

## Annexure - II

### TECHNOLOGY FOR PRODUCTION OF CEMENT FREE HIGH STRENGTH FLY ASH BASED PAVEMENT BLOCKS

#### Description of Technology:

The present offer comprises of a technology package comprising Process / Product Technology of Base Composition and Product Technology of two special compositions. The Technology of base composition is mandatory and the party interested has the option to take any single product technology or the whole technology package.

#### 1. PROCESS TECHNOLOGY OF CEMENT FREE HIGH STRENGTH FLY ASH BASED PAVEMENT BLOCKS

#### 2. TECHNOLOGY OF MANUFACTURING VERY LOW COST PAVEMENT BLOCKS

#### 3. TECHNOLOGY OF MANUFACTURING ZERO ENVIRONMENTAL HAZARD PAVEMENT BLOCKS

#### Abstract

Currently, India generates annually about 112 million tonnes of fly ash (FA), as an industrial waste from thermal power plants. As part of the global journey to convert waste to wealth here we report the intelligent design based synthesis of FA based pavement blocks without using any cement at all. Compressive strength of the pavement blocks is 32 MPa which is better than market available products. Even the most conservatively estimated production cost of the pavement blocks made at CSIR-CGCRI is much lesser than the price of similar products available in the market.

#### Area required

About 1000 sq meter working space is sufficient for this purpose.

#### Description of the product

Dimension of pavement brick made at CGCRI- 24 cm x 10 cm x 4 cm.

Maximum Compressive strength of pavement block made at CSIR-CGCRI: 32 MPa\*

Compressive strength of pavement block available in Market : 22 -25 MPa\*

(According to ASTM Standard 'C 410' Compressive strength should be  $\geq 20$  MPa )

#### Cost Calculation of Fly ash based Pavement Bricks made at AMMCD, CSIR-CGCRI

Number of pavement Bricks- 10,00,000.

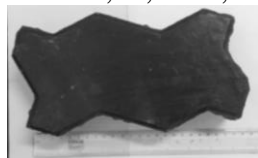
1. Weight of Fly Ash- 3000 Tons, Price- Rs. 40,00,000/-

2. Weight of Sodium hydroxide- 20 Tons, Price-Rs. 68,00,000/-

3. Price of Hydraulic Press (200 Tons) – Rs. 10,00,000/- (Non consumable)

4. Labour Cost Per Brick- Rs. 3/-, Total- Rs. 30,00,000/-

Total Cost per Brick- Rs. 11.20/- [Break up of Price Calculation : Total Cost/Total No of Blocks, Total Cost is Rs. 40,00,000/-+ Rs. 68,00,000/-+ Rs. 10,00,000/-+Rs. 30,00,000/-= Rs. 112,00,000/-, Total No of Blocks is 10,00,000]



Pavement Blocks made at CSIR-CGCRI

Market price of pavement bricks- Rs. 23/- to 25/-

\*At 28 days of curing.