

# **Bricks and blocks from fly ash, red mud, crusher dust and mineral/mining wastes**

## **Product/Process Profile**

Minerals of silico-aluminate family, existing in chain like three dimensional tetrahedral Si-O-Al-O polysialate hydrated structures, are known as mineral polymers. Based on this methodology, a mineral polymerization geopolymer technology has been developed for effective utilization of different materials and waste resources like, fly and bottom ash, red mud, crusher dust, slags etc. to address the issues of environmental pollution. The approach adopts non-fired green route and has the potential in making products like building bricks, blocks, tiles etc. for construction industry. The process feature involves a chemical transformation of oxides of iron, alumina, lime and silica bearing mineral constituents of the materials in formation of hydrous silicate structures which follows a pathway of gel formation and solidification where the product gains binding strength.

## **Application Area**

Cold setting building materials

## **Advantage**

Alkali activated and CO<sub>2</sub> negative green process, High volume fly ash utilization including other industrial and mining wastes.

## **Major Raw Materials/Plant Equipments/ Machinery/Gadgets**

Fly ash/red mud/metallurgical slag/mining/process tailing wastes etc  
Brick, block and concrete making machines with accessories, Chemical activator

## **Scale of Development**

Pilot scale (6000 bricks per day)

## **Validation Level**

Laboratory and industry level (up to 100000 bricks per day)

## **Commercialization Status**

Technology licensed to 4 major industries and 18 MSMEs all over India

## **Techno-economics**

Rs. 30, 00,000/- investment for production capacity of 10,000 fly ash bricks/day. Production cost @ Rs. 3.00 per brick.

Bricks meet the requirement of BIS Standards: IS:12894:2002; Compressive strength of class 7.5 and above.

## **IP Status**

Patent filed in India, Granted in US (product & process),

## **Technology Package**

Process details with demonstration and training

For further details, please contact: Dr S.M.Mustakim, Off: 0674-2379402, M-9439190757

