

HYDERACENE

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HYDERACENE Latest News

The University of Hyderabad (UoH) recently secured an Indian patent for HYDERACENE, a dual-action material designed specifically for rocket propellants and high-performance defence applications.

About HYDERACENE

- It is a **novel polymer-based material** developed for **use in solid rocket propellants** for **defence and space applications**.
- The innovation was developed by Mutyalanaidu Ganivada, Sourav Jana, and Tushar Jana of the School of Chemistry, with the **University of Hyderabad** as the **patentee**.
- The patented material, formally described as Ferrocene Polyethylene Glycidyl Grafted Hydroxyl-Terminated Polybutadiene, was synthesised using ring-opening polymerisation.
- **Why is this Innovation Significant?**
 - In **conventional solid rocket propellants**, **two critical components** are required:

- The **Binder**: A **glue-like polymer** that **holds all active fuel components together** while providing structural integrity.
- The **Catalyst**: A specialized **chemical additive** that **speeds up and controls the burning rate** of the propellant.
- **Traditionally**, these are **two separate materials**. **HYDERACENE** acts as **both at the same time—a polymer binder-cum-catalyst**.
- This **improves long-term stability** by **preventing** the **catalyst from separating from the binder** over time and enables **more controlled and efficient combustion** in solid rocket motors.
- Hyderacene has also been developed as an **indigenous alternative to Butacene**, a **commercially used material** in aerospace and defence applications.
 - **BUTACENE** is largely imported from **European countries**.
- Named after the city of Hyderabad, the patented material is designed for use in high-performance rocket propellants and other advanced defence **applications requiring controlled burn rates and improved propulsion efficiency**.

News: NIE

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