Hydrogen Peroxide

Source: PIB

Researchers have developed an **efficient, eco-friendly, and energy-saving** method for synthesizing **hydrogen peroxide (H_2O_2).** using a **hydrazone-linked Covalent Organic Framework (COF).**

- **The COF enables H_2O_2** production under **visible light without external sacrificial electron donors** or additional reagents, making it a cleaner and more efficient alternative to conventional methods.
- **About Hydrogen Peroxide (H_2O_2)**: It is a **colorless liquid** with a **bitter taste** at room temperature, highly **unstable**, and **decomposes into oxygen and water**, releasing heat.
- **Uses: Antiseptic** for wounds (diluted solutions), disinfectant in hospitals and clinics.
    - **Industrial Uses: Bleaching agent** in paper, textile, and cosmetic industries.
    - **Rocket Propulsion:** High-concentration H_2O_2 used as a **propellant**.
    - **Chemical Applications:** Employed in **food processing** for sterilization.
    - **Hazards:** It is a **strong oxidizer** and may cause **spontaneous ignition** with combustible materials.
- Peroxide chemicals are **organic compounds** that contain a peroxide functional group (**two linked oxygen atoms**).

Read More: Explosive Substances Act and Peroxide Chemicals