

Stock Data

Share Price:	0.34p
Market Cap:	£9.84m
Shares in issue:	2,893m
52-week high/low:	1.35p/0.24p

Company Profile

Sector:	Mining
Ticker:	IRON
Exchange:	AIM

Activities

Ironveld plc ('Ironveld' or 'the Group') is the owner of mining rights over approximately 28 kilometres of outcropping Bushveld magnetite with a JORC compliant ore resource of some 56 million tons of ore grading 1.12% V₂O₅, 68.6% Fe₂O₃ and 14.7% TiO₂.

www.ironveld.com/

5-year share price performance



Source: [LSE](https://www.lse.com)

Past performance is not an indication of future performance.

Turner Pope contact details

Tel: 0203 657 0050
Email: info@turnerpope.com
Web: www.turnerpope.com

Andrew Thacker
Corporate Broking & Sales

Barry Gibb
Research Analyst

TPI acts as joint broker to Ironveld plc.

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Ironveld

Ironveld has confirmed that its subsidiary, Ironveld Mining (Pty) Limited ('Ironveld Mining'), has entered into a Joint Venture Agreement ('JVA') with Pace SA (Pty) Limited ('Pace'), as equal partners to produce and sell Dense Media Separation ('DMS') grade magnetite from Ironveld's mine in Limpopo, South Africa. Although not central to the Group's business plan to produce High Purity Iron ('HPI') plus vanadium and titanium in slag, this offers potential to provide an important extra source of revenues at minimal cost with no technical risk to shareholders. Based on the proposed 50:50 joint venture, a maximum beneficiation capacity of 27,000tpm could deliver throughput of say, 15,000tpm to an existing, open competitive marketplace. First production and sales from the joint venture ('JV') are expected mid-2023, which is roughly in tandem with the schedule for the Group's second and third furnaces to commence their own volume operations. Given that all major technical challenges at Rustenburg have been surmounted, with on-site stockpiling of feedstock getting underway some weeks back along with existing offtake agreements guaranteeing sale prices, project risks have now reduced quite substantially. Recognising that Ironveld has positioned itself to become cash generative within its first full year of production, and that the Board's ambitious medium to longer-term vision of building a much larger scaled-up production facility continues to gain credibility, TPI prudently modelled the opportunity in a Research Update published on 29 December 2022. Based solely on the smelter's first phase of proposed commercial expansion, which utilises only its existing wholly-owned plant, the £27.3m DCF valuation derived remains more than three-times the Group's current market capitalisation.

(Please note that TPI's valuation is based on financial modelling and there is no guarantee that such a valuation will ever be realised, therefore please do not base investment decisions on this valuation alone. Also please note that past performance is not a reliable indicator of future results.)

Highlights of the Pace SA (Pty) Limited JVA

- Ironveld to participate in a 50:50 JV to process and sell DMS grade magnetite, to be sourced from existing mining operations;
- All initial capital and establishment costs of approximately ZAR 35 million (£1.65 million) to be funded by Ironveld's JV partner, Pace SA (Pty) Limited;
- Maximum design capacity of beneficiation plant approximately 60 tonnes per hour; and
- First production and sales from the JV expected mid-2023.

Planned operations to reduce Ironveld's average mining costs

The JV's planned operations include a beneficiation plant that will have a maximum capacity of approximately 27,000 tonnes per month (a multiple of the existing smelter requirements) of DMS grade magnetite, based on a design throughput of 60 tonnes per hour. The plant equipment includes screens, crushers, mill and a low intensity magnetic separator ('LIMS'). Feedstock will be delivered directly from Ironveld Mining's operations which are also

providing material for the Rustenburg smelter. Crucially, approximately 30% of the normal run of mine material is classed as 'fines' which are unsuitable for the smelter but can be processed into DMS grade magnetite, thereby enabling Ironveld to earn a revenue stream from what was previously a waste product. As such, the JV's demand for magnetite ore should have a material positive impact in reducing Ironveld's average mining costs per tonne, refunding Ironveld's mining costs and management fees prior to profit share.

DMS applications include scrap separation, coal washing and mineral/ore concentration.

Pace currently trades DMS grade magnetite as a part of its business operations and expects to sell the product to a number of open market customers. Ironveld and Pace have agreed to share all profits arising from the JV (after mining costs, production costs and management fees) on a 50:50 basis, save for an initial period whereby Pace will recoup its capital funding on a 60:40 profit share basis.

Magnetite is a naturally occurring iron oxide (Fe_3O_4), the density of which is 5.17g/cm^3 . This high density combined with its magnetic properties mean it is used in Dense Media Separation. The magnetite powder is mixed with water to create a slurry or 'dense media'; this allows objects of different densities to be separated using the sink/float method, with magnetic drums helping recover most of the magnetite from the separated material thereby keeping consumption and costs low.

First Production at Rustenburg Smelter

The progress update Ironveld released on 9 December 2022, noted that the refurbishment work at the Rustenburg smelter complex was proceeding well against the planned six-to-nine-month schedule envisaged at the commencement of works. During December 2022 'cold commissioning' of mechanical equipment at the smelter was successfully completed, which was then followed over the holiday period by 'hot commissioning' of the first of three planned operating furnaces.

The first furnace has since successfully smelted test quantities of magnetite ore in order to produce HPI and titanium slag of marketable standard for the first time. Initial analysis of the HPI confirms that it meets planned quality and content specifications. The coming weeks will see it tested and optimised, while operations will also be extended to include production of vanadium slag. First commercial product sales are expected in Q2 2023.

The second and third furnaces at the smelter continue to be refurbished and are both expected to enter production by April 2023. Ironveld has posted a selection of photographs of the first operational furnace which can be viewed on the Group's website.

