

CO-OPERATIVE RESEARCH CENTRE VANADIUM PROJECT UPDATE

Milestone achievements through the first year of the research grant for vanadium processing.

KEY POINTS

- Significant progress achieved from research milestones for the Australian Vanadium Project including:
 - Pyrometallurgical pilot with Metso's Grate Kiln technology complete and has confirmed its suitability for vanadium, with extractions of up to 94.9% achieved.
 - Hydrometallurgical testwork has demonstrated the effectiveness of the ammonium polyvanadate precipitation process, leading to a high purity product.
 - Characterisation and testwork of variability samples has demonstrated high iron grades of over 60% achievable in concentrates from southern ore blocks.
 - Benchscale reduction-roast testwork has demonstrated that the FeTi coproduct stream can be upgraded to 66% iron, with further work underway using alternative reductants such as green hydrogen.
- Vanadium electrolyte production and low-grade ore beneficiation work streams ongoing as part of CRC-P, to maximise upstream and downstream benefits.
- AVL has submitted a vanadium processing circuit patent application based on results achieved as part of the CRC-P¹.
- All research work milestones complement progress towards completion of the Bankable Feasibility Study for the Australian Vanadium Project.

¹ See ASX announcement dated 12th April 2021 'AVL Lodges Patent Application for Vanadium Processing Circuit'

Australian Vanadium Limited (ASX: AVL, “the Company” or “AVL”) is pleased to provide an update on activities relating to the Co-operative Research Centre Project (CRC-P) entitled “Production of 99.95% Pure Vanadium Pentoxide and Vanadium Electrolytes”.

In February 2020, AVL was awarded a CRC-P grant of \$1.25 million by the Australian Federal Government² through a competitive award process. This formed part of a \$4.9 million project to complement feasibility work focusing on the development of AVL’s 100% owned Australian Vanadium Project at Gabanintha (the Project). Up to the end of February 2021, AVL has received \$823,370 in grant payments. Partner and in-kind AVL expenditures reported to 31 December 2020 and as forecast to 31 March 2021 are \$2,042,461.

Milestone Updates

AVL’s CRC-P is organised into six sub-projects, or milestones. Four critical milestones are aligned with the bankable feasibility study (BFS), and these have been the focus of AVL’s work over the past year. Two other milestones are for work not related to the BFS, such as investigations into vanadium electrolyte production and recovery from low grade ores.

Managing Director, Vincent Algar, comments, *“The AVL team and its partners in the CRC-P have added significant value to the Project with the help of the CRC-P funding. The results will add further positive economic benefits to the Project and strengthen the detailed technical knowledge which underpins the Company’s approach. This success of the CRC-P so far has been helped by working with high calibre partners Wood, ALS, Curtin University and the Australian Nuclear Science and Technology Organisation (ANSTO). The ongoing support of the Government in Critical Mineral Industry development is of great value to AVL and the communities in which we are operating.”*

Overview of the Milestones

Milestone 1 involved a pilot-scale optimisation of the salt-roast process for AVL’s concentrate, with vanadium extractions of up to 94.9% achieved³. This technical achievement sets the AVL Project apart from its competitors, where typical extraction rates are between 80 and 85%. The pilot plant production at Metso’s pyrometallurgical facilities in the USA demonstrated the applicability of the Grate Kiln process for vanadium titano-magnetite (VTM) ores. In this process, a VTM concentrate is initially pelletised with reagents, allowing for improved mass transfer during roasting and substantially reducing overall energy requirements. The pellets are fed to a travelling grate furnace where they are progressively dried and heated, before directly entering the rotary kiln. The work

² See ASX announcement dated 10th February 2020 ‘AVL Awarded \$1.25 Million Vanadium Research and Development Grant’

³ See ASX announcement dated 10th March 2021 ‘Final Pyrometallurgy Results Confirm World Leading Vanadium Extraction’

demonstrated the effectiveness of established commercial heating profiles. An example of pellets being unloaded from the pilot rotary kiln is shown in Figure 1.



Figure 1. Pellets being unloaded from rotary kiln

Milestone 2 is an ongoing study focussing on the hydrometallurgical aspects of producing a high purity vanadium product. The work has established the feasibility of the ammonium polyvanadate (APV) precipitation process over the ammonium metavanadate process (AMV). Although both routes are currently in operation at existing facilities, AVL has shown that APV offers a high purity, low-cost precipitation alternative that matches AVL's goal of minimising waste products. A typical

APV precipitate is shown in Figure 2. A final marketing sample generation program will be taking place in the June quarter as part of final parameter validation of the BFS hydrometallurgical circuit.

