**Overview**

- New South Wales hosts large, ultrapure, cryptocrystalline and nodular deposits, as well as widespread regolith-hosted replacement deposits.
- Boutique opportunities exist for agricultural and specialist applications.
- World magnesite supply has been impacted by modernisation in China reducing its export capacity. Western nations are seeking other suppliers, so there is strong demand from local and international markets.

**Geological setting**

Magnesite ($\text{MgCO}_3$) is rhombohedral (47.8% MgO and 52.2% CO$_2$ when pure) and occurs as a solid solution with siderite ($\text{FeCO}_3$).

Deposits in New South Wales are typically:
- ultrafine-grained (crypto- to micro-crystalline or ‘bone’)
- coarse-grained ‘sparry’

**Development opportunities**

- Large, high-grade colluvial channel-hosted deposits (e.g. Thuddungra and nearby Noakes, Baileys Magnesite deposit etc.)
- Weathered ultramafic intrusions (e.g. Fifield)
- Nepheline olivine basalts and leucitites (Cargelligo deposits, e.g. Whitton Road)
- Vein-style silica-carbonate deposits (Piedmont and Attunga)

**Exploration opportunities**

- Clarence–Moreton Basin: Sedimentary deposits may occur near the Gordonbrook Serpentinite
- Great Serpentinite Belt: smaller vein-style (Krubath-type) are widespread
- Delamerian Orogen: Potential for large, sparry deposits
Project highlights

Thuddungra Magnesite mine: (measured resource) 3.8 Mt @ 55.1%, MgCO₃. Currently produces 30 000 tpa (~12% of national supply). The ore is cryptocrystalline and nodular, of exceptional quality (>99.8% MgCO₃) and suitable for refractories and pharmaceuticals. It includes lower-grade bulk material suitable for a wide range of applications.

Additional ore occurs at the nearby Noakes and Baileys Magnesite deposits.

Noakes: (measured resource) 12.6 Mt @ 43.0% MgCO₃.

Fifield Magnesite mine produced ~895 000 tonnes hard magnesite (99.19% MgO calcined).

The nearby BHP Magnesite mine produced ~1 Mt of magnesite.

Cincinatti mine has existing mine infrastructure.

Cargelligo (Whitton Road deposits) has numerous deposits of 93.4–97.3% MgCO₃ with ferric oxide from 0.5–1.8%.

World magnesia production (from magnesite) by country

- China 49%
- Russia 12%
- North Korea 2%
- India 3%
- Greece 2%
- USA 2%
- Brazil 5%
- Austria 5%
- Australia 3%
- Turkey 6%
- Spain 3%
- Others 3%
- Slovakia 5%

Total resources in Australia = 330 Mt

- 69% dead-burned magnesia
- 31% caustic calcined magnesia

Source: http://www.indmin.com/magnesia.html

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