



GUJARAT STATE FERTILIZERS & CHEMICALS LIMITED

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**INDUSTRIAL
PRODUCT PROFILE**





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COMPANY PROFILE

Ever since our foundation in 1962, we have been evolving to respond to the world around us. As one of the largest integrated fertilizer and chemical companies in India, we look ahead at our contribution towards a growing future and we see a clear picture. We will continue to develop, meet new challenges, take advantage of new opportunities, and succeed.

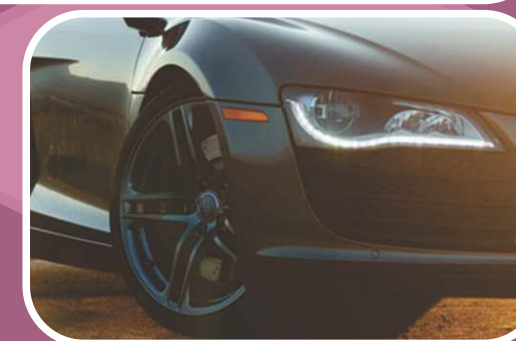
GSFC was formed as a first joint sector company with 49% equity participation of state government and 51 % shareholding through financial institutions, individual farmers, co-operatives and public interest. From a single fertilizer plant company to a one with many firsts, GSFC has grown exponentially. Today, we manufacture fertilizers and industrial products of superior export quality. With an excellent presence in the market, we export Caprolactam and MEK-Oxime to Europe, Asia and the Middle East. Moreover, we have a robust marketing network across India independently for fertilizers and chemicals.

We are constantly looking into the future and are enabling ourselves to meet the challenges of a fast-changing world. A well-equipped Research & Development centre takes a multi-pronged approach towards this ever-dynamic industry. With a strong desire to overtake even the most modern international standard, our R&D centre integrates modern principles of research with highly dedicated partnerships with customers. Recognised by the Department of Scientific & Industrial Research, Government of India, we have been awarded 15 Patents for several processes besides publication & presentation of more than 100 scientific papers in national & international journals and conferences respectively. This R&D centre underpins the strategy of our core segments.

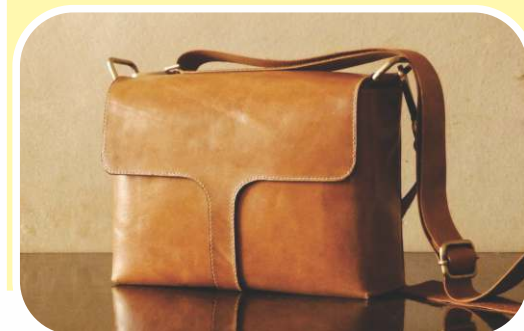
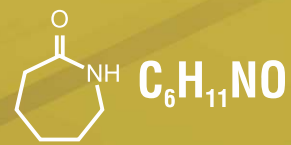
GSFC gives the highest priority to environmental management and safety. We have received numerous awards for excellent performance in productivity, environmental protection and safety. As a part of a clean environment measure, we initiated the implementation of the Clean Development Mechanism.



INDUSTRIAL PRODUCTS



CAPROLACTAM



GSFC is the largest producer of Caprolactam in India. It has two Caprolactam plants with rated capacities of 20,000 TPA and 50,000 TPA. The main raw material used in manufacturing Caprolactam is Benzene. GSFC makes international quality standard Caprolactam which is well accepted globally.

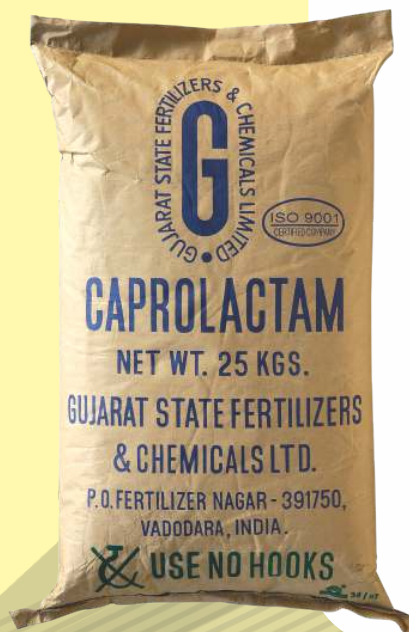
Applications:

Caprolactam is base material for manufacture of Nylon-6. Its applications are in the manufacturing of:

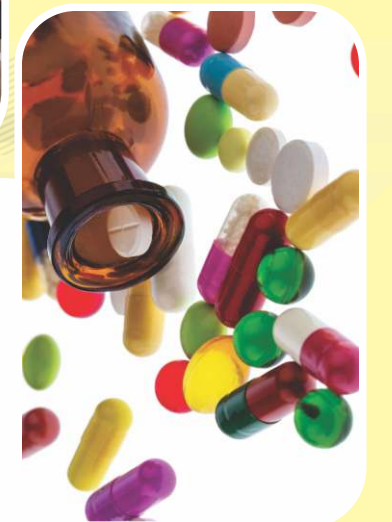
- Polyamide Fibres for Textile & Tyre Cords
- Resins for moulding engineering components and extrusion profiles
- Monomer castings
- Speciality chemicals for textile and leather industries

Packing:

25Kg sealed bags having LDPE inner lining and HDPE craft paper outer lining.



GUJLON (NYLON-6)



GSFC manufactures Nylon-6 chips, registered under the trade name GUJLON. It has the largest production facility of Nylon-6 in India with a capacity of 25,000 MTPA. The main raw material for Nylon-6 is Caprolactam which is available from captive production.

Nylon-6, one of the Engineering Plastic, is tough, lightweight, abrasion resistant, shock resistant, corrosion resistant and heat resistant material with higher melting point, low specific gravity, electrical insulation property and dimensional stability. It also has self lubricating properties and can be machined and finished in ways similar to metals. This versatile plastic is available in extrusion grades, general purpose injection moulding grades, glass fibre reinforced grade and plasticised grade to suit diverse applications.

Applications:

- Precision engineering components
- Film for packaging of food stuffs & vegetable oils
- Monofilaments, rods, pipes extruded profiles and strappings
- Components for electrical and electronic industry
- Components for appliances and consumer goods
- Components for hardware, building and furniture industries
- Components for textile machinery, railway, defense and automobile industries

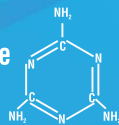
Packing:

25 Kg sealed bags with LDPE inner lining and BOPP metalised / HDPE laminated outerlining.



GUJLAMINE (MELAMINE)

$C_3N_6H_6$ 2,4,6 triamino 1,3,5 triazine



GSFC manufactures Melamine pure chemical powder under the trade name GUJLAMINE. It has 40,000 TPA production line of high pressure Melamine. The main raw material used is Urea. Melamine is always made to react with formaldehyde and then made into resins or moulding powder for making innumerable products of beauty and utility.

Applications:

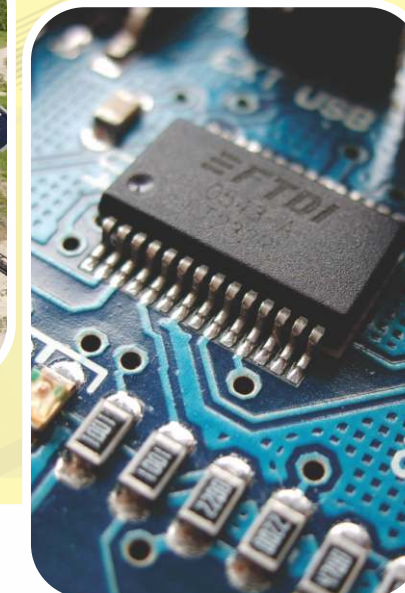
- Laminates: For table tops, kitchen shelves, platforms, wall cladding, bus bodies, interior of railway coaches, counters, deckings and instrument panels
- Treatment Resin for Paper: For currencies, toilet paper, facial tissues, shopping and shipping bags, map papers, food wrappers and photographic paper
- Resin for Lacquer Paints: For motorcars, refrigerator cabinets, washing machines, kitchen equipment, typewriters and water heaters
- Consumer Moulded Goods: Bowls, trays, spatulas, mixer's base, crockery, cutlery items, launderable buttons and lamp shades
- Adhesives: Melamine adhesives from Melamine resins are extra strong, extra tough, highly water resistant and colourless (veneered doors)
- Melamine Resin for Textile Auxiliaries: For providing anti-crease treatment to cotton and other fabrics
- Leather Chemicals: MF resins act as pre-tanning agents

Packing:

25 Kg multiwall kraft paper bag as well as jumbo bags of 500 Kg and 1,000 Kg.

METHANOL

CH_3OH



GSFC has Methanol production capacity of 1,73,250 MTPA. The product conforms to the highest purity grade of 'US Federal AA'.

