



MSME Technology Facilitation Centre

(A Joint Initiative of Government of West Bengal and Council of Scientific and Industrial Research)



TECHNOLOGIES AVAILABLE FOR REFRACTORY BRICKS

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Refractory is a non-metallic inorganic material that has resistance to high temperature and high temperature fluctuations, including repeating heating and cooling. They also have good corrosion and erosion resistance to molten metal, glass, slag and hot gases etc. Because of good thermal stability of refractories they used in kilns, furnaces, boilers, incinerators and in other applications like iron, steel, non-ferrous metal, cement, glass, ceramics, chemicals etc.

TECHNOLOGY STATUS & ENERGY USE

The refractory manufacturing units use downdraft (DD) kilns, clamp (intermittent kiln, without permanent kiln), Movable Chimney Bulls Trench Kiln (MCBTK), Fixed Chimney Bulls Trench Kiln (FCBTK), High Draught Kiln, Vertical Shaft brick Kiln technologies, Zig-zag Kiln, crushers, pug mills, clay mixers, ball mills and filter presses in their processes. Slurry is prepared by mixing clay (60%) and refractory grog (40%) with water. Semi-automatic moulding machines are used to prepare 'green' mould of desired shape from the slurry. Thermal energy is required for heating of refractory bricks or products in DD kilns; coal and firewood are the main fuels used. Electricity is used to drive the motors in different equipment like crushers, mixers, ball mills etc.

TECHNOLOGIES DEVELOPED & TRANSFERRED

- High alumina brick from beach sand sillimanite (a) chemical bonding (b) ceramic bonding
- Synthetic high alumina aggregate (54-86% Al₂O₃)
- Low cement castable (45-90% Al₂O₃)
- Sintered high Al₂O₃ products (97-99.5% Al₂O₃)
- Rice husk ash nodules for heat insulation
- High alumina cement free self-flowing castable (70-95% Al₂O₃)
- Mag-chrome aggregate from friable chrome ore
- Rice husk ash insulating brick: (a) phosphate bonding, (b) chemical bonding
- Wear resistant ceramics
- Hydration resistant sintered lime and lime refractory products thereof.
- Magnesia spinel refractory for cement rotary kiln.

