

Ringwoodite

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About Ringwoodite

- It is a fascinating mineral that exists in the **Earth's transition zone**.

- It has a unique crystal structure that allows it to **absorb water and hydrogen**, acting like a sponge. This mineral can hold a significant amount of water.
- It is a rare **type of mineral** that forms from olivine under very **high pressures and temperatures**.
- The weight of hundreds of kilometers of rock and very high temperatures above 1,000 degrees Celsius (1,832 Fahrenheit) break down water into its components.
- When the minerals containing this water reach certain depths, they break down in a process called dehydration and release the water to form magmas.
- Such “dehydration melting” is common in the shallow mantle and forms the source for magmas in many volcanoes.

Implications for Earth’s water cycle

- The discovery of this deep water reservoir has significant implications for our understanding of the **Earth’s water cycle**.
- It suggests that water can be transported to the Earth’s surface from deep within its mantle, contributing to the water found in oceans, rivers, and lakes.

This internal water source could also play a role in **volcanic activity and the formation of new crust**.

Q1: What are Critical Minerals?

A mineral is critical when the risk of supply shortage and associated impact on the economy is (relatively) higher than other raw materials. These minerals are essential for economic development and national security.

Source: [Gigantic Ocean Discovered 700 km Below Earth’s Surface, Holds Three Times More Water Than All Oceans Combined](#)

Source: <https://vajiramandravi.com/current-affairs/ringwoodite/>

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