



# Fly Ash

## Why in News

[National Thermal Power Corporation \(NTPC\)](#) Limited has invited **Expression of Interest (EOI) for sale of fly ash**, in its endeavour to **achieve 100% utilization of fly ash**, from the designated plants of the Middle East and other regions.

- **Fly Ash** is a **byproduct from burning of coal** in the thermal power generation.

## Key Points

- **Fly Ash:**

- **About:**

- It is **called fly ash because** it is transported from the combustion chamber by exhaust gases.
- It is collected from the exhaust gases by **electrostatic precipitators or bag filters**.
  - An **electrostatic precipitator (ESP)** is defined as a **filtration device** that is used to remove fine particles like smoke and fine dust from the flowing gas.
  - It is the commonly used device for air pollution control.

- **Composition:**

- Fly ash includes substantial amounts of silicon dioxide ( $\text{SiO}_2$ ), aluminium oxide ( $\text{Al}_2\text{O}_3$ ), ferric oxide ( $\text{Fe}_2\text{O}_3$ ) and calcium oxide ( $\text{CaO}$ ).

- **Properties:**

- **Resemble Portland [cement](#)** but is chemically different.
  - Portland cement is a binding material in the form of a finely ground powder that is manufactured by burning and grinding a **mixture of limestone and clay**.
  - Its chemical composition includes **calcium silicates, calcium aluminate and calcium aluminoferrite**.
- Exhibit **cementitious** properties.
  - A cementitious material is one that hardens when mixed with water.

- **Uses:**

- It is used in concrete and cement products, road base, metal recovery, and mineral filler among others.

- **Harmful Effects:**

- Fly ash particles are **toxic air pollutants**. They can trigger heart disease, cancer,

respiratory diseases and stroke.

- When combined with water they **cause leaching of heavy metals** in ground water.
- It also **pollutes the soil**, and affects the root development system of trees.

#### ▪ **Fly Ash Utilisation:**

- NTPC has **collaborated with Cement manufacturers** around the country to supply Fly Ash.
- To promote the use of Fly Ash bricks in building construction, NTPC has set up **Fly Ash brick manufacturing Plants at its Coal based Thermal Power Plants.**
  - These bricks are being **utilized in Plants as well as township construction activities** exclusively.
  - On average, 60 million Fly Ash bricks are being manufactured annually by NTPCs own Fly Ash brick Plants.
- As per the MoEF&CC directives, NTPC stations must keep at least **20% of total Fly Ash produced** in reserve for the issue to Fly Ash brick/blocks/tiles manufacturers and issuing Fly Ash free of cost to them.
  - About 9% of the total Fly Ash produced in NTPCs stations, is being utilized by Fly Ash bricks/blocks and tiles manufacturing units annually.
- During the year 2020-21, almost 15 NTPC stations supplied Fly Ash to various Road projects and Ash utilization crossed by nearly 20 million tonnes.
- Over the last five years the fly ash utilisation has grown up by 80% in the country.
- **Pradhan Mantri Awas Yojana (Urban)** has focused on new construction technologies such as **using fly ash bricks** that are innovative, and environmentally friendly.
- Even state governments have come out with their Fly ash utilization policies, e.g. **Maharashtra was the first state to adopt the policy.**
- A **web portal for monitoring of fly ash generation and utilization and a mobile based application** titled **"ASHTRACK"** has been launched by the Government.
- **GST** rates on fly ash and its products have been reduced to 5%.

#### **NTPC**

- NTPC Ltd. is a **central Public Sector Undertaking (PSU) under the Ministry of Power.**
- **Aim:** To provide reliable power and related solutions in an economical, efficient and environment-friendly manner, driven by innovation and agility.
- It became a **Maharatna company** in May 2010.
- India's largest power generating company.

**[Source:PIB](#)**

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