Applications:

- | | |
|-------------------|--------------------|
| • Formaldehyde | • Methyl Amines |
| • Pharmaceuticals | • Di Methyl Amines |
| • DMT | • Chloromethanes |
| • MTBE/TAME | • Others |
| • Acetic Acid | |

Packing:

Supplied in customer's road tankers.

GUJOXIME (MEK-OXIME)



GSFC manufactures MEK-Oxime under the trade name of GUJOXIME. GSFC has a total installed capacity of 4,450 MTPA of MEK Oxime. The main raw materials used are MEK, Ammonia and HX Sulphate. The technology has been developed by GSFC's Research Centre.

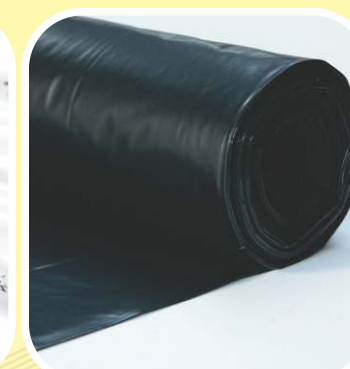
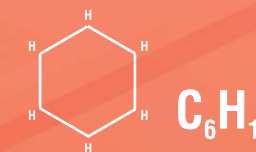
Applications:

- MEK Oxime is an essential additive for the paint, varnish and printing ink industries.
- It is an ideal anti-skinning agent.

Packing:

190Kg zinc galvanised mild steel drums, 900Kg IBC and in ISO tanks.

CYCLOHEXANE



Cyclohexane is one of the intermediate products of the Caprolactam Plants.

Applications:

- Cyclohexane is used in the manufacture of Adipic Acid and Caprolactam
- As a solvent for lacquers and resins, paint and varnish
- Used in extraction process in pharmaceutical industry
- Used as a solvent in manufacturer of LLDPE (Linear low-density polythelene)
- Extraction of essential oils

Packing:

Available in customer's mild steel drums of 200 ltr. capacity or in customers mild steel road tankers.

CYCLOHEXANONE



Cyclohexanone is an intermediate product available from the Caprolactam plants.

Applications:

- The most important use of Cyclohexanone in the production is as a chemical intermediate of Adipic Acid and in the manufacture of Nylon-6
- It is a main raw material for ketonic resin which offers good gloss & adhesion. Its major applications are in printing inks, ball point pen ink & nail varnishes etc.
- It is also used as a solvent and thinner for lacquers, especially those containing Nitrocellulose or Vinyl Chloride Polymer and Copolymer resins including Polyvinyl Chloride and Methacrylate ester polymers
- It is an excellent solvent for DDT and Organic Phosphorus insecticides and pesticides
- It is used as a sludge solvent in oil for piston type aircraft lubrication
- It is a key product for manufacturing bulk drugs (Tramadol Hydrochloride)

Packing:

Sold in customer's mild steel drums of 200 ltrs. capacity or made available in customer's mild steel road tankers [10 MT & Above].

ANHYDROUS AMMONIA



Main raw materials for Ammonia are Naphtha and Associated Gas

Applications:

- In the manufacture of explosives
- Manufacture of chemicals like Melamine, Amino-resins, Cyanamides, Fertilizers, Petrochemicals products, etc.
- In pulp and paper industry
- In the metal industry: for the extraction of certain metals e.g. Copper, Nickel, Molybdenum and Tungsten from their ores
- Nitriding of steel for case-hardening
- As a corrosion inhibitor at petroleum refineries and natural gas plant
- In the rubber industry
- In the food & beverage industry
- In leather industry
- In the manufacture of pharmaceuticals
- Ammonia blue printing
- In the manufacture of Nitric Acid, Liquor Ammonia
- In the manufacture of rocket fuels
- Used as a refrigerant in both compression and absorption system

Packing:

GSFC has facility to fill up large rail tanker wagons and road tankers.

