavari  
District - Consent for Establishment of the Board for Phase - I under  
Sec.25 of Water (P & C of P) Act, 1974 and Under Sec.21 of Air  
(P&C of P) Act, 1981 - Issued - Reg.

- Ref:
- 1) Environmental Clearance dt. 22.03.2013 issued by MOEF, GOI
  - 2) Industry's application received through SWCC on 12.04.2013 & online application received on 20.04.2013
  - 3) R.O's Inspection report dt. 04.2013
  - 4) CFE Committee meeting held on 03.05.2013
  - 5) Industry's lr. dt. 04.05.2013 & 13.5.2013.

1. In the reference, 2<sup>nd</sup> cited, an application was submitted to the Board seeking Consent for Establishment (CFE) for Phase - I to produce the following products as mentioned below with an Investment of Rs. 430.0 Crores for Phase-I.

| Sl. No. | Products                                   | Capacity |
|---------|--------------------------------------------|----------|
| 1       | Caustic Soda Lye (100%)                    | 400 TPD  |
| 2       | Caustic Soda Flakes*                       | 120 TPD  |
| 3       | Hydrogen Gas (filled)                      | 2 TPD    |
| 4       | Liquid Chlorine                            | 200 TPD  |
| 5       | Hydrochloric Acid (32%)                    | 800 TPD  |
| 6       | Sodium Hypochlorite (15% Cl <sub>2</sub> ) | 120 TPD  |
| 7       | Chlorinated Paraffin Wax                   | 30 TPD   |
| 8       | Mono Chloro Acetic Acid                    | 20 TPD   |
| 9       | Stable Bleaching Powder (SBP)              | 50 TPD   |

\* The quantity of Caustic Soda flakes must be out of Caustic Soda lye (100%) quantity. Both together should not exceed 400 TPD.

2. As per the application, the above activity is to be located at Sy.No. 1 to 4, 7, 8 & 11, Balabhadrapuram (V), Biccavolu (M), East Godavari District in an area of about 57.62 Acres (Phase - I).
3. The above site was inspected by the Environmental Engineer, Regional office, Visakhapatnam, A.P. Pollution Control Board on 18.04.2013 and observed that the site is surrounded by

North : Land taken from the APIC by the M/s. KPR Group for establishment of proposed pesticide unit and power plant.

South : Proposed site for establishment of H<sub>2</sub>SO<sub>4</sub> plant by M/s. KPR Group

East : Agricultural Lands (most of the land covered by Palm Garden)

West : Agricultural Land.

4. The Board, after careful scrutiny of the application and verification report of Regional Officer, hereby issues CONSENT FOR ESTABLISHMENT FOR PHASE -I to your unit Under Section 25 of Water (Prevention & Control of Pollution) Act 1974 and Section 21 of Air (Prevention & Control of Pollution) Act, 1981 and the rules made there under. This order is issued to manufacture the products as mentioned at para (1) only.
5. This Consent Order now issued is subject to the conditions mentioned in Schedule 'A' and Schedule 'B'.
6. This order is issued from pollution control point of view only. Zoning and other regulations are not considered.

Encl: Schedule 'A'  
Schedule 'B'

Sd/-  
MEMBER SECRETARY

To  
M/s. KPR Industries (India) Limited (Caustic Division)  
[Formerly M/s. KPR Chemicals Ltd., (Caustic Division)]  
Sy. No. 1 to 4, 2, 6 & 7, Balabhadrapuram (V),  
Biccavolu (M), East Godavari District

/// T.O.F.B.O ///

  
JOINT CHIEF ENVIRONMENTAL ENGINEER (CFE)

M

#### SCHEDULE - A

1. Progress on implementation of the project shall be reported to the concerned Regional Office, A.P. Pollution Control Board once in six months.
2. Separate energy meters shall be provided for Effluent Treatment Plant (ETP) and Air pollution Control equipments to record energy consumed.
3. The proponent shall obtain Consents for Operation (CFO) from APPCB, as required Under Sec.25/26 of the Water (P&C of P) Act, 1974 and under sec. 21/22 of the Air (P&C of P) Act, 1981, before commencement of the activity.
4. Notwithstanding anything contained in this conditional letter or consent, the Board hereby reserves its right and power Under Sec.27(2) of Water (Prevention and Control of Pollution) Act, 1974 and Under Sec.21(4) of Air (Prevention and Control of Pollution) Act, 1981 to review any or all the conditions imposed herein and to make such alternation as deemed fit and stipulate any additional conditions by the Board.
5. The consent of the Board shall be exhibited in the factory premises at a conspicuous place for the information of the inspecting officers of different departments.
6. Compensation is to be paid for any environmental damage caused by it, as fixed by the Collector and District Magistrate as civil liability.
7. Floor washing shall be admitted into the effluent collection system only and shall not be allowed to find their way in storm drains or open areas. The industry shall maintain a good housekeeping. All pipe valves, sewers, drains shall be leak proof. Dyke walls shall be constructed around storage of chemicals.
8. Rain Water Harvesting (RWH) structure (s) shall be established on the plant site. The proponent shall ensure that effluent shall not enter the Rain Water harvesting structure.
9. The rules and regulations notified by Ministry of Law and Justice, GOI, regarding the Public Liability Insurance Act, 1991 shall be followed.
10. This order is valid for period of 5 years from the date of issue.

*extended up to  
21/3 2020*

#### SCHEDULE - B

##### Water:

1. The source of water is River Godavari / Ground Water. The maximum permitted water consumption for Phase - I is 2640 KLD.

| Sl. No. | Purpose               | Quantity (KLD) |
|---------|-----------------------|----------------|
| 1.      | Process               | 1400 KLD       |
| 2.      | Boiler makeup         | 250 KLD        |
| 3.      | Cooling tower makeup  | 720 KLD        |
| 4.      | DM Plant regeneration | 130 KLD        |
| 5.      | Domestic              | 40 KLD         |
| 6.      | Evaporation loss      | 100 KLD        |
|         | Total                 | 2640 KLD       |

2. The maximum Waste Water Generation (KLD) shall not exceed the following from Phase -I :

| Sr. No. | Source                          | Quantity (KLD) |
|---------|---------------------------------|----------------|
| 1.      | Process Waste Water             | 120 KLD        |
| 2.      | Boiler blow down                | 30 KLD         |
| 3.      | Cooling tower blow down         | 140 KLD        |
| 4.      | DM Plant regeneration           | 130 KLD        |
| 5.      | Domestic / Sanitary waste water | 30 KLD         |
|         | <b>Total</b>                    | <b>450 KLD</b> |

Treatment & Disposal for Phase -I:

| Stream | Description        | Treatment facilities                                                                                                                          | Mode of Disposal                                                                                                         |
|--------|--------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------|
| 1      | Process Effluents  | Equalization tank, Chemical Dosing tank, Pumps for feed to clarifier, On-line pH meter, Clarifier, On-line flow meter and Sludge Drying beds. | shall reuse / recycle treated wastewater back into the process or for greenbelt development within the factory premises. |
| 2      | Domestic Effluents | STP                                                                                                                                           | On land for irrigation.                                                                                                  |

- The Effluent Treatment Plant (ETP) shall be operated regularly. All the units of the ETP shall be impervious to prevent ground water pollution. The ETP units shall be constructed above the ground level.
- No effluent shall be discharged outside the premises and 'Zero' discharge concept shall be adopted.
- Process effluent shall not be allowed to mix with storm water. Storm water drain shall be passed through guard pond.
- The industry shall provide online monitoring system for parameters prescribed to monitor at outlet of ETP and magnetic flow meter with totaliser with recording facility. The continuous monitoring records shall be submitted to R.O., APPCB periodically.
- During transfer of materials, spillages shall be avoided and gulland drains shall be constructed to avoid mixing of accidental spillages with domestic waste and storm drains.
- Separate meters with necessary pipe-line shall be provided for assessing the quantity of water used for each of the purposes mentioned below.
  - Industrial cooling boiler feed.
  - Domestic purposes.
  - Processing, whereby water gets polluted and pollutants are easily bio-degradable.
  - Processing, whereby water gets polluted and the pollutants are not easily bio-degradable.

Air:

9. The Air pollution Control equipment shall be installed along with the commissioning of the activity and shall comply with the following for controlling air pollution.

| Sl. No | Details of Stack  | Stack 1                    | Stack 2                          | Stack 3                                  | Stack 4 - 9                  |
|--------|-------------------|----------------------------|----------------------------------|------------------------------------------|------------------------------|
| a)     | Attached to:      | Boilers (1 no)             | Heating furnace - I              | Waste Chlorine absorption system         | HCl Gases absorption system  |
| b)     | Capacity          | 1 x 20 TPH                 | —                                | —                                        | —                            |
| c)     | Fuel              | Rice husk / Coal - 80 TPD  | Furnace oil / H <sub>2</sub> gas | —                                        | —                            |
| d)     | Stack height      | 50 m                       | 30 m                             | 20 m                                     | 20 m each                    |
| e)     | Diameter          | 1.0 m                      | —                                | —                                        | —                            |
| f)     | Control Equipment | Bag filter                 | —                                | —                                        | —                            |
| g)     | Standards         | PM - <50mg/Nm <sup>3</sup> | —                                | Cl <sub>2</sub> - <15 mg/Nm <sup>3</sup> | HCl - <35 mg/Nm <sup>3</sup> |

10. The proponent shall ensure compliance of the National Ambient Air quality standards notified by MOE&F, GOI vide notification No. GSR 826(E), dated, 16.11.2009 during construction and regular operational phase of the project.
11. Continuous Ambient Air Quality monitoring (CAAQM) stations (upwind and downwind directions) shall be installed and data shall be connected to Board website.
12. The proponent shall provide dedicated scrubbers to the process units to control the process emissions. Caustic soda lye scrubber shall be provided to control HCl mist. The concentration of HCl vapour and mist shall not exceed 35 mg/Nm<sup>3</sup>.
13. The industry shall install multi stage scrubbers for control of HCl and other gaseous emissions. The scrubbed solutions shall be recycled to the possible extent. The industry shall keep the record of disposal of all such by-products and shall be submitted to the concerned Regional Officer, APPCB periodically.
14. As proposed adequate scrubbing system shall be provided to control Cl<sub>2</sub> emissions less than 15 mg/Nm<sup>3</sup> and control HCl emissions less than 35 mg/Nm<sup>3</sup> respectively. Online Chlorine analyzer along with alarm indicator shall be installed in the chlorine stack with a minimum reading of 1 ppm and will be connected to the DCS control room. The scrubbing media shall be sent to effluent treatment plant (ETP) for treatment. Efficiency of scrubber shall be monitored regularly and maintained properly.
15. The gaseous emissions (SO<sub>2</sub>, NO<sub>x</sub>, Cl<sub>2</sub>, HCl) and particulate matter from boiler and process stack shall conform to the norms prescribed from time to time. At no time the emission levels shall go beyond the prescribed standards. The system shall be interlocked with the pollution control equipments so that in case of any increase in pollutants beyond permissible limits, plant should be automatically stopped in the event of failure of any pollution control system adopted by the unit, respective unit shall not be restarted until the control measures are rectified to achieve the desired efficiency. Stack monitoring shall be done regularly and report shall be submitted to APPCB.

16. In plant control measures for checking fugitive emissions from all the vulnerable sources shall be provided. Fugitive emissions shall be controlled by providing closed storage, closed handling & conveyance of chemicals / materials, multi cyclone separator and water sprinkling system. Dust suppression system including water sprinkling system shall be provided at loading and unloading areas to control dust emissions. Fugitive emissions in the work zone environment, product, raw materials storage area etc., shall be regularly monitored and records maintained. The emissions shall conform to the limits stipulated by the APPCB.
17. A proper Leak Detection and Repair (LDAR) program for pesticide industry shall be prepared and implemented as per CPCB guidelines. Focus shall be given for prevention of fugitive emissions for which preventive maintenance of pumps, valves, pipelines are required. Proper maintenance of mechanical seals of pumps and valves shall be given. A preventive maintenance schedule for each unit shall be prepared and adhered to.
18. Proper hood along with suction facility and scrubbing arrangement should be provided in the chlorine storage area. Alarm for chlorine leakage if any in the liquid chlorine storage area shall be provided along with automatic start of the scrubbing system.
19. The Industry shall control fugitive emissions by providing chilled brine circulation, closed room operations and condensers with receivers.
20. Regular monitoring of vents of the storage tanks and work room concentration shall be carried out using sensors.
21. Proper earthing shall be provided in all the electrical equipment wherever solvent handling is done. Entire plant shall be flame proof.
22. A sampling port with removable dummy of not less than 15 cm diameter shall be provided in the stack at a distance of 8 times the diameter of the stack from the nearest constraint such as bends etc. A platform with suitable ladder shall be provided below 1 meter of sampling port to accommodate three persons with instruments. A 15 AMP 250 V-plug point shall be provided on the platform.
23. The generator shall be installed in a closed area with a silencer and suitable noise absorption systems. The ambient noise level shall not exceed 75 dB(A) during day time and 70 dB(A) during night time.

**Solid Waste:**

24. The proponent shall comply with the following:

| Sl. No. | Solid Waste generated from     | Quantity in TPD | Method of proposed disposal                    |
|---------|--------------------------------|-----------------|------------------------------------------------|
| 1       | Sludge from Caustic Soda Plant | 10.0            | Shall be disposed to TSDF, Parawada.           |
| 2       | Sludge from SBP Plant          | 2.0             |                                                |
| 3       | EIP Sludge                     | 0.10            | Shall be disposed to TSDF, Parawada            |
| 4       | Boiler Ash                     | 36.0            | Shall be disposed to brick manufacturing unit. |

5(1)

25. The proponent shall place the chemical drums and / or any drums in the concrete platform only. The Platform shall be provided with sufficient dyke wall and effluent collection system.
26. Container & Container liners shall be detoxified at the specified covered platform with dyke walls and the wash wastewater shall be routed to low TDS collection tank.
27. The following rules and regulations notified by the MOE&F, GOI shall be implemented.
  - a) Hazardous waste (Management, Handling and Transboundary), Rules, 2008.
  - b) Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989.
  - c) Batteries (Management & Handling) Rules, 2010, Dt. 4.5.2010
  - d) E-Waste (Management & Handling) Rules, 2012.

Other Conditions:

28. The industry shall allocate a minimum of 1% of its project cost of Rs. 430.0 crores towards CSR activities during construction period and 0.40 % of the project cost per year during operational period for 10 years.
29. Thick green belt shall be provided all along the boundary of the industry to maintain minimum 33% of total area.
30. The industry shall implement the odour control measures at source of generation and from ETP and shall ensure to maintain the same effectively to control odour problems.
31. No mercury cell shall be used. Manufacturing process of chloro Alkali shall be based on membrane cell.
32. System of leak detection and repair of pump / pipeline shall be installed in the plant and immediate response team shall be identified for preventive maintenance.
33. The proponent shall ensure that there shall not be any change in the process technology, source & composition of raw materials and scope of working without prior approval from the Board.
34. The proponent shall comply with all the directions issued by the Board from time to time.
35. Concealing the factual data or submission of false information / fabricated data and failure to comply with any of the conditions mentioned in this order may result in withdrawal of this order and attract action under the provisions of relevant pollution control Acts.
36. The Board reserves its right to modify above conditions or stipulate any additional conditions including revocation of this order in the interest of environment protection.
37. The order is issued without prejudice to the rights and contentions of this Board in any court of law.

5 (ii)



**ANDHRA PRADESH POLLUTION CONTROL BOARD**  
D.No. 33-26-14 D/2, Near Sunrise Hospital, Pushpa Hotel Centre,  
Chalamalavari Street, Kasturibalpet, Vijayawada - 520010.

Website : www.appcb.ap.nic.in

**EXTENSION OF VALIDITY OF CONSENT ORDER FOR ESTABLISHMENT**

**Order No.359/APP/CB/CFE/RO-KKD/HO/2013**

**Dt: 11.05.2018**

**Sub:** APPCB - CFE - M/s. KPR Industries (India) Limited (Caustic Division)  
[Formerly M/s. KPR Chemicals Ltd., (Caustic Division)] Sy.No. 1 to 4, 7, 8 & 11,  
Balabhadrapuram (V), Biccavolu (M), East Godavari District - Extension of  
validity of CFE order - Reg.

**Ref:** 1. EC order dt. 22.03.2013.  
2. CFE order dt. 24.05.2013.  
3. Industry's request Ir. dt. 18.04.2018.  
4. CFE Committee meeting held on 24.04.2018.

The industry had obtained Environmental Clearance (EC) vide reference 1<sup>st</sup> cited from MoE&F, Govt, New Delhi. As per the EIA Notification and subsequent Amendment Notification dt. 29.04.2015, the validity period of EC is 7 years i.e., upto 21.03.2020.

