In Business since 1993

- Multi-plants manufacturing company which specialises in designing, fabrication, export, erection, commissioning and running Fertilizer and Chemical plants globally for last 23 years.
- Decades of experience of manufacturing, exporting and maintaining Fertilizer and Chemical Plants worldwide.
- Proven excellence with success stories echoing in the countries such as Bangladesh, Sudan, Rwanda, Angola, Mozambique, Uganda, Jamaica, Tanzania, Iran, Madagascar, Ghana, Azerbaijan, Dubai UAE, Saudi Arabia, Brunei, Malaysia and many ongoing projects around the globe.
- We have successfully done 9 fertilizer and chemical plants in India.
- Expanding exponentially and has manufacturing site at Khushkhera, District - Alwar, Rajasthan, India & Offering uninterrupted and quality products to our valuable customers.

**Contact Us**
You can reach us at following:
District: Alwar, Rajasthan
Phone: +91-9772964748, 9352530222
Email: krsharma27@gmail.com, Gayatri@fertilizerplants.in
Web: www.fertilizerplants.in

NSIC Certified Company
Our Profile

We manufacture and export plant & machinery for making fertilizers like SSP, GSSP, NPK, Zinc Sulphate Hepta Hydrate & mono Hydrate, Gypsum Granulation and Alum etc. on turnkey basis. We do erection & commissioning, run the plant for one month in our supervision, train the manpower in running and maintenance of the plant and hand over to the party. We work further to keep the company up front suggesting innovation & modification. We supply the spares timely and help the party in developing spares in-house / locally.

We also provide technical support later on to beat the competition. Our workforce is well qualified, trained and have expertise over their designated roles. Loyalty of our worker is above par. Our core fabrication and erection team is with us for 22 years. GFIPL has well established infrastructure to support and enhance its proper working.

Past Projects

We have done 21 projects in 17 countries worldwide. Since last 12 years we are only exporting the projects. We are in a big way in Africa, Asia, Central Asia and west indies countries. We have experience in doing the projects successfully in the countries or regions having no or less infrastructure.

We have done projects in Rwanda 2 Nos. Sudan 2 Nos. Tanzania, Mozambique, Angola, Iran 3 Nos. Bangladesh 2 Nos. Kingston (Jamaica), Azerbaijan, Madagascar and Dubai 2 Nos., Saudi Arabia 3 No. We are doing an Alum plant in Brunei.

Our Driving Force

Mr. K R Sharma

(Managing Director)

M. Tech from IIT Delhi batch 1982 with 34 years of experience in fertilizer and chemical industry.

Worked at Senior Management positions in companies like Vam Organic chemicals Ltd, Khaitan Fertilizers Ltd and Multitech International Ltd.

Worked as CEO of Parth Consultants, engineering consultancy company in the field of fertilizer and chemical industry.

Offering expertise to GFIPL from day one in Bulk Blending NPK plant, NPK Granulation Plant, SSP Plants, GSSP Plant, Alum plant, Gypsum Granulation Plant and Zinc Sulphate plant.

Presently honorary Secretary of Bhiwadi Chamber of commerce & Industries, Bhiwadi.
OUR PRODUCTS

- NPK PLANT
- BULK BLENDING PLANT
- SSP PLANT (SINGLE SUPER PHOSPHATE PLANT)
- GSSP PLANT (GRANULATED SINGLE SUPER PHOSPHATE PLANT)
- ALUM PLANT (FERRIC & NON FERRIC ALUM)
- ZINC SULPHATE PLANT (HEPTA HYDRATE & MONO HYDRATE)
- MAGNESIUM SULPHATE PLANT
- FERROUS SULPHATE PLANT
- GYPSUM GRANULATION PLANT
- GYP-MITE GRANULATION PLANT
- ORGANIC FERTILIZERS GRANULATION PLANT
- DI CALCIUM PHOSPHATE (DCP) PLANT
- MONO CALCIUM PHOSPHATE (MCP) PLANT
NPK Granulation Plant

All our NPK production plants are competitively priced, and can be customized to meet the specific demands of the customers. The integrated design allows proper maintenance and cleaning. The dust in the system can be separated with cyclones and scrubbed with water. High production capacity, consistent performance and low energy consumption, option of using different fuels further makes our NPK production lines - the preferred choice of leading players in the fertilizer industry.

