

TITANIUM

INVESTMENT OPPORTUNITIES

**WORLD-CLASS RESOURCE PROVINCE | SECURE INVESTMENT LOCATION
WORLD-LEADING GEOSCIENTIFIC DATA | GLOBAL MINING SERVICES INDUSTRY**

Deposits and prospects

- Ti-V in orthomagmatic mafic-ultramafic layered intrusions
- Ti-REE in carbonatite and alkaline igneous
- Ion-adsorption clay host rock Ti-REE hosted ion-adsorption deposits
- Ti in regolith and sedimentary rocks
- Ti in placer deposits (Heavy Minerals)
- Highway / major road
- Town



Western Australia has the potential to host world-class titanium deposits

- In Western Australia titanium mineralisation (excluding in weathered or fresh heavy mineral sands) occurs within mafic and ultramafic layered intrusions, as well as carbonatites and recently, within a sedimentary basin (i.e. Pitfield Project)

Project stages

- Several projects are at the Pre-Feasibility and Feasibility stages including Speewah (Tivan), Balla Balla (BBI Group), Australian Vanadium (Australian Vanadium), Victory Bore (Surefire Resources), Barrambie (Neometals), and Medcalf – Bremer Bay (Audalia Resources) Projects

Resources

- A maiden Mineral Resource estimate (MRE) was released for the Pitfield Project (Empire Metals) of 2.2 Billion tonnes at 5.1% TiO₂ in October 2025
- A maiden MRE was released for the Dante Project (Terra Metals) of 148 Mt at 14.76% TiO₂ in August 2025
- Updated MREs were released for the Australian Vanadium Project of 395.5 Mt at 9.28% TiO₂ in May 2024 and the Salazar Project of 42 Mt at 3.13% TiO₂ in October 2024

Exploration

- In June 2025, high-purity titanium of up to 99.95% was achieved at the Pitfield Project (Empire Metals) through beneficiation, leaching and refining processes. The highest TiO₂ grades are in the weathered cap at surface, containing predominantly anatase and rutile
- High-grade titanium test work produced a commercial titanium-iron product grading 43.8% TiO₂ at the Manindi Project (Metals Australia)
- Thick, high-grade titanium mineralisation was identified at the Mangaroon Project (Dreadnought Resources) with up to 89 m intersected at 8.9% TiO₂ in weathered and fresh carbonatite
- In March 2025, up to 33 m at 2% TiO₂ was intersected at the Arunta West Project (Norwest Minerals). Thick intersections of up to 79 m with high results of up to 24% TiO₂ were recorded at the Dante Project (Terra Metals)

Western Australia titanium statistics (Heavy Mineral Sands) data (2024–25 financial year)

\$183 m (Ti)*	268,172 t (Ti)*	2,981†	\$1,090 m††	5%
Sales value	Tonnes sold	Full-time employees	Investment projects	Royalty rate

† For all heavy minerals (zircon, ilmenite, rutile, leucoxene and garnet)
 †† Includes projects planned, possible, committed or under construction as of September 2025
 # includes ilmenite, leucoxene and rutile



Department of Mines,
Petroleum and Exploration

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Geological Survey of
Western Australia

Titanium projects with resources >2% TiO₂ ranked by contained TiO₂ (Mt) as at January 2026

Mineral Resource Estimates reported in accordance with JORC (2012) unless otherwise stated

Project	Status	Owner	Resources (Mt)	Av. grade TiO ₂ (%)	Contained TiO ₂ (Mt)	Resource date
Speewah	Pre-Feasibility	Tivan Ltd	4 711.00	3.31	155.79	01/04/2019
Pitfield	Exploration	Empire Metals, Century Minerals	2 200.00	5.12	113.00	14/10/2025
Balla Balla*	Feasibility	BBI Group	446.00	13.84	61.74	09/02/2022
Australian Vanadium Project*	Feasibility	Australian Vanadium	395.50	9.28	36.69	07/05/2024
Buddadoo [^]	Exploration	CZR Resources	204.70	13.04	27.00	16/09/1991
Barrambie	Feasibility	Neometals	280.10	9.18	25.71	17/04/2018
Victory Bore	Pre-Feasibility	Surefire Resources	464.60	5.12	23.79	05/12/2023
Dante	Feasibility	Terra Metals	148.00	14.76	22.00	11/08/2025
Canegrass	Exploration	Viking Mines	145.80	6.57	9.58	20/11/2023
Youanmi Vanadium	Scoping	Venus Metals Corporation Legendre Bruce Robert	134.70	6.28	8.45	18/03/2019
Unaly Hill [#]	Exploration	Surefire Resources	86.20	4.51	3.89	21/11/2011
Medcalf – Bremer Range	Pre-Feasibility	Audalia Resources	25.70	9.98	2.56	15/03/2022
Salazar	Exploration	West Cobar Metals	42.00	5.21	2.19	08/10/2024
Mt Weld ^{##}	Operating	Lynas Rare Earths	37.70	4.01	1.51	06/10/2004
Mangaroon REE	Exploration	Dreadnought Resources	10.84	4.90	0.53	28/08/2023