HX SULPHATE (Hydroxylamine Sulphate)



HX Sulphate Crystal, also known as Hydroxylamine Sulphate, is one of the intermediate products of the Caprolactam plant. The manufacturing capacity is 2475 MTPA.

Applications:

- Dyes and Dyestuffs
- Pharmaceuticals
- Agrochemicals
- Aroma and Fragrance
- Hydrometallurgy
- Personal Care Intermediates

Packing:

Available in high-density 25 Kg polyethylene bags.

SULPHURIC ACID



GSFC has two Sulphuric Acid plants total rated capacity of 5,77,500 MTPA. Main raw material for Sulphuric Acid is Sulphur.

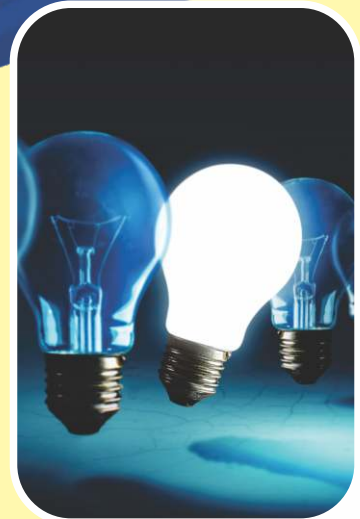
Applications:

- Fertilizers
- Rayon
- Steel Industry
- Refineries
- Petrochemicals
- Paints
- Textiles
- Synthetic detergents
- Aviation gasoline
- Laboratory reagents
- Dye stuffs
- Dairy Industries

Packing:

Sulphuric Acid is made available in customer's mild steel road tankers.

ARGON GAS



GSFC's Air Separation Unit has a capacity to produce 3.2 million Nm³ per annum of Argon Gas.

Applications:

- Inert gas shield in arc welding
- Welding and cutting of Aluminum, Stainless Steel etc.
- In electronics, lamp and valve manufacture
- In metal refining, treatment and brazing
- In degassing of ferrous and non ferrous alloys
- Heat treatment of reactive metals and alloys
- Refining of Copper
- Flushing molten metals to eliminate porosity
- Aircraft and missile industries
- Cryogenics and refrigeration
- Gas chromatography and gas analysis
- Laboratory and research medical application

Packing:

Argon is made available in customer's cryogenic road tankers.

WEAK NITRIC ACID



Weak Nitric Acid is co-product of Caprolactam-II Plant. The annual availability from this source is 8,300 MT.

Applications:

- Used in manufacturing of Sodium Nitrate & Potassium Nitrate
- Manufacture of dyestuff & dye intermediates
- Preparation of nitro compounds
- Used in steel rolling mills

Packing:

Weak Nitric Acid 58 % is made available in customer's stainless steel road tankers.