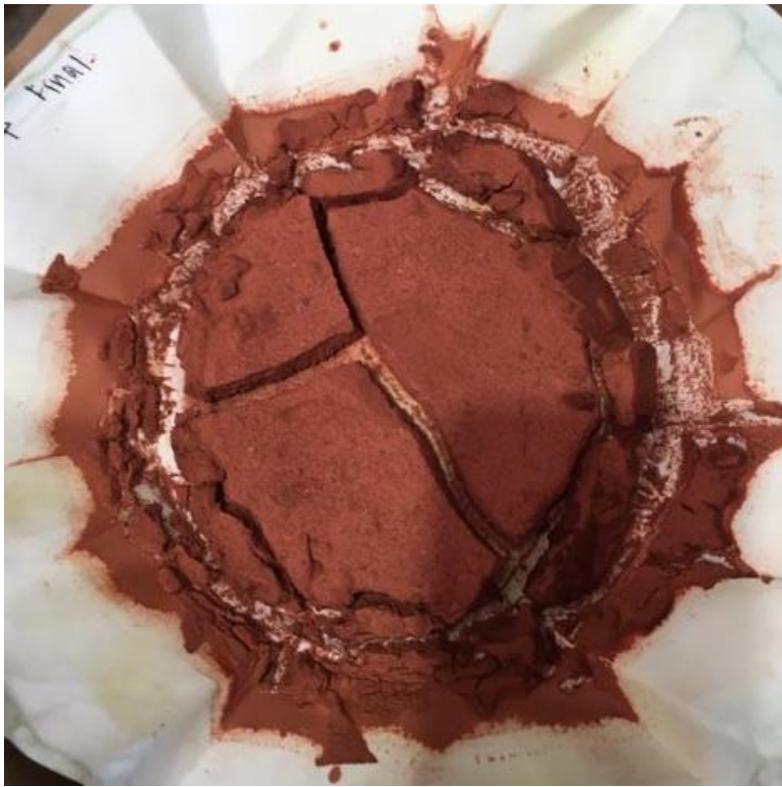


Figure 2. Ammonium polyvanadate precipitate

Milestone 3 is a benchscale investigation of the downstream production of vanadium electrolyte for batteries. This milestone will provide further data as a lead-in to AVL's proposed electrolyte pilot plant. An application for a grant through the federal government's Modern Manufacturing Initiative has been lodged, complementary to the CRC-P activity, aimed at the construction of a commercial vanadium electrolyte plant⁴.

Milestone 4 concerns the recovery of vanadium from low-grade ore. This represents significant potential upside for the overall Project, by assessing ways to efficiently recover additional vanadium units hosted in the Project's low-grade Resources⁵ which are currently excluded from the Project's processing schedule. Opportunities for extracting vanadium from surface scree will also be investigated. This sub-project is yet to commence and the Curtin University research team will be involved.

⁴ See ASX announcement dated 7th April 2021 'AVL Lodges Application for Federal Government Manufacturing Grant'

⁵ See Appendix 1, Mineral Resources, Zones LG 2-5, 104Mt at 0.49% V₂O₅, Zones TRANS 6-8, 15.6 Mt at 0.65% V₂O₅, Indicated and Inferred Resources

Milestone 5 is an exciting study of the viability of processes that add value to co-product and waste streams. The main co-product stream for AVL's process is the iron-titanium concentrate that remains after high-value vanadium extraction. The FeTi concentrate has an average grade of Fe 55%, TiO₂ 14% over the life of mine. Approximately 900,000 tonnes will be generated per year as per the updated PFS released by the Company⁶ and is suitable for direct sale to blast furnace customers.

Alternatively, the FeTi, coproduct is an ideal high-value source of iron and titanium that can be upgraded through a reduction-roast process. Benchscale testwork as part of this CRC-P has shown that Fe grades of up to 66% can be achieved using coal as a reductant⁷. An example of the product generated is shown in Figure 3. The higher grade of iron results from the progressive reduction of iron oxides (by removal of oxygen) towards the metallic form (100% Fe). This transition is clearly visible in the image below and is highly encouraging for future work. Also visible in the image is free rutile, a titanium oxide mineral. Further work is underway to investigate alternative reductants such as green hydrogen and the subsequent separation of iron and titanium.