The Board issued CFE to M/s. KPR Industries (India) Limited (Caustic Division) [Formerly M/s. KPR Chemicals Ltd., (Caustic Division)] vide reference 2<sup>nd</sup> cited for establishment of Caustic Division, Phase-1. The validity period of CFE order is 5 years i.e., upto 23.05.2018.

The Industry vide reference 3<sup>rd</sup> cited, requested the Board for extension of validity period of CFE order for further period of seven years.

This item was placed before the CFE Committee in its meeting held on 24.04.2018. After detailed discussions, the Committee recommended to extend the validity of CFE order dated 24.05.2013 up to 21.03.2020 i.e., up to the validity period of EC.

In view of the above, the Board, after careful scrutiny of the request of the industry and recommendation of the CFE Committee hereby issues **EXTENSION OF VALIDITY PERIOD OF CONSENT FOR ESTABLISHMENT** to the project under Section 25 of Water (Prevention & Control of Pollution) Act 1974 and Section 21 of Air (Prevention & Control of Pollution) Act, 1981 and the rules made there under with the following conditions:

- The validity period of the CFE order dt.24.05.2013 is extended upto 21.03.2020.
- All other conditions stipulated in the CFE order issued vide reference 2<sup>nd</sup> cited shall remain the same.

Bandla Siva  
Sankar  
Prasad

**MEMBER SECRETARY**

**To**

M/s. KPR Industries (India) Limited (Caustic Division)  
[Formerly M/s. KPR Chemicals Ltd., (Caustic Division)]  
Balabhadrapuram (V), Biccavolu (M),  
East Godavari District.

**Copy to:** 1. The JCEE, ZO: Visakhapatnam for information and necessary action.  
2. The EE, RO: Kakinada for information and necessary action.

File No.APPCB-11021/15/2018-TEC-CFE-APPCB



**ANDHRA PRADESH POLLUTION CONTROL BOARD**  
D. No. 33-26-14 D/2, Near Sunrise Hospital, Pushpa Hotel Centre,  
Chalamalavari Street, Kasturibaipet, Vijayawada - 520 010  
Website: www.pcb.ap.gov.in

**AMENDMENT TO THE CFE ORDER****Order No. 359 /APPCB/CFE/RO-KKD/HO/2013****21/01/2020**

**Sub: APPCB - CFE - M/s. Grasim Industries Limited, {formerly M/s. KPR Industries (India) Limited} Balabhadrapuram Village, Biccavolu Mandal, East Godavari District - Amendment to CFE order - Change of name - Issued - Reg.**

- Ref:
1. CFE order dt. 24.05.2013.
  2. CFE validity extension order dt. 11.05.2018.
  3. MoEF&CC, GoI, New Delhi order dt. 21.11.2019.
  4. Industry's letter dt. 28.11.2019.
  5. EE, RO: Kakinada report dt. 03.12.2019.
  6. CFE Committee meeting held on 03.01.2020.

In the reference 1st cited, the Board issued CFE to M/s. KPR Industries (India) Limited (Caustic Division) [formerly M/s. KPR Chemicals Ltd., (Caustic Division)] Sy.No.1 to 4, 7,8 & 11 Balabhadrapuram (V), Biccavolu (M), East Godavari District to produce Caustic Soda Lye (100%), Caustic Soda Flakes, Hydrogen Gas (filled), Liquid Chlorine, Hydrochloric Acid (32%), Sodium Hydrochloride (15% Cl<sub>2</sub>), Chlorinated Paraffin Wax, Mono Chloro Acetic Acid and Stable Bleaching Powder (SBP). The industry vide reference 2nd cited, obtained extension of validity period of CFE order upto 21.03.2020.

The MoEF&CC, GoI, New Delhi vide reference 3<sup>rd</sup> cited transferred the EC order from M/s. KPR Industries (India) Ltd., to M/s. Grasim Industries Ltd.

In the reference 4th cited, M/s. Grasim Industries Limited had requested the Board to change the name from M/s. KPR Industries (India) Limited to M/s. Grasim Industries Limited, duly enclosing the supporting documents. The EE, RO: Kakinada vide reference 5th cited submitted a report in this regard.

The item was placed before the CFE Committee in the meeting held on 03.01.2020 and the Committee recommended to issue amendment to CFE for Change of name in the CFE order issued dated 24.05.2013.

In view of the above, the Board after careful examination of Industry's request, report of the Regional Officer and recommendations of the CFE Committee, hereby issues AMENDMENT TO THE CFE ORDER issued vide reference 1<sup>st</sup> cited, as following:

- The name of the industry shall be read as M/s. Grasim Industries Limited.
- All other conditions mentioned in the CFE order issued vide reference 1<sup>st</sup> cited remain the same.

VIVEK YADAV IAS, MS(VY), O/o MEMBER SECRETARY-APPCB  
MEMBER SECRETARY

To

M/s. Grasim Industries Limited,  
{formerly M/s. KPR Industries (India) Limited}  
Balabhadrapuram Village, Biccavolu Mandal,  
East Godavari District.  
rg.krishnan@adityabirla.com,  
muralikrishna.mvk@adityabirla.com

Copy to:

1. The JCEE, ZO: Visakhapatnam for information and necessary action.
2. The EE, RO: Kakinada for information and necessary action.

Signature valid

Digitally signed by VIVEK  
YADAV  
Date: 2020.01.21 13:52:05 IST  
Reason: Approved



**ANDHRA PRADESH POLLUTION CONTROL BOARD**  
D. No. 33-26-14 D/2, Near Sunrise Hospital, Pushpa Hotel Centre,  
Chalamalavari Street, Kasturibaipet, Vijayawada - 520 010  
Website: www.pcb.ap.gov.in

**EXTENSION OF VALIDITY OF CONSENT ORDER FOR ESTABLISHMENT**

**Order No.359/APPCB/CFE/RO-KKD/HO/2013**

**19/06/2020**

**Sub:APPCB – CFE – M/s. Grasim Industries Limited (formerly M/s. KPR Industries (India) Limited) Balabhadrapuram (V), Biccavolu (M), East Godavari District - Extension of validity of CFE order – Issued - Reg.**

- Ref:**
1. EC order dt. 22.03.2013 issued by MoEF, Gol, New Delhi.
  2. T.O. CFE order dt. 24.05.2013.
  3. T.O. order dt. 11.05.2018.
  4. MoEF, Gol, New Delhi order dt. 21.11.2019.
  5. T.O. CFE (Amendment) order dt: 21.01.2020
  6. Industry's lr. dt. 13.03.2020 and mail dt. 06.06.2020.
  7. CFE Committee meeting held on 09.06.2020.

**M/s. KPR Industries (India) Limited** had obtained Environmental Clearance (EC) vide reference 1<sup>st</sup> cited from MoE&F, Gol, New Delhi, to produce Caustic Soda Lye (100%), Caustic Soda Flakes, Hydrogen Gas (filled), Liquid Chlorine, Hydrochloric Acid (32%), Sodium Hydrochloride (15% C12), Chlorinated Paraffin Wax, Mono Chloro Acetic Acid and Stable Bleaching Powder (SBP). As per the EIA Notification and subsequent Amendment Notification dt. 29.04.2015, the validity period of EC is 7 years i.e., **upto 21.03.2020.**

The Board issued CFE Order vide reference 2<sup>nd</sup> cited to the industry. The validity period of the above CFE order was extended upto 21.03.2020 i.e validity period of EC order, vide reference 3<sup>rd</sup> cited.

Subsequently, M/s. Grasim Industries Limited, has purchased the industry. The MoEF & CC, Gol, New Delhi vide reference 4<sup>th</sup> cited transferred the EC order from M/s. KPR Industries (India) Ltd., to M/s. Grasim Industries Ltd. The Board issued CFE (Amendment) order vide reference 5<sup>th</sup> cited changing the name of the industry from **M/s. KPR Industries (India) Limited to M/s. Grasim Industries Limited**, Balabhadrapuram (V), Biccavolu (M), East Godavari District.

The industry vide reference 6<sup>th</sup> cited **requested the Board for extension of validity period of CFE order dt. 21.01.2020 for further period of 2 years i.e., up to 20.03.2022.** M/s. Grasim Industries Limited took possession of the unit on 19.02.2019 with due verification of the integrity of the existing structure / buildings which were abandoned almost 5 years back. Further, it was submitted that they are making the **building and structure ready for erection of the plant and committed to commission the activity of 1<sup>st</sup> stage in the next 10 months.** They have also submitted an application to MoEF for extension of validity period of the EC order.

This item was placed before the CFE Committee meeting held on 09.06.2020. The representatives of the project proponent attended the meeting through Video conference. The representatives of the project proponent have informed vide mail dt. 06.06.2020 that the Expert Appraisal Committee, MoEF & CC, GoI, New Delhi in its meeting held on 13.05.2020 through Video conference has recommended to extend the validity of EC order upto 22<sup>nd</sup> March, 2023. An extract of minutes of the meeting were submitted.

After detailed discussions, the Committee recommended to extend the validity of CFE order upto **20.03.2022** as requested by the proponent.

In view of the above, the Board after careful scrutiny of the request of the industry and recommendation of the CFE Committee hereby issues EXTENSION OF VALIDITY PERIOD OF CONSENT FOR ESTABLISHMENT to the project under Section 25 of Water (Prevention & Control of Pollution) Act 1974 and Section 21 of Air (Prevention & Control of Pollution) Act, 1981 and the rules made there under with the following conditions:

- The validity period of the CFE order issued vide reference 2<sup>nd</sup> cited is extended upto 20.03.2022.
- The industry shall submit a copy of the order issued by the MoEF & CC, GoI extending the validity period of EC order at the RO: Kakinada.
- All other conditions stipulated in the CFE order issued vide reference 2<sup>nd</sup> cited shall remain the same.

**BATCHU SIVA PRASAD, JCEE(BSP), O/o JOINT CHIEF ENVIRONMENTAL  
ENGINEER1-APPCB  
JOINT CHIEF ENVIRONMENTAL ENGINEER**

To

**M/s. Grasim Industries Limited,  
{formerly M/s. KPR Industries (India) Limited}  
Balabhadrapuram Village, Biccavolu Mandal,  
East Godavari District.  
rg.krishnan@adityabirla.com,  
muralikrishna.mvk@adityabirla.com**

Copy to: 1. The JCEE, ZO: Visakhapatnam for information and necessary action.  
2. The EE, RO: Kakinada for information and necessary action.

**Signature valid**

Digitally signed by BATCHU  
SIVA PRASAD  
Date: 2020.06.19 15:00:20 IST  
Reason: Approved

**ANDHRA PRADESH POLLUTION CONTROL BOARD**

D. No. 33-26-14 D/2, Near Sunrise Hospital, Pushpa Hotel Centre,  
Chalamalavari Street, Kasturibaipet, Vijayawada - 520 010  
Website: www.pcb.ap.gov.in

**CONSENT ORDER FOR ESTABLISHMENT****Order No.359 /APPCB/CFE/RO-KKD /HO/2013****21/04/2022**

Sub: APPCB – CFE - **M/s. Grasim Industries Limited, Balabhadrapuram (V), Biccavolu (M), East Godavari District** - Consent for Establishment (CFE) of the Board for **EXPANSION** under Sec.25 of Water (P & C of P) Act, 1974 and Under Sec.21 of Air (P & C of P) Act, 1981 - Issued - Reg.

- Ref:
1. EC order dt.22.03.2013 issued by MoEF, Gol, New Delhi.
  2. Industry's CFE(exp) application received through Single Desk Portal on 28.02.2022.
  3. R.O's inspection report dt.17.03.2022.
  4. T.O. Ir.dt.29.03.2022.
  5. CFE Committee meeting held on 31.03.2022.
  6. Industry's Ir.dt.31.03.2022.

- In the reference 2<sup>nd</sup> cited, an application was submitted to the Board seeking Consent for
1. Establishment (CFE) for **EXPANSION** to produce the following products with installed capacities as mentioned below, with an additional investment of Rs.292.0Crores.

| S. No. | Name of the Products                       | As per EC dt.22.03.2013 | As per Existing CFO | Proposed | Total after expansion |
|--------|--------------------------------------------|-------------------------|---------------------|----------|-----------------------|
| 1.     | Caustic Soda Lye (100%)                    | 400 TPD                 | 400 TPD             | --       | 400 TPD               |
| 2.     | Caustic Soda Flakes                        | 120 TPD                 | 120 TPD             | --       | 120 TPD               |
| 3.     | Hydrogen Gas (filled)                      | 2 TPD                   | 2 TPD               | --       | 2 TPD                 |
| 4.     | Liquid Chlorine                            | 200 TPD                 | 200 TPD             | --       | 200 TPD               |
| 5.     | Hydrochloric Acid (32%)                    | 600 TPD                 | 600 TPD             | --       | 600 TPD               |
| 6.     | Sodium Hypochlorite (15% Cl <sub>2</sub> ) | 120 TPD                 | 120 TPD             | --       | 120 TPD               |
| 7.     | Chlorinated Paraffin Wax                   | 30 TPD                  | 30 TPD              | --       | 30 TPD                |
| 8.     | Mono Chloro Acetic Acid                    | 20 TPD                  | 20 TPD              | --       | 20 TPD                |
| 9.     | Stable Bleaching Powder(SBP)               | 50 TPD                  | 50 TPD              | --       | 50 TPD                |
| 10.    | Caustic Potash Lye (100%)                  | 100 TPD                 | --                  | 100 TPD  | 100 TPD               |
| 11.    | Caustic Potash Flakes                      | 60 TPD                  | --                  | 60 TPD   | 60 TPD                |

|                   |                              |        |    |         |         |
|-------------------|------------------------------|--------|----|---------|---------|
| 12.               | Calcium Hypochlorite         | 30 TPD | -- | 30 TPD  | 30 TPD  |
| 13.               | Poly Aluminium Chloride      | 90 TPD | -- | 90 TPD  | 90 TPD  |
| 14.               | Hydrogen Peroxide            | 30 TPD | -- | 30 TPD  | 30 TPD  |
| 15.               | Anhydrous Aluminium Chloride | ---    | -- | 100 TPD | 100 TPD |
| <b>By-Product</b> |                              |        |    |         |         |
| 1.                | Sulphuric Acid (78%)         | ---    | -- | 10 TPD  | 10 TPD  |

2. As per the application, the above activity is to be located in the existing premises at **Balabhadrapuram (V), Biccavolu (M), East Godavari District** in an area of 32.55 acres (Total area is 246.45 acres)

3. The above site was inspected by the Environmental Engineer, Regional Office, Kakinada, A.P Pollution Control Board on 08.03.2022 and observed that the site is surrounded by

**North** : Vacant Land

**South** : Kachha road followed by M/s. Gaurav Lubricants Industries Private Limited.

**East** : Agricultural Lands (most of the land covered by Palm Garden);

**West** : Palm Garden

4. The Board, after careful scrutiny of the application, verification report of Regional Officer and recommendations of the CFE Committee, hereby issues **CONSENT FOR ESTABLISHMENT FOR EXPANSION** to the project under Section 25 of Water (Prevention & Control of Pollution) Act 1974 and Section 21 of Air (Prevention & Control of Pollution) Act, 1981 and the rules made there under. **This order is issued to manufacture the products as mentioned at para (1) only.**

5. This Consent order issued is subject to the conditions mentioned in the Annexure.

6. This order is issued from pollution control point of view only. Zoning and other regulations are not considered.

7. **This order is valid for a period of 7 years from the date of issue.**

Encl: Annexure

**VIJAY KUMAR GSRKR**

**IAS, MEMBER SECY(GSRKRVK), O/o MEMBER SECRETARY-APPCB**

**To**

**M/s. Grasim Industries Limited, (exp)  
Balabhadrapuram (V),  
Biccavolu (M),  
East Godavari District**

Copy to: 1. The JCEE, Z.O: Visakhapatnam for information and necessary action.  
2. The EE, R.O: Kakinada for information and necessary action.

**ANNEXURE**

1. The proponent shall obtain Consent for Operation (CFO) from APPCB, as required Under Sec.25/26 of the Water (P & C of P) Act, 1974 and under sec. 21/22 of the Air (P & C of P) Act, 1981, before commencement of the trial runs.
2. The applicant shall provide separate energy meters for Effluent Treatment Plant (ETP) and Air pollution Control equipments to record energy consumed. An alternative electric power source sufficient to operate all pollution control systems shall be provided.
3. The industry shall construct separate storm water drains. No effluents shall be discharged in to the storm water drains.

