

Non-Independent Research

A MiFID II compliant note

*SP Angel acts as Nomad & Broker to Bushveld Minerals.

31 January 2022

Stock Data

Ticker	BMN LN
Share Price:	9.20
Market Cap:	£117m



Vanchem to lead expansion in vanadium production

Bushveld is an integrated vanadium mining, processing and technology businesses. The South African group owns 74% of Vametco and 100% of the Vanchem. Bushveld Energy (84%) is developing solar powered, Vanadium Redox Flow Battery mining grid.

- **Production** of vanadium and ferrovandium rose by 28% in the second half to 2,018 mtV to make 3,592mtV for the full year
- **Sales** were 14% lower yoy at 3,314 mtV due to logistics issues with December shipments which cut Q4 sales by 30% yoy.
- Production at Vametco beat our forecast but was 7.5% lower than last year causing unit cost to rise by 31.1% yoy.
- Production at Vanchem rose 15% yoy while changing the mix of products combined with a kiln shutdown raised costs by 36.5%
- **Inventory:** Unsold inventory of 278 mtV (worth ~\$9.1m) due to Covid and other disruption to logistics, though there is always some unsold inventory at the year end.
- **Guidance for 2022 production and costs**
 - Group production of 4,200- 4,400 mtV in 2022
 - Vametco: 2,450- 2,550 mtV with costs of \$22.7-23.5/kgV
 - Vanchem: 1,750- 1,850 mtV, with cost \$27.7-28.4/kgV
- **Target :** Production run rate of 5,000-5,400mtV by the year-end
 - Vametco run rate to maintain stable and consistent output at 2,800mtV
 - Vanchem to hit a run rate of 2,600mtV by end 2022 and to more than double in 2023.

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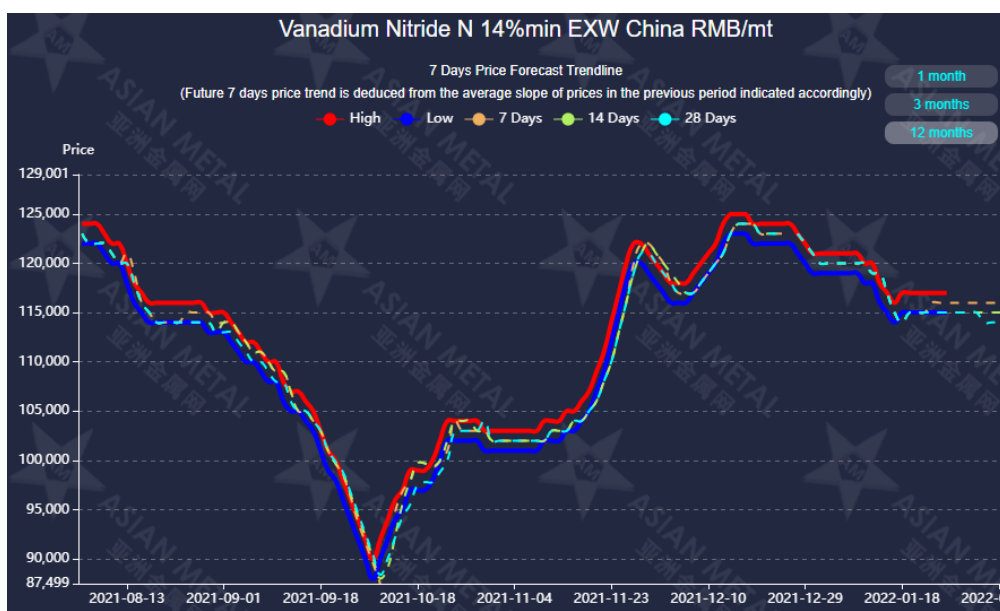
(Dec year end)	US\$	2019	2020	2021E	2022E	2023E	2024E
FeV price	\$/kg	55	25	35	35	38	38
Vanadium Production	mtV	1,859	2,685	3,591	4,310	5,718	7,737
Vanadium Sales	mtV	2,392	3,842	3,313	4,488	5,718	7,737
Sales ⁺	\$m	116.5	90.0	119.6	162.0	224.1	303.2
Cost of Sales	\$m	-45.8	-73.4	-99.5	-107.3	-131.7	-176.1
Admin costs	\$m	-38.1	-31.5	-16.8	-20.5	-25.2	-26.8
Other costs	\$m	-4.2	-5.5	-12.6	-17.1	-22.5	-30.4
Depreciation	\$m	-10.4	-17.9	-17.6	-18.5	-20.0	-20.0
Operating profit	\$m	22.3	-32.8	-14.4	15.7	47.3	80.2
Finance & other	\$m	1.9	-4.7	-7.9	-9.0	-10.4	-7.8
Pre-tax profit	\$m	83.3	-37.5	-22.2	6.7	36.9	72.4
Tax	\$m	-14.0	0.5	5.0	-2.0	-4.1	-12.0
Post-tax profit	\$m	69.2	-37.0	-17.3	4.7	32.8	60.4
EPS	\$c/s	5.51		-4.22	-0.83	0.27	0.90
PE	x	6.4	-	-	-	45.4	13.5
EV/EBITDA	x	13.6	-	-	10.3	4.9	3.5
EBITDA	\$m	28.4	-20.4	-9.3	17.1	44.8	69.9
FCF (100%)	\$m	13.9	-22.5	-56.2	-8.4	2.0	31.7

Source: SP Angel, Bushveld, Vametco & Vanchem

Bushveld Continued...

