

# JS INTERNATIONAL INDUSTRIAL LIMITED

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# Natural Potassium Magnesium Sulphate (KMS) Production Flowchart

# POND OPERATIONS



#### **BRINE EXTRACTION**

Potassium rich brine is pumped from beneath the surface of salt lakes in Xitanier Province. China.



#### SODIUM REDUCTION

Sodium Chloride is precipitated in evaporation basins and the potassium rich brine is transferred to another basin.



#### CONCENTRATION

The brine is concentrated to schoenite crystallisation point by natural evaporation in large shallow ponds.



#### **HARVESTING**

Raw Schoenite is harvested using clean, single purpose earthmoving machinery and trucked to refining plant.



### REFINING PLANT OPERATIONS



#### CRUSHING

The obtained Schoenite was crushed by a automatic feed crusher with auger.



### DISSOLVING

Fully Dissolve the Schoenite Powder with water and finally obtain the mixed solution containing  $K^+$ ,  $SO_4^{2-}$ ,  $Mg^{2+}$ , etc.



# CONCENTRATION

According to the principle of Phase Equilibrium, the Potassium Magnesium Sulphate Crystal will be concentrated from the mixed solution when the concentration of this mixed solution reached the point of Phase Equilibrium of Potassium Magnesium Sulphate.



#### FLOATING

The Crude Potassium Magnesium Sulphate Crystal was obtained from the separation process of Solid and Liquid by adding the flotation agent (Sodium laurylsulfonate, 0.3Kg/MT) to the saturated solution. (Flotation agent just has the ability of capturing and do not participate in any reaction)



#### Separation

Separate and transfer the crude Potassium Magnesium Sulphate Crystal.



#### DISSLOVING AND RECRYSTALLIZATION

The purified Potassium Magnesium Sulphate Crystal was obtained from the process of removing bubble and recrystallization by dissloving the Crude Potassium Magnesium Sulphate with water. (The process of removing bubble can also removing the residual flotation agent)





# DRYING

The Potassium Magnesium
Sulphate Powder was obtained
by transfering the purified
Potassium Magnesium Sulphate
to Drying equipment.



# GRANULATION

The Granular Potassium
Sulphate can be obtained by
transfering the Potassium
Sulphate Powder to Granulation
equipment with Dry method.





### TESTING+PACKING+STORING

After testing, the Potassium Magnesium Sulphate Powder or Granule can be packed with bags and stored, and then waiting for delivery.