Manufacturing Process

The raw materials like Urea, DAP, SSP, TSP, Murate of Potash and fillers are fed to the weigh belt conveyors where they are weighed in specific quantities for the grade and moved to Mixer for producing homogenous mixture. The material is mixed with the recycle material and taken for granulation in granulation drum where the partial granulation is achieved with very fine jet of water spray at the rotating granules. The fine powder gets deposited on a small nuclei. This process can be controlled to produce particle size as per the demand of the customers. The material is taken to dryer drum where hot air generated in the furnace is passed through it. The raw material having low melting points easily melts and gets deposited on the nuclei. The high temperature evaporates water and the material is air dried. Further, the material is cooled by blowing ambient air through it in cooler drum. The 1 – 4 mm or desired size homogenous granules are obtained using vibrating screens. The product, screened granules of uniform size are precisely packed in bag. The oversize material (after crushing) and undersize are recycled.

Components of NPK Production Line

Weighing & Blending System, Belt conveyor, Furnace, Rotary drum granulator, Rotary dryer, Rotary cooler, Rotary coating machine, Packing machine, Cyclones & dust collector, Vibrating screen, Bucket elevator, Scrubbers etc.

<table>
<thead>
<tr>
<th>NPK Mixed &amp; granulated Fertilizer Plant</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Capacity in Tons / day</strong></td>
</tr>
<tr>
<td><strong>Raw Materials Required</strong></td>
</tr>
<tr>
<td><strong>Fuel Required</strong></td>
</tr>
<tr>
<td><strong>Product Quality Standards</strong></td>
</tr>
<tr>
<td><strong>Technology Level</strong></td>
</tr>
<tr>
<td><strong>After Sales Services &amp; Support</strong></td>
</tr>
</tbody>
</table>
NPK BULK BLENDING FERTILIZER PLANT

All our Bulk Blending NPK production plants are competitively priced, and customized to meet the specific demands of the customers. The integrated design allow proper maintenance and cleaning. From a process and operating view point, bulk blending is much simpler than a chemical granulation plant. There is considerably less equipment in a bulk blend plant and it require less expertise to operate and less maintenance to keep running. Whereas, a chemical reactions and precise metering; a bulk blend plant only require a precise scale system and efficient mixer to ensure the production of a good product.

PRODUCT FLEXIBILITY

Since bulk blends are not subject to the process restrictions associated with chemical granulation, a large number of nutrient ratios can be made from a few granular raw materials, such as Urea, DAP, TSP, Mutate of Potash and micro nutrient as copper sulfate, ferrous sulfate, magnesium sulfate, ammonium sulfate and zeolite and soil conditioner like Gypsum are fed in feed hopper by front end loader. Pneumatically flow control system is attached in the feed hopper. The material discharge in elevator from feed hopper. The elevator distributes the material in the multi hoppers by the rotary distributes system with funnel arrangement. The material is discharged in the weighing hopper by the belt conveyor. The weighed material from weighing hopper is discharged in recovery hopper, elevator, batch hopper and after that this material discharge in the rotary mixture. This material discharge after mixing in vent hopper finally to the bagging hopper. After that the final product bagged by the automatic or semi automatic weighing and stitching machine system. Rectangular bottom out let with pneumatically operated double gate are attached in all hoppers for discharge system.

<table>
<thead>
<tr>
<th>S. No.</th>
<th>CROP</th>
<th>N</th>
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<tr>
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<td>TEA</td>
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<td>10</td>
</tr>
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<td>13</td>
<td>TEA</td>
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<td>10</td>
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<td>14</td>
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<td>32</td>
<td>FRUITS</td>
<td>12</td>
<td>6</td>
<td>6</td>
</tr>
</tbody>
</table>

**Specifications**

**Bulk Blending Fertilizer Plant**

<table>
<thead>
<tr>
<th>Description</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Capacity in Tons / day</strong></td>
<td>100, 200, 500 &amp; 750.</td>
</tr>
<tr>
<td><strong>Raw Materials Required</strong></td>
<td>Urea, D.A.P., M.O.P., TSP, copper sulfate, ferrous sulfate, magnesium sulfate, gypsum, zeolite etc.</td>
</tr>
<tr>
<td><strong>Fuel Required</strong></td>
<td>No Required</td>
</tr>
<tr>
<td><strong>Product Quality Standards</strong></td>
<td>Meet all standards like BIS India, Euro &amp; others.</td>
</tr>
<tr>
<td><strong>Technology Level</strong></td>
<td>Trusted, Tried, proved &amp; eco - friendly.</td>
</tr>
<tr>
<td><strong>After Sales Services &amp; Support</strong></td>
<td>Training of line and staff and spares technical support.</td>
</tr>
</tbody>
</table>
BULK BLENDING PLANT FLOW CHART