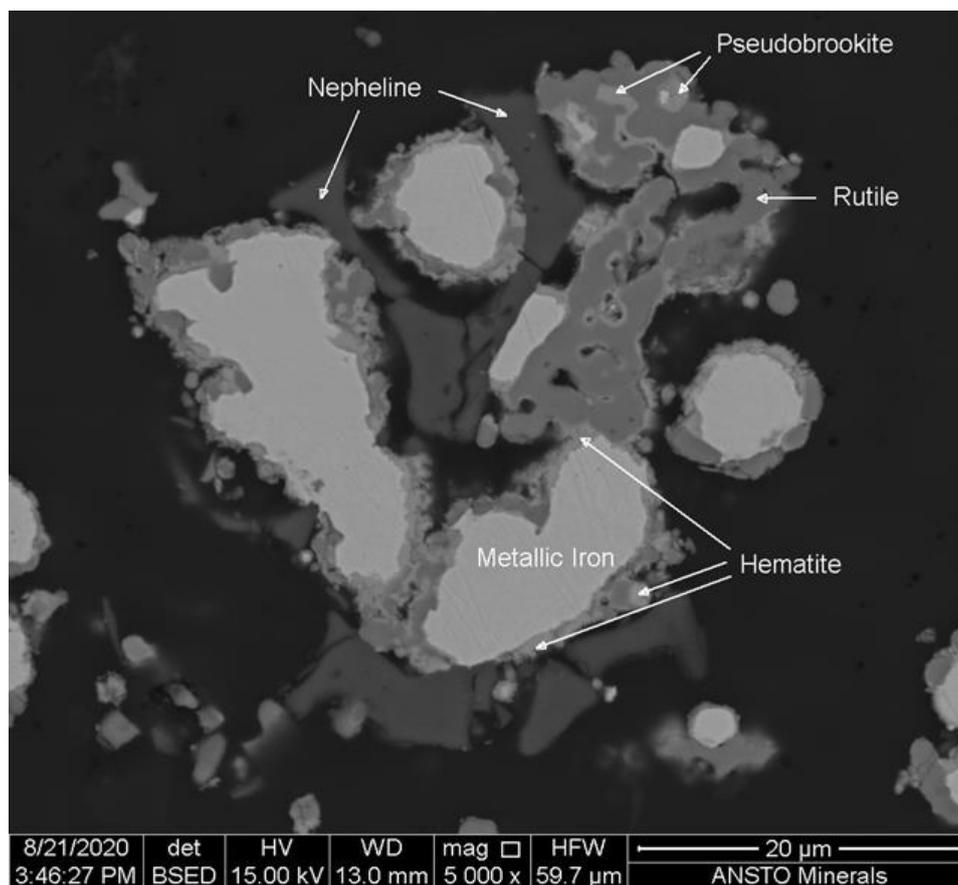


Figure 3. Scanning electron micrograph showing metallisation of iron after reduction roasting.

⁶ See ASX announcement dated 22nd December 2020 'Technical and Financial PFS Update'

⁷ See ASX announcement dated 20th August 2020 'Iron-Titanium Co-Product Sale Opportunities to Differentiate AVL'

Milestone 6 is an ongoing investigation of the change in the metallurgical response to variations in ore character. The key factors investigated are the degree of oxidation (classed as fresh, transitional and oxide ore), magnetic susceptibility, the grade of iron, vanadium and silica. It is anticipated that this work will aid in mine scheduling and the selection of ore to optimise mine to mill operation over the life of the Project. Results of this work are currently being finalised.

The CRC-P grant was awarded to AVL in January 2020. The project partners include ANSTO, Amec Foster Wheeler Australia Pty Ltd, (Wood), Ammtec Unit Trust (ALS) and Curtin University. The project is due for completion in June 2023 and will continue to run alongside the development of the Project.

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This announcement has been produced in accordance with the Company's published continuous disclosure policy and has been approved by the Board.

ABOUT AUSTRALIAN VANADIUM LTD

AVL is a resource company focused on vanadium, seeking to offer investors a unique exposure to all aspects of the vanadium value chain – from resource through to steel and energy storage opportunities. AVL is advancing the development of its world-class Australian Vanadium Project at Gabanintha. The Australian Vanadium Project is currently one of the highest-grade vanadium projects being advanced globally, with 208.2Mt at 0.74% vanadium pentoxide (V_2O_5), containing a high-grade zone of 87.9Mt at 1.06% V_2O_5 , reported in compliance with the JORC Code 2012 (see ASX announcement dated 4th March 2020 '*Total Vanadium Resource at the Australian Vanadium Project Rises to 208 Million Tonnes*' and ASX announcement dated 22nd December 2020 '*Technical and Financial PFS Update*').