**Water:**

4. The source of water is Ground water and the maximum permitted water consumption is as following:

| S. No. | Purpose               | As per EC Dt:22.03.2013 | As per CFO Existing | Inclusion/Expansion | Total after Expansion |
|--------|-----------------------|-------------------------|---------------------|---------------------|-----------------------|
| 1.     | Process               | 3800 KLD                | 1400 KLD            | 1100 KLD            | 2500 KLD              |
| 2.     | Boiler makeup         |                         | 250 KLD             | --                  | 250 KLD               |
| 3.     | Cooling tower makeup  |                         | 720 KLD             | --                  | 720 KLD               |
| 4.     | DM Plant regeneration |                         | 130 KLD             | --                  | 130 KLD               |
| 5.     | Domestic              |                         | 40 KLD              | 60 KLD              | 100 KLD               |
| 6.     | Evaporation Loss      |                         | 100 KLD             | --                  | 100 KLD               |
|        | <b>Total</b>          |                         | <b>2640 KLD</b>     | <b>1160 KLD</b>     | <b>3800 KLD</b>       |

Separate meters with necessary pipe-line shall be provided for assessing the quantity of water used for each of the purposes mentioned above.

5. The maximum Waste Water Generation (KLD) after implementation of expansion shall not exceed the following:

| S. No. | Source                        | As per EC Dt:22.03.2013 | As per Existing CFO | Inclusion/Expansion | Total          |
|--------|-------------------------------|-------------------------|---------------------|---------------------|----------------|
| 1.     | Process Waste Water           | 620 KLD                 | 120 KLD             | 130 KLD             | 250 KLD        |
| 2.     | Boiler blow down              |                         | 30 KLD              | --                  | 30 KLD         |
| 3.     | Cooling tower blow down       |                         | 140 KLD             |                     | 140 KLD        |
| 4.     | DM Plant regeneration         |                         | 130 KLD             |                     | 130 KLD        |
| 5.     | Domestic/Sanitary waste water |                         | 30 KLD              | 40 KLD              | 70 KLD         |
|        | <b>Total</b>                  |                         | <b>450 KLD</b>      |                     | <b>620 KLD</b> |

**Air:**

13. The proponent shall comply with the following for controlling air pollution after implementation of expansion:

| S. No. | Source of Pollution                         | Control equipment   | Stack height in m - above GL |
|--------|---------------------------------------------|---------------------|------------------------------|
| 1.     | Husk fired boiler of capacity 15 TPH Boiler | ESP                 | 36 m                         |
| 2.     | HCL furnace – Unit-I                        | Wet Scrubber        | 32 m                         |
| 3.     | HCL furnace – Unit-II                       | Wet Scrubber        | 32 m                         |
| 4.     | HCL furnace – Unit-III                      | Wet Scrubber        | 31 m                         |
| 5.     | HCL furnace – Unit-IV                       | Wet Scrubber        | 31 m                         |
| 6.     | Sodium Hypo Unit-I                          | Wet Scrubber        | 30 m                         |
| 7.     | Sodium Hypo Unit-II                         | Wet Scrubber        | 30 m                         |
| 8.     | 2000 KVA DG Set                             | Acoustic Enclosures | 30 m                         |
| 9.     | 2000 KVA DG Set                             | Acoustic Enclosures | 30 m                         |
| 10.    | 2000 KVA DG Set                             | Acoustic Enclosures | 30 m                         |

**Expansion:**

| S. No. | Source of Pollution                               | Control equipment                                                 | Stack height above GL |
|--------|---------------------------------------------------|-------------------------------------------------------------------|-----------------------|
| 1.     | Coal /Husk fired boiler of capacity 20 TPH Boiler | Bag filters                                                       | 52 m                  |
| 2.     | 1 x 2000 KVA DG set                               | Acoustic Enclosure                                                | 32 m                  |
| 3.     | PAC plant                                         | Wet Scrubber                                                      | 32 m                  |
| 4.     | H <sub>2</sub> O <sub>2</sub> Plant               | Solvent Recovery (Chiller, Demister, Activated Carbon Adsorption) | 32 m                  |
| 5.     | Anhydrous Aluminium Chloride                      | Water and Caustic Scrubbing System                                | 32 m                  |
| 6.     | 2 x Calcium Hypo Chloride                         | Caustic Scrubbing System                                          | 32 m                  |

14. The proponent shall ensure compliance of the National Ambient Air quality standards notified by MoE&F, GoI vide notification No. GSR 826(E), dated. 16.11.2009 during construction and regular operational phase of the project.

15. The proponent shall provide dedicated scrubbers to the process vents to control the process emissions. The industry shall provide online pH monitoring system to the scrubbers provided to treat the process emissions.

16. The industry shall install multi-stage scrubbers for control of gaseous emissions. The scrubbed solutions shall be reused to the possible extent. The industry shall keep the record of disposal of all such by-products and shall submit the record to concerned Regional Officer.

17. The industry shall provide the monitoring system to all the stacks / vents in the plant. Regular monitoring shall be carried out and report shall be submitted to the Regional officer.

**Solid Waste:**

30. The proponent shall comply with the following after implementation of expansion.

| S. No.              | Solid Waste generated from                                                         | Quantity (TPD)                          |                    |          | Method of Disposal                                                                                                            |
|---------------------|------------------------------------------------------------------------------------|-----------------------------------------|--------------------|----------|-------------------------------------------------------------------------------------------------------------------------------|
|                     |                                                                                    | Existing as per CFO order dt.19.11.2021 | Proposed expansion | Total    |                                                                                                                               |
| 1.                  | Brine sludge                                                                       | 10 TPD                                  | --                 | 10 TPD   | Shall be routed through M/s. APEMC so as to sent to TSDF                                                                      |
| 2.                  | ATFD salts                                                                         | 7 TPD                                   | --                 | 7 TPD    |                                                                                                                               |
| 3.                  | Wastes / Residues containing oil                                                   | 1 TPD                                   | --                 | 1 TPD    |                                                                                                                               |
| 4.                  | Wastes / residues from waste treatment systems                                     | 12 TPA                                  | 2500 TPA           | 2512 TPA |                                                                                                                               |
| 5.                  | Sludge from wet scrubbers                                                          | 6 TPA                                   | --                 | 6 TPA    |                                                                                                                               |
| 6.                  | Used / Spent Oil                                                                   | 60 TPA                                  | --                 | 60 TPA   | Used as lubricant within the premises / to authorized Re-processors / Recyclers / to the Cement industries for co-processing. |
| 7.                  | Discarded containers barrels liners contaminated with hazardous wastes / Chemicals | 10 TPA                                  | 90 TPA             | 100 TPA  | To authorized agencies, after complete detoxification for re-use/ recycle.                                                    |
| 8.                  | Residue/ Sludge and filter cakes                                                   | ---                                     | 6 TPD              | 6 TPD    | Proposed to be sent to TSDF.                                                                                                  |
| 9.                  | Spent catalyst                                                                     | ---                                     | 50 TPA             | 50 TPA   | To the Supplier for recovery                                                                                                  |
| <b>Other Wastes</b> |                                                                                    |                                         |                    |          |                                                                                                                               |
| 8.                  | E-Waste                                                                            | 5 TPA                                   | --                 |          | Shall be sent to authorized refurbisher / recyclers                                                                           |
| 9.                  | Scrap                                                                              | 5 TPA                                   | 36.5 TPA           | 41.5 TPA | To authorized agencies, after complete detoxification for re-use/ recycle.                                                    |
| 10.                 | Used Lead Acid Batteries                                                           | 1 TPA                                   | --                 |          | To dealers on buy back system                                                                                                 |
| 11.                 | Sludge from STP                                                                    | 6 TPM                                   | --                 |          | Shall be used as manure.                                                                                                      |

The proponent shall place the chemical drums and / any drums in the concrete platform 31.only. The Platform shall be provided with sufficient dyke wall and effluent collection system.

Container & Container liners shall be detoxified at the specified covered platform with 32.dyke walls and the wash wastewater shall be routed to effluent collection tank.

33. The following rules and regulations notified by the MoE&F, GoI shall be implemented.
- Regulation of Persistent Organic Pollutants Rules, 2018.
  - Hazardous waste and other wastes (Management and Transboundary Movement) Rules, 2016.
  - Plastic Waste Management Rules, 2016.
  - Manufacture, Storage and Import of Hazardous Chemicals Rules, 1989
  - Fly Ash Notification, 2016.
  - Batteries (Management & Handling) Rules, 2010.
  - E-Waste (Management) Rules, 2016.
  - Construction and Demolition waste Management Rules, 2016.
  - Solid Waste Management Rules, 2016.
  - The Public Liability Insurance Act, 1991 and its amendments thereof.

**Other Conditions:**

34. **The industry shall adopt membrane cell process to manufacture Chloro alkali products.**
35. **The industry shall comply with the following conditions as committed during the CFE Committee meeting held on 31.03.2022:**
- The construction of closed shed with leachate collection system for storage and handling of brine sludge shall be completed within 3 weeks.
  - Additional greenbelt shall be developed so as to achieve 33% greenbelt.
  - The online monitoring equipment shall be connected to CPCB and APPCB websites immediately.
36. "The industry shall comply with the industry specific standards with respect to emissions as following:

| Parameter       | Emission Standards     |
|-----------------|------------------------|
| HCl             | <35 mg/Nm <sup>3</sup> |
| Cl <sub>2</sub> | <15 mg/Nm <sup>3</sup> |

37. The industry shall display online data outside the main factory gate on quantity and nature of hazardous chemicals being used in the plant, water & air emissions and solid waste generated within the factory premises, as per Hon'ble Supreme Court order.
38. **The industry shall prepare a safety report and carry out an independent safety audit report of the respective industrial activities including chemical storages / isolated storages by an expert not associated with such industrial activity as required under Rule 10 of MSIHC Rules, 1989 and get it approved by the Factories Dept., and submit the compliance along with copy of the safety report, safety audit report and safety certificate at concerned Regional Office, APPCB.**

39. **The industry shall submit a copy of the NOC issued by the Andhra Pradesh State Disaster Response and Fire Service Dept., (APSDRFSD) at concerned Regional Office, APPCB.**
40. **The industry shall submit risk assessment report covering worst scenario clearly describing impact within the industry premises and outside the industry premises and emergency response system.**
41. **The industry shall obtain PESO clearance & policy under PLI Act before applying for CFO of the Board.**
42. The industry shall inventorize the storage quantities of hazardous chemicals (raw materials), products, as per the hazard nature of reactivity / toxicity / flammability / explosive stored/handling in the premises as defined in the Management of Storage, Import of Hazardous Chemicals (MSIHC) Rules, 1989 and the details shall be furnished to the Factories Department and to the Regional Office, APPCB on monthly basis duly certifying the same.
43. The industry shall identify major accident hazard chemicals & list out the hazardous chemicals endangered to human health & environment and the details shall be furnished to the Factories Department and to the Regional Office, APPCB time to time duly certifying the same by the industry. Further the industry shall extend training to the working personnels while handling hazardous chemicals for prevention of accidents and necessary antidotes to ensure the safety, as per the MSIHC Rules, 1989.
44. The industry shall carryout calibration of safety equipments and leak detection systems at regular intervals and shall certify the same with the Factories Department. That certified copy shall be submitted to the APPCB, Regional Office. The industry shall install fluorescent Wind Vane at the highest point in the industry premises.
45. **The industry shall comply with the Technical suggestions at Chapter No. 7.3 & 7.4 for Hazardous Chemical handling industries by High Power Committee (HPC) of Govt. of Andhra Pradesh. The HPC report is available at [www.ap.gov.in](http://www.ap.gov.in).**
46. The industry shall utilize DG power for captive consumption only & power shall not be supplied to grid and shall follow the amendments issued by MoEF & CC/CPCB from time to time on DG sets in respect of conditions & standards.
47. Thick green belt shall be maintained all along the boundary & vacant spaces with tall growing trees with good canopy and it shall not be less than 33% of the total area. Existing green belt of 66.50 acres shall be augmented and shall not be disturbed in the proposed expansion activity.

48. The industry shall submit compliance to the conditions stipulated in the CFE orders to the concerned Regional Officer of APPCB every six months and shall upload the same at APPCB website viz., [https://pcb.ap.gov.in/UI/Submission\\_Compliance\\_of\\_EC\\_CFE\\_CFO\\_Direction.aspx](https://pcb.ap.gov.in/UI/Submission_Compliance_of_EC_CFE_CFO_Direction.aspx).
49. The industry shall not use wood as fuel.
50. The industry shall comply with all the conditions stipulated in the Environmental Clearance issued vide order dt.22.03.2013.
51. System of leak detection and repair of pump / pipeline shall be installed in the plant and immediate response team shall be identified for preventive maintenance.
52. The proponent shall isolate the storage of highly flammable chemicals, solvents & other raw materials from the rest of facilities in the plant premises.
53. The proponent shall ensure that there shall not be any change in the process technology and scope of working without prior approval from the Board.
54. The industry shall submit the information regarding usage of Ozone Depleting Substance once in six months to the Regional Office and Zonal Office of the Board.
55. Concealing the factual data or submission of false information / fabricated data and failure to comply with any of the conditions mentioned in this order attracts action under the provisions of relevant pollution control Acts.
56. Notwithstanding anything contained in this conditional letter or consent, the Board hereby reserves its right and power Under Sec. 27(2) of Water (Prevention and Control of Pollution) Act, 1974 and Under Sec.21(4) of Air (Prevention and Control of Pollution) Act, 1981 to revoke the order, to review any or all the conditions imposed herein and to make such modifications as deemed fit and stipulate any additional conditions.
57. Any person aggrieved by an order made by the State Board under Section 25, Section 26, Section 27 of Water Act, 1974 or Section 21 of Air Act, 1981 may within thirty days from the date on which the order is communicated to him, prefer an appeal as per Andhra Pradesh Water Rules, 1976 and Air Rules, 1982, to such authority (hereinafter referred to as the Appellate Authority) constituted under Section 28 of Water (Prevention and Control of Pollution) Act, 1974 and Section 31 of the Air (Prevention and Control of Pollution) Act, 1981.

**VIJAY KUMAR**

**GSRKR IAS, MEMBER SECY(GSRKRVK), O/o MEMBER SECRETARY-APPCB**

**To**

**M/s. Grasim Industries Limited, (exp)  
Balabhadrapuram (V),  
Biccavolu (M),  
East Godavari District**



**ANDHRA PRADESH POLLUTION CONTROL BOARD**  
**D.No.33-26-14D/2, Near Sunrise Hospital, Pushpa Hotel Centre,**  
**Chalamalavari Street, Kasturibaipet, Vijayawada – 520 010**  
**Phone. No.0866-2463200, Website : <https://pcb.ap.gov.in>**

**RED CATEGORY**  
**CONSENT & AUTHORIZATION ORDER**

**Consent Order No : APPCB/VSP/KKD/11022/136/HO/CFO/2021- 19/11/2021**

CONSENT is hereby granted for Operation under section 25/26 of the Water (Prevention & Control of Pollution) Act, 1974 and under section 21/22 of Air (Prevention & Control of Pollution) Act 1981 and amendments thereof and Authorisation under Rule 6 of the Hazardous & Other Wastes (Management and Transboundary, Movement) Rules, 2016 and the rules and orders made there under (hereinafter referred to as 'the Acts', 'the Rules') to:

**M/s. Grasim Industries limited,**  
**Balabhadrapuram (V), Biccavolu (M), East Godavari District**  
 E-mail: rg.krishnan@adityabirla.com

(Hereinafter referred to as 'the Applicant') authorizing to operate the industrial plant to discharge the effluents from the outlets and the quantity of emissions per hour from the chimneys as detailed below:

**i. Outlets for discharge of effluents:**

| Outlet No. | Outlet Description                                                                                                              | Max Daily Discharge (KLD) | Point of Disposal                                                                                                                                                                                                                                                  |
|------------|---------------------------------------------------------------------------------------------------------------------------------|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1.         | Process Waste Water – 120 KLD + Boiler blow down – 30 KLD + Cooling tower blow down – 140 KLD + DM Plant regeneration – 130 KLD | 420                       | Shall be treated in ETP, Ultra filtration and MEE followed by ATFD.<br><br><ul style="list-style-type: none"> <li>Shall reuse / recycle treated wastewater back into the process.</li> <li>Salts to TSDF through APEMC.</li> </ul> Thus shall maintain ZLD system. |
| 5.         | Domestic/Sanitary waste water                                                                                                   | 30                        | The industry shall treat the wastewater in STP, after treatment in the STP, the treated wastewater shall be used onland for irrigation within the premises, duly meeting the Board's discharge standards (BOD-30 mg/l)                                             |
| Total      |                                                                                                                                 | 450.0                     |                                                                                                                                                                                                                                                                    |