- Bushveld posted strong gains in the second half after a challenging start to the year. Production guidance is weighted towards the second half 2022 offering another 608-808mtV of mainly ferrovanadium production.
- We expect unit costs to fall materially this year as management focus on stability and more efficient production though the relative strength of the South African rand remains an issue.
- **Vametco:** the Vametco mine had a good Q4 mining 22% more ore and a grade that was 58% higher yoy
 - Concentrate grade improved by 4.9% yoy in the plant helping recovery rates to improve 1.7% to 72.7%
 - Somehow Nitrovan FeV production fell 0.4% to 700mtV in Q4 despite the better performance indicating some material may still be in the system
 - Production for the year fell 7.5% yoy to 2,453mtV but was higher than our 2,308 mtV forecast. Production should pick up slightly in 2022 to the guidance above.
 - Vametco cut C1 costs in Q4 to \$22.9/KgV resulting in an average \$24.0/kgV for the year representing a 31% yoy increase.
 - C1 Costs should fall in 2022 though much will depend on operational stability.
- **Vanchem:** FY vanadium production rose 15% to 1,138mtV and better than our 1,108mtV forecast for the year
 - Q4 Total vanadium production came in at 262mtV vs 261mtV a year earlier.
 - Vanadium production was stable though the mix changed to increase production of ferrovanadium to 204mtv vs 148mtV yoy
 - Vanchem C1 costs rose 36.5% yoy to US\$30.6/kgV.
 - Q4 C1 costs also rose by 43.1% due to clay and silica in the ore coating the kiln and requiring shutdown and cleaning.
 - This was due to the mining of ores from the Upper Seam at Vametco with rain affecting the quality of the ore extracted.
 - The problem has been largely resolved though better mine control and will be more fully resolved through the use of a magnetic separator ahead of the kiln feed to ensure 1.6-1.7%V₂O₅ grade with low silica and calcium content.
- **Cash and cash equivalents** came to \$15m at the year-end vs US\$25m at end September.
- **Capex:** Bushveld expects to spend around \$17m this year versus \$29m in 2021 which included \$10.5m invested in Enerox Holdings
 - Vametco capex ZAR78m ~\$5.1m
 - Vanchem capex ZAR127m ~ \$8.3m
 - Mokopane ZAR3m ~\$0.2m
 - BELCO 'Bushveld Electrolyte Company' ZAR37m ~\$2.4m
 - Bushveld Energy ZAR10m ~\$0.7m

- **Vanadium prices:** vanadium prices have recovered from a low of \$24.5/KgV in September to ~\$33/KgV today in China with reports on strong demand for stainless steel in the region.
- Prices posted \$35/mtV in Q4 according to the Metal Bulletin and remain at \$33/kgV according to Asian Metals
- European ferrovandium prices have risen this week to 38.25/kg from US\$37.25/kg a week earlier in China though Asian Metals report that Chinese metals inquiries have calmed down this week ahead of China's Lunar New Year holiday.



Source: Asian Metals. Vanadium Nitride 14%min EXW China, CNY.

Outlook: the outlook for vanadium is driven by relatively strong demand for structural steel.

Rising steel production in the US is driving ferrovandium prices higher in the region.

China. While China suffered a stalling of the property market last year as Evergrande teetered on the brink of outright collapse, the authorities have stepped in to avert the disruption of bankruptcy and are now seen as stimulating the economy through the activation of new infrastructure projects

VRFBs: The ongoing, but somewhat slow, development of Vanadium Redox Flow Batteries is beginning to gain pace with China planning 100s of megawatt hours of vanadium flow batteries. While it is difficult to gauge exactly when this demand will appear Bushveld estimate demand of >9,000t of vanadium pentoxide will be required to formulate the electrolyte for these batteries.

Valuation:

We have revised our valuation to 31p from 33p due principally to higher unit costs incurred in the first half 2021 at Vametco due to Covid and furnace repairs at Vanchem due to silica and calcium in the feedstock caused by poor mining in heavy rain.

The relative strength of the South African rand did not help either. Fortunately, these issues should now be past.

Management appear more cautious with guidance given recent operating run rates and the business looks placed to benefit from an uplift in both production and Vanadium prices.

We feel we are being cautious with our vanadium price forecast where we are using the current \$35/lb price as seen in Europe and the US for 2022. Prices are higher in China but translate to a lower \$32.7/KgV after accounting for import tariffs.

We have also adjusted our longer-term ferrovanadium price to \$38/KgV from \$40/KgV though we are hopeful that we will be upgrading this price forecast when Biden's new infrastructure bill is passed which should lead to a significant uplift in demand for structural steel.

US regulations require a greater proportion of vanadium in US used steel and this should have a disproportionate impact on vanadium demand.

China has also made recent comments on stimulating the construction of additional high-speed rail and other infrastructure projects to maintain strong economic growth again requiring more vanadium input.

Game changer: While demand for structural steel is the current price driver, VRFBs may well be a game changer for the industry this year.

VRF Batteries utilise around 10t of vanadium pentoxide per MWh. The material is near 100% recoverable and is not used up in the energy storage process.

The total market size of the vanadium market is around 110,000MtV pa indicating that additional demand for 9,000t of V₂O₅ will provide significant support to pricing.

China became a net importer of vanadium in 2020 supporting our view of a market deficit in supply vs demand through the year. While this deficit was probably provided for out of stocks from Evraz and Glencore we suspect surplus stocks will be low and for prices to lift as inventories are drawn down.

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Recommendations are based on a 12-month time horizon as follows:

Buy - Expected return >15%

Hold - Expected return range -15% to +15%

Sell - Expected return < 15%