

CRITICAL MINERALS IN AUSTRALIA

Moore Global is a leading niche mining advisory and assurance professional services firm providing a world-class service to our clients. The multi-disciplinary and multi-commodity professional team spans the Moore Global Member Firm network with specialist teams in centres of excellence in key markets. Critical minerals has become a particular area of focus across the value chain and across Sectors in the Moore Global network.

What is a Critical Mineral?

A critical mineral is a metallic or non-metallic element essential for modern tech, economies, or national security, and has a supply chain at risk of disruption.

Which Minerals Are Critical Minerals?

The answer may vary depending on who you ask, as a mineral that one country may consider critical, may be abundant for another, though as an example, the Australian Government considers 26 resource commodities to be critical minerals, and have been selected by assessing their own access to resources, in addition to the needs and capabilities of their trading partners. Their critical minerals and their corresponding production in 2021 is presented in the table below (in no particular order):

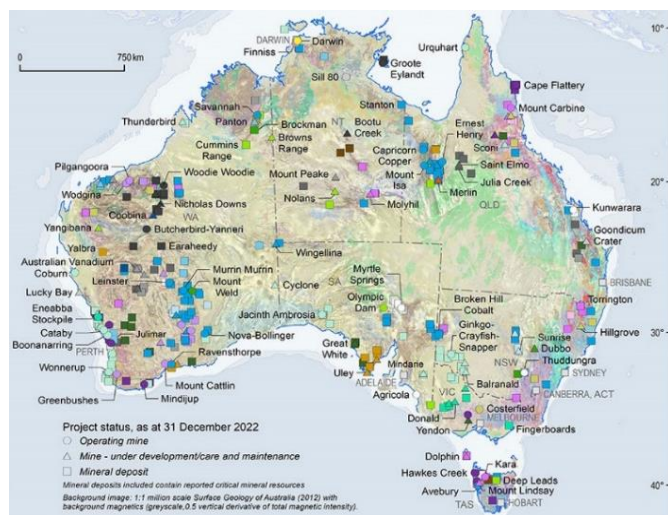
Critical Mineral	US list ^[2]	EU list ^[3]	Japan list ^[4]	India list ^[5]	Australian Geological Potential ^[6]	Australian Economic Demonstrated Resources (2021) ^[7]	Australian Production (2021) ^[7]	World Mine Production (2021) ^[7]
High-purity alumina	✓	✗	✗	✗	Moderate	16.72 Mt	0	No data
Antimony	✓	✓	✓	✓	Moderate	136.5 kt	3.4 kt	109 kt
Beryllium	✓	✓	✓	✓	Moderate	No data	No data	260 t
Bismuth	✓	✓	✓	✓	Moderate	No data	No data	19 kt
Chromium	✓	✗	✓	✓	Moderate	0	0	41,400 kt
Cobalt	✓	✓	✓	✓	High	1,582 kt	5.3 kt	165 kt
Gallium	✓	✓	✓	✓	High	No data	No data	430 t
Germanium	✓	✓	✓	✓	High	No data	No data	140 t
Graphite	✓	✓	✓	✓	Moderate	7,970 kt	0	1,000 kt
Hafnium	✓	✓	✓	✗	High	14.5 kt	No data	No data
Helium	✗	✗	✗	✗	Moderate	No data	4 hm 3	160 hm 3
Indium	✓	✓	✓	✓	Moderate	No data	No data	920 t
Lithium	✓	✓	✓	✓	High	6,700 kt	55 kt	105 kt
Magnesium	✓	✓	✓	✗	High	286,000 kt	894 kt	30,000 kt
Manganese	✓	✗	✓	✗	High	277,000 kt	4,900 kt	19,500 kt
Niobium	✓	✓	✓	✓	High	216 kt	No data	75 kt
Platinum-group elements	✓	✓	✓	✓	Moderate	247.7 t	0.470 t	380 t
Rare-earth elements	✓	✓	✓	✓	High	4,260 kt	23 kt	240 kt
Rhenium	✗	✗	✓	✓	Moderate	157 t	No data	59 t
Scandium	✓	✓	✗	✗	High	36.65 kt	0	No data
Silicon	✗	✓	✓	✓	High	No data	No data	8 kt
Tantalum	✓	✓	✓	✓	High	104.4 kt	0.1 kt	2.1 kt
Titanium	✓	✓	✓	✗	High	307,600 kt	800 kt	15,000 kt
Tungsten	✓	✓	✓	✗	High	570 kt	<1 kt	79 kt
Vanadium	✓	✓	✓	✓	High	8,110 kt	0	110 kt
Zirconium	✓	✗	✓	✓	High	78,600 kt	500 kt	1,600 kt

Which Minerals Are Critical Minerals? (cont.)

Some of these have become household names – such as Lithium and Graphite (both crucial ingredients in rechargeable batteries), whereas others aren't as well-known but are integral to many of the luxuries of 21st century life – such as Niobium which is used to make super-conducting magnets in MRI machines.

Where are these Critical Minerals?

Australia possesses a diverse and significant distribution of critical minerals, contributing to its global prominence as a resource-rich nation. Abundant reserves of minerals like lithium, rare earth elements, and cobalt are spread across various regions, with Western Australia, Queensland, and the Northern Territory standing out as key hubs.



- Commodity type**
- Aluminium (HPA)
 - Antimony
 - Bismuth, +/- Cobalt, +/- Indium
 - Chromium, +/- Cobalt, +/- PGE
 - Cobalt
 - Platinum Group Elements (PGE), +/- Cobalt
 - Scandium, +/- Cobalt, +/- PGE
 - Graphite
 - Helium
 - Indium
 - Lithium, +/- Tantalum, +/- Niobium
 - Magnesium
 - Manganese ore
 - Heavy Mineral Sands (HMS) - Titanium, Zirconium
 - HMS - Titanium, Zirconium, REE
 - Rare Earth Elements (REE)
 - REE, Zirconium, Niobium, +/- Hafnium, Lithium, Tantalum, Gallium
 - Rhenium
 - Silicon
 - Tungsten
 - Titanium
 - Titanium, Vanadium
 - Vanadium

To find out more about the opportunities for your business in the Energy, Mining and Renewables sector, please contact one of our Moore experts below.



DAVID TOMASI
Moore Global EMR Sector Leader
Moore Australia
david.tomasi@moore-australia.com.au



DARBY YOUNG
Moore Global Analyst Disruptor
Moore Australia
darby.young@moore-australia.com.au