PORT

WEIGHING-IN FACILITY

INLET

WAREHOUSE

OUTLET

FRONT END LOADER

ROTARY DISTRIBUTE SYSTEM WITH FUNNEL ARRANGEMENT AND GEAR MOTOR

ELEVATOR-1

MULTIPLE HOPPER

BELT CONVEYOR

ELEVATOR-2

BATCH HOPPER

WEIGHING HOPPER

LOAD CELL

RECTANGULAR BOTTOM OUTLET WITH PNEUMATICALLY OPERATED DOUBLE GATE

CONICAL ROTARY MIXER

VENT OR RECOVERY HOPPER

RECTANGULAR BOTTOM OUTLET WITH PNEUMATICALLY OPERATED DOUBLE GATE

VENT HOPPER

BAND / STRIP DRIVER CONVEYOR-1

RECTANGULAR BOTTOM OUTLET WITH PNEUMATICALLY OPERATED DOUBLE GATE

BAND / STRIP DRIVER CONVEYOR-2

BAGGING HOPPER

AUTOMATIC / SEMI AUTOMATIC WEIGHING AND STITCHING MACHINE SYSTEM

GAYATRI FERTIPLANTS INTERNATIONAL PVT. LTD.
**SSP (Single Super phosphate Plant)**

Single super phosphate is a highly demanded fertilizer mostly used at the time of preparation of land. It comprises of 16% water soluble phosphate which is readily accepted by the crops. The fertilizer effectiveness of SSP remains unquestioned. In fact, it has become a standard of comparison for other fertilizers.

We supply high quality Single Super Phosphate Plant, that are known cost-effective operation and increased output. The process is simple, requiring little technical skilled workers and small capital investment.

**Process Description**

Manufacturing of Single Super Phosphate is based on the simplest chemical reaction amongst chemical fertilizers. The major raw materials required are rock phosphate and sulphuric acid. The Rock Phosphate contains Tri Calcium Phosphate which is insoluble in water and hence cannot be taken by the plants. The Rock Phosphate is ground fine and reacted with dilute Sulphuric Acid. The product of reaction is Mono Calcium Phosphate which is soluble in water. This soluble phosphate can be easily consumed by the plants.

Rock phosphate is ground very fine (93% passing through 100 mesh). The measured / weighed quantity of Rock phosphates is fed into lead lined & AHR tiles lined mixer, where it is neutralized with dilute sulphuric acid. For making TSP the rock is neutralized with 54% phosphoric Acid. The reaction is very fast in the beginning and the material is fine slurry which thickens quickly. The material is discharged in the den where the material slowly solidifies. The den discharge is fitted with den cutter which cuts the solid cake to powder. The Fluorine based gases are liberated which are sucked by ID fan and scrubbed in multi stage conventional scrubbers & venture scrubbers. The material get cured in a few days time. The material is screened for lumps and the powder is packed as PSSP. The product is granulated in the granulation plant (GSSP Plant).

**Components of Single Super Phosphate Manufacturing Plant**

Bucket Elevator, Ball Mill, Weight Feeder, Belt Conveyor, Screw, Conveyor Mixer, Reciprocating den and Den, Den Cutter, Sulphuric Acid tanks, pumps EOT Crane, Vibrating screens, Conventional Scrubbers, Venture Scrubbers

We undertake development and erection of Single Super Phosphate Plant (SSP) on turnkey basis.

**Specification**

<table>
<thead>
<tr>
<th>Single Super phosphate plant.</th>
<th>Capacity in tons / day</th>
<th>100, 200, 300, 500, 700, &amp; 1000.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Raw Materials Required</td>
<td>Rock Phosphate, sulphuric acid (98.5%Pure) and spent acid, If available.</td>
<td></td>
</tr>
<tr>
<td>Product Quality Standards</td>
<td>Product Meet all standards like BIS India, Euro &amp; others.</td>
<td></td>
</tr>
<tr>
<td>Technology Level</td>
<td>State of art, trusted, proved &amp; eco-friendly.</td>
<td></td>
</tr>
<tr>
<td>After Sales Services &amp; Support</td>
<td>Training of line and staff , spares &amp; technical support.</td>
<td></td>
</tr>
</tbody>
</table>
GSSP (Granulated Single Super phosphate Plant)

The use of granulated product is more beneficial than the use of powder. The powder gets dissolved immediately in irrigation water and becomes readily available. Some part of it is used by plants and balance goes to sub soil with water and remain useless. The powder can be used only during sowing of seeds. It cannot be used on the growing crops as it get deposited on the leaves of the plants and being slightly acidic, burns them. The granulated product rolls down the plant and can be used harmlessly on the standing crops. The biggest advantage in using the granulated product is that it is available to the crops for a longer time because it gets dissolved slowly in water.

