

Vanadium Metallurgical Test Work Update

Initial Neomet test results show excellent recoveries from Gabanintha samples

Highlights:

- **AVL receives highly encouraging leach test results from initial Neomet hydrometallurgical process test work.**
- **AVL engaged with Neomet and Sedgman to conduct first pass testing for extraction of vanadium, iron and titanium from Gabanintha oxide samples.**
- **High grade oxide sample (1.78% V₂O₅) showed extraction of 96% of vanadium, 87% of iron and 1% of titanium after 1 hour HCL leach. Titanium upgraded from 8.8% to 23.4% in the residue.**
- **Low grade oxide sample (0.67% V₂O₅) showed extraction of 88% of vanadium, 97% of iron and 33% of titanium after 1 hour HCL leach.**
- **Company to consider further test work programme with Sedgman on the Neomet process during Gabanintha PFS.**
- **Definitive physical beneficiation test work program ongoing at Bureau Veritas laboratories.**
- **Communiton test work phase completed and magnetic recovery work currently underway.**
- **Metallurgical test results expected within March Quarter.**

Australian Vanadium Limited (ASX:AVL, “the Company” or “AVL”) is pleased provide an update on recent and ongoing metallurgical test work on the Gabanintha Vanadium Project near Meekatharra in Western Australia.

NeoMet Polymetallic Metallurgical Process

As previously announced AVL has an engagement with Neomet and Sedgman to undertake a review of the behaviour of oxidised mineralisation from Gabanintha using the low cost, high polymetallic recovery, proprietary hydrometallurgical Neomet process (see AVL *September 2017 Quarterly Activities Report*).

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ASX ANNOUNCEMENT

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Projects:

Gabanintha – Vanadium
Blesberg, South Africa –
Lithium/Tantalum/Feldspar
Nowthanna Hill –
Uranium/Vanadium
Coates – Vanadium



Oxide TVM (titaniferous vanadiferous magnetite) ores generally show lower magnetic recovery to concentrate than transitional or fresh ore and therefore may not be as economic to process using a traditional pyrometallurgical process.

AVL is evaluating both traditional and non-traditional processing routes as it looks to maximise the value of its world class TVM resource at Gabanintha.

AVL sent core samples to be tested through a standard Neomet bench scale testing facility in their Montreal, Canada laboratory. These initial tests were conducted free-of-charge to AVL.

The proprietary process has previously demonstrated its ability to extract and recover over 95% of secondary metals at a commercial grade, with a metal purity of over 99.5%. The process potentially enables the extraction of V_2O_5 , TiO_2 and Fe_3O_2 from TVM ores such as Gabanintha. The process seeks to generate maximum value of in-situ metal credits. A unique closed HCl (hydrochloric acid) leaching circuit for acid regeneration and reuse/recycle is used in the process.

AVL studies to date focused on initial magnetic concentration of its mineralised materials and processing of the concentrate using the technically mature pyrometallurgical process. Pyrometallurgical processes require ore concentrate to be roasted at $\sim 850^\circ C$ for 2 hours to release vanadium. Alternative, hydrometallurgical methods such as the Neomet process can be economically preferred substitutes in some situations, particularly when reagents such as acid can be efficiently recycled.

Initial test work focused on Gabanintha's high-grade and low-grade oxide ROM (run of mine) material.

Results

The aim of the HCl leach test was to determine the leachability of potentially valuable metals (Fe, Ti, V) in Gabanintha material. Two near-surface oxide samples of drill core were selected from AVL's 2015 drill programme. One sample was of high grade material (from GDH 915 13-14m, 16-17m and 19-20m), the other of low grade material (from GDH 912 30-40m less 32-33m, 34-35m and 36-37m).

Both samples separately underwent a crushing (P98 = 150 micron) and homogenisation step. Both samples were assayed to determine the homogenised sample head grade. Head grades for the metals of interest are shown in Table 1.

Table 1: Head Assay of High and Low-Grade Samples

Sample Type	Chemical Analysis – Head Grade [w.t.%]					
	Ti	TiO_2	V	V_2O_5	Fe	Fe_2O_3
High Grade Material	8.8	14.7	1.00	1.78	49.1	70.3
Low Grade Material	4.4	7.3	0.38	0.67	21.4	30.7

For the high grade material after 1 hour in contact with HCl, the acid dissolved 95.7% of vanadium, 87.3% of iron and 0.7% of titanium. Titanium in the solids upgraded from 8.8w.t.% (in the starting material) to 23.4w.t.% in the pulp (residue material). This result represents a high vanadium and iron selectivity in comparison to the titanium.

For the low grade material after 1 hour in contact with HCl, the acid dissolved 88.1% of vanadium, 96.6% of iron and 33.2% of titanium.

A summary of the test results can be seen in Table 2 below.

Table 2: Abridged Results after 1 hour of Testing

Test	Time	Solution [g/L]			Solids [w.t.%]			Extraction [%]		
	[hr]	V	Ti	Fe	V	Ti	Fe	V	Ti	Fe
High Grade Material	1	2.9	0.18	123	N.R	N.R	N.R	95.7	0.7	87.3
Low Grade Material	1	0.83	2.2	43.1	N.R	N.R	N.R	88.1	33.2	96.6

N.R: Not Reported

Importantly the samples were not pre-concentrated i.e. ROM material. It is anticipated that irrespective of refinery route (pyrometallurgical or hydrometallurgical) the Gabanintha ROM material will be physically beneficiated. Sedgman indicated ROM material was sufficient for initial leach characterisation and specified their desired grind regime.

Managing Director