

What are Aerogels?

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About Aerogel:

- Aerogels are among the **lightest solid materials**.
- They are created by **combining a polymer** with a **solvent to form a gel**, and then removing the liquid from the gel and replacing it with air.
- **Properties:** They are extremely **porous and very low in density and** they offer advantages like adjustable surface chemistry
- They are also known as **'solid air'** or **'frozen smoke'** are excellent adsorbents (a solid substance used to remove contaminants) and are incredibly lightweight solids composed mostly of air.
- Aerogels are most preferred in **environment and oil spill clean up**, for insulation purposes

Key facts about the newly developed Hybrid Aerogel

- Researchers have designed and synthesised aerogel: the sponge-like absorbents, light in weight and porous synthetic materials for this purpose.
- The aerogel's unique structural composition was **treated with iron nitrate salts** and maintained at room temperature for about two to five minutes.

- This specially designed aerogel was found to be **effective in extracting** and retrieving upto 99 per cent of **gold ions from the e-waste**.
 - In daylight, the hybrid aerogel could extract 1689mg/gram of e-waste and 2349mg / gram under blue light.
 - As there were dual processes involved, that of adsorption and reduction — the quality of the recovered gold was **reasonably pure** thereby reducing the need for further purifying processes.
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Q1: What is Porosity?

The porosity or void fraction is a measurement of the void or empty spaces of a material and is defined as the ratio between the volume of voids and the total volume.

News: [IISER Pune team develops hybrid aerogel to extract gold from e-waste](#)

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