**ii. Emissions from chimneys:**

| Chimney No. | Description of Chimney                                         | Quantity of Emissions at peak flow (m3/hr) |
|-------------|----------------------------------------------------------------|--------------------------------------------|
| 1.          | Attached to Husk / Coal fired boiler of capacity 15 TPH Boiler | ---                                        |
| 2.          | Attached to HCl plant 1                                        | ---                                        |

|     |                                              |     |
|-----|----------------------------------------------|-----|
| 3.  | Attached to HCl plant 2                      | --- |
| 4.  | Attached to HCl plant 3                      | --- |
| 5.  | Attached to HCl plant 4                      | --- |
| 6.  | Attached to waste chlorine absorption system | --- |
| 7.  | Attached to Sodium Hypo plant                | --- |
| 8.  | Attached to 2000 KVA DG set                  | --- |
| 9.  | Attached to 2000 KVA DG set                  | --- |
| 10. | Attached to 2000 KVA DG set                  | --- |

iii. **HAZARDOUS WASTE AUTHORISATION (FORM – II) [See Rule 6 (2)]:**

M/s. Grasim Industries limited, Balabhadrapuram (V), Biccavolu (M), East Godavari District is hereby granted an authorization to operate a facility for collection, reception, storage, treatment, transport and disposal of Hazardous Wastes namely:

• **HAZARDOUS WASTES WITH DISPOSAL OPTION:**

| S.No | Name of the Hazardous waste                                                        | Stream               | Quantity of Hazardous waste | Method of disposal                                                                                                            |
|------|------------------------------------------------------------------------------------|----------------------|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| 1.   | Brine sludge                                                                       | 16.3 of Schedule – I | 10 TPD                      | Shall be routed through M/s. APEMC so as to sent to TSDF                                                                      |
| 2.   | ATFD salts                                                                         | 35.3 of Schedule – I | 7 TPD                       |                                                                                                                               |
| 3.   | Wastes / Residues containing oil                                                   | 5.2 of Schedule – I  | 1 TPD                       |                                                                                                                               |
| 4.   | Wastes / residues from waste treatment systems                                     | 35.2 of Schedule – I | 12 TPA                      |                                                                                                                               |
| 5.   | Sludge from wet scrubbers                                                          | 37.1 of Schedule – I | 6 TPA                       |                                                                                                                               |
| 6.   | Used / Spent Oil                                                                   | 5.1 of Schedule – I  | 60 TPA                      | Shall be routed through M/s. APEMC so as to sent to APPCB authorized agencies for Re-processing/ Recycling (Recyclable waste) |
| 7.   | Discarded containers barrels liners contaminated with hazardous wastes / Chemicals | 33.1 of Schedule – I | 10 TPA                      | After detoxification, shall be routed through M/s. APEMC so as to sent to authorized agencies / sent to TSDF                  |

• **Other wastes**

| S.No | Name of the waste        | Quantity | Method of disposal                                             |
|------|--------------------------|----------|----------------------------------------------------------------|
| 1.   | E Waste                  | 0.5 TPA  | Shall be sent to authorized refurbisher / Recyclers            |
| 2.   | Scrap                    | 5 TPA    | Shall be sent to waste recyclers                               |
| 3.   | Used Lead Acid Batteries | 1 TPA    | Shall be return to the dealer/ manufacturer on buy back system |

|    |                 |       |                          |
|----|-----------------|-------|--------------------------|
| 4. | Sludge from STP | 6 TPM | Shall be used as manure. |
|----|-----------------|-------|--------------------------|

This consent order is valid for manufacturing the following products along with quantities indicated only:

| Sl. No. | Products                                   | Capacity |
|---------|--------------------------------------------|----------|
| 1       | Caustic Soda Lye (100%)                    | 400 TPD  |
| 2       | Caustic Soda Flakes *                      | 120 TPD  |
| 3       | Hydrogen Gas (filled)                      | 2 TPD    |
| 4       | Liquid Chlorine                            | 200 TPD  |
| 5       | Hydrochloric Acid (32%)                    | 600 TPD  |
| 6       | Sodium Hypochlorite (15% Cl <sub>2</sub> ) | 120 TPD  |
| 7       | Chlorinated Paraffin Wax                   | 30 TPD   |
| 8       | Mono Chloro Acetic Acid                    | 20 TPD   |
| 9       | Stable Bleaching Powder(SBP)               | 50 TPD   |

**\* The quantity of Caustic Soda flakes must be out of Caustic Soda lye (100%) quantity. Both together should not exceed 400 TPD.**

This order is subject to the provisions of 'the Acts' and the Rules' and orders made there under and further subject to the terms and conditions incorporated in the schedule A, B & C enclosed to this order.

This combined order of consent & Hazardous Waste Authorization shall be valid for a period ending with the **31.10.2022**.

**To**

**M/s. Grasim Industries limited,  
Balabhadrapuram (V), Biccavolu (M), East Godavari District .**

**Copy to :**

1. The JCEE, Zonal Office, **Visakhapatnam** for information and necessary action.
2. The EE, Regional Office, **Kakinada** for information and necessary action.

#### **SCHEDULE-A**

1. Any up-set condition in any industrial plant / activity of the industry, which result in, increased effluent / emission discharge and/ or violation of standards stipulated in this order shall be informed to this Board, under intimation to the Collector and District Magistrate and take immediate action to bring down the discharge / emission below the limits.
2. The industry should carryout analysis of waste water discharges or emissions through chimneys for the parameters mentioned in this order on quarterly basis and submit to the Board.
3. All the rules & regulations notified by Ministry of Law and Justice, Government of India regarding Public Liability Insurance Act, 1991 should be followed as applicable.
4. Notwithstanding anything contained in this consent order, the Board hereby reserves the right and powers to review / revoke any and/or all the conditions imposed herein above and to make such variations as deemed fit for the purpose of the Acts by the Board.
5. The industry shall ensure that there shall not be any change in the process technology, source & composition of raw materials and scope of working without prior approval from the Board.
6. The applicant shall submit Environment statement in Form V before 30th September every year as per Rule No.14 of E(P) Rules, 1986 & amendments thereof.
7. The applicant should make applications through Online for renewal of Consent (under

Water and Air Acts) and Authorization under HWM Rules at least 120 days before the date of expiry of this order, along with prescribed fee under Water and Air Acts and detailed compliance of CFO conditions for obtaining Consent & HW Authorization of the Board.

8. The industry should immediately submit the revised application for consent to this Board in the event of any change in the raw material used, processes employed, quantity of trade effluents & quantity of emissions. Any change in the management shall be informed to the Board. The person authorized should not let out the premises / lend / sell / transfer their industrial premises without obtaining prior permission of the State Pollution Control Board.
9. Any person aggrieved by an order made by the State Board under Section 25, Section 26, Section 27 of Water Act, 1974 or Section 21 of Air Act, 1981 may within thirty days from the date on which the order is communicated to him, prefer an appeal as per Andhra Pradesh Water Rules, 1976 and Air Rules 1982, to Appellate authority constituted under Section 28 of the Water(Prevention and Control of Pollution) Act, 1974 and Section 31 of the Air(Prevention and Control of Pollution) Act, 1981.
10. The industry shall be liable to pay Environmental Compensation / Other Environmental Taxes, if any environmental damage caused to the surroundings, as fixed by the Collector & District Magistrate or any other competent authority as per the Rules in vogue.
11. The industry may explore the possibility of tapping the solar energy for their energy requirements.
12. The industry should educate the workers and nearby public of possible accidents and remedial measures.

#### **SCHEDULE-B**

1. The industry shall comply with the following:
  - a. The industry shall provide detoxification container facility with dyke wall within 15 days.
  - b. The industry shall not install 25 TPH Husk fired boiler without obtaining CFE of the Board.

#### **WATER POLLUTION:**

1. The industry shall comply the following sewage treatment effluent standards based on the disposal points permitted:

| Outlet No. | Parameter                                                                | Concentration in mg/l |
|------------|--------------------------------------------------------------------------|-----------------------|
| 2          | pH                                                                       | 5.50 – 9.00           |
|            | Total Suspended Solids (TSS at 103 – 1050C)                              | <100.00               |
|            | Oil and Grease                                                           | 10.00                 |
|            | Biochemical Oxygen Demand (BOD3 at 270C)                                 | 30.00                 |
|            | Fecal Coliform (FC) (Most Probable Number per 100 milliliter, MPN/100ml) | <1000 MPN/100 ml      |

2. The industry shall take steps to reduce water consumption to the extent possible and consumption shall NOT exceed the quantities mentioned below :

| Sl. No. | Purpose              | Quantity (KLD) |
|---------|----------------------|----------------|
| 1       | Process              | 1400           |
| 2       | Boiler makeup        | 250            |
| 3       | Cooling tower makeup | 720            |

|   |                       |      |
|---|-----------------------|------|
| 4 | DM Plant regeneration | 130  |
| 5 | Domestic              | 40   |
| 6 | Evaporation Loss      | 100  |
|   | Total                 | 2640 |

Separate meters with necessary pipe-line shall be maintained for assessing the quantity of water used for each of the purposes mentioned above.

3. The industry shall install and maintain Electromagnetic digital flow meters for effluent generation of different categories mentioned in this order, Inlet and outlet of ETP, MEE, ATFD, RO Plants & STP and treated effluent shall be recycled into the process. The industry shall operate MEE, ETP, RO plant & STP continuously. All the units of the ETP shall be made impervious to prevent ground water pollution.
4. The industry shall maintain storm water drains along the periphery including new evaporation plant and Boiler with a provision to collect spillages, leakages and connected to ETP for further treatment.
5. The industry shall ensure that effluents shall not be discharged onland or any water bodies or aquifers or outside under any circumstances. Floor washings shall be admitted into effluent collection system only and shall not be allowed to find their way into storm water drains or open areas.
6. Storm water shall be channelized through separate drains passing through a pit having capacity of 10 minutes (hourly average) of rainfall.
7. The industry shall provide rainwater harvesting structures to recharge the rain water from the roof tops of the buildings to recharge ground water.
8. The industry shall provide Piezo wells around storage area and shall carry out monitoring of these piezo wells on bimonthly basis.
9. The industry shall comply with CPCB directions dated 05.02.2014 / 02.03.2015 and other subsequent directions issued by CPCB regarding online effluent monitoring systems and online continuous stack emission monitoring systems.

#### Air pollutions:

10. The emissions shall not contain constituents in excess of the prescribed limits mentioned below:

| Chimney No. | Parameter          | Emission Standards     |
|-------------|--------------------|------------------------|
| 1           | Particulate Matter | 50 mg/Nm <sup>3</sup>  |
| 2 to 5      | HCl and            | <35 mg/Nm <sup>3</sup> |
|             | Cl <sub>2</sub>    | <15 mg/Nm <sup>3</sup> |
| 6 & 7       | Cl <sub>2</sub>    | <15 mg/Nm <sup>3</sup> |
|             | HCl                | <35 mg/Nm <sup>3</sup> |
| 8 to 10     | Particulate Matter | 115 mg/Nm <sup>3</sup> |

11. The industry shall maintain online stack analyser to the stack connected to boiler, and process vents and data shall be connected to the APPCB & CPCB servers.
12. The industry shall comply with ambient air quality standards of PM<sub>10</sub> (Particulate Matter size less than 10 microns)-100 micrograms/m<sup>3</sup>; PM<sub>2.5</sub> (Particulate Matter size less than 2.5 microns)-60 micrograms/m<sup>3</sup>; SO<sub>2</sub> - 80 micrograms/m<sup>3</sup>; NO<sub>x</sub> - 80 micrograms/m<sup>3</sup> outside the factory premises at the periphery of the industry.

Standards for other parameters as mentioned in the National Ambient Air Quality Standards CPCB Notification No.B-29016/20/90/PCI-I, dated 18.11.2009.

Noise Levels: Daytime (6 AM to 10 PM) - 75 dB(A)

Night time (10 PM to 6 AM) - 70 dB(A)

- 13.The industry shall provide a sampling port with removable dummy of not less than 15 cm diameter in the stack at a distance of 8 times the diameter of the stack from the nearest constraint such as bends etc. A platform with suitable ladder shall be provided below 1 meter of sampling port to accommodate three persons with instruments. A 15 AMP 250 V plug point shall be provided on the platform.
- 14.The industry shall install multi stage scrubbers for control of HCl and other gaseous emissions. The scrubber solutions shall be recycled to the possible extent. The scrubbing media shall be sent to effluent treatment plant (ETP) for treatment. Efficiency of scrubber shall be monitored regularly and maintained properly.
- 15.The industry shall install Online chlorine analyzer along with alarm indicator in the chlorine stack, chlorine storage area and other prominent places with a minimum reading of 1 ppm and shall be connected to the DCS control room, to verify leakages and monitoring during emergency time.
- 16.The industry shall implement adequate measures for control all fugitive emissions from the plant:
  - a. Providing closed storage, closed handling & conveyance of chemicals/materials, multi cyclone separator and water sprinkling system.
  - b. Dust suppression system including water sprinkling system shall be provided at loading and unloading areas to control dust emissions.
  - c. Fugitive emissions in the work zone environment, product, raw materials storage etc., shall be regularly monitored and records maintained. The emissions shall conform to the limits stipulated by the APPCB.
- 17.The industry shall implement the odour control measures at source of generation and from ETP and shall ensure to maintain the same effectively to control odour problems.
- 18.All the process plants shall be interlocked with the pollution control equipments so that in case of any increase in pollutants beyond permissible limits, plant should be automatically stopped in the event of failure of any pollution control system adopted by the unit, respective unit shall not be restarted until the control measures are rectified to achieve the desired efficiency.

**General:**

- 19.The industry shall not manufacture new products and shall not increase the capacity beyond the permitted capacity mentioned in this order, without obtaining CFE / CFO of the Board.
- 20.The industry shall not cause any air & water pollution in the surroundings.
- 21.The industry shall not exceed wastewater generation of 1 m<sup>3</sup> /tonne of caustic soda produced excluding cooling tower blowdown.
- 22.The industry shall not use mercury cell. Manufacturing process of chloro Alkali shall be based on membrane cell.
- 23.A proper Leak Detection and Repair (LDAR) program shall be prepared and implemented as per CPCB guidelines. Focus shall be given for prevention of fugitive emissions for which preventive maintenance of pumps, valves, pipelines are required. Proper maintenance of mechanical seals of pumps and valves shall be given. A preventive maintenance schedule for each unit shall be prepared and adhered to.
- 24.Proper hood along with suction facility and scrubbing arrangement should be provided in the chlorine storage area. Alarm for chlorine leakage if any in the liquid chlorine storage area shall be provided along with automatic start of the scrubbing system.
- 25.Regular monitoring of vents of the storage tanks and work room concentration shall be carried out using sensors.
- 26.The industry shall place the chemical drums and/ or any drums in the concrete

- platform only. The industry shall be provided with sufficient dyke wall and effluent collection system.
- 27.The industry shall maintain the following records and the same shall be made available to the inspecting officers of the Board:
    - a. Daily production details.
    - b. Quantity of Effluents generated, treated, recycled/reused.
    - c. Log Books for pollution control systems.
    - d. Characteristics of effluents and emissions.
    - e. Hazardous/non hazardous solid waste generated and disposed.
    - f. Inspection book.
    - g. Manifest copies of hazardous waste.
  - 28.The industry shall develop minimum 33% of green belt all along the boundary of the industry.
  - 29.The industry shall submit AAQ monitoring reports conducted by Authorised Agency every month.
  - 30.The industry should maintain good housekeeping within the plant premises.
  - 31.The industry shall maintain valid PLI policy which includes Environmental Relief Fund (ERF) and submit copy to RO, Kakinada on yearly base.
  - 32.The industry shall comply with SoPs issued by CPCB time to time for all the wastes.
  - 33.The industry shall install digital display boards at publicly visible places at the main gate indicating the products, effluent discharge standards, air emission standards, hazardous waste quantities and validity of CFO and exhibit the CFO order at a prominent place in the factory premises.
  - 34.The industry shall comply with the Regulation of Persistent Organic Pollutants Rules,2018 notified by the MOEF&CC Notification vide G.S.R. 207 (E) dated 30.05.2018. As per the notification, the following 7 chemicals are prohibited to manufacturer, trade, use, import and export:
    - i. Chlordecone,
    - ii. Hexabromobiphenyl,
    - iii. Hexabromodiphenyl ether and heptabromodiphenyl ether (commercial octa-BDE),
    - iv. Tetrabromodiphenyl ether and pentabromodiphenyl ether (commercial penta-BDE),
    - v. Pentachlorobenzene,
    - vi. Hexabromocyclododecane and
    - vii.Hexachlorobutadine.
  - 35.The industry shall submit the information regarding usage of Ozone Depleting Substance once in six months to the Board.
  - 36.The industry shall comply with the conditions stipulated in the EC order dt. 22.03.2013.
  - 37.The industry shall submit half-yearly compliance report for the schedule A,B& C conditions stipulated in CFO & HWA order audited through NABL / MoEF accredited laboratories.
  - 38.The industry shall comply with directions issued by the Board from time to time.
  - 39.Any other directions / circulars / notices issued by CPCB, MoEF&CC and APPCB shall be followed from time to time.

### **Special conditions:**

- 40.The industry shall submit a copy of the NOC issued by the Andhra Pradesh State Disaster Response and Fire Service Dept., (APSDRFSD) at concerned Regional Office, APPCB.
- 41.The industry shall prepare a safety report and carry out an independent safety audit report of the respective industrial activities including chemical storages / isolated storages by an expert not associated with such industrial activity as required under

Rule 10 of MSIHC Rules, 1989 and get it approved by the Factories Dept., and submit the compliance along with copy of the safety report, safety audit report and safety certificate at concerned Regional Office, APPCB.

