



Xenon Gas

Source: TOI

Four **British climbers** are the first to reach **Mount Everest's summit** using **Xenon gas** by speeding up their **acclimatisation**.

- **About Xenon Gas: Xenon (stranger gas)** is a **rare, colourless, odourless, chemically stable, and non-reactive gas** found in **trace amounts** in Earth's atmosphere. It is available in **solid, liquid, and gaseous** states.
 - Commercially, xenon is obtained as a **by-product** of the **air separation process**, where air is **fractionally distilled** into **oxygen and nitrogen**.
 - Xenon is a **noble gas (inert gas)** and therefore they **do not react** with any other elements. However, xenon can **form compounds** with **fluorine and oxygen**.
- **Applications of Xenon:**
 - **Mountaineering:** It has **neuroprotective properties** that enhances **oxygen delivery**, supports **acclimatisation**, and guards against **altitude sickness** and **hypoxia-related damage**.
 - **Medical:** It acts as a **natural anesthetic** and, when inhaled with oxygen, stimulates **hormone production** that increases **red blood cell count**. It is also used to **measure blood flow** and **image the brain, heart, and lungs**.
 - **Lighting:** Used in **high-intensity lighting** such as **flash lamps, strobe lights, and car headlights** because it emits **bright white light**.
 - **Industry: Xenon** is used in **nuclear energy plants**, as **filling gas in tubes for televisions and radios**, and for **etching silicon microprocessors** using **xenon difluoride**.
 - **Space Exploration:** Used as **fuel for ion propulsion systems** in **satellites** and **deep-space missions**.
- **Toxicity:** Xenon compounds are **strong oxidizing agents** that are **highly toxic** and **explosive**.

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