

MAGNESIUM OXYCHLORIDE/ FLY ASH BOARDS

Magnesium Oxide Fire Resistance Boards also known as MGO Fire Resistance Boards (MFR Boards), Magnesium Oxychloride Boards are products with good fire resistance, good heat insulation and good sound insulation. These Boards are environment friendly and non-toxic. MGO Boards are made from Magnesium Oxide (Powder form commonly known as Magnesia), Magnesium Chloride, fillers like fly ash reinforced with glass fiber or natural fibers

Usage

MGO Boards can be used for Wall Partitioning, in Fire resistance doors, in system furniture partitions, as ceiling boards, as heat insulation for roofing etc.

Sizes

MFR boards are normally made in 3' x 6' (915mm x 1830mm) / 3' x 7' (915mm x 2135mm) / 4' x 8' (1220mm x 2440mm) sizes and with thickness of 3mm, 4mm, 5mm, 6mm, 8mm, 9mm, 10mm, 12mm, 14mm, 16mm, 18mm, 25mm.

Proposal

It is suggested that a unit may be set up to produce Magnesium oxide/ Magnesium chloride and use the materials to produce MFR boards.

Suggested capacities:

Dolomite calcining and MgO separation:	200 tons per day dolomite
MFR boards :	5 million Sq. M per year
Precipitated calcium carbonate (by product)	50 Tons per day

Manufacturing process

The Magnesium Oxide powder (Magnesia), Magnesium Chloride solution together with fly ash and other light weight fillers, are mixed together with an electric powered mixer to get a rich texture which is laid on PVC moulds with layers of Glass Fiber Reinforcement mesh laid in between depending on the usage requirement. After the mixes are laid on the moulds, the moulds will be set in a curing room to be cured naturally. The boards will produce heat due to the chemical reaction of the mix to temperature of up 70 Degrees Celsius. During these stages, Magnesium Oxychloride is formed by the reaction of Magnesia (MGO) with Magnesium Chloride solution resulting in formation of $Mg(OH)_2 \cdot MgCl_2 \cdot 8H_2O$ this is the strongest Oxychloride.

The magnesium oxide needed for making the boards is obtained from Magnesite or Dolomite. In case of Dolomite the calcium and magnesium oxides formed on calcining Dolomite are first separated through a leaching out process.

Technology

For production of boards the technology is inbuilt (machinery supplier will provide the operation details and methods to produce a desired product mix). For producing magnesium oxide from dolomite technology has to be sourced.

Plant and Machinery

The main plant and machinery consists Dolime calciner (kiln), heavy duty mixers, moulds, CO2 handling system, Driers

Raw materials: The main raw material is Dolomite

Utilities: Power 2000 KVA, water and coal

Project cost: Rs. 40 crores

Turnover and profitability

Turn over of Rs 80 crores with 6 to 8 % net profit margins can be expected

Suggested location

In Warangal or Khammam districts where dolime is available.

Strategy/ options: Number of chinese companies are offering the plant and machinery. The main consideration is to determine whether this is economical in indian conditions. If low cost Magnesium oxide is available the viability is assured. The choice of producing MgO from dolomite can be exercised based on availability of suitable technology.

Consultancy from APITCO: Sourcing technology. Selection of plant and machinery. Market study. Detailed project report preparation.