



## **Indian Standard IS 10153 : 2021 - Utilization of Fly Ash Guidelines**

**Fly ash** is a finely divided residue generated from coal combustion and is transported from the combustion chamber by exhaust gases in thermal power plants. With **over 100 million tonnes produced annually** in India, its proper utilization is essential to mitigate environmental concerns. The **Indian Standard IS 10153:2021** provides **guidelines for the effective utilisation** of fly ash in various sectors, ensuring **sustainable management**.

Fly ash can be utilised in multiple applications, particularly in construction and infrastructure. It plays a significant role in the **production of Portland pozzolana cement**, where it replaces a portion of cement, enhancing durability while reducing costs. It is also widely used in concrete mixtures, precast building components, and sintered lightweight aggregates. The production of fly ash bricks, blocks, and tiles has gained momentum due to their superior strength and thermal insulation properties.

The utilisation of fly ash in road and airfield pavement construction has been well established. It is utilized in lime-fly ash concrete, lean cement concrete, and fly ash bound macadam, offering improved load-bearing capacity and durability. It is also suitable for embankment construction and as a filling material for abandoned mines and low-lying areas, owing to its low bulk density and stability. In agriculture, it improves soil structure and water retention when mixed with topsoil.

Fly ash is collected through dry and wet systems, with proper guidelines ensuring compliance with BIS standards for specific uses. Indian Standards such as **IS 1489 (Part 1)** and **IS 3812 (Part 1 & 2)** define quality parameters for cement and concrete applications. Its utilization not only reduces land pollution but also enhances resource efficiency, making it a valuable component in sustainable development.

The **Fly Ash Utilization Notification** issued by the **Ministry of Environment, Forest and Climate Change (MoEFCC)** mandates thermal power plants to ensure 100% fly ash utilization within a specified timeframe. This regulation promotes eco-friendly disposal and encourages industries to integrate fly ash into various applications, reducing environmental impact and supporting circular economy initiatives.