Process Description

The cured Single Super Phosphate is Screened. The powder is taken directly and the lumps are taken after crushing, for granulation. The soil conditioner gypsum is added. The material is taken to granulation drum where very fine spray of water is done on rolling material at its angle of repose. Some coating of powder over the small nuclei / particles takes place. This duration of this process is controlled as per requirement. The material is then taken to dryer drum where the hot air generated in the furnace is passed through it. The material is cooled in cooler drum by passing ambient air through it. The ID fans connected to dryer & cooler sucks air from the drums so some dust also comes with it. The dust is separated in the cyclones and finally scrubbed in wet scrubber. The cooled material is screened through under size & over size screens. The product of 1 - 4 mm size is separated and precisely packed. The oversize material after crushing and the under size are recycled and work as nucleus for next cycle.

Major Components of Granulated Single Super Phosphate Manufacturing Plant

- Conveyor Belts
- Rotary drum granulator
- Hot Air Generator
- Rotary dryer
- Rotary Cooler
- Vibrating Screens
- Weighing machine
- Packaging machine
- Super Phosphate Storage Pile
- Conventional Scrubbers

We specialize in providing turnkey solution for Granulated Single Super Phosphate Plant. Our engineers can provide custom-engineered manufacturing units with required modifications. We also offer excellent after-sales and maintenance services for installed plants.

Granulation Drum

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity per day</td>
<td>100, 200, 300, 400,</td>
</tr>
<tr>
<td>Fuel</td>
<td>Furnace oil, HSD or Gas</td>
</tr>
<tr>
<td>Raw Materials Required</td>
<td>SSP powder, additive gypsum.</td>
</tr>
<tr>
<td>Product Quality Standard</td>
<td>Meet all standards like BIS India &amp; others.</td>
</tr>
<tr>
<td>Technology Level</td>
<td>State of art, trusted, proved &amp; eco-friendly</td>
</tr>
<tr>
<td>After Sales Services &amp; Support</td>
<td>Training of line and staff, spares &amp; technical support.</td>
</tr>
</tbody>
</table>
**Alum Plant**

For decades, Aluminium Sulphate, popularly known as alum has been used as a raw material in water treatment industry. Easy availability and large molecular size makes it an excellent floculent for treatment of both potable water and industrial waste water. Alum also finds use in a diversity of other areas including construction products, oil / fat processing and paper manufacturing. It has many trade names such as Ferric Alum and Non-Ferric Alum, "pearl alum", "pickle alum", "papermakers' alum" etc.

**Process Description**

The raw material bauxite lumps are crushed to - 15 mm size in a Crusher and ground fine 90% passing through 100 mesh in a ball mill. The reactor is lead and Acid & heat resistant brick lined. The acid is diluted to 65-70% and bauxite powder is added slowly to neutralize the acid completely. As the reaction is over, the resultant solution is diluted to a fixed gravity with water and coagulant is added to precipitate the colloidal particles. The material is allowed to settle in settling tanks. The supernatant liquid is separated and used as liquid alum. For making slabs the liquid is evaporated with steam coils in evaporators. As the liquid achieves fixed gravity it is discharged in the moulds to make slabs. If the balls are to be manufactured, the spray technology is applied.

**Some of the major components of Alum Plants are**

- Jaw Crusher
- Elevators
- Ball Mill
- Hoppers
- Tanks
- Reactor
- Settling Tank
- Washing Pits
- Evaporators
- Steam Boiler or Thermal Fluid Boiler
- Mould
- Air Compressor
- Pipelines
- Silos

We offer complete Alum Production Plant for crystalline and liquid aluminium Sulphate. These plants can be custom engineered as per the demands of the clients. We also offer excellent technical support and after-sales services for the installed plants.

---

**Specification**

<table>
<thead>
<tr>
<th>Ferric and non - ferric alum for paper and other Industries</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Capacity in tons / Day</strong></td>
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<tr>
<td>10, 20, 50</td>
</tr>
<tr>
<td><strong>Fuel Required</strong></td>
</tr>
<tr>
<td>HSD/ diesel. / Gas or Rice husk etc.</td>
</tr>
<tr>
<td><strong>Raw Materials Required</strong></td>
</tr>
<tr>
<td>Bauxite , sulphuric acid (98.5%pure) and spent acid 60% - 90% if available</td>
</tr>
<tr>
<td><strong>Product Quality Standards</strong></td>
</tr>
<tr>
<td>Products Meet all standards like BIS India &amp; others</td>
</tr>
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<td><strong>Technology Level</strong></td>
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<td>State of art , trusted , proved &amp; eco - friendly.</td>
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<tr>
<td><strong>After Sales Services &amp; Support</strong></td>
</tr>
<tr>
<td>Training of line and staff , spares &amp; technical support.</td>
</tr>
</tbody>
</table>
FLOW CHART OF ALUM PLANT

