

Green Metals

Chalice Mining is a Western Australian company with a track record of responsible and successful mineral exploration. Our vision is to become a globally recognised specialist 'green metal' explorer and developer.



About Chalice

In March 2020, Chalice made a significant discovery of platinum group elements (PGEs), nickel, copper, cobalt and gold at the Julimar Project, located on private farmland near Toodyay, about 70 km north east of Perth.

Large-scale deposits of these metals are extremely rare and the Gonneville deposit at Julimar is one of the largest discoveries in recent Australian history.

As the world transitions to a net-zero economy, it is becoming clear that green metals like those found at Julimar have a crucial role to play in an electrified world powered by renewables and green hydrogen.

As such, Chalice has a clearly defined purpose to discover, define and deliver world-class sustainable green metal projects in Australia, beginning with Julimar.

What are “green metals”?

Green metals are a critical suite of metals which are required to decarbonise the global economy and address climate change. They achieve this by enabling the development and manufacture of new green technologies like wind, solar, electric vehicles and green hydrogen.

PGEs is the collective term used for the six platinum-group metals (platinum, palladium, ruthenium, rhodium, osmium and iridium). These metals are soft, flexible, resistant to corrosion and excellent in catalytic applications (facilitating chemical reactions).

The green metals include those found at Julimar:

- » **Platinum and Palladium (PGEs):** used in catalytic converters to reduce greenhouse gas emissions in vehicles, as well as in green hydrogen production and hydrogen fuel cells.
- » **Nickel and Cobalt:** used in electric vehicle and other high-powered lithium-ion battery applications.
- » **Copper:** used throughout the electricity and consumer electronics sectors, including in renewable energy, energy storage and electric vehicles.

The role for Chalice and Julimar

Russia and South Africa currently dominate the world's production of PGEs and Australia has never had a major PGE mine. In order to strengthen supply chain resilience and ensure green technologies are affordable for future adoption, it is critically important that Australia explores and develops new green metal mines.

The Julimar discovery lays the foundations for Western Australia to be at the forefront of a new wave of supply of these critical metals.

Get in touch

community@chalicemining.com | (08) 9322 3960

For more information visit:

www.chalicemining.com/community-julimar-project





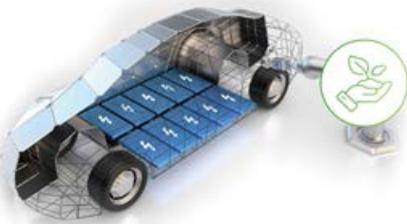
Chalice is building a green metals portfolio



Platinum & Palladium

Highly versatile but rare metals used to remove nitrogen oxides (NOx) from exhausts/hydrogen/ammonia streams. NOx are **300x more potent than CO₂ as a greenhouse gas**. Also highly effective catalysts for use in hydrogen applications, including green hydrogen production and fuel cells.

~11Moz p.a. palladium market in deficit since 2012; with supply dominated by Russia. Platinum supply dominated by South Africa, with significant political and operational challenges.



Nickel and Cobalt

The key battery cathode materials in electric vehicles (EV), **high nickel NMC 811 batteries are the favoured chemistry**.

EV-driven nickel demand is forecast to increase 19x by 2040; lack of new sulphide discoveries worldwide in recent years has created a significant forecast supply shortage.



Copper

Used extensively in the green energy industry including in **renewables, energy storage and EVs**.

Copper market is forecast to remain in deficit until 2026; lack of new large-scale discoveries worldwide.

These metals are needed to **decarbonise the global economy and address climate change**