



Helium Crisis for India

Why in News

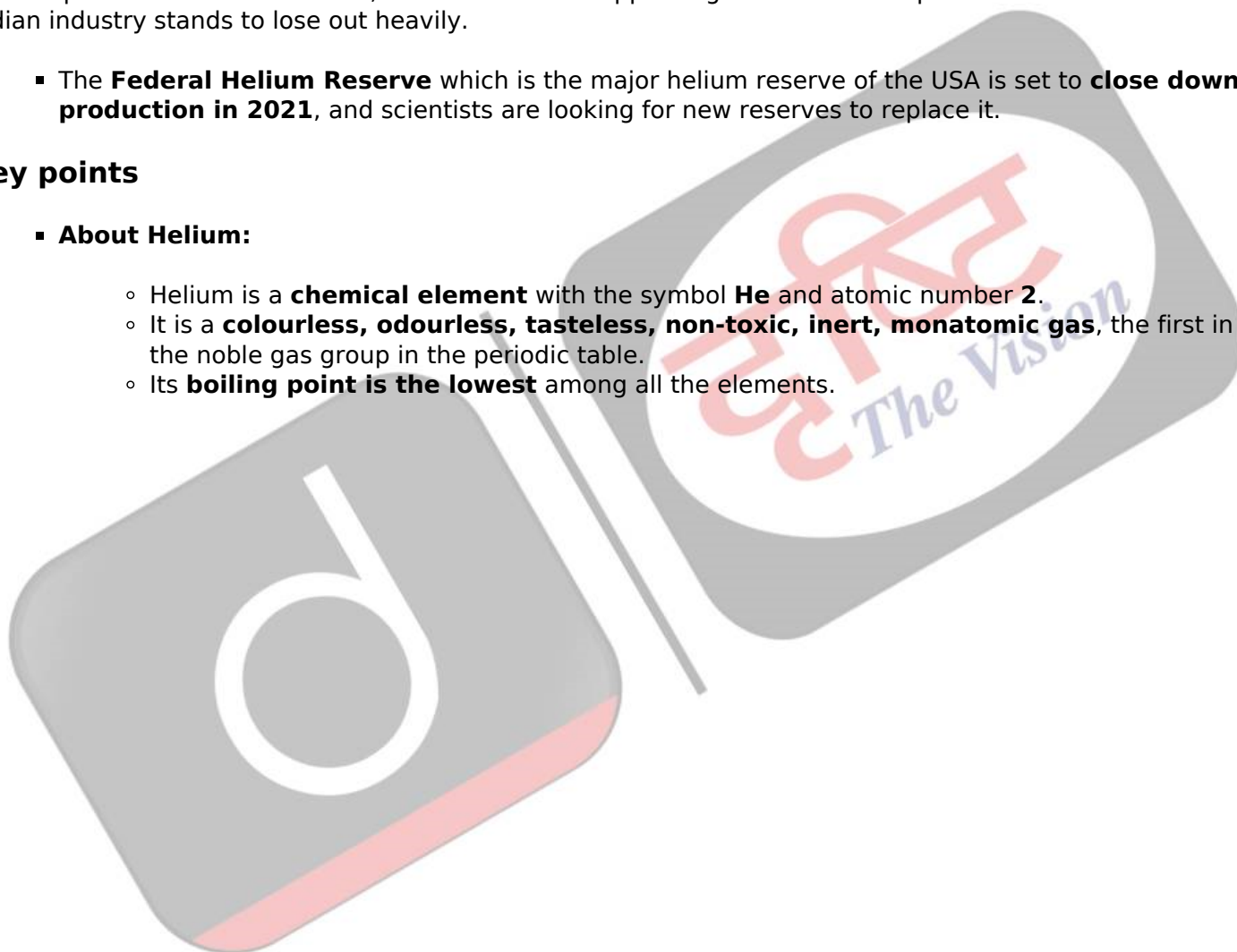
India imports helium for its needs, and with the USA appearing set to cut off exports of helium since 2021, Indian industry stands to lose out heavily.

- The **Federal Helium Reserve** which is the major helium reserve of the USA is set to **close down production in 2021**, and scientists are looking for new reserves to replace it.

Key points

- **About Helium:**

- Helium is a **chemical element** with the symbol **He** and atomic number **2**.
- It is a **colourless, odourless, tasteless, non-toxic, inert, monatomic gas**, the first in the noble gas group in the periodic table.
- Its **boiling point is the lowest** among all the elements.



Helium Market

2019-2027

Market by Region, 2019



~4% CAGR
(2019-2027)
Market Value, 2027
~US\$ 3.5 Bn

Key Industry Insights



Growing Application of Helium in Cryogenic Devices



Helium-3 Found Useful to Diagnose Lung Diseases, with Improved Real-time Imaging

Application



■ Cryogenics ■ Pressurizing & Purging
■ Welding ■ Controlled Atmosphere
■ Leak Detection ■ Breathing Mixture
■ Others

End User

■ Others ■ Energy & Power
■ Defense ■ Aerospace
■ Electronics & Semiconductors ■ Healthcare

Discovery of Helium:

Atmosphere Surrounding the Sun:

- Helium was discovered **in the gaseous atmosphere surrounding the Sun** by the **French astronomer Pierre Janssen**, who detected a bright yellow line in the spectrum of the solar chromosphere during an eclipse in **India** in the year **1868**.
- **Joseph Norman Lockyer** recorded the same line by observing the sun through London smog and, assuming the new element to be a metal, he **named it helium**.

On Earth:

- The British chemist **Sir William Ramsay discovered** the existence of **helium on Earth in 1895**.

In India:

- **In 1906** a young Englishman by the name of Morris Travers **extracted helium in small quantities by heating up monazite sand** abundantly available in Kerala beach, in a pioneering effort.
 - **Monazite** is a primarily reddish-brown phosphate mineral that contains rare-earth elements.

Indian Reserves:

- India's **Rajmahal volcanic basin in Jharkhand** is the storehouse of helium trapped for billions of years, since the very birth of Earth from the Sun.
- At present, researchers are mapping the Rajmahal basin extensively for future exploration and harnessing of helium.

▪ **Need for India:**

◦ **To Reduce Import Burden:**

- Every year, India imports helium worth Rs. 55,000 crores from the USA to meet its needs.

◦ **Vast Use:**

- Helium is used in medicine, scientific research, for blimp inflation, party balloons as well as for welding applications.
- It finds many applications, mainly in magnetic resonance imaging (MRI) scans, in rockets and in nuclear reactors.

▪ **USA's Monopoly:**

- After discovering that helium was concentrated in large quantities under the **American Great Plains**.
- The **USA became the most important exporter of helium** across the world.
- It was soon realized that the **USA was also the biggest storehouse of helium**.

▪ **Other Option:**

- **Qatar** is a possible exporter but acute political and diplomatic wrangles have made Qatar **unreliable**.

[Source:TH](#)

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