VSUN Energy is AVL's 100% owned subsidiary which is focused on developing the market for vanadium redox flow batteries for energy storage.

The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and, in the case of estimates of Mineral Resources or Ore Reserves, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. The Company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.

APPENDIX 1

The Australian Vanadium Project – Mineral Resource estimate by domain and resource classification using a nominal 0.4% V₂O₅ wireframed cut-off for low-grade and nominal 0.7% V₂O₅ wireframed cut-off for high-grade (total numbers may not add up due to rounding).

2020 Feb	Category	Mt	V ₂ O ₅ %	Fe %	TiO ₂ %	SiO ₂ %	Al ₂ O ₃ %	LOI %
HG	Measured	10.1	1.14	43.9	13.0	9.2	7.5	3.7
	Indicated	25.1	1.10	45.4	12.5	8.5	6.5	2.9
	Inferred	52.7	1.04	44.6	11.9	9.4	6.9	3.3
	Subtotal	87.9	1.06	44.7	12.2	9.2	6.8	3.2
LG 2-5	Indicated	44.5	0.51	25.0	6.8	27.4	17.0	7.9
	Inferred	60.3	0.48	25.2	6.5	28.5	15.3	6.7
	Subtotal	104.8	0.49	25.1	6.6	28.0	16.1	7.2
Trans 6-8	Inferred	15.6	0.65	28.4	7.7	24.9	15.4	7.9
	Subtotal	15.6	0.65	28.4	7.7	24.9	15.4	7.9
Total	Measured	10.1	1.14	43.9	13.0	9.2	7.5	3.7
	Indicated	69.6	0.72	32.4	8.9	20.6	13.2	6.1
	Inferred	128.5	0.73	33.5	8.8	20.2	11.9	5.4
	Subtotal	208.2	0.74	33.6	9.0	19.8	12.1	5.6

The Australian Vanadium Project - Ore Reserve Statement as at December 2020, at a cut-off grade of 0.7% V₂O₅.

Ore Reserve	Mt	V ₂ O ₅ %	Fe ₂ O ₃ %	TiO ₂ %	SiO ₂ %	LOI%	V ₂ O ₅ production kt	Ore Reserve	Mt
Proved	9.8	1.08	59.9	12.4	8.7	3.5	63.2	Waste	244.5
Probable	22.4	1.04	61.7	11.8	8.3	2.8	158.9	Total Material	276.7
Total Ore	32.1	1.05	61.2	12.0	8.4	3.0	222.1	Strip Ratio	7.6

COMPETENT PERSON STATEMENT — MINERAL RESOURCE ESTIMATION

The information in this announcement that relates to Mineral Resources is based on and fairly represents information compiled by Mr Lauritz Barnes, (consultant with Trepanier Pty Ltd) and Mr Brian Davis (consultant with Geologica Pty Ltd). Mr Barnes and Mr Davis are both members of the Australasian Institute of Mining and Metallurgy (AusIMM) and the Australian Institute of Geoscientists (AIG). Both have sufficient experience of relevance to the styles of mineralisation and types of deposits under consideration, and to the activities undertaken to qualify as Competent Persons as

defined in the 2012 Edition of the Joint Ore Reserves Committee (JORC) Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Specifically, Mr Barnes is the Competent Person for the estimation and Mr Davis is the Competent Person for the database, geological model and site visits. Mr Barnes and Mr Davis consent to the inclusion in this announcement of the matters based on their information in the form and context in which they appear.

COMPETENT PERSON STATEMENT — ORE RESERVES

The technical information in this announcement that relates to the Ore Reserve estimate for the Project is based on information compiled by Mr Ross Cheyne, an independent consultant to AVL. Mr Cheyne is a Fellow of the Australasian Institute of Mining and Metallurgy. He is an employee and Director of Orelogy Mine Consulting Pty Ltd. Mr Cheyne 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 2012 Edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr Cheyne consents to the inclusion in the announcement of the matters related to the Ore Reserve estimate in the form and context in which it appears.

COMPETENT PERSON STATEMENT – METALLURGICAL RESULTS

The information in this announcement that relates to Metallurgical Results is based on information compiled by independent consulting metallurgist Brian McNab (CP. BSc Extractive Metallurgy). Mr McNab is a Member of AusIMM. He is employed by Wood Mining and Metals. Mr McNab has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which is undertaken, to qualify as a Competent Person as defined in the JORC 2012 Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr McNab consents to the inclusion in the announcement of the matters based on the information made available to him, in the form and context in which it appears.