- FEED BELT
- JAW CRUSHER
- COARSE BAUXITE HOPPER
- BALL MILL
- ELEVATOR-1
- ELEVATOR-2
- GROUND BAUXITE HOPPER
- ELEVATOR-3
- BATCH HOPPER
- ROTARY AIR LOCK
- SCREW CONVEYOR
- STEAM LINE
- DIGESTOR
- AIR LINE
- WATER LINE
- AIR COMPRESSOR
- WATER TANK
- SPENT ACID TANK
- S.A.TANK
- BOILER HOUSE
- FURNACE OIL TANK
- ELEVATOR-4
- JAW CRUSHER
- CRUSHED ALUM HOPPER
- BALL MILL
- ELEVATOR-5
- ALUM POWDER HOPPER
- WEIGHING & BAGGING
- POWDER PRODUCT GODOWN
- MOLDS FOR SLAB
- TRAY FOR ALUM FLACKS
- EVAPORATOR
- PUMP
- FILTER PRESS
- SETTLING PITS
- WASHING PITS
- PRODUCT GODOWN
Zinc Sulphate Hepta Hydrate Plant

Zinc Sulphate is a white, fine crystal or a pearl shaped product. It is prime nutrient for plants. This micro-nutrient is primarily used in maintaining normal health and increased yields. The Zinc Sulphate is applied directly to the crops. It is also blended with other Fertilisers like SSP / GSSP/Urea and other fertilizers as it is required by plants in small quantity.

We specialize in manufacturing Zinc Sulphate Plants. The design of the plant is result of years and enterprise and research. These cost-effective plants are known for reliable performance and higher production capacity.

Process Description

Zinc Sulphate is manufactured by the reaction of Zinc ash with Sulphuric acid. The Sulphuric Acid is diluted to 65-70% with recycle water / wash water & fresh water. The acid is neutralized with Zn ash. The reaction mass is agitated continuously. The hydrogen gas is released. As the reaction is complete the reaction mass is filtered through filter press. The filtrate temperature is 60 to 70 degree Celsius. This temperature cooled down to 20 to 18°C with normal / chilled water. Crystalline Solid is Centrifuged to remove any surface water. The Zinc Sulphate Hepta hydrate is than packed in 1 kg, 2 Kg, 5Kg and 10 kg packs.

Some of the major components of Zinc Sulphate Plants are:

• Reactors
• Rubber Lined & AHR Mild Steel Tanks
• Pumps
• Filter Press
• Crystallisers
• Chilling Plant
• Compressors
• Mild Steel Storage Tanks
• Centrifuge
• Mud Washer
• Pollution control system.

We provide our client a complete solution by undertaking projects for Zinc Sulphate Plants on turnkey basis. Our engineers work closely with each client right from concept to commissioning of the plants. We also provide expert technical support and after-sale services to ensure flawless operation of the installed plant.
FLOW CHART OF ZINC SULPHATE HEPTA HYDRATE PLANT

VENTURY

ZINC ASH
SULPHURIC ACID
WATER

BATCH TANK

SULPHURIC ACID
STORAGE TANK

CHILLING PLANT UNIT

CONDENSE
CHILLED WATER
TANK

RETURN RAW
WATER LINE

RETURN CHILLED
WATER LINE

FILTER PRESS

CLEAR SOLUTION

MUD FRAY

L-I STAGE
H-STAGE DUMP

MUD WASHER

RAW WATER
LINE

CHILLED WATER LINE

CRISTALIZER

RETUR RAW
WATER LINE

CENTRIFUGE

LIQUEUR
WEIGHING & PACKING

FLOW CHART OF ZINC SULPHATE HEPTA HYDRATE PLANT

GAYATRI FERTIPLANTS
INTERNATIONAL PVT. LTD.

PROJECT: 63 TPD ALLU PLANT

DATE: 01-01-2023

CLIENT:

LOCATION:

PROJECTION:

BY:

FABRICATION:

DRAWN:

CHECKED:

PRINTED:

REV.

