### MAGNESIUM OXIDE DEAD BURNED MAGNESIA (DBM)

<table>
<thead>
<tr>
<th>Description</th>
<th>Value</th>
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<tbody>
<tr>
<td>Capacity</td>
<td>1000 MT/Day</td>
</tr>
<tr>
<td>Plant and machinery cost</td>
<td>6105.00 Lakh</td>
</tr>
<tr>
<td>Working Capital</td>
<td>0.00 Lakh</td>
</tr>
<tr>
<td>Rate of return (ROR)</td>
<td>47.00 %</td>
</tr>
<tr>
<td>Break Even Point (BEP)</td>
<td>75.00 %</td>
</tr>
<tr>
<td>TCI</td>
<td>10189.00 Lakh</td>
</tr>
<tr>
<td>Cost of Project</td>
<td>10189.00 Lakh</td>
</tr>
</tbody>
</table>
Magnesium oxide is the most important industrial magnesium compound with its main application in the steel and refractory industry. It is also largely used in many other industrial sectors including the food and animal feed industries. Magnesia or magnesium oxide is an alkaline earth metal oxide. The majority of magnesium oxide produced today is obtained from the calcination of naturally occurring minerals, magnesite, MgCO3, being the most common. Both MgCO3 and Mg(OH)2 are converted to MgO by calcination. The thermal treatment of the calcination process affects the surface area and pore size and hence the reactivity of magnesium oxide formed. The source largely determines the level and nature of impurities present in the calcined material. Caustic calcined magnesia which is used in a wide range of industrial applications e.g. plastics, rubber, adhesives and acid neutralisation is formed by calcining in the range 700 to 1000°C. By calcining in the range 1000 to 1500°C the magnesium oxide is used where its lower chemical activity is required e.g. fertiliser and animal feed. Dead burned magnesia, which is produced in shaft and rotary kilns at temperatures over 1500°C, has reduced chemical reactivity therefore is more suited to refractory applications. Finally fused magnesia which is produced in an electric arc furnace from caustic calcined magnesia at temperatures in excess of 2650°C is used for a variety of refractory and electrical applications. Uses of Magnesia Sintered or dead burned magnesia is primarily used in the refractory industry. Example areas of application for refractory products using magnesia are: In the steel industry, for electric arc furnaces, basic oxygen furnaces or other furnaces, steel converters, hot metal transport and machinery in the cement industry, for the inlets of preheaters, cement kilns and coolers in the non ferrous metal industries. For furnaces in the lime industry, e.g. for the inlets of lime kilns in the glass industry, e.g. for melting furnaces, regenerator chambers. It is chiefly used in the manufacturing of refracting bricks for furnace lining. Based on a worldwide magnesia production shows the sector specific consumption of magnesia in different industries including the synthetic magnesia industry. Magnesia is mainly used for the production of refractory products. 65 % of magnesia used for refractories is produced in order to be used in the steel industry, 15 % in the cement industry, 7 % of magnesia production is used for other refractory applications, such as in the non ferrous metals industries or in the glass industry and finally 13 % of total production is used for s are known most of them are for CCM. The main applications can be found in agriculture as feed or fertiliser, in the construction industry as floor covering and for insulation, in the manufacture of cellulose, paper, chemicals, and pharmaceuticals, flame proofing and sweeping materials as well as in environmental protection. Market Survey Magnesium is the eighth most abundant element and constitutes about 2 percent of the Earth’s crust. It is the third most plentiful element dissolved in seawater, with a concentration averaging 0.13 percent. Although magnesium is found in over 60 minerals, only dolomite, magnesite, brucite, carnallite, and olivine are of commercial importance. Magnesium and magnesium compounds are produced from seawater, well and lake brines and bitterns, as well as from the minerals noted above. Refractory magnesia represents the largest tonnage use of magnesium in compounds. The iron and steel industry is the largest consumer of these products in the United States and most other magnesia consuming countries. Dead burned magnesia from magnesite, seawater, or well and lake brines is used as a major constituent in metallurgical furnace refractory products Magnesia is also used in agricultural applications for animal feed and fertilizer. Magnesium serves as a structural part of the chlorophyll molecule, a compound necessary for plant photosynthesis. Without sufficient magnesium, either from the soil or from fertilizer application, plants can die. Corn, potatoes, cotton, citrus, tobacco, and sugar beets are among the crops that are highly responsive to magnesium fertilization. Most of the end use markets for caustic calcined magnesia are mature, and there is little room for significant growth. The exception to this is the environmental market, where applications in water treatment are growing. Caustic calcined magnesia competes with magnesium hydroxide in this market.
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