OLEUM

TECHNICAL GRADE UREA



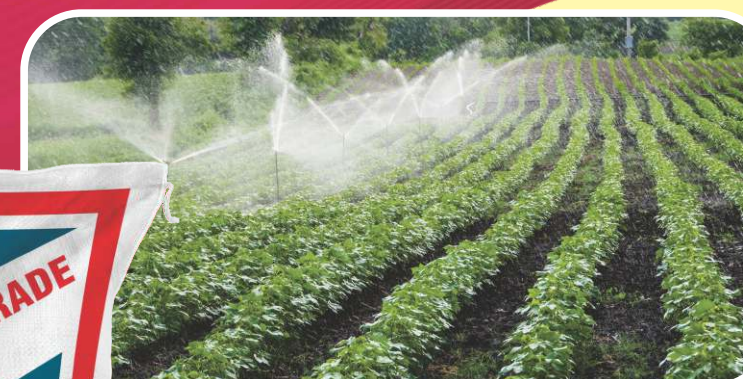
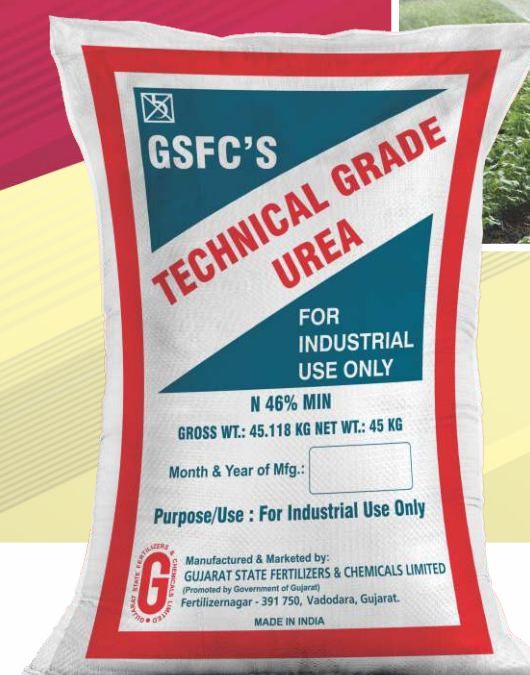
GSFC has a facility to produce Oleum of 23% concentration in both plants. Main raw material for OLEUM is Sulphur.

Applications:

- Dyestuff Industries
- Detergent Industries
- As a whitening agent in paper
- Petrochemical products

Packing:

Oleum 23% is made available in customer's mild steel road tankers.



Technical Grade Urea is produced from surplus Urea produced in OGT section of the Melamine-III plant. It is processed further in Urea-I plant's finishing section and prilling tower.

Applications:

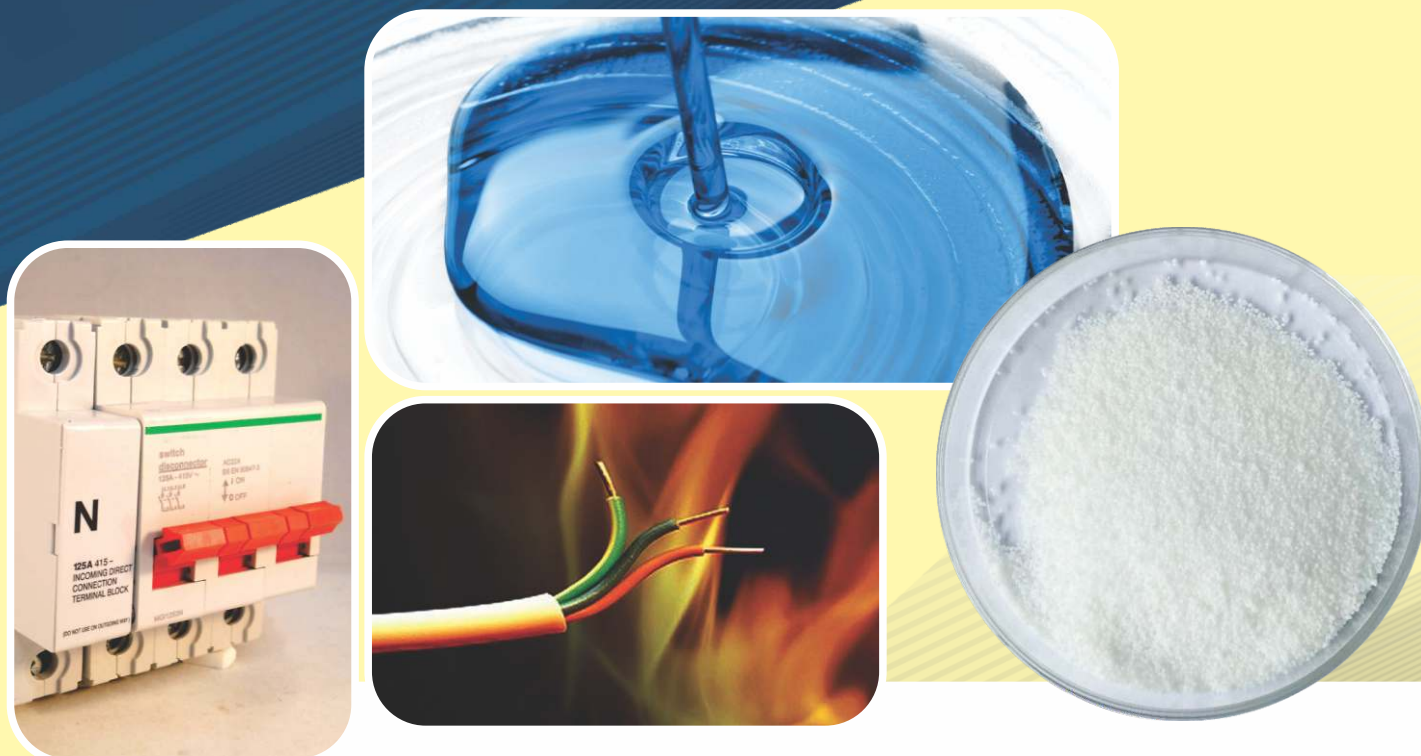
- Used in production of Water-soluble fertilizers.
- Used in Dyes and Pigment industries.
- Used in cattle feed.
- Used for manufacturing of Urea Formaldehyde resin.
- Used in production of Diesel exhaust fluid for pollution abatement.
- Used in plywood and adhesive industries.