DATE:

SIGNATURE:

DATE:

SIGNATURE:

DATE:
# Specification

**Zinc sulphate Hepta hydrate for fertilizer and other uses**

<table>
<thead>
<tr>
<th>Capacity in tons/day</th>
<th>5, 10, 20, &amp; 50.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Raw Materials required</strong></td>
<td>Zinc ash, sulphuric acid (98.5% pure) and spent acid (If available).</td>
</tr>
<tr>
<td><strong>Product Quality standard</strong></td>
<td>BIS Indian Standard</td>
</tr>
<tr>
<td><strong>Technology level</strong></td>
<td>State of art, trusted, proved &amp; eco-friendly.</td>
</tr>
<tr>
<td><strong>After Sales Services and support</strong></td>
<td>Training of line and staff, spares &amp; technical support.</td>
</tr>
</tbody>
</table>
Zinc Sulphate Mono Hydrate Plant

Zinc Sulphate is a white, fine crystalline powder or a pearl shaped product. It is prime nutrient for plants. This micro-nutrient is primarily used in maintaining normal health and increased yields. The Zinc Sulphate is applied directly to the crops. It is also blended with other Fertilisers like SSP / GSSP/Urea and other fertilizers as it is required by plants in small quantity.

We specialize in manufacturing Zinc Sulphate Plants. The design of the plant is result of years and enterprise and research. These cost-effective plants are known for reliable performance and higher production capacity.

Process Description

Zinc Sulphate is manufactured by the reaction of Zinc ash with Sulphuric acid. The Sulphuric Acid is diluted to 65-70% with recycle water / wash water & fresh water. The acid is neutralized with Zn ash. The reaction mass is agitated continuously. The hydrogen gas is released. As the reaction is complete the reaction mass is filtered through filter press. The filtrate is collect in a feed storage tank this filtrate temp. is 70 to 65\(^\circ\)C and this feed is feeding by a screw pump in the atomizer, the atomizer set in a chamber. Chamber inlet temp. 320\(^\circ\)C and outlet temp. is 130\(^\circ\)C. On this temp. zinc solution convert in a powder form. The powder collect in a hopper and pack then 1 kg, 5 kg, 10 kg & 40 kg.

Some of the major components of Zinc Sulphate Plants are:

- Reactors
- Rubber Lined & AHR tiles Mild Steel Tanks
- Pumps
- Filter Press
- Mild Steel Storage Tanks
- Feed storage tank rubber line and hot insulated.
- Atomizer
- Chamber
- Cyclone
- Pollution control system
- HAG system

We provide our client a complete solution by undertaking projects for Zinc Sulphate Plants on turnkey basis. Our engineers work closely with each client right from concept to commissioning of the plants. We also provide expert technical support and after-sale services to ensure flawless operation of the installed plant.
## Specification

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<td><strong>After Sales Services and support</strong></td>
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**Atomizing system**

**HAG**

**Hot Air generator system**
Gypsum Granulation Plant

The Mineral Gypsum or Phosphors Gypsum is Screened for lumps. The lumps are crushed fine. The powder is mixed with the binder and hardener and transferred to the granulator. In the granulation drum a very fine spray of water is done on rolling material at its angle of repose. Some coating of powder over the small nuclei/particles takes place. The size of granules are controlled as More spray, bigger granule. Less spray small granule. This duration of this process is controlled as per requirement. The material is then taken to dryer drum where the hot air generated in the furnace is passed through it. The dried material is cooled in cooler drum by passing ambient air through it. The ID fans connected to dryer & cooler sucks air from the drums so some dust also comes with it. The dust is separated in the cyclones and finally scrubbed in wet scrubber. The cooled material is screened through under size & over size screens. The product of 1 – 4 mm size is separated and packed in 50 kg. bags. The oversize material after crushing and the under size are recycled and work as nucleus for next cycle.

Specification

<table>
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<tr>
<th>Raw Materials Required</th>
<th>Mineral Gypsum Powder Phosphors Gypsum, Binder And Hardener</th>
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</thead>
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<tr>
<td>Product Quality Standard</td>
<td>Meet all standards like BIS India &amp; others.</td>
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<tr>
<td>Technology Level</td>
<td>State of art, trusted of proved &amp; eco-friendly</td>
</tr>
</tbody>
</table>
Dicalcium Phosphate (DCP) Plant

Dicalcium phosphate is used as animal feed and IP grade. The plant uses Phosphoric Acid and Calcium Oxide or Calcium Carbonate as raw materials. Phosphoric Acid and Calcium Carbonate are first reacted together with water, then fed to the updraft of the combustor where the reaction is finished and drying begins. The drying is coming from the reaction heat. No dryer is needed. It dries, sieves and mills DCP product to desired size.

