

Empire Metals Limited / LON: EEE , OTCQB: EPMLF / Sector: Natural Resources

9 June 2025

Empire Metals Limited
("Empire" or "the Company")

Exceptional High-Purity TiO₂ Product Achieved

Empire Metals Limited, the AIM-quoted and OTCQB-traded resource exploration and development company, is pleased to announce the results from its most recent titanium dioxide ("TiO₂") product development testwork programme, carried out on mineral flotation concentrates produced from the in-situ mineralised weathered cap that extends across the giant Pitfield Project ('Pitfield'), located in Western Australia.

Highlights

- A very high-purity TiO₂ product, assaying at 99.25% TiO₂ has been achieved through conventional beneficiation, leaching and refining processes.
- The TiO₂ product contains non-detectable, or extremely low levels of deleterious impurities and is expected to be suitable for high-quality titanium sponge metal or high-grade titanium dioxide pigment production.
- Bulk samples collected from the weathered cap (announced 17 February 2025) have been delivered to the metallurgical laboratory and these will be utilised to produce multiple, finished product samples for marketing purposes.

Shaun Bunn, Managing Director, said: *"We have achieved an extraordinary outcome from our most recent product development testwork, which has delivered an exceptional high-grade, high-purity TiO₂ product that should be ideal for either titanium sponge metal or high-quality TiO₂ pigment production."*

"It is remarkable that our technical team has so rapidly produced a high-purity TiO₂ product. We believe this not only highlights the effectiveness of our processing approach but also underscores the potential value of our product. Metallurgical testing and process optimisation continues, and with the availability of the 70 tonnes of bulk sample collected in February we will now be able to significantly scale up the testwork and produce a variety of final product samples to share with prospective downstream end-users."

Product Development Testwork

An acid bake-water leach process using sulphuric acid was applied, with parameters similar to that tested during the initial product development test programme (announced 10 March 2025). The TiO₂ product purification and product finishing stages were tested at ALS Metallurgy laboratories, located in Perth, Western Australia. All assays were conducted at ALS Metallurgy by their in-house metallurgy-specific assay lab.

The most recent product development metallurgical test work was undertaken on flotation concentrates recovered from the near surface, highly weathered in-situ saprolitic zone. Diamond drill core collected from two holes, DD24TOM004 and DD24TOM005, formed the feed composite (refer Figure 1). The composite sample was passed through a wet scrubber to break up the clays and attrition the ore prior to desliming the resulting slurry over a 38µm screen. The coarse material was fed to a gravity test circuit and the finer fraction (<38µm) was processed via froth flotation. The rougher (first stage) flotation concentrate generated from multiple, repetitive flotation tests were then blended to form the feedstock for a subsequent acid leach stage (refer Figure 2).

Two subsamples of flotation concentrate were leached under the following different conditions:

1. Direct acid bake followed by hot water leach
2. Dilute acid pre-leach followed by direct acid bake and hot water leach

2. Slime and sand pre-leach followed by direct acid leach and hot water leach.

For both tests iron filings were added to the hot water wash phase to reduce the iron in the ferric (Fe^{3+}) state to the ferrous (Fe^{2+}) state, thus removing the iron from the solution. In this acid leach stage the titanium is recovered from the mineral concentrates into the liquor as titanyl sulphate (TiSO_4) and the residue solids and liquor are then separated after the water leach step, using filtration, with the liquor moving forward for purification and product finishing testwork.

The next step in the purification process is the hydrolysis stage, which involves the heating of the liquor, thus breaking down the titanyl sulphate and resulting in the production of hydrated TiO_2 and the recovery of H_2SO_4 . This step was carried out in two stages without seed TiO_2 material, an improvement from previous work. The solution was heated to 106 degrees C and held at temperature whilst being stirred for 2 hours. The resulting slurry was then centrifuged to separate the liquor from the precipitated solids. Finally, as part of the product finishing stage, the hydrated TiO_2 was separated from the liquor using a centrifuge, and the solids were then calcined to remove water and produce a high-purity TiO_2 compound (see figure 3).

The final chemical analysis of the TiO_2 product indicates a very high purity of 99.25% TiO_2 by mass with non-detectable or extremely low amounts of deleterious impurities (see table 1).



Figure 1. Saprolite composite sample before scrubbing/attritioning.



Figure 2. Flotation test on the saprolite composite slimes fraction

Table 1. Finished Product Analysis

Product Analysis (XRF)	% by mass
TiO ₂	99.25
Al	0.16
Ca	0.01
Fe	0.09
La	<0.01
Nd	0.01
Pb	0.004
P	0.23
Si	0.03
Th	<0.001
U	<0.001
V	0.01



Figure 3. Purification and product finishing testwork, photos from left to right: titanyl sulphate solution from leaching stage, hydrated TiO₂ produced from hydrolysis, and the calcined TiO₂ product.

