Microcrystalline Cellulose (MCC)

Prelims: *Current events of National and International Importance*

Why in news?

Recently 36 workers were killed at the factory in the explosion of the Microcrystalline Cellulose (MCC) drying unit at Sigachi Industries, Hyderabad.

- **Microcrystalline Cellulose (MCC)** – It is a chemically inert, derived from purified and partially depolymerized cellulose, commonly sourced from wood pulp or cotton linters.

  Chemically inert means that a substance has very low reactivity and does not readily form chemical bonds with other substances.

- The human body does not absorb it and so the skin shows no reaction.
- **Unique property –** Its ability to form strong compacts and facilitate drug release, make it an essential component in various drug products.

Key Applications

- **Pharmaceuticals** – It is widely used as a binder, filler, Disintegrant and texturiser.
- **Binder** – It helps in forming cohesive mass of powder during tablet manufacturing, holding the drug and other excipients together.
- **Disintegrant –** It aids in the breakdown of tablets in the body, allowing for faster drug release.
- It also helps to maintain drug weight
- **Filler** – It provides bulk to the tablet, especially when the drug dose is low, and ensures active ingredients function effectively.
- **Food industry** – It is used as an anti-caking agent and fat substitute.
- It also adds texture to processed foods.
- **Cosmetics** – It is used in creams, powders, and makeup for consistency and texture.
- **Safety concerns in manufacturing –** Though MCC is safe for consumers, its manufacturing involves hazardous processes.

- It requires strict safety protocols, trained personnel, and equipment maintenance.
- **Concerns** – Global scrutiny expected on manufacturing standards and adherence to safety norms.
- India's pharma industry is a major foreign exchange earner.
- **Recommended safety practices –** HAZOP (Hazard and Operability Study) must be conducted by qualified experts.
- Continuous monitoring of plant data for abnormalities.
- Operators must be trained and maintain high safety awareness.
- Strict adherence to global safety standards to avoid future tragedies.

Reference

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