Packing:

Available in 45 Kg. net PP bags.

MELAMINE CYANURATE

AMMONIUM SULPHATE (Pharma Grade)



It is formed from a 1:1 mixture of Melamine and Cyanuric acid. It has high thermal stability and hence it is often applied in polymers with higher processing temperatures.

Applications:

- Melamine Cyanurate is a halogen-free flame retardant for polyamide and other plastics. It has established itself as a flame retardant to achieve UL 94 V-0 especially for Nylon 6 and 6,6 (UL 94 is standard for testing of flammability of plastic materials in devices and appliances. If the burning stops within 10 seconds after removal of flame, then the sample qualifies for V-0 grade).
- It also provides good mechanical and electrical properties to plastics.
- It can also be used in epoxy polymers and variety of other substances.

Packing:

Available in 20Kg PP bag



- It is a white crystalline solid, highly soluble in water.
- Minimum Purity - 99.0%.
- Meeting with the specifications of US Pharmacopeia.

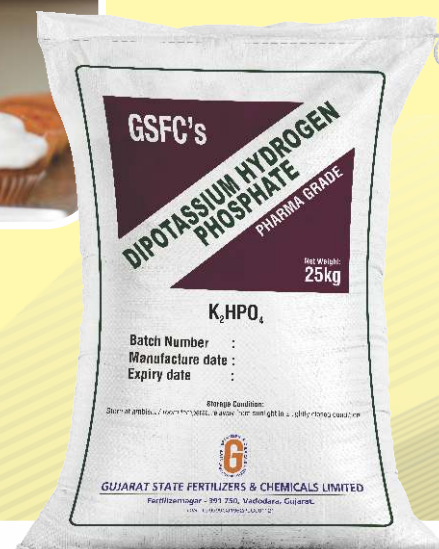
Applications:

- It acts as a nitrogen supplier for yeast cultures and microorganisms.
- For the precipitation and fractionation of proteins, purification of antibodies, crystallization of proteins, protein-nucleic acid complexes and of nucleic acids.
- In the purification of antibodies.
- Cleaning agent in the vaccination process.

Packing:

Available in 20Kg PP bag

POTASSIUM DIHYDROGEN PHOSPHATE (Pharma Grade)



- It is a white crystalline solid, highly soluble in water.
- Minimum Purity - 98.0 %.
- Meeting with the specifications of US Pharmacopeia.