The Pitfield Titanium Project

Located within the Mid-West region of Western Australia, near the northern wheatbelt town of Three Springs, the Pitfield titanium project lies 313km north of Perth and 156km southeast of Geraldton, the Mid West region's capital and major port. Western Australia is ranked as one of the top mining jurisdictions in the world according to the Fraser Institute's Investment Attractiveness Index published in 2023, and has mining-friendly policies, stable government, transparency, and advanced technology expertise. Pitfield has existing connections to port (both road & rail), HV power substations, and is nearby to natural gas pipelines as well as a green energy hydrogen fuel hub, which is under planning and development (refer Figure 4).



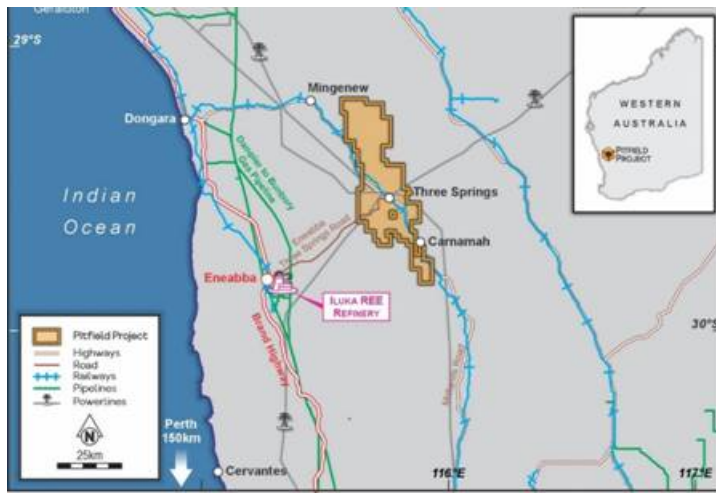


Figure 4. Pitfield Project Location showing the Mid-West Region Infrastructure and Services.

Competent Person Statement

The scientific and technical information in this report that relates to process metallurgy is based on information reviewed by Ms Narelle Marriott, an employee of Empire Metals Australia Pty Ltd, a wholly owned subsidiary of Empire. Ms Marriott is a member of the AusIMM and has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the JORC Code 2012. Ms. Marriott consents to the inclusion in this announcement of the matters based on their information in the form and context in which it appears.

The technical information in this report that relates to the geology and exploration of the Pitfield Project has been compiled by Mr Andrew Faragher, an employee of Empire Metals Australia Pty Ltd, a wholly owned subsidiary of Empire. Mr. Faragher is a member of the AusIMM and has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the JORC Code 2012. Mr Faragher consents to the inclusion in this release of the matters based on his information in the form and context in which it appears.

Market Abuse Regulation (MAR) Disclosure

Certain information contained in this announcement would have been deemed inside information for the purposes of Article 7 of Regulation (EU) No 596/2014, as incorporated into UK law by the European Union (Withdrawal) Act 2018, until the release of this announcement.

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About Empire Metals Limited

Empire Metals is an AIM-listed and OTCQB-traded exploration and resource development company (LON: EEE, OTCQB: EPMLF) with a primary focus on developing Pitfield, an emerging giant titanium project in Western Australia.

The high-grade titanium discovery at Pitfield is of unprecedented scale, with airborne surveys identifying a massive, coincident gravity and magnetics anomaly extending over 40km by 8km by 5km deep. Drill results have indicated excellent continuity in grades and consistency of the in-situ mineralised beds and confirm that the sandstone beds hold the higher-grade titanium dioxide (TiO₂) values within the interbedded succession of sandstones, siltstones and conglomerates. The Company is focused on two key prospects (Cosgrove and Thomas), which have been identified as having thick, high-grade, near-surface, in-situ bedded TiO₂ mineralisation, each being over 7km in strike length.

An Exploration Target* for Pitfield was declared in 2024, covering the Thomas and Cosgrove mineral prospects, and was estimated to contain between 26.4 to 32.2 billion tonnes with a grade range of 4.5 to 5.5% TiO₂. Included within the total Exploration Target* is a subset that covers the in-situ weathered sandstone zone, which extends from surface to an average vertical depth of 30m to 40m and is estimated to contain between 4.0 to 4.9 billion tonnes with a grade range of 4.8 to 5.9% TiO₂.

The Exploration Target* covers an area less than 20% of the overall mineral system at Pitfield which demonstrates the potential for significant further upside.

Empire is now accelerating the economic development of Pitfield, with a vision to produce a high-value titanium metal or pigment quality product at Pitfield, to realise the full value potential of this exceptional deposit.

The Company also has two further exploration projects in Australia; the Eclipse Project and the Walton Project in Western Australia, in addition to three precious metals projects located in a historically high-grade gold producing region of Austria.

*The potential quantity and grade of the Exploration Target is conceptual in nature. There has been insufficient exploration to estimate a Mineral Resource and it is uncertain if further exploration will result in the estimation of a Mineral Resource. See RNS dated 12 June 2024 for full details.

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