GEIST
WEALTH OUT OF WASTE

Anhydrous Sodium Sulfate (CSP)

WOOW Series:

- Acetaldehyde
- Acetic Acid
- Aluminium Chloride
- Ammonium Sulfate
- Butyraldehyde
- Cellosolve
- Dimethyl Sulfoxide
- Dimethyl Sulfide
- Formaldehyde
- Formic Acid
- Glycerol
- Glycolic Acid
- Glycols
- N-methyl pyrrolidone
- Phosphoric acid
- Potassium Carbonate
- Potassium Chloride
- Potassium Hydroxide
- Potassium Nitrate
- Potassium Sulfate
- Phenol/Phenolics
- Polyglycerol
- Para Toluene Sulfonic
- Silica
- Sulfuric acid
- Sodium Bromide
- Sodium Bisulfite
- Sodium Chloride
- Sodium Formate
- Sodium Hydroxide
- Sodium Metabisulfite
- Sodium Sulfate
- Sodium Sulfite
- Sodium Silicate
- Sodium Thiosulfate

Go Green Profitably

Economically Recover Anhydrous Sodium Sulfate from reject brine stream.

In caustic chlorine industry, aqueous stream is fed to a Nano filtration based Sulfate removal system. Nano filtration generates a Sodium Sulfate lean stream which goes back to the plant & Sodium Sulfate rich stream which comes out as reject brine.

Typical concentration of reject brine stream is as follows

Sr. No.	Component	Composition
1	Sodium Chloride	181 gms/lit
2	Sodium Sulfate	118.8 gms/lit
3	Sodium Chlorate	7.23 gms/lit

This stream is discharged as such or treated with Calcium Chloride to get Calcium Sulfate & Sodium Chloride. Calcium Sulfate is filtered & sold as a by-product & Sodium Chloride is recycled back to the original plant.

Geist **N**ovel **P**recipitation **T**echnology is the preferred solution for separation of Anhydrous Sodium Sulfate with min 99.5% purity from the reject brine stream. The remaining aqueous stream can be recycled back to the process.

Typical concentration of aqueous stream after separation of Sodium Sulfate is as follows.

Sr. No.	Component	Composition
1	Sodium Chloride	213 gms/lit
2	Sodium Sulfate	6.85 gms/lit
3	Sodium Chlorate	8.86 gms/lit

Typical Case study:

Aqueous Stream Capacity	= 7200 kg/hr reject brine stream
Value of Sodium Sulfate in waste stream	> Rs 4.7 crores per Annum
Cost of treatment	= Rs 6 crores per annum

For Anhydrous Sodium Sulfate separation by **GNPT**:

Cost of Separation of Anhydrous Sodium Sulfate (min 99.5%)	= Rs 3/kg product *
Cost of Major Equipments	= Rs 3.6 crores *
Market price of Anhydrous Sodium Sulfate	= Rs 8/kg of product
Savings	= Rs.5 /kg of product
	= Rs 3.5 crores/Annum
Return on Investment (ROI)	= 12 months

Advantages:

1. Recovery of Anhydrous Sodium Sulfate which meets all the specifications of Indian standards.
2. The aqueous stream can be recycled back. Thus the plant becomes Zero discharge unit.
3. Works in presence of other organic or inorganic impurities.
4. Saving in the overall production cost because of increased recycle & recovery.
5. Reduced load on treatment and / or disposal.
6. Easy to operate.

* Separation cost & Cost of equipments is case specific and may vary with the concentration of stream, its quantity, other impurities present & utility rates.

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