- 42.The industry shall extend training to the working personnel for the prevention of accidents and necessary antidotes to ensure safety, as per the MSIHC Rules, 1989.
- 43.The industry shall carryout calibration of safety equipment and leak detection systems at regular intervals and shall certify the same with the Factories Department. That certified copy shall be submitted to the APPCB, Regional Office.
- 44.The industry shall install fluorescent Wind Vane at the highest point in the industry premises.
- 45.The industry shall submit Risk analysis and risk assessment covering worst scenario clearly describing impact within the industry premises and outside the industry premises and emergency response system.
- 46.The industry shall submit the copy of the safety audit report and On-Site / Off Site Emergency Plans as applicable after being certified by the Factories Department to the APPCB, Regional Office from time to time, if the storage quantity of hazardous chemicals is equal to or, in excess of the threshold quantities specified in schedule 2 & 3 of MSIHC Rules, 1989.

### **SCHEDULE – C**

*[See rule 6(2)]*

#### **[CONDITIONS OF AUTHORISATION FOR OCCUPIER OR OPERATOR HANDLING HAZARDOUS WASTES]**

1. The authorised person shall comply with the provisions of the Environment (Protection) Act, 1986, and the rules made there under.
2. The authorisation shall be produced for inspection at the request of an officer authorised by the State Pollution Control Board.
3. The person authorised shall not rent, lend, sell, transfer or otherwise transport the hazardous and other wastes except what is permitted through this authorisation.
4. Any unauthorised change in personnel, equipment or working conditions as mentioned in the application by the person authorised shall constitute a breach of his authorisation.
5. The person authorised shall implement Emergency Response Procedure (ERP) for which this authorisation is being granted considering all site specific possible scenarios such as spillages, leakages, fire etc. and their possible impacts and also carry out mock drill in this regard at regular interval of time;
6. The person authorised shall comply with the provisions outlined in the Central Pollution Control Board guidelines on “Implementing Liabilities for Environmental Damages due to Handling and Disposal of Hazardous Waste and Penalty”.
7. It is the duty of the authorised person to take prior permission of the State Pollution Control Board to close down the facility.
8. An application for the renewal of an authorisation shall be made as laid down under these Rules.
9. Any other conditions for compliance as per the Guidelines issued by the Ministry of Environment, Forest and Climate Change or Central Pollution Control Board from time to time.

#### **Specific Conditions:**

- 10.The industry shall comply with the provisions of HWM Rules, 2016 in terms of interstate transport of Hazardous Waste and manifest document prescribed Under Rule 18 and 19 of the HWM Rules, 2016.
- 11.The industry shall not store hazardous waste for more than 90 days as per the Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016.
- 12.The industry shall store Used / Waste Oil and Used Lead Acid Batteries in a secured

- way in their premises till its disposal to the manufacturers / dealers on buyback basis.
- 13.The industry shall maintain 7 copy manifest system for transportation of waste generated and a copy shall be submitted to concerned Regional Office of APPCB. The driver who transports Hazardous Waste should be well acquainted about the procedure to be followed in case of an emergency during transit. The transporter should carry a Transport Emergency (TREM) Card.
- 14.The industry shall maintain proper records for Hazardous and Other Wastes stated in Authorisation in Form-3 i.e., quantity of Incinerable waste, land disposal waste, recyclable waste etc., and file annual returns in Form-4 as per Rule 20 (2) of the Hazardous and Other Wastes (Management & Transboundary Movement) Rules, 2016.
- 15.Annual return shall be filed by June 30<sup>th</sup> for the period ensuring 31<sup>st</sup> March of the year.

**The industry shall submit Half yearly compliance reports to all the stipulated conditions in Environmental Clearance (EC), Consent for Establishment (CFE) and Consent for Operation (CFO) through website i.e., <https://pcb.ap.gov.in> by 1st of January and 1st July of every year. The first half yearly compliance reports shall be furnished by the industry and second half yearly compliance reports shall be the audited through MoEF&CC recognized and National Accreditation Board for Laboratory Testing (NABL) accredited third party.**

**BATCHU SIVA PRASAD, CEE(BSP), O/o CHIEF ENVIRONMENTAL ENGINEER-APPCB**

**To  
M/s. Grasim Industries limited,  
Balabhadrapuram (V), Biccavolu (M),  
East Godavari District.**

## LCC Detailed break up with Order / Proceeding No.s - extent wise

| Sl. no       | Proceedings No             | Dated      | Village & Mandal & District                               | Survey No                                   | Total Extent Acres |
|--------------|----------------------------|------------|-----------------------------------------------------------|---------------------------------------------|--------------------|
| 1            | B1/1229/2014               | 01-02-2016 | Balabhadrapuram Village of Biccavolu Mandal East Godavari | 3/3,3/2,4/2,4/3,4/4,7/3A,7/1,7/3B,8/1A,8/1C | 33.21              |
| 2            | Rc.F.2951/G/4807/13        | 01-08-2013 | Balabhadrapuram Village of Biccavolu Mandal East Godavari | 1,2,7,8,11                                  | 46.62              |
| 3            | D.Dis.(I)2754/12           | 23-01-2013 | G.Dontamuru (V) of Rangampeta East Godavari               | 178/2                                       | 12                 |
| 4            | D.Dis(I)/254/2013          | 31-12-2013 | G.Dontamuru (V) of Rangampeta East Godavari               | 176/1,178/1,179/2                           | 112.91             |
| 5            | D.Dis.H/8715/2012          | 07-12-2012 | Balabhadrapuram Village of Biccavolu Mandal East Godavari | 3/1B,4/2                                    | 38.38              |
| 5            | GIL./BBP/NALA/REVENUE/2021 | 07-06-2021 | Balabhadrapuram Village of Biccavolu Mandal East Godavari | 5/14                                        | 3.33               |
| <b>Total</b> |                            |            |                                                           |                                             | <b>246.45</b>      |

## RECTIFICATION DEED NOT CREATING RIGHTS

THIS DEED OF RECTIFICATION is executed on this day of 15<sup>th</sup> September-2021 for the DEED OF CONVEYANCE bearing Document No.3713/2019 registered in Sub-Registrar's office of Biccavole.

BY

KPR INDUSTRIES (INDIA) LIMITED, incorporated and existing under the laws of India, with corporate identification number U24233AP2011 PLC 076877, PAN No. AAECK6176E, having its registered office at Survey No. 1,2,3,4 Kanedumetta Road, Balabhadrapuram, Biccavole Mandal, East Godavari district, AP – 533343, represented by its Director, Mr. Karri Satyanarayana Reddy S/o Mr. K. V. Mukundha Reddy, aged about 36 years, resident of Komaripalem, Biccavole Mandal, East Godavari District, PAN No.BAAPK9678M, authorized by virtue of resolution passed in the board meeting held on Monday, dt. 09<sup>th</sup> August 2021

(hereinafter referred to as the "Conveyer", which expression shall, unless repugnant to the context or meaning thereof, be deemed to include the Conveyor's successors-in interest and permitted assigns);

AND

SIGNATURE OF EXECUTANT/S:



*[Handwritten signature of Karri Satyanarayana Reddy]*

SIGNATURE OF CLAIMANTS:



1. R.G. KRISHNAN

*[Handwritten signature of R.G. Krishnan]*

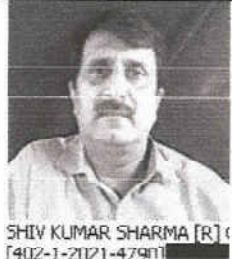
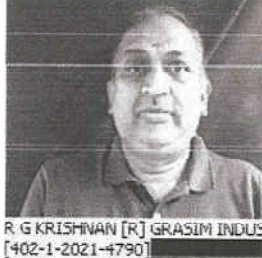
2. SHANTI LAL DUGAR

*[Handwritten signature of Shanti Lal Dugar]*

**Presentation Endorsement:**

Presented in the Office of the Joint Sub-Registrar, Biccavolu along with the Photographs & Thumb Impressions as required Under Section 32-A of Registration Act, 1908 and fee of Rs. 1000/- paid between the hours of \_\_\_\_\_ and \_\_\_\_\_ on the 15th day of SEP, 2021 15th day of SEP, 2021 15th day of SEP, 2021 by Sri K.Satyanarayanareddy *K.Satyanarayanareddy*

**Execution admitted by (Details of all Executants/Claimants under Sec 32A):**

| SNo-cd | Thumb Impression                                                                    | Photo                                                                                                                                    | Aadhar Photo                                                                                             | Address                                                                                                                                                                                                            | Signature/Ink<br>Thumb Impression                                                                                         |
|--------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------|
| 1-CL   |    | <br>SHIV KUMAR SHARMA [R] C<br>[402-1-2021-4790]        | <br>NO IMAGE<br>FOUND  | SHIV KUMAR<br>SHARMA[R]GR<br>ASIM<br>INDUSTRIES<br>LIMITED,<br>P.O.BIRLAGRA<br>M, NAGDA REP<br>BY SHANTI<br>LAL DUGAR<br><br>REPRESENT<br>HOUSES NO<br>:3557,BHIWANI,<br>,BHIWANI                                  | <br><i>[Signature]</i><br>1000<br>100  |
| 2-CL   |   | <br>R G KRISHNAN [R] GRASIM INDUS<br>[402-1-2021-4790] | <br>NO IMAGE<br>FOUND | R G<br>KRISHNAN[R]G<br>RASIM<br>INDUSTRIES<br>LIMITED,<br>P.O.BIRLAGRA<br>M, NAGDA<br><br>REPRESENT<br>NEAR AVM<br>SCHOOL,GULM<br>OHAR ROAD<br>NO 9,<br>JVPD,MUMBAI,<br>,MUMBAI<br>SUBURBAN                        | <br><i>[Signature]</i><br>1000<br>100 |
| 3-EX   |  | <br>KARRI SATYANARAYANA R<br>[402-1-2021-4790]        | <br>NO IMAGE<br>FOUND | KARRI<br>SATYANARAY<br>ANA<br>REDDY[R]KPR<br>INDUSTRIES<br>(INDIA)<br>LIMITED,<br>BALABHADRA<br>PURAM<br><br>REPRESENT<br>2-<br>1/1,RAMANNA<br>PETA,BIKKAV<br>OLU<br>MANDALAM,<br>KOMARIPALE<br>M,EAST<br>GODAVARI | <br><i>[Signature]</i>               |

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4311 / 2021. Sheet 1 of 13

JOINT SUBREGISTRAR37

Biccavolu



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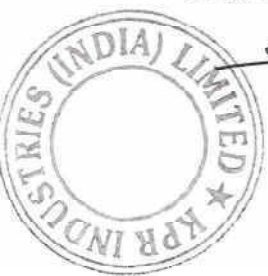
**GRASIM INDUSTRIES LIMITED**, incorporated under the Gwalior Companies Act (1 Samvat 1963) and now deemed to be incorporated under the Companies Act, 2013, with corporate identification number L17124MP1947PLC000410, PAN No.AAACG4464B, having registered office at P. O. Birlagram, Nagda – 456 331, Dist. Ujjain, Madhya Pradesh, represented by its authorised signatories, 1) Mr. R.G.Krishnan S/o. Karur Subramania RamaSwamy, aged about 51 years, Resident of Flat No.501 A, Manikya Pride, Shirdi Sai Street, Near Kolai Cheruvu, RamaRao Peta, Kakinada-533003, Andhra Pradesh, PAN No.ABCPK7228D and 2) Mr.Shanti Lal Dugar S/o Suraj Mal Dugar, aged about 51 years, Resident of MS Dugar Marg, Gangashahar, Dist : Bikaner, Rajasthan, Pin code 334401, PAN No. ACKPD7353D.

(hereinafter referred to as the "**Conveyee**", which expression shall, unless repugnant to the context or meaning thereof, be deemed to include the Conveyer's successors-in interest and permitted assigns);

WITNESSETH AS FOLLOWS: Whereas the rectifier of the first part executed a Deed of conveyance on 29th August-2019 properties and registered the same as Document No.3713/2019 in Sub-Registrar's office Biccavole and also delivered the possession of the property. Ever since the Buyer. of the Second part enjoyed the same with absolute possession and enjoyment with absolute rights.

Whereas the rectifyee of the Second part detected and identified that their Survey Number is Wrongly mentioned in the said Deed of conveyance in the 5<sup>th</sup> page of the document i.e., Annexure-A (Description of the schedule property and "Market Value Rule III statement" the survey number is wrongly mentioned as Sy.No.5-3 instead of Sy.No.5-2 due to over sight and clerical and typographical mistakes. the other Details such as Extent, Market Values, Measurements, and Boundaries, title Details, etc., are correctly mentioned on the Deed of conveyance. The Conveyee of the second part requested the conveyer/rectifier of the first part to execute a Deed of Rectification by Rectifying the above Mistake. The said Mistake is only occurred in the Page No.5 at Schedule and Market Value rule III statement.

SIGNATURE OF EXECUTANT/S:



*[Handwritten signature]*

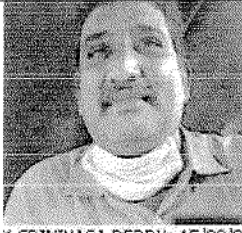
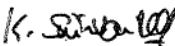


SIGNATURE OF CLAIMANTS:

1. R.G. KRISHNAN
2. SHANTI LAL DUGAR

*[Handwritten signature]*

Identified by Witness:

| Sl No | Thumb Impression                                                                  | Photo                                                                                                                                | Name & Address                                            | Signature                                                                           |
|-------|-----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------|-------------------------------------------------------------------------------------|
| 1     |  | <br>M.V.K.M.KRISHNA::15/09/20<br>[402-1-2021-4790]  | M.V.K.M.KRISHNA<br>S/O GURUMURTHY<br>SASTRY VISAKHAPATNAM |  |
| 2     |  | <br>K.SRINIVASA REDDY::15/09/2<br>[402-1-2021-4790] | K.SRINIVASA REDDY<br>S/O SUBBA REDDY<br>BALABHADRAPURAM   |  |

15th day of September,2021

Signature of JOINT SUBREGISTRAR37  
Biccavolu

**Endorsement:**

| Desc | In the Form of |              |                          |      |                     |               |                  | Total |
|------|----------------|--------------|--------------------------|------|---------------------|---------------|------------------|-------|
|      | Online         | Stamp Papers | Challan u/s 41 of IS Act | Cash | SD u/s 16 of IS act | Stock Holding | DD/BC/ Pay Order |       |
| SD   | 100            | 0            | 0                        | 0    | 0                   | 0             | 0                | 100   |
| TD   | 0              | NA           | 0                        | 0    |                     | NA            | 0                | 0     |
| RF   | 1000           | NA           | 0                        | 0    |                     | NA            | 0                | 1000  |
| UC   | 150            | NA           | 0                        | 0    |                     | NA            | 0                | 150   |
| TOT  | 1250           | 0            | 0                        | 0    |                     | 0             | 0                | 1250  |

NOTE: TD:Transfer Duty, SD:Stamp Duty, RF:Registration Fee, UC:=User Charges, TOT:Total, Desc:Description

Rs. 100/- towards Stamp Duty including T.D under Section 41 of I.S. Act, 1899 and Rs. 1000/- towards Registration Fees on the chargeable value of Rs. 0/- was paid by the party through ONLINE No ,51197221722021,51197250132021,51197241442021 Dated ,15-SEP-21,15-SEP-21,15-SEP-21

Date

15th day of September,2021

Signature of Registering Officer  
Biccavolu

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4311/2021. Sheet 2 of 13 JOINT SUBREGISTRAR37  
Biccavolu



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### Page-3

The rectifier of the First part agreed to rectify the above said Mistakes Hence the Rectification Deed is executed by the first part infavour of the second part by the rectifying the above mentioned Mistake. therefore, the extents under the No Consideration received by the First Part of this Deed for entering into this Rectification Deed.