Secondly DCP will made by single super phosphate (SSP) it direct reaction with Sulphuric acid and powder rock phosphate

Plants based on following raw material:
- Based on Sulphuric Acid, Rock phosphate & Lime.
- Based on Hydrochloric Acid
- Based on Phosphoric Acid
- Based on single super phosphate (SSP)

Process Description

Manufacturing of Dicalcium Phosphate process are of two types, first is direct phosphoric acid with calcium oxide reaction and second is based on the reaction with sulphuric acid and rock phosphate powder to produce single super phosphate.

- If we use phosphoric acid for DCP production than first we make phosphoric acid with sulphuric acid 98%, ground rock phosphate 28-30% and water filter the react material by Neutische Filter to separate the phosphoric acid and Gypsum. Concentrate defluorinated Phosphoric acid collected in Mixing Tank to mix Lime solution with Agitator. After complete reaction in mixing tank than precipitated DCP material do the filtration with filter press to separate the DCP wet cake and neutral solution. Filtrate DCP wet cake put in to the Electric oven in tray and dry it 2-3 hour to remove the moisture after drying remove from oven DCP material to pack into the Bag with packing in 2,5,10,20,50 kg weight.
- Secondly DCP process through single super phosphate (SSP) powder than to make single super phosphate with reaction of sulphuric acid 98% and rock phosphate powder 28-30% in paddle mixer and den conveyor, that's are green SSP to put for curing to complete reaction in heap for one week. Cured SSP powder and water to take in mixing tank to mix with Agitator after completion of mixing to separate solution and Gypsum through Neutische filter / filter press / filter belt conveyor, filtered solution to collect in and other mixing tank to mix lime solution with Agitator maintained pH 6.5-7.0. After completion of mixing same procedure for both process as above as filtration, drying and packing.

Some of the major components of Dicalcium Phosphate (DCP) Plants are:

For DCP phosphoric acid process & lime process:
- Grinding Unit
- Material handling equipment
- Reactor
- Nutsch filter
- Collection tank (CN-PA & W-PA)
- Mixing Tank
- Lime solution tank
- Agitators
- Filter press / Centrifuge
- Electric dryer oven (tray type)
- Air Compressor
- Pumps
- Acid storage tank
- Hopper
- Packing unit
- Pollution control unit

For DCP with single super phosphate (SSP):
- Grinding Unit
- Material handling equipment
- Paddle mixer
- Den conveyor with RP den & cutter
- SSP mixing tank with agitator
- Nutsch filter
- Lime mixing tank
- Lime solution tank
- Agitator
- Filter press
- Electric dryer oven (tray type)
- Air compressor
- Pumps
- Acid storage tank
- Hopper
- Packing unit
- Pollution control unit
FLOW CHART OF DCP PLANT

WEIGH FEED HOPPER

SSP FEED ELEVATOR

SSP FEED BELT CONVEYOR

SSP WATER MIXING TANK

WEAK SOLUTION TANK

NEUTSCHE FILTER

LIME SOLUTION MIXING TANK

LIME SOLUTION TANK

FILTER TANK

AIR COMPRESSOR

PUMP-1

PUMP-2

PUMP-3

FILTER PRESS

FILTRATE SOLUTION TANK

PUMP-4

PRODUCT

ELECTRIC TRAY TYPE OVEN

DCP CAKE
Monocalcium Phosphate (MCP) Plant

Monocalcium phosphate is used in food products as a leavening agent. MCP process requires defluorinated phosphoric acid and calcium carbonate as caco₃ to react with pre-mixer and mixer.

MCP is sparingly soluble in water, the maximum solubility being 1.8% wt./vol at 25°C. However, MCP has significantly higher solubility in phosphoric acid solution and the saturation solubility is related to available P2O5 % in the acid.

Plants based on following raw material:
- Based on phosphoric acid & calcium carbonate
- Based on sulphuric acid & rock phosphate to produce phosphoric acid

**Process Description**

The first step in this process is in the production of single super phosphate generally known as SSP, triple super phosphate (TSP) a well known fertilizer and a super phosphate of a grade between SSP and TSP. Tri calcium phosphate present in rock phosphate or any other natural sources of phosphates on treatment with sulphuric acid or phosphoric acid gets converted into mono calcium phosphate according to the following reaction.

Mono calcium phosphate produced is still contaminated with fluorides. This product obtained is known as green super in the industry and has a very high unreacted free acid content. Green super on keeping gets cured and the unreacted free acid as well as the excess of phosphoric acid formed during the reaction and the unreacted calcium phosphate present therein slowly react with each other to yield mono calcium phosphate. Soluble fluoride content of this product depends on the available free acid when cured fully, single super phosphate contains approximately 1.2 to 2.2% of free acid content.