Resource Estimates have been rounded

* Includes Mineral Resources reported in accordance with both JORC(2004) and JORC (2012) for individual deposits

Mineral Resource is not JORC 2012 compliant but is CRIRSCO compliant

A Mineral Resource is not JORC 2012 and not CRIRSCO compliant

[^] Combined Australian Vanadium and Technology Metals Australia Gabanintha Projects

^{##} Part of larger Mt Weld Project, but is the niobium-tantalum rich subset - Mingkiri-Marloo

Spatial and resource estimates data sourced from WA Mines and Mineral Deposit database (MINEDEX)

 Ti-V in orthomagmatic mafic-ultramafic layered intrusions

 Ti-REE in carbonatite and alkaline igneous intrusions

 Ion-adsorption clay (IAC) host rock

 Sedimentary hosted Ti

Selected titanium-zircon resources in heavy mineral sands as at January 2026

Mineral Resource Estimates reported in accordance with JORC (2012) unless otherwise stated

Project	Status	Owner	Resources (Mt)	Grade THM (%)	Contained HM (Mt)	Mineral Assemblage Grade (%) ¹				Resource date
						Ilmenite ⁺	Leucoxene ⁺	Rutile ⁺	Zircon	
Thunderbird [#]	Operating	Sheffield Resources	3 040.0	6.8	205.0	27.0	3.5	NA	8.3	30/06/2025
McCalls [^]	Exploration	Image Resources	5 800.0	1.4	84.0	79.0	3.0	2.4	4.7	20/05/2022
Perth Basin	Operating	Iluka Resources	967.0	5.5	54.9	56.0	NA	5.0	10.0	31/12/2021
McLaren	Exploration	McLaren Minerals Ltd	529.0	4.5	23.7	28.7	1.8	0.7	0.5	18/11/2025
Coburn	Care and maintenance	Strandline Resources	1 606.0	1.2	19.6	48.0	5.0	7.0	22.0	14/11/2018
Dongara ²	Proposed	Tronox Holdings	178.0	3.7	6.6	51.5	NA	9.0	10.8	31/12/2021
Eneabba ⁺	Exploration	Image Resources	199.0	2.8	5.5	60.0	4.2	6.7	12.7	11/03/2022
Cyclone	Proposed	Diatreme Resources	203.0	2.3	4.7	13.0	6.0	3.0	27.0	27/04/2017
Cooljarloo ²	Operating	Tronox Holdings	292.0	1.5	4.4	61.3	NA	6.8	10.4	31/12/2021
Keysbrook ³	Operating	Doral	139.0	2.0	2.8	NA	82.1	NA	12.0	30/06/2018
Jack Track	Exploration	Astute Resources	41.0	3.9	1.6	NA	NA	NA	NA	27/03/2024
Governor Broome	Scoping	Astute Resources	59.0	4.8	2.8	NA	NA	NA	NA	27/03/2024
Titan	Proposed	Image Resources	137.0	1.9	2.6	72.0	1.5	3.1	9.5	31/12/2021
Bidamina	Exploration	Image Resources	109.0	2.5	2.7	72.0	12.0	4.0	4.9	28/02/2023
Wonnerup North	Operating	Tronox Holdings	24.0	4.6	1.1	81.2	NA	8.3	8.4	31/12/2021
Atlas	Operating	Image Resources	17.3	5.7	1.0	49.0	5.1	6.5	9.8	15/12/2022
Yalyalup ³	Operating	Doral	21.8	4.8	1.0	NA	NA	NA	NA	31/12/2019
Calypso	Proposed	Image Resources	51.0	1.7	0.9	68.0	1.6	5.1	10.8	31/12/2021
West Mine North	Exploration	Image Resources	12.0	6.6	0.8	48.0	1.8	6.6	6.0	29/07/2022

Resource Estimates have been rounded

1 Percentage of contained heavy minerals (HM)

2 Mineral Resource is not JORC 2012 compliant but is CRIRSCO compliant

3 Includes Mineral Resources reported in accordance with both JORC(2004) and JORC (2012) for individual deposits

* Titanium-bearing Minerals

Includes the Night Train Project

[^] Includes the Mindarra Springs Project

⁺ Includes Drummond Crossing, Ellengail, Robbs Cross and Thomson deposits but excludes West Mine North

Abbreviations: HM, heavy minerals; THM, total heavy minerals; NA, not available

Spatial and resource estimates data sourced from WA Mines and Mineral Deposit database (MINEDEX)

For more information

MINEDEX is a spatial and textual database of mining and exploration activity

MINEDEX

www.dmpe.wa.gov.au/minedex

GeoVIEW.WA is a free GIS-based spatial viewer

GeoVIEW.WA

www.dmpe.wa.gov.au/geoview



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