



## Fly Ash

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### Why in News

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Recently, **National Thermal Power Corporation (NTPC)** has developed an infrastructure to transport **fly ash** from power plants in bulk to cement plants, at a cheaper cost.

- It will pave the way for **efficient and environment friendly** transportation.
- This development is in line with NTPC's commitment towards **100% utilization of fly ash from power plants**. At present, 63% of the fly ash is being utilised in India.

### Key Points

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## **Fly Ash:**

- **Definition:** It is a **byproduct from burning of coal** in electric power generating plants.
  - 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.
- **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.

## **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.
- It is located in **New Delhi**.

**Source: PIB**