#### Wrongly Mentioned RULE III STATEMENT

| Village             | Survey No.                        | Extent<br>Ac. Cts. | Extent<br>in Sq. yds. | Market Value              | Property<br>value  |
|---------------------|-----------------------------------|--------------------|-----------------------|---------------------------|--------------------|
| Balabhadra<br>puram | 5-3                               | 0.51               | 2468.40               | 2460/- per<br>square yard | Rs.<br>3,57,20,000 |
|                     | 5-1                               | 1.07               | 5178.80               |                           |                    |
|                     | 14-6                              | 0.64               | 3097.60               |                           |                    |
|                     | 14-6<br>(nearest door<br>no.9-37) | 0.78               | 3775.20               |                           |                    |
|                     | Total                             | 3.00               | 14520.00              |                           |                    |

#### Annexure A

#### Wrongly Mentioned Description of the Schedule Property

All that piece and parcel of land admeasuring Ac.3.00 cents situated at Balabhadrapuram village, BiccavoleMandal& sub-district, East Godavari district, as detailed below:

SIGNATURE OF EXECUTANT/S:



*[Handwritten signature]*



SIGNATURE OF CLAIMANTS:

1. R.G. KRISHNAN

*Rg Krishnan*  
2. SHANTI LAL DUGAR

*Shank Lal Dugar*

Bk - 1, CS No 4790/2021 & Doct No  
4311/2021. Sheet 3 of 13

JOINT SUBREGISTRAR37

Biccavolu



1వ పుస్తకం 2021 1943కాశ 4311  
నెంబకుగా రిజిస్టరు చేయబడి స్కానింగ్ నిమిత్తం  
సిర్దింపు నెం. 402/4311/2021 ఇవ్వబడినది  
2021/09/15.

రిజిస్ట్రార్ అధికారి

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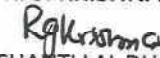
| Survey No. | Extent<br>Ac. Cts.                                       | Village         | Boundaries                                                                                                                                                     | Link Document                                       |
|------------|----------------------------------------------------------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|
| 5-3        | 0.51 or<br>2468.40<br>sq.yards or<br>2063.83 sq.<br>mtrs | Balabhadrapuram | East : Lands of Kandula Satyavathi<br>West : Lands of Conveyors<br>North : Lands in survey no. 5<br>South : Lands of Kovvuri Papa Reddy, s/o. Subba Reddy      | Sale Deed<br>No.<br>4026/2012,<br>dt.<br>29-12-2012 |
| 5-1        | 1.07or<br>5178.80<br>sq.yards or<br>4330.00<br>sq.mtrs   | Balabhadrapuram | East : Balance Land in sy.no. 5/1<br>West : Land of Conveyer<br>North : Land of Conveyer<br>South : Triangle land and boundary not mentioned                   | Sale Deed<br>No.<br>2974/2013,<br>dt.<br>09.12.2013 |
| 14-6       | 0.64 or<br>3097.60<br>sq.yards or<br>2589.90<br>sq.mtrs  | Balabhadrapuram | East : Puntha<br>West : Balance land in sy.no. 14/6<br>North :Balance land of Conveyors acquired from Manda Venkat Reddy<br>South :Puntha                      | Sale Deed<br>No.<br>352/2014,<br>dt.<br>05.02.2014  |
| 14-6       | 0.78 or<br>3775.20<br>sq.yards or<br>3156.44<br>sq.mtrs  | Balabhadrapuram | East :Puntha<br>West : Balance land in sy.no. 14/6<br>North :Pigalagoyya Cheruvu<br>South : Lands purchased by Conveyer from Veera Venkata Satyanarayana Reddy | Sale Deed<br>No.<br>351/2014,<br>dt.<br>05.02.2014  |
| Total      | Ac.3.00 or 14520<br>sq.yards or 12140.17 sq. mtrs        |                 |                                                                                                                                                                |                                                     |

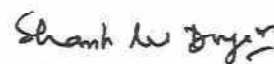
SIGNATURE OF EXECUTANT/S:



SIGNATURE OF CLAIMANTS:

1. R.G. KRISHNAN

  
 2. SHANTI LAL DUGAR




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Page-5  
Rectifying Mentioned RULE III STATEMENT

| Village             | Survey No.                        | Extent<br>Ac. Cts. | Extent<br>in Sq. yds. | Market Value              | Property<br>value  |
|---------------------|-----------------------------------|--------------------|-----------------------|---------------------------|--------------------|
| Balabhadra<br>puram | 5-2                               | 0.51               | 2468.40               | 2460/- per<br>square yard | Rs.<br>3,57,20,000 |
|                     | 5-1                               | 1.07               | 5178.80               |                           |                    |
|                     | 14-6                              | 0.64               | 3097.60               |                           |                    |
|                     | 14-6<br>(nearest door<br>no.9-37) | 0.78               | 3775.20               |                           |                    |
|                     | Total                             | 3.00               | 14520.00              |                           |                    |
|                     |                                   |                    |                       |                           |                    |

**Rectifying Description of the Schedule Property**

All that piece and parcel of land admeasuring Ac.3.00 cents situated at Balabhadrapuram village, Biccavole Mandal & sub-district, East Godavari district, as detailed below:

SIGNATURE OF EXECUTANT/S:



*[Handwritten signature]*



SIGNATURE OF CLAIMANTS:

1. R.G. KRISHNAN

*R. Krishnan*  
2. SHANTI LAL DUGAR

*Shanti Lal Dugar*

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4311/2021. Sheet 5 of 13 JOINT SUBREGISTRAR37  
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| Survey No. | Extent<br>Ac. Cts.                                       | Village         | Boundaries                                                                                                                                                     | Link Document                                       |
|------------|----------------------------------------------------------|-----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------|
| 5-2        | 0.51 or<br>2468.40<br>sq.yards or<br>2063.83 sq.<br>mtrs | Balabhadrapuram | East : Lands of Kandula Satyavathi<br>West : Lands of Conveyors<br>North : Lands in survey no. 5<br>South : Lands of Kovvuri Papa Reddy, s/o. Subba Reddy      | Sale Deed<br>No.<br>4026/2012,<br>dt.<br>29-12-2012 |
| 5-1        | 1.07or<br>5178.80<br>sq.yards or<br>4330.00 sq.<br>mtrs  | Balabhadrapuram | East : Balance Land in sy.no. 5/1<br>West : Land of Conveyor<br>North : Land of Conveyor<br>South : Triangle land and boundary not mentioned                   | Sale Deed<br>No.<br>2974/2013,<br>dt.<br>09.12.2013 |
| 14-6       | 0.64 or<br>3097.60<br>sq.yards or<br>2589.90 sq.<br>mtrs | Balabhadrapuram | East : Puntha<br>West : Balance land in sy.no. 14/6<br>North :Balance land of Conveyors acquired from Manda Venkat Reddy<br>South :Puntha                      | Sale Deed<br>No.<br>352/2014,<br>dt.<br>05.02.2014  |
| 14-6       | 0.78 or<br>3775.20<br>sq.yards or<br>3156.44 sq.<br>mtrs | Balabhadrapuram | East :Puntha<br>West : Balance land in sy.no. 14/6<br>North :Pigalagoyya Cheruvu<br>South : Lands purchased by Conveyor from Veera Venkata Satyanarayana Reddy | Sale Deed<br>No.<br>351/2014,<br>dt.<br>05.02.2014  |
| Total      | Ac.3.00 or 14520<br>sq. yards or 12140.17 sq. mtrs       |                 |                                                                                                                                                                |                                                     |

SIGNATURE OF EXECUTANT/S:




SIGNATURE OF CLAIMANTS:

1. R.G. KRISHNAN

2. SHANTI LAL DUGAR

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4311 / 2021. Sheet 6 of 13 JOINT SUBREGISTRAR37  
Biccavolu

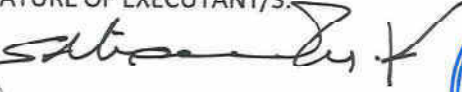


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THIS DEED OF RECTIFICATION IS EXECUTED out of free will and consent of the First Part.

SIGNATURE OF EXECUTANT/S:



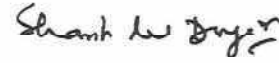


SIGNATURE OF CLAIMANTS:

1. R.G. KRISHNAN



2. SHANTI LAL DUGAR



Witness:

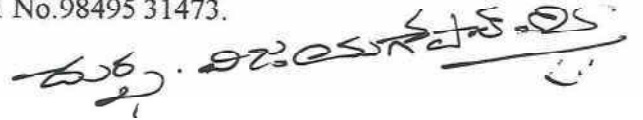
1. Venkata Kameswara Murali Krishna Munukutla S/o M. Gurumurthy Sastry  
Aged about 54 years, R/o Madhuranagar, Visakhapatnam



2. Karri Srinivasa Reddy S/o K. Subba Reddy, aged about 48 years  
R/o Balabhadrapuram Village



As per willing and said parties Draft Prepared and computerized by: Durbha Vijay Gopal  
S/o Venkata Krishna murthy Balabhadrapuram, Cell No.98495 31473.



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4311 / 2021. Sheet 7 of 13

JOINT SUBREGISTRAR37

Biccavolu



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# PHOTOGRAPS AND FINGERPRINTS AS PER SECTION 32A OF REGISTRATION ACT, 1908

FINGER PRINT  
SL.NO.IN BLACK INK  
(LEFT THUMB)

NAME AND PERMANANT POSTAL  
ADDRESS OF PRESENYANT/  
SELLER/BUYER

PASSPORT SIZE  
PHOTOGRAPH  
(BLACK AND WHITE)



Claimant :

Shnati Lal Dugar

S/o Suraj Mal Dugar,

M.S. Dugar Marg, New lane Gangashaher,  
Bikaner, Rajasthan-334401

Representative :

Shiv kumar sharma, (50 yrs.),

(Aadhaar No. 4505 3367 2646 )

S/o Bal Mukund Sharma, Tagore Marg,

Meham Road, BHIWANI Haryana-127021

Executant :

KPR Industries (India) Limited

Balabhadrapuram

Rep/its Director KARRI

SATYANARAYANAREDDY

S/o Venkata Mukundha Reddy,

KOMARI PALEM (v)

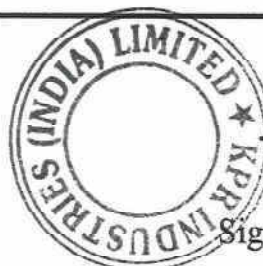
Biccavole (m) E.G. District.



Signature of Witnesses

1.

2.



Signature of Executant/s

Note: If the Buyer (s) is/are not present before the Sub-Registrar, the following request should be signed.

I/We send here with my/our photograph(s) and finger prints in the form prescribed, through my representative. Sri. Shiv Kumar Sharma S/o Bal Mukund as I/We can not appear personally before the Registering officer in the office of Sub-Registrar of Assurances Biccavolu.

Signature of the Representative  
Signature of Witnesses

1.

2.



Signature(s) of BUYER (s)

Bk - 1, CS No 4790/2021 & Doct No  
4311 / 2021. Sheet 8 of 13 JOINT SUBREGISTRAR37  
Biccavolu



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4311/2021. Sheet 9 of 13 JOINT SUBREGISTRAR37

Biccavolu



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## K.P.R. INDUSTRIES (INDIA) LIMITED

CERTIFIED TRUE COPY OF RESOLUTIONS PASSED AT A BOARD MEETING OF M/S. K.P.R.INDUSTRIES (INDIA) LIMITED HELD ON MONDAY 09.08.2021 AT 11.00 A.M.AT THE ADMINISTRATIVE OFFICE OF THE COMPANY AT DOOR NO.3-128/5, NALLAMILLI ROAD, BICCAVOLU, ANDHRA PRADESH - 533343.

### AUTHORISATION TO MR. SATYANARAYAN REDDY KARRI, DIRECTOR TO EXECUTE RECTIFICATION DEED

The Chairman informed the Board that our company of M/s. K.P.R. Industries (India) Limited executed a Deed of Conveyance with M/s. Grasim Industries Limited on 29<sup>th</sup> August, 2019 as Document No.3713/2019 in Sub-Registrar's office Biccavole transferring admeasuring 3.00 Acres of land at survey no. 5-2 ( 0.51 Acres), 5-1 ( 1.07 Acres) and 14-6 (1.42 Acres) in Balabhadrapuram Village as per the terms and conditions mention under "BTA".

He further informed that it was in advertently mentioned the Survey No.5-3 (0.51 Acres) instead of Survey No.5-2 (0.51 Acres) in Rule III statement of Conveyance Deed dated 20<sup>th</sup> August, 2019 vide Document no. 3713/2019. The company has received a request letter from M/s. Grasim Industries Limited to rectify the said mistake and autorise one of the director to execute Ratification Deed in this regard. After due deliberations the Board passed the following resolution.

RESOLVED FURTHER THAT Mr. Satyanarayana Reddy Karri (DIN:02482619), Director of the Company is be and hereby authorised to do all such acts, deeds and things in this regard including signing of various deeds, documents, contracts, resolutions and to do all the things as may be necessary and incidental thereto.

//CERTIFIED TRUE COPY//  
FOR K.P.R. INDUSTRIES INDIA LIMITED

K. RAJASEKHER REDDY  
DIRECTOR  
DIN: 01808276



*[Handwritten signature]*



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Biccavolu

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4311  
2021

APTC FORM-10

GOVERNMENT OF ANDHRA PRADESH

Challan No: 51197221722021      Challan Creation Date & Time: 15/09/2021 12:59:09 PM  
Treasury/PAO Code:0320      STO:STO-Anaparthi  
CFMS Transaction ID: 50088804922021  
Service: 6366-Duty on Impressing of Documents  
Major Head: 0030 Stamps and Registration Fees  
Sub-Major Head: 02 Stamps - Non Judicial  
Minor Head: 103 Duty on Impressing of Documents  
Group Sub-Head: 00 Not Applicable  
Sub-Head: 01 Duty on Impressing of Documents  
Detailed Head: 000 Not Applicable  
Sub-Detailed Head: 000 Not Applicable  
Charged/Voted: V  
Non-Contingency/Contingency: N  
Amount Rs: 100.00  
Amount in words Rs: One hundred only  
  
Purpose: DSD  
Remitter's Name & Address: GRASIM INDUSTRIES LIMITED  
GRASIM INDUSTRIES LIMITED, BIRLA GRAM, NAGDA 456331. Rep  
by Balabhadrapuram unit head R.G.KRISHNAN.  
  
Remitter's Mobile Number: 8008303882  
DDO Code: 03202308002  
O/o SUB REGISTRAR BICCAVOLU  
  
Status: Payment Transaction Successful  
Bank Reference Number: CPABBNFGU5  
Payment Date: 15/09/2021

Received Rs: 100.00



*[Handwritten signature]*

Note: This Challan does not need enforcement of the treasury

Bk - 1, CS No 4790/2021 & Doct No  
4311 / 2021.

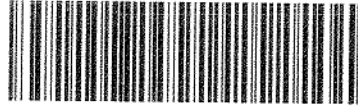
JOINT SUBREGISTRAR37

Biccavolu



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4311  
262

APTC FORM-10

GOVERNMENT OF ANDHRA PRADESH

Challan No: 51197250132021      Challan Creation Date & Time: 15/09/2021 1:01:17 PM  
Treasury/PAO Code:0320      STO:STO-Anaparthi  
CFMS Transaction ID: 50088857712021  
Service: 6370-Fees for Registering Documents  
Major Head: 0030 Stamps and Registration Fees  
Sub-Major Head: 03 Registration Fees  
Minor Head: 104 Fees for Registering Documents  
Group Sub-Head: 00 Not Applicable  
Sub-Head: 01 Fees for Registering Documents  
Detailed Head: 000 Not Applicable  
Sub-Detailed Head: 000 Not Applicable  
Charged/Voted: V  
Non-Contingency/Contingency: N  
Amount Rs: 1000.00  
Amount in words Rs: One thousand only  
  
Purpose: FFRD  
Remitter's Name & Address: GRASIM INDUSTRIES LIMITED  
GRASIM INDUSTRIES LIMITED, BIRLA GRAM,NAGDA 456331. Rep  
byBalabhadrapuram unit head R.G.KRISHNAN  
  
Remitter's Mobile Number 8008303882  
DDO Code: 03202308002  
O/o SUB REGISTRAR BICCAVOLU  
  
Status: Payment Transaction Successful  
Bank Reference Number: CPABBNFNR4  
Payment Date: 15/09/2021

Received Rs: 1000.00



*Signature*

Note: This Challan does not need encasement of the treasury

Bk - 1, CS No 4790/2021 & Doct No  
4311 / 2021.

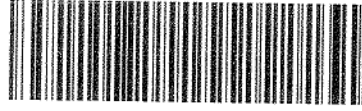
JOINT SUBREGISTRAR37

Biccavolu



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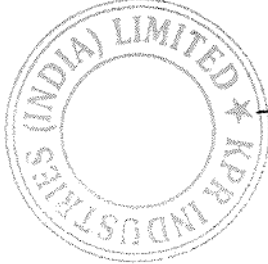
4311  
2621

APTC FORM-10

GOVERNMENT OF ANDHRA PRADESH

Challan No: 51197241442021      Challan Creation Date & Time: 15/09/2021 1:03:05 PM  
Treasury/PAO Code:0320      STO: STO-Anaparthi  
CFMS Transaction ID: 50088866332021  
Service: 6032-User Charges  
Major Head: 0030 Stamps and Registration Fees  
Sub-Major Head: 03 Registration Fees  
Minor Head: 800 Other Receipts  
Group Sub-Head: 00 Not Applicable  
Sub-Head: 81 Other Receipts  
Detailed Head: 800 User Charges  
Sub-Detailed Head: 000 Not Applicable  
Charged/Voted: V  
Non-Contingency/Contingency: N  
Amount Rs: 150.00  
Amount In words Rs: One hundred fifty only  
  
Purpose: USER CHARGES  
Remitter's Name & Address: GRASIM INDUSTRIES LIMITED  
GRASIM INDUSTRIES LIMITED, BIRLA GRAM, NAGDA 456331. Rep  
by Balabhadrapuram unit head R.G.KRISHNAN  
  
Remitter's Mobile Number: 8008303882  
DDO Code: 03202308002  
O/o SUB REGISTRAR BICCAVOLU  
Status: Payment Transaction Successful  
Bank Reference Number: CPABBNFRZ6  
Payment Date: 15/09/2021

Received Rs: 150.00



Note: This Challan does not need enforcement of the treasury

Bk - 1, CS No 4790/2021 & Doct No  
434 / 2021.

