

## INVESTMENT OPPORTUNITIES

## Mines, deposits, prospects and occurrences

- [illegible]

- Western Australia is one of the world's leading suppliers of titanium (from ilmenite, rutile and leucoxene) and zircon
- Heavy minerals were exported to 35 countries in 2018, valued at \$1433 million
- All current titanium and zirconium production is from heavy mineral sands deposits within the Perth Basin
- There is also significant potential for titanium and zircon in layered mafic intrusions and alkaline igneous rocks. Resources of these types are often associated with other valuable minerals such as vanadium, rare earth elements and platinum group elements
- Production of the State's titanium minerals is dominated by Iluka Resources, Tronox and Doral

- Cataby – commissioned June 2019
- Boonanarring – commissioned December 2019

- The mineral reserve for the Thunderbird deposit has increased to 748 Mt at 11.2% heavy minerals (HM), within a total resource of 3.23 Bt at 6.9% HM



‡ Includes projects planned, possible, committed or under construction as of September 2019



## Selected titanium–zircon resources in heavy mineral sands (placer deposits)

Project/deposit	Project/mine status	Project owner	Resource (Mt)	Grade THM (%)	Contained HM (Mt)	Mineral Assemblage Grade (%)			
						Ilmenite*	Leucocoxene*	Rutile*	Zircon
Thunderbird – Dampier project	Proposed	Sheffield Resources Ltd	3 230.0	6.9	223.0	28.00	5.8	NA	8.3
McCalls	Active exploration	Sheffield Resources Ltd	5 800.0	1.4	84.0	79.00	3.1	2.4	4.7
Eucla West	Exploration	Forge Resources Crown Ltd	470.0	4.6	21.5	NA	NA	NA	NA
Coburn (Amy)	Proposed	Strandline Resources Ltd	1 606.0	1.2	19.6	48.00	5.0	7.0	22.0
Port Gregory Garnet	Operating	GMA Garnet Pty Ltd	158.7	9.1	17.4	6.00	NA	NA	NA
Balline	Active exploration	Garnet Australia Ltd	385.5	3.5	13.7	2.45	18.1	1.3	1.2
Cooljarloo	Operating	Tronox Ltd	501.0	1.8	9.0	60.60	2.4	5.2	10.1
Scott Coastal Plain – Governor Broome	Active exploration	Astro Resources Ltd	170.0	4.1	7.0	NA	NA	NA	NA
Scott River	Active exploration	Tronox Ltd	87.3	7.1	6.2	62.10	0.3	NA	3.7
Dongara	Proposed	Tronox Ltd	163.9	3.7	6.1	48.70	2.8	6.1	10.9
Eneabba	Active exploration	Sheffield Resources Ltd	193.3	3.0	5.7	60.00	4.2	6.8	12.0
Cyclone	Proposed	Diatreme Resources Ltd	203.0	2.3	4.7	13.00	32.0	3.0	27.0
North Perth Basin – Dredge	Active exploration	Image Resources Ltd	236.2	2.1	4.9	74.10	3.1	2.9	8.6
Night Train – Dampier project	Active exploration	Sheffield Resources Ltd	130.0	3.3	3.6	22.00	46.0	5.4	14.0
Cooljarloo West	Proposed	Tronox Ltd	177.0	1.8	3.2	60.50	2.9	5.0	12.2
Cooljarloo Northwest	Active exploration	Tronox Ltd	141.6	2.1	3.0	NA	NA	NA	NA
Keysbrook	Operating	Doral Pty Ltd	139.0	2.0	2.8	NK	82.1	NA	12.0
Boonanning	Operating	Image Resources Ltd	43.5	5.6	2.4	49.00	2.2	2.6	18.4
Jangardup	Active exploration	Strategic Sands Ltd	36.7	6.9	2.5	77.50	4.1	3.6	9.9

\* Titanium-bearing mineral NK – not known NA – not applicable

## Titanium resources in mafic and ultramafic layered intrusions

Project	Status	Project owner	Resources (Mt)	TiO <sub>2</sub> (%)	Contained TiO <sub>2</sub> (kt)
Balla Balla	Proposed	The Todd Corporation	455.9	13.7	63.0
Speewah	Exploration	King River Resources Ltd	1 240.0	3.3	40.9
Buddadoo	Exploration	Coziron Resources Ltd	204.7	13	26.7
Victory Bore	Exploration	Surefire Resources NL	151.0	6.7	10.2
Barrambie	Exploration	Neometals Ltd	25.7	21.17	5.4
Unaly Hill	Exploration	Surefire Resources NL	86.2	4.5	3.9
Gabanintha	Proposed	Technology Metals Australia Ltd	29.6	10.1	3.0
Medcalf	Exploration	Audalia Resources Ltd	32.0	9.0	2.9
Australian Vanadium Project	Proposed	Australian Vanadium Ltd	18.4	9.2	1.7

## Zircon resources in alkaline igneous rocks

Project	Status	Project owner	Resources (Mt)	ZrO <sub>2</sub> (%)	Contained ZrO <sub>2</sub> (kt)
Brockman	Exploration	Hastings Technology Metals Ltd	41.4	0.9	371.6
Mt Weld REE	Exploration	Lynas Corp. Ltd	37.6	0.3	113.4

 Felsic volcanoclastic rock  Carbonatite

### For more information



Geological Survey of  
Western Australia

[www.dmirs.wa.gov.au/gswa](http://www.dmirs.wa.gov.au/gswa)



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September 2019

Geological Survey of  
Western Australia