Applications:

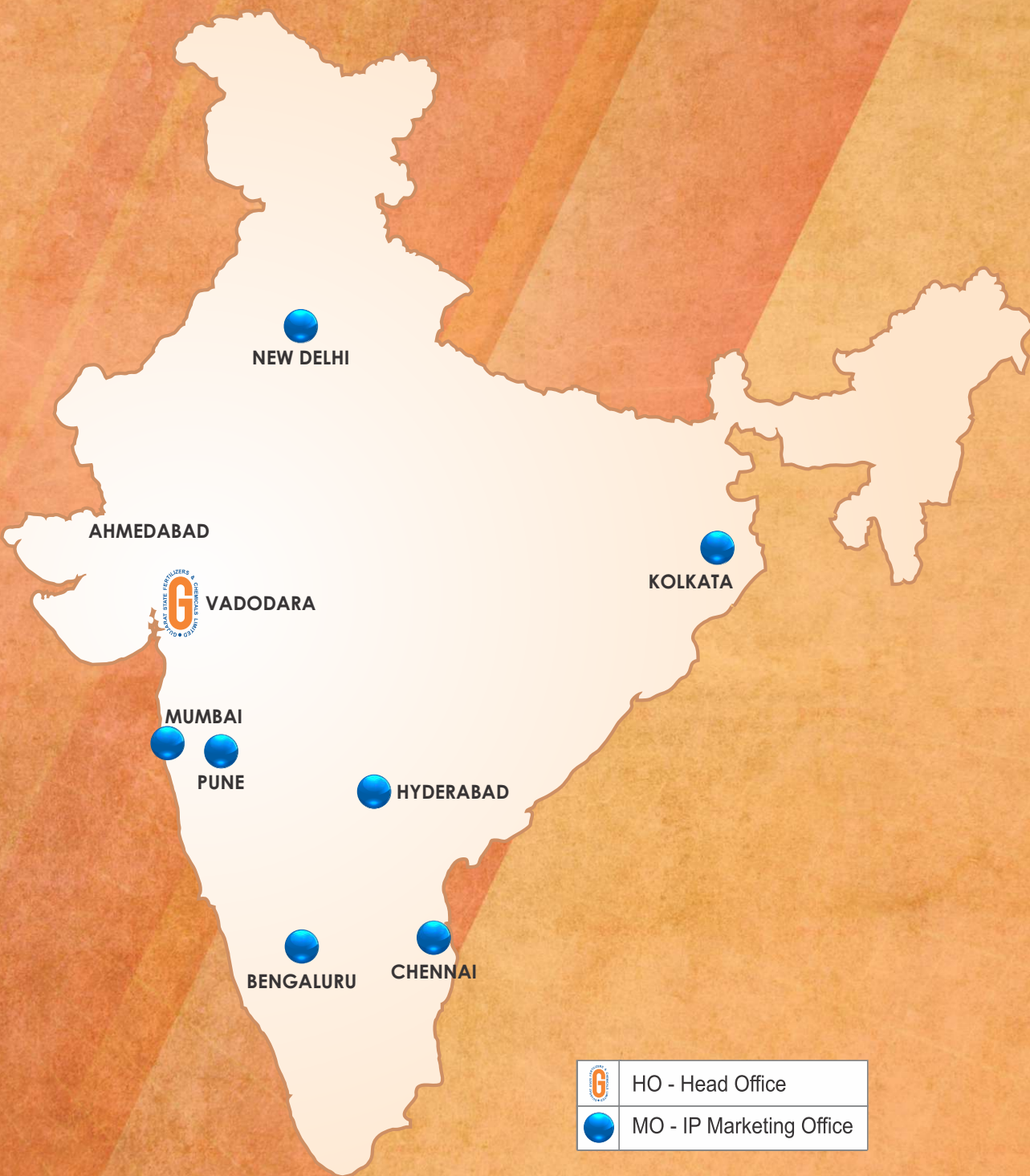
- In the food industry, it is used for the manufacture of baked goods, for leavening agent, flavouring agent, fermentation additives, nutritional fortifiers, yeast food.
- As a chelating agent
- For the fertilization of rice, wheat, cotton, rape, tobacco, sugar cane, apple and other crops.
- As chromatography reagents and buffer, but also for the synthesis of medicine. It can also used as a bacterial culture agent and the raw material for making potassium metaphosphate. In medicine, it is used for the uric acidification as a nutritional agent.
- As a quality improver, it increases the ionic strength of food, and thus improving the adhesion and water holding capacity of food.

Packing:

Available in 20 Kg PP bag



GSFC IP MARKETING NETWORK



HEAD OFFICE : Fertilizernagar, Dist. Vadodara, Gujarat.

GSFC IP MARKETING NETWORK

IP MARKETING OFFICES

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