Sheet 13 of 13 JOINT SUBREGISTRAR

Biccavolu



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Annexure - C

(See rule 7)

PROCEEDINGS OF THE COMPETENT AUTHORITY AND  
REVENUE DIVISIONAL OFFICER, EAST GODAVARI DISTRICT

PRESENT :Sri.K.Subbarao ,

&&&

Sub:- Land conversion - East Godavari district Balabhadrapuram Village of Biccavolu Mandal Sy No 3/3 etc total extent Ac 33.21 - cts conversion of land use from Agriculture to Non Agriculture - orders - issued

Ref:- 1. Application of Sri Karri Venkata Mukunda Reddy S/o K Sattyannarayana Reddy on behalf of M/s KPR industries India ltd,  
2. Proposals received from Tahsildar, Biccavolu vide Ref.B/240/2014, B/239/2014 dated 26.6.2014.  
3. orders issued by the Appellate authority & Joint Collector , Kakinada vide ref D1/205/2015 dt 9.12.2015  
3. challan No 2700 , 2701 dt 18.6.2014, being the 9% conversion fee

\*\*\*

**ORDER:**

Sri Karri Venkata Mukunda Reddy S/o K Sattyannarayana Reddy on behalf of M/s KPR industries India ltd, Balabhadrapuram Village of Biccavolu Mandal, East Godavari, has applied for conversion of agriculture land bearing Sy No 3/3 etc total extent Ac 33.21 - cts situated in Balabhadrapuram Village of Biccavolu Mandal, East Godavari District for the purpose of Non - Agriculture. The request of the applicant is found to be consistent with the provisions of the Act.

Hence the permission is hereby accorded for conversion of the Agricultural land into Non Agricultural purpose on the following terms and conditions.

1. The permission is issued on the request of the applicant and he is solely responsible for the contents made in the application.
2. The grant of permission cannot be construed that the contents of the application are ratified or confirmed by the authorities under the Act.
3. The permission confirms that the conversion fee has been paid under the act in respect of above Agricultural lands for the limited purpose of conversion into Non-Agricultural purpose.
4. It does not confer any right, title or ownership to the applicant over the above Agricultural lands.
5. The permission does not prelude or restrict any authority or authorities or any person or persons or any individual or individual or individuals or others, collectively or severally, for initiating any action or proceedings under any law for the time being in force.
6. The conversion fee paid will not be returned or adjusted otherwise under any circumstances
7. The authorities are not responsible for any incidental or consequential actions or any loss occurred to any body are used other wise due to or arising out of such permission granted on any false declaration, claim or deposition, claim or deposition made by the applicant.
8. The authorities reserve the right to cancel the permission if it is found hat the permission is obtained by fraud misrepresentation or by mistake of fact.
9. Conversion should be only for conversion extent
10. No water sources, Rastha or Electrical poles should be diverted or disturbed.

Contd.,

| Sl No | Village & mandal & District                 | Sy No | Total extent Ac. cts | Extent for which permission for conversion granted Ac. cts | Remarks |
|-------|---------------------------------------------|-------|----------------------|------------------------------------------------------------|---------|
| 1     | Balabhadrapuram Village of Biccavolu Mandal | 3/3   | 7.70                 | 7.70                                                       |         |
| 2     |                                             | 3/2   | 7.69                 | 7.69                                                       |         |
| 3     |                                             | 4/2   | 0.66                 | 0.66                                                       |         |
| 4     |                                             | 4/3   | 0.675                | 0.675                                                      |         |
| 5     |                                             | 4/4   | 8.965                | 8.965                                                      |         |
| 6     |                                             | 7/3A  | 4.505                | 4.505                                                      |         |
| 7     |                                             | 7/1   | 2.68                 | 2.68                                                       |         |
| 8     |                                             | 7/3B  | 0.015                | 0.015                                                      |         |
| 9     |                                             | 8/1A  | 0.22                 | 0.22                                                       |         |
| 10    |                                             | 8/1C  | 0.10                 | 0.10                                                       |         |
|       | <b>Total</b>                                |       | <b>33.21</b>         | <b>33.21</b>                                               |         |

Revenue Divisional Officer  
Ramachandrapuram,  
East Godavari District.

To

Sri Karri Venkata Mukunda Reddy S/o K Sattyanarayana Reddy on behalf of M/s KPR industries India ltd, Balabhadrapuram Village of Biccavolu Mandal, East Godavari District.

Copy to the Tahsildar, Biccavolu for information and necessary action.

14

26

**ANNEXURE-C**  
**(See Rule 7)**

**PROCEEDINGS OF THE COMPETENT AUTHORITY AND REVENUE DIVISIONAL  
OFFICER, PEDDAPURAM**

**PRESENT: Dr. B. SANKARA VARA PRASAD, PhD.,**

@@@

**D.Dis.(I)2754/12**

**Dated: -01.2013**

Sub: Land Conversion Act – Rangampeta Mandal –G. Dontamuru (V)  
S.NO 178/2 measuring Ac 12.00 cents -Lands (Conversion  
for non Agricultural purposes) Act, 2006- Conversion of  
Agricultural lands to non agricultural purpose – Order – issued.

Read: 1. Application K.P.R. Industries(India) Ltd., Managing Director of Sri  
Karri Venkata Mukunda Reddy, S/o Satyanarayana Reddy resident  
of Komaripalem village of Biccavolu

2 .Ref.A. 309/2013, dt.. 18.01..2013 of Tahsildar, Rangampeta

@@@

**ORDER:**

**K.P.R. Industries(India) Ltd., Managing Director of Sri Karri Venkata Mukunda Reddy, S/o Satyanarayana Reddy** resident of Komaripalem village of Biccavolu has applied for conversion of agriculture land situated in **S.NO 178/2** measuring **Ac .12.00** of G. Dontamuru(V) of Rangampeta Mandal, East Godavari District for the purpose of Non-Agriculture i.e. for **Industrial purpose** and requested for NOC. The request of the applicant is found to be consistent with the provisions of the Act as reported by the Tahsildar, Rangampeta Mandal in the reference read above.

Hence, permission is hereby accorded for conversion of the Agricultural Land into Non-Agricultural purpose in **S.No.178/2** measuring **Ac .12.00** of G. Dontamuru (V) of Rangampeta Mandal on the following terms and conditions:

1. The permission is issued on the request of the applicant and he is solely responsible for the contents made in the application:
2. The grant of permission can not be construed that the contents of the application are ratified or confirmed by the authorities under the Act.
3. The permission confirms that the conversion fee has been paid under the Act in respect of above Agricultural lands for the limited purpose of conversion into Non-Agricultural purpose.
4. It does not confer any right, title or ownership to the applicant over the above Agricultural lands.
5. This permission does not preclude or restrict any authority or authorities or any person or persons or any individuals or others, collectively or severally, for initiating any action or proceedings under any law for the time being in force.

6. The conversion fee paid will not be returned or adjusted otherwise under any Circumstances.
7. The authorities are not responsible for any incidental or consequential actions or any loss occurred to any body or caused otherwise due to or arising out of such permission granted on any false declaration, claim or deposition made by the application.
8. The authorities reserves the right to cancel the permission if it is found that the permission is obtained by fraud, misrepresentation or by mistake of fact.

### PSCEHEDULE

| Sl. No. | Village Mandal & District.     | S.No. | Total Extent (S.No. wise) | Extent of which permission granted. | Remarks. |
|---------|--------------------------------|-------|---------------------------|-------------------------------------|----------|
| 1       | 2                              | 3     |                           |                                     | 6        |
| 1       | G. Dontamuru (V) of Rangampeta | 178/2 | 12.00                     | 12.00                               |          |
|         | Total                          |       | 12.00                     | 12.00                               |          |

  
**Revenue Divisional Officer,**  
**Peddapuram**  

**Revenue Divisional Officer**  
**PEDDAPURAM**

To  
The K.P.R. Industries(India) Ltd.,  
Managing Director of Sri  
Karri Venkata Mukunda Reddy,  
S/o Satyanarayana Reddy  
Komaripalem(v) Biccavolu Mandal

Copy to the Tahsildar, Peddapuram with a direction to incorporate the chages i.e. conversion of Agricultural land Non-Agricultural purpose and report complainece.  
Copy to the Sub-Registtrar, Biccavolu for taking necessary action

(15) (1) 28

**ANNEXURE-C**  
**(See Rule 7)**  
**PROCEEDINGS OF THE COMPETENT AUTHORITY AND REVENUE DIVISIONAL**  
**OFFICER, PEDDAPURAM**  
**PRESENT: Dr. B. SANKARA VARA PRASAD, Ph. D.,**

@@@

**D.Dis.(I)/254/2013**

**Dt: -12-2013**

Sub: Land Conversion Act- Rangampeta Mandal- G.Donthamuru Village- S.No.176/1,178/1, 179/2 measuring Ac.112.91cts- Land (Conversion for Non-agricultural Purpose) Act, 2006- Conversion of Agricultural land to non-agricultural Purpose-Orders- issued.

Ref: 1.Application of Sri K.V.Mukunda Reddy, Director, KPR Industries India Limited, Hyderabad Dt:01.02.2013

2.Ref.B.870/2013,Dt:21.10.2013 of the Tahsildar,Rangampeta

@@@

**Order:**

**KPR Industries India Limited, Hyderabad represented by its Director, K.V.Mukunda Reddy** applied for conversion of agriculture land situated in **S.No.176/1, 178/1, 179/2 measuring Ac.112.91cts of G.Donthamuru Village, Rangampeta Mandal, East Godavari District** for the Purpose of Non-Agriculture i.e., for **Industrial Purpose** and requested for NOC. The request of the applicant is found to be consistent with the provisions of the Act as reported by the Tahsildar, Rangampeta Mandal in the reference read above.

Hence permission is hereby accorded for conversion of the Agricultural land into Non-Agricultural Purpose in **S.No.176/1, 178/1, 179/2 measuring Ac.112.91cts of G.Donthamuru Village, Rangampeta Mandal** on the following terms and conditions:

1. The permission is issued on the request of the applicant and he is solely responsible for the contents made in the application.
2. The grant of permission cannot be constructed that the contents of the application are ratified or confirmed by the authorities under the act.
3. The Permission confirms that the conversion fee has been paid under the Act in respect of above Agricultural lands for the limited purpose of conversion into Non-Agricultural purpose.
4. It does not confer any right, title or ownership to the applicant over the above Agricultural lands.
5. This permission does not preclude or restrict any authority or authorities or any person or persons or any individuals or others, collectively or severally, for initiating any action or proceedings under any law for the time being in force.

6. The conversion fee paid will not be returned or adjusted otherwise under any circumstances.
7. The authorities are not responsible for any incidental or consequential actions or any loss occurred to anybody or caused otherwise due to or arising out of such permission granted on any false declaration, claim or deposition made by the application.
8. In view of the explanation submitted by the Director, KPR Industries India limited, these lands doesnot attracts the Provisions U/s 18(2) of AP Land Reforms(COAH) Act 1973 and attracts the provisions U/s 23(h) of AP Land Reforms(COAH) Act 1973
9. The authorities reserves the right to cancel the permission if it is found that the permission is obtained by fraud, misrepresentation or by mistake of fact.

#### SCHEDULE

| Sl No | Village,Mandal and District                                  | S.No  | Total extent (S.No. Wise) | Extent for which permission granted Ac.Cts | Present Basic Value of the land per Acre /Sq.Yd. as per Sub-Registrar office records | Total value of the land Rs. | Amount remitted by the applicant towards conversion fee Rs. | Details of remittance particulars   | R e m a r k s |
|-------|--------------------------------------------------------------|-------|---------------------------|--------------------------------------------|--------------------------------------------------------------------------------------|-----------------------------|-------------------------------------------------------------|-------------------------------------|---------------|
| 1     | G.Dothamuru Village, Rangampeta Mandal, East Godavari Dist., | 176/1 | 59.24                     | 59.24                                      | 200000/-                                                                             | 22582000/-                  | 2258200                                                     | Ch.No.<br>20052150<br>Dt:30.03.2013 |               |
|       |                                                              | 178/1 | 29.20                     | 29.20                                      |                                                                                      |                             |                                                             |                                     |               |
|       |                                                              | 179/2 | 24.47                     | 24.47                                      |                                                                                      |                             |                                                             |                                     |               |
|       | Total                                                        |       | 112.91                    | 112.91                                     |                                                                                      | 22582000                    | 2258200                                                     |                                     |               |

Revenue Divisional Officer  
Peddapuram

To  
Sri K.V.Mukunda Reddy,  
Director,KPR Industries India Limited,  
Hyderabad

Copy to the Tahsildar,Rangampeta with a direction to incorporate the changes i.e., conversion of Agricultural land to Non-Agricultural purpose and report compliance.  
Copy to the Sub-Registrar, Biccavolu for taking necessary action.

90/22

D.Dis.H/8715/2012, dt. .12.2012.

Sub Collector's Office, Rajahmundry

PROCEEDINGS OF THE REVENUE DIVISIONAL OFFICER, RAJAHMUNDY.

Present: Sri.M.Venu Gopal Reddy, M.Sc.,

Sub:- Agricultural land – Conversion of Agricultural land into Non-Agricultural purpose Biccavolu Mandal – Balabhadrapuram Village – Sy.No.3/1B, 4/2 – extent Ac.38.38 cts - Proposal submitted for conversion – orders – issued – Reg.

Read:- 1. Tahsildar, Biccavolu Ref.B/245/2012, dt.26.11.2012.  
2. Conversion of Agricultural Land into Non-Agricultural Purpose Act.3/2006.

\*\*\*

**ORDER:**

K.P.R.Industries India Ltd on behalf of Director Sri Karri Venkata Mukunda Reddy S/o Satyanarayana Reddy of Balabhadrapuram Village of Biccavolu Mandal has applied for conversion of agriculture land situated in S.No.3/1B, 4/2 of extent Ac.38.38cts. of Balabhadrapuram Village of Biccavolu Mandal, East Godavari District for the purpose of Non-Agriculture land. The request of the applicant is found to be consistent with the provisions of the Act.

Hence, the permission is hereby accorded for conversion of the Agricultural Land into Non-Agricultural purpose on the following terms and conditions:

1. The permission is issued on the request of the applicant and he is solely responsible for the contents made in the application;
2. The grant of permission cannot be construed that the contents of the application are ratified or confirmed by the authorities under the Act.
3. The permission confirms that the conversion fee has been paid under the Act in respect of above Agricultural lands for the limited purpose of conversion into Non-Agricultural purpose.
4. It does not confer any right, title or ownership to the applicant over the above Agricultural Lands.
5. This permission does not preclude or restrict any authority or authorities or any person or persons or any individual or individuals or others, collectively or severally, for initiating any action on proceedings under any law for the time being in force.
6. The conversion fee paid will not be returned or adjusted otherwise under any circumstances
7. The authorities are not responsible for any incidental or consequential actions or any loss occurred to any body or caused otherwise due to or arising out of such permission granted on any false declaration, claims or deposition made by the applicant.
8. The authorities reserve the right to cancel the permission if it is found that the permission is obtained by fraud, misrepresentation or by mistake of fact.

**SCHEDULE**

| Sl. No. | Village, Mandal & District                                           | Sy.No.       | Total extent (Sy.No. wise) Ac. cts | Extent for which permission granted Ac. Cts | Remarks                                                                           |
|---------|----------------------------------------------------------------------|--------------|------------------------------------|---------------------------------------------|-----------------------------------------------------------------------------------|
| 1       | Balabhadrapuram Village of Biccavolu Mandal, East Godavari District. | 3/1B         | 30.77                              | 15.38                                       | Challan No.8137, dt.16.11.2012, Rs.11,51,400/- State Bank of India, Pandalapakka. |
|         |                                                                      | 4/2          | 33.33                              | 23.00                                       |                                                                                   |
|         |                                                                      | <b>Total</b> |                                    | <b>38.38</b>                                |                                                                                   |

Revenue Divisional Officer  
Rajahmundry.

