Process for recovery of common salt, potassium chloride and high purity magnesia from brine in an integrated manner

Application/Uses/Problem being Addressed:

- The majority of the potassium chloride produced is used for making fertilizer, since the growth of many plants is limited by their potassium intake.
- As a chemical feedstock, it is used for the manufacture of caustic potash, potassium carbonate, potassium sulphate, etc.

Salient Technical Features including Competing Features/Impact:

The process relates to a process for recovery of common salt and marine chemicals of high purity in integrated manner, which boosts the viability of such recovery. The process is amenable to a wide range of brine compositions but especially attractive for brine compositions that are low in sulphate content and yield impure salt when the conventional process of solar salt production is followed.

TRL Level & Scale of Development : TRL-7

The process is for recovery of common salt, potassium chloride, concentrated magnesium chloride with enriched bromide and high purity magnesia from brine in an integrated manner, said process comprises preparation of calcium chloride by reaction of hydrochloric acid generated in the process with limestone, desulfatation of brine with calcium chloride, production of sodium chloride of superior quality in solar pans, solar evaporation of

bittern thereby producing carnallite and end bittern, processing carnallite through established processes to produce potassium chloride, recovering end bittern containing highly concentrated magnesium chloride and enriched bromide and calcination of a part of the end bittern after solidification to produce high purity magnesia and hydrochloric acid utilizable in the process.

IPR Status & IPR Details
US 20030080066A1, US 6,776,972, WO 03/035550, US 6776972B2

Environmental Considerations, if any:

Eco-friendly.

Status of Licensing:

Technology is ready for transfer.

Status of Commercialization:

Ready for commercialization.

Business Scope & Opportunity (in terms of scale, cost, market, etc.):

The technology has been validated in CSIR-CSMCRI ESF/ pilot plant.

The process / technology is ready for transfer and can be implemented on commercial scale. The product has high demand in industrial sector.

Major Raw Materials Needed: Bittern.

Major Plant Equipment and Machinery Required:

Material handling equipment such as pumps, belt conveyors, ridger, harvesters, loaders, crushers, tractors, trailers, washery, etc.

Techno-Economics

To be worked out based on proposed capacity

Technology Package:

- Basic technical details for design of commercial plant.
- Demonstration of process.
- License fee and other financial details would be provided on specific request.