

New flux-bonded technology for effective use of fly ash

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Available technologies for 'neutralising' pollutant fly ash tend to generally fly in the face of concerns over environmental impact.

This is because most of them can utilise at best 20-35 per cent of fly ash as a component in building materials, leaving the rest to linger in the environment.

ALTERNATE TECHNOLOGY

The demand for an alternate process/technology that can utilise higher volume fly ash has never been felt more at any point in the past than now.

This is where the flux-bonded fly ash technology developed by the CSIR's (Council for Scientific and Industrial Research) National Institute for Interdisciplinary Science and Technology (CSIR-NIIST)-Thiruvananthapuram makes a big difference.

The new technology uses fly ash to the extent of 80 per cent in typical building material, scientists claim. In turn, this has the potential to reduce the clay demand to less than 15 per cent.

"This technology provides a very unique and exclusive opportunity for effective utilisation of large volumes of fly ash, which is normally an industrial waste," a spokesman for the CSIR-NIIST said.

TECHNOLOGY TRANSFER

The technology has already been transferred to a company in the Telangana region of Andhra Pradesh. It is available for use on a non-exclusive basis, the spokesman added.

The technology is eco-friendly and 'the first of its kind' to utilise such high volumes of fly ash for conventionally kiln-fired products, the spokesman claimed.

Not only do bricks and tiles made using this technology have better properties than clay-based building components but the latter also retain colour similar to that of conventional 'fired bricks and tiles'.

All present day technologies utilise fly ash by making admixtures with high volume clay followed by firing or by using it with cement/lime/gypsum and curing.

SINTERED PRODUCT

In flux-bonded fly ash technology, fly ash with certain additives are shaped and fired for making clay-based building components.

The additives form a low melting point liquid such as glass, which further reacts with fly ash during firing and finally forms a hard sintered product.

In this process, the fly ash also develops a permanent 'red brick' colour, which is exactly the same as that of fired clays.

Flux-bonded fly ash products have strength of 80-20 kg/sq cm, density of 1.3-1.4 gm/cub cm and a water absorption capacity of 15-20 per cent.

COAL COMBUSTION

Fly ash is silica-rich fine powder, which is one of the residues generated in the combustion of coal. Release of fly ash into the atmosphere through smoke stacks has been known to create environmental problems.

Therefore, fly ash is generally captured from chimneys of thermal power plants and stored at the plant site or used as landfills along with other residual materials.

Keywords: [flux-bonded fly ash technology](#).