Three separate phases of commercial expansion

Based on delivery of 40,000 tonnes of ore per annum (<4,000tpm ROM), the smelter is expected to provide the following approximate quantities of finished products per annum: 20,000 tonnes of HPI (price range US\$900 to US\$1,000/tonne)/HPIP (price range US\$1,300 to US\$1,500/tonne); 190 tonnes of vanadium in slag (price range US\$5,000-US\$5,300/tonne); and 3,800 tonnes of titanium in slag (price range US\$200-\$300/tonne). This equates to an annualised run rate of US\$27 million to US\$32 million once the facility is producing and selling iron powders. Given the expected short commissioning and preparation time required, ore stockpiling will continue in tandem with the ongoing furnace refurbishment. Estimated operational expenditure ('opex') for HPI production is comfortably below selling prices, while revenues from the Vanadium and Titanium slag of c US\$2 million per annum would flow straight to the bottom line given their effective zero production cost. Sales Contracts, Approved Supplier or Marketing Agreements are already in place for final output of HPI, HPI Powders, Vanadium Slag offtake and Titanium Slag offtake with a number of senior counterparts and well-known international traders.

Based on TPI's estimated total mining cost to smelter of ZAR 1,850/tonne plus all-in transportation of ZAR 800/tonne

and smelting cost of ZAR 6,515/tonne, FCF's direct operating costs total ZAR 11,685/tonne (based on a ZAR 2,520/tonne purchase price). Assuming the current US\$: ZAR rate of 17.18, this would be equivalent to the smelter generating annual revenues of US\$25.49m when operating on a steady state of 40,000 process tonnes/year. Including ore sales to FCF of US\$5.87m, Group revenues of US\$31.36m for the year suggests peak attributable pre-tax operating cash flow for the Group of US\$5.05m being achieved in 2026E. After servicing creditors debt payments, local administrative costs and paying away any South African corporation tax dues (at a rate of 27%, although TPI estimates that carried forward losses should ensure this does not apply until after 2029E), Ironveld plc would be entitled to retain 74% the balance owned by its subsidiaries.

While the existing smelter provides a foundation for building a larger scaled-up production facility, the acquired site offers only limited space for expansion. The Board has therefore indicated three separate phases of commercial expansion as detailed below:

- PHASE 1** - The readymade 7.5MW capacity FCF smelter provides a platform for organic growth via demonstration of initial production and sales;
- PHASE 2** - Able to scale the initial project to construct a new 15MW(or larger) smelter located next to the mining area, potentially more than trebling production. Capex costs (estimated at c.US\$56 million), lenders subject to being satisfied with PHASE 1 proof of concept ('PoC');
- PHASE 3** - Long term objective is to add significant additional capacity in order to achieve status of a medium-scale smelter capable of processing the large resource at the Project.

Ironveld's High Purity Iron, Vanadium and Titanium project

Bushveld is a known metallogenic province covering approx. 66,000km², which hosts various mineral deposits including platinum group metals, Vanadium, Chrome, Palladium and Rhodium. The Project has the potential to become a vertically integrated polymetallic mining and processing business serving the increasing demand for high purity iron, vanadium (in steel alloys and vanadium redox batteries) and Titanium (in lightweight, high-strength alloys). The Group retains unencumbered rights to:

- 80 million tonnes of magnetite ore - the JORC compliant mineral resources demonstrates that it holds 1.6 billion pounds of Vanadium, the equivalent to four times annual global demand.
- 32 million tons of 99.5% ('High Purity Iron', 'HPI') in situ.
- 9 million tonnes of Titanium.

The Project's 8 April 2013 JORC-compliant mineral resource provided the foundation for a subsequent Definitive Feasibility Study ('DFS') which was published on 23 April 2014. This confirmed its potential to deliver an exceptionally high-grade iron product at 99.5% Fe HPI which typically trades at a premium price in the market. The 56.4Mt ore grading at 1.12% Vanadium Oxide ('V₂O₅') represented almost twice the grade of other Vanadium resources that are currently being mined and processed within the Bushveld Complex.

Ironveld plc – Unique, Undeveloped Polymetallic Project in South Africa’s Bushveld Complex



Source: Ironveld, Investor Presentation June 2022

Ironveld’s High Purity Iron, Vanadium & Titanium Project

Products – Supplying Growing Demand Markets

PRODUCT*	CURRENT PRICING**	USES
HIGH PURITY IRON POWDER 20,000 tpa	\$1,300-\$1,500/t	<ul style="list-style-type: none"> • Sintered components in vehicles, power tools and white goods using Powdered Metallurgy (“PM”): <ul style="list-style-type: none"> • Vehicles have 10kg - 27kg of PM components • PM manufacturing is quicker, more efficient • Other uses – soft magnetic components, welding rods, pharmaceuticals, chemicals, printing, filtration and surface coating
VANADIUM IN SLAG 190 tpa	\$5,000-5,300/t	<ul style="list-style-type: none"> • Steel additive to increase strength, toughness and heat resistance <ul style="list-style-type: none"> • Used in gears, axles and crankshafts • New Vanadium Redox Battery (“VRB”) systems under development could significantly impact demand: <ul style="list-style-type: none"> • Volume storage for electricity generated by solar and wind
TITANIUM IN SLAG 3,818 tpa	\$200-\$300/t	<ul style="list-style-type: none"> • Typically used in alloy with iron, aluminium, molybdenum and manganese • Main uses in aerospace, both aircraft and engine • Resistant to seawater so also used for hulls and propeller shafts • Potential for incorporation in lithium-ion batteries

*Forecast annualised production from FCF Smelter

Source: Ironveld, Investor Presentation June 2022

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