This fully cured product is treated with water or recycle liquor from a subsequent process step to dissolve mono calcium phosphate present therein. Solid impurities are separated and the filtrate containing free acid is treated with a solution of hydrated lime to increase its pH and to precipitate out impurities such as iron, aluminium and fluorine containing compounds. Mono calcium phosphate solution free from such contaminants is further treated with a solution of hydrated lime to neutralize and to produce di calcium phosphate free of fluoride ions. If required a mixture of mono and di calcium phosphate may also be produced by adjusting the quantity of hydrated lime. This product is found to have at least 18% or more P than normal di calcium phosphate and exhibits higher digestibility when used as a feed additive.

This invention relates to a process for the preparation of feed grade di calcium phosphate substantially free of fluorides from a source containing mono calcium phosphate such as simple super phosphate, concentrated super phosphate or fertilizer grade phosphate which comprises the steps of (a) leaching out soluble mono calcium phosphate therefrom with water or recycle wash water from at least one subsequent steps, (b) adding a first quantity of a solution of hydrated lime thereto to precipitate and separate contaminants like iron, aluminium and fluorine containing compounds therefrom (c) adding a further quantity of hydrated lime to the filtrate containing mono calcium phosphate to produce di calcium phosphate as precipitate which is separated washed and dried, wash water from steps (b) and (c) being recycled to step (a) to leach out further mono calcium phosphate.
<table>
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<th>PARTY WITH ADDRESS</th>
<th>PLANT WITH CAPACITY</th>
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<tr>
<td>1.</td>
<td>KHUSHHAAL FERTILIZERS PVT. LTD, 100, CIVIL LINES, ROORKEE. DISTT. HARIDWAR UTTARAKHAND</td>
<td>250 TPD SSP PLANT</td>
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<td>2</td>
<td>NEERA CHEMICAL PVT. LTD. NAVYUG MARKET, GHAZIABAD. (UP)</td>
<td>150 TPD SSP PLANT</td>
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<td>150 TPD GSSP PLANT</td>
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<td>10</td>
<td>AGRO BALANCED FERTILIZER INDUSTRIES PVT. LTD. DHALGAM, BAGHARPARA, JESSORE. (BANGLADESH)</td>
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<td>EL SHARQ CEMENT COMPANY RED SEA FREE ZONE PORT SUDAN, SUDAN</td>
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<td>MOHAMMAD GAHER TANZANIA C/O DOTEL. BHIWANDI, MUMBAI (INDIA)</td>
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<td>No.</td>
<td>Company / Organization</td>
<td>Location</td>
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<td>17</td>
<td>SILK WAY CONSTRUCTION BAKU AZERBAIJAN</td>
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<td>26</td>
<td>KEMYAN YANBU INDUSTRIAL COMPANY LIMITED,</td>
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<td>KEMYAN YANBU INDUSTRIAL COMPANY LIMITED,</td>
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<tr>
<td>29</td>
<td>FATAKUN SDN BHD,</td>
<td>BLOCK A – 1, KOMPLEKS, PERINDUSTRIAN BERIBI 1, JALAN GADONG, BE</td>
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<td>DARRUSSALAM BRUNEI</td>
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<td>30.</td>
<td>SHRI MANGLAM AGRO FERTILIZERS PVT. LTD.</td>
<td>F-63 RIICO INDUSTRIAL AREA HATTIPURA BUNDI (RAJASTHAN)</td>
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<tr>
<td>31.</td>
<td>VINAYAK AGRO FERTILIZERS PVT. LTD.</td>
<td>PLOT 24546/1,BIT II, SURVEPALLI VILLAGE NELLORE (A.P.)</td>
</tr>
<tr>
<td>32.</td>
<td>QUALITY FERTILIZERS PVT. LTD.</td>
<td>VELLUPURAM (TAMIL NADU)</td>
</tr>
</tbody>
</table>
OUR CLIENTENTS

Mr. Sufiyan Chairman of Hatam Overseas SDN BHD Fatakun Brunei

Prof. Omar & prof. Anish of Penang university Malaysia

Mr. Cyrus Trakmehzadah of Arkan Chemi jonub, Iran

Mr. Eid Chairman and MD of Kenyan Yanbu, Saudi Arabia
Mr. Mohammad Jazi of Modern City Electronics, Dubai

Chairman, Chirama Toamasina, Madagascar

Agreement signed with Director, Silkway Construction Ltd, Baku – Azerbaijan

Padam Jain & Ajit Jain
Thank You