21/12/12

21/12/2012

To,  
K.P.R.Industries India Ltd on behalf of Director Sri Karri Venkata Mukunda Reddy S/o Satyanarayana Reddy of Balabhadrapuram Village of Biccavolu Mandal  
Copy to the Tahsildar, Biccavolu. He is requested to make necessary changes in records  
Copy submitted to the Collector, East Godavari District, Kakinada for favour of information.

95



LCR02006751

Procdngs.No.Rc.F.2951/G/4807/13

ANNEXURE- C  
{See Rule 7}

PROCEEDINGS OF THE COMPETENT AUTHORITY AND  
REVENUE DIVISIONAL OFFICER East Godavari District  
PRESENT:- M Venugopal Reddy  
\*\*\*

Land Conversion-East Godavari District **BALABHADRAPURAM** village  
**Biccavolu** Mandal, Sy.No. **1,2,7,8,11** Extent **46.62** Conversion of land use from  
Agriculture to Non-Agriculture-Orders-Issued

- Ref: 1. Application of **KARRI VENKATA MUKUNDA REDDY** S/O **KARRI SATYANARAYANA REDDY** ,  
dt. **04/02/2013**  
2. Report of the Tahsildar, Biccavolu Mandal, Lt.No.B.55/  
3. Challan No: **20052987** Dt: **30-3-2013** for Rs: **13,98,600** /- being the 10%  
Conversion fee.

\*\*\*

**ORDER:**

**KARRI VENKATA MUKUNDA REDDY**, S/O **KARRI SATYANARAYANA REDDY**, R/o , , **KOMARIPALEM**,  
Biccavolu, East Godavari , 533345 has applied for conversion of agriculture land bearing Sy.No. **1,2,7,8,11** extent.  
**46.62** situated in **BALABHADRAPURAM** Village **Biccavolu** Mandal, East Godavari District for the purpose of  
Non-Agriculture. The request of the applicant is found to be consistent with the provisions of the Act.

Hence, the permission is hereby accorded for conversion of the Agricultural Land into Non-Agricultural purpose on the  
following terms and conditions.

- 1 The permission is issued on the request of the applicant and he is solely responsible for the contents made in the application.
- 2 The grant of permission can not be construed that the contents of the application are ratified or confirmed by the authorities under the Act.
- 3 The permission confirms that the conversion fee has been paid under the Act in respect of above Agricultural lands for the limited purpose of conversion into Non-Agricultural purpose.
- 4 It does not confer any right, title or ownership to the applicant over the above Agricultural lands.
- 5 This permission does not preclude or restrict any authority or authorities or any person or persons or any individual or individuals or others, collectively or severally, for initiating any action or proceedings under any law for the time being in force.
- 6 The conversion fee paid will not be returned or adjusted otherwise under any circumstances.
- 7 The authorities are not responsible for any incidental or consequential actions or any loss occurred to any body or cause otherwise due to or arising out of such permission granted on any false declaration, claim or deposition made by the applicant.
- 8 The authorities reserve the right to cancel the permission if it is found that the permission is obtained by fraud, misrepresentation or by mistake of fact.
- 9 Constructions should be only for Conversion Extent.
- 10 No Water Sources, Rastha or Electrical Poles should be diverted or disturbed.

| S.No  | Village & Mandal & District                | Sy.No. | Total extent<br>(S.No. wise) | Extent for which<br>permission for<br>conversion granted | Remarks |
|-------|--------------------------------------------|--------|------------------------------|----------------------------------------------------------|---------|
| 1     | BALABHADRAPURAM , Biccavolu, East Godavari | 1      | 17.28                        | 17.280                                                   |         |
| 2     | BALABHADRAPURAM , Biccavolu, East Godavari | 2      | 2.60                         | 2.600                                                    |         |
| 3     | BALABHADRAPURAM , Biccavolu, East Godavari | 7      | 0.05                         | 0.050                                                    |         |
| 4     | BALABHADRAPURAM , Biccavolu, East Godavari | 8      | 8.03                         | 8.030                                                    |         |
| 5     | BALABHADRAPURAM , Biccavolu, East Godavari | 11     | 18.66                        | 18.660                                                   |         |
| Total |                                            |        | 46.62                        | 46.62                                                    |         |

To  
**KARRI VENKATA MUKUNDA REDDY**  
**KOMARIPALEM** Village  
**Biccavolu** Mandal

M Venugopal Reddy  
RDO Sub-Collector  
East Godavari DISTRICT

18/12/13 02-03-2013

59

Office of the Chief Engineer,  
Godavari Delta System,  
Dowlaiswaram.

Memo.No.CE/GDS/DWM/OT-1/AEE1/

703<sup>D</sup>

dt: 12.11.15

Sub:- Single Desk Policy-Filing of Common application with the Nodal agency of the state level single window clearance committee-Forwarding of application of M/s.KPR Industries (India) Pvt limited, Balabadhrapuram(V), Bhikkavolu (M), East Godavari District- Report called for-reg

Ref:- 1.Superintending Engineer, Irrigation Circle, Dowlaiswaram  
Lr.No.OT/AE2/F.133/331CEI dt:12.10.15 addressed to the Engineer-in-Chief(I),Hyderabad and copy marked to this office.  
2.Government memo No. 2772/Reforms/A2/2015-1  
dt:30.9.2015

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It is to inform that the as per Government memo 2<sup>nd</sup> cited, the Chief Engineer is empowered to permit for allocation of water for industrial use. Hence in future, all the proposals may be furnished to this office for approval.

The Superintending Engineer, Irrigation Circle, Dowlaiswaram vide letter 1<sup>st</sup> cited has informed that water can be spared from the surplus water available in the U/s of S.A.C.Barrage .The exact location may be intimated within 2 days immediately so as to take further action at this end.

Further it is to inform that permission is accorded in principle for drawl of 17,145 KLD(7 cusecs) water from river Godavari on U/S of SACB for M/s.KPR Industries (India) Pvt limited, Balabadhrapuram(V), Bhikkavolu (M), East Godavari District.

To  
The Superintending Engineer  
Irrigation Circle,  
Dowlaiswaram.

Sd/-S.Hari Babu  
Chief Engineer,  
Godavari Delta System,  
Dowlaiswaram.

Copy to M/s.KPR Industries (India) Pvt limited, Balabadhrapuram(V), Bhikkavolu (M), East Godavari District.

Sd/-S.Hari Babu  
Chief Engineer,  
Godavari Delta System,  
Dowlaiswaram.

12/11/15

**GOVERNMENT OF ANDHRAPRADESH**  
**O/O THE COMMISSIONER, PANCHAYAT RAJ & RURAL DEVELOPMENT &**  
**ADMINISTRATOR, APWALTA**

**D.NO.12-47, PVS Empire, Pathuru Road, Beside Reliance Digital, Tadepalle village,**

**Guntur District -522501. Mail: scrdap@gmail.com**

**From:**

Sri M.Girija Shankar, I.A.S.,  
 Commissioner, PR & RD,  
 & Administrator, APWALTA,  
 Tadepalli, Guntur District  
 Andhra Pradesh

**To,**

M/s Grasim Industries Limited,  
 Balabhadrapuram Village,  
 Biccavolu Mandal,  
 East Godavari District.

**Lr.No:PRR05-11028/5/2020-SLNA-GIS-CORD, date:25/11/2020**

Sir,

**Sub:-** AP – RD – APWALTA – Grant of Permission (NOC) to M/s Grasim Industries Limited [Previously M/s KPR Industries (India) Ltd] for usage of **5575 KLD** of Groundwater for their Caustic Soda unit at Balabhadrapuram Village, Biccavolu Mandal, East Godavari District - Orders - sued – Reg.

**Ref:-** 1. Lr. No. GIL/BBP/GW/NAME/073 dated 19th May, 2020 of M/s Gram Industries Limited, Balabhadrapuram Village, Biccavolu Mandal, East Godavari District.  
 2. T.O Lr.No. PRR05-11028/5/2020-SLNA-GIS-CORD, dated 30.08.20 of Commissioner, PR& RD.  
 3. Lr. No. 3134/Hg-II/2020 dated 08.10.2020 received from the Director, A.P. Ground Water and Water Audit Department.

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Adverting to the subject references cited above, based on the recommendations of the Director, A.P. Ground Water and Water Audit Department, Vijayawada, the Grant of Permission (NOC) is hereby accorded to M/s Grasim Industries Limited [Previously M/s KPR Industries (India) Ltd] for withdrawal of **5575 KLD** of Ground water for their Caustic Soda unit at Balabhadrapuram Village, Biccavolu Mandal, East Godavari District.

The Grant of Permission (NOC) is issued subject to the implementation of the following conditions:

- The total withdrawal quantity of Groundwater permitted is **5575 KLD**.
- The recommendations hold good subjected to the normal annual rainfall conditions and the present stage of ground water development of the area.
- Groundwater extraction must be limited to the specified pumping hours and discharge only.
- To promote conservative usage of water resources, the firm should ensure proper recycling and reuse of wastewater after adequate treatment.
- Groundwater levels should be monitored at monthly intervals and quality needs to be assessed at seasonal intervals and the respective water level data and quality reports must be invariably submit to Deputy Director, Ground Water and Water audit Department, Dowlaiswaram timely.
- The plant in no way causes for polluting ground water or surface water bodies in and around the area.
- The recommendations hold good if the field conditions specified are followed, scrupulously.
- All these recommendations are subject to the approval of Government of Andhra Pradesh and it reserves the right to stop the groundwater usage during emergency periods or in case of any deviations found from the specified terms and conditions.
- The firm is instructed to take NOC in due time.
- The record of water level data to be maintained and to be provided periodically or when ever demanded by the regulatory agency and the management is instructed to submit the data to the O/o The Deputy Director Ground water and water Audit Department, East Godavari

District.

- Additional rainwater harvesting shall be undertaken to recharge ground water resource with suitable artificial recharge structures in factory and surrounding area whenever groundwater utilization is more than available natural recharge to ground water resource.
- Rain water harvesting and trees shall be maintained in the plant premises in a big way and also construct water butts for utilizing every rain drop.
- Developing green belt in large scale in and around the plant area to prevent the air pollution in the long run.
- Don't let out the stagnated water of mine into streams / streamlets before ensure of the quality.
- Officers of ground water Department must be allowed to inspect the plant area, recharge structures, groundwater abstraction structures, piezometers and data whenever found necessary.
- Every year status of implementation of recharge activities report shall be submitted to the agencies concerned (CGWA, CGWB and SGW&WAD).
- It is mandatory to implement the germane guidelines of the Central Ground Water Authority constituted under sub-section (3) of Environment (Protection) Act, 1986.
- The permission accorded is liable to be cancelled in case of non-compliance of any of the conditions as mentioned above.
- This NOC is subject to prevailing Central / State Government rules / laws or Court orders related to Construction of recharge or conservation or conservation structures / discharge of effluents or any such matter as applicable.
- The NOC does not imply that other statutory / administrative clearances shall be granted to the project by the concerned authorities. Such authorities would consider the project on merits and be taking decisions independently of the NOC.
- Government of Andhra Pradesh / Ground water and Water Audit department / CGWA reserves the right to stop the Plant from using Ground water during emergencies or whenever the plant deviated from the relevant terms and conditions.
- The party has to give their consent to the above terms and conditions within a week and compliance regarding grounding of the recommendations within a month of receipt of the report/recommendations respectively.

- This NOC is valid for **two years** from the date of issue of this letter.

Yours faithfully,

M Girija Shankar I A S 25/11/2020

**Commissioner, PR & RD  
& Administrator,  
APWALTA.**

**Copy to:**

1. The Director, Ministry of Environment and Forests (I. A. Division), Paryavaran Bhawan, CGO Complex, Lodhi Road, New Delhi-110 003 for information.
2. The Regional Director, Central Ground Water Board, Southern Region, Hyderabad for information.
3. The Member Secretary, Central Ground Water Board, Bhujal Bhawan, Faridabad for information.
4. The Director, A.P. Ground Water and Water Audit Department, A.P, Vijayawada for information.
5. The District Collector, East Godavari District, Andhra Pradesh for information.
6. The Project Director, DWMA, East Godavari District for information.



Ref : GIL/BBP/LAND/NAME/  
Dt. 2<sup>nd</sup> March, 2020

The District Collector  
East Godavari District  
Kakinada

Dear Sir,

Sub : Drawal of water from Dowleswaram Barrage – Sanctioning of lease of 450 sq.mtrs. of land on A G L V in Dowleswaram Village, Rajahmundry Rural Mandal for construction of Pump House and Intake Well to M/s.KPR Industries India Limited for 400 TPD Caustic Soda plant at Balabhadrapuram(V), Biccavolu (M), East Godavari District – **Change in the name of the proponent to Grasim Industries Limited** from KPR Industries (Indi) Limited – transfer of lease – reg.

Ref : 1. Sanction for withdrawal of Godavari Water 7 Cusecs : : Vide Memo No CE/GDS/DWM/OT-1/AEE1/703 Dtd 12 Nov 2015  
2. Dist Collector East Godavari District, Kakinada Proceedings No E2/2359/2011 Dtd 29 Nov 2012 **sanctioning lease of 450 Sqmt of land** on A G L V in Dowaleswaram Village, Rajahmundry Rural Mandal for constructing Pumphouse and Intake Well -  
3. Our Letter of Intimation Acquisition of Project by Grasim Industries dtd.19th Feb 19

This refers to our letter of intimation captioned above under sl.no.3 informing you about the change in Management.

We wish to inform that Grasim Industries Limited (GIL), have acquired the business undertaking of Chlor Alkali Project of KPR Industries (India) Limited (KPR) (Caustic Division) located at Balabhadrapuram (V), Biccavolu (M), East Godavari District, on slump sale on going concern basis through a Business Transfer Agreement between KPR & GIL dt.18.2.19 and GIL took possession of the unit on 19th February, 2019. The approved business plan and all other details of the unit remain the same as approved by various authorities.

The Government of Andhra Pradesh, vide G.O. Ms. No.27, dt.05.02.19 from Industries and Commerce (Infra) Department, approved the transfer of lands of an extent of Ac.243.12 cts allotted to M/s. KPR Industries (India) Limited to M/s. Grasim Industries Limited and accordingly the land allotment has been transferred from KPR to GIL vide APIIC's order ref.Proc.No.580/KPR Chemicals/Balabhadrapuram/ZO/KKD/2011, dt.22.10.19.

In addition to the above land allotment transfer by APIIC, many other authorities as detailed below have already approved change of name from KPR IIL to GIL copies of approvals attached for your kind perusal and records :

1. Environmental clearance from MOEF&CC vide no. no. J-11011/90-IA.II(I), dt.21.11.2019
2. Consent for Establishment vide Order No. 359/APP/CFE/RO-KKD/HO/2013 21/01/2020
3. AP State Disaster Response & Fire Services, vide Rc No. 1306/G1/2014, dt.18.02.2020
4. Integrated Labour License vide No. AP-04-34-006-0772501
5. PF vide Establishment code No. GRRJY0077076000
6. APTRANSCO extension of HT supply for a CMD of 24000 KVA at 132 KV Potential vide ref no.CGM/HRD&plg/EE-Comm/DEE-BL/F-GRASIM/D.No.408/19, dt.25.10.2019

Grasim Industries Limited  
Chemical Division – BB Puram,  
Survey No 1 to 4, Near Kanedu Metta Road, Balabhadrapuram,  
East Godavari Dist. – 533343, Andhra Pradesh, INDIA

Contd.....2...

Website [www.grasimchem.com](http://www.grasimchem.com)  
CIN L17124MP1947PLC000410

ADITYA BIRLA



Ref : GIL/BBP/LAND/NAME/  
Dt. 2<sup>nd</sup> March, 2020

:: page 2 ::

Considering the business transfer and the essential requirement of water for survival of the project, we request you to kindly transfer the lease of 450 sq. meters of land on A G L V in Dowleswaram Village, Rajahmundry Rural Mandal for construction of Pump House and Intake Well from KPR Industries (I) Ltd., to Grasim Industries Limited.

We confirm that we will abide by the rules & regulations as stipulated for transfer of lease.

Thanking you,

Yours faithfully,  
For Grasim Industries Limited  
(Chemical Division, BB Puram)

Contact details :

Mobile Nos. : 8884946985 (alt) 8008303882  
e.mail : rg.krishnan@adityabirla.com  
(alt.) muralikrishna.mvk@adityabirla.com

R.G.Krishnan  
Jt. President & Unit Head

Grasim Industries Limited  
Chemical Division – BB Puram,  
Survey No 1 to 4, Near Kanedu Metta Road, Balabhadrapuram,  
East Godavari Dist. – 533343, Andhra Pradesh, INDIA

Website [www.grasimchem.com](http://www.grasimchem.com)  
CIN L17124MP1947PLC000410

Regd. Office : Birlamgram (P.O.). Nagda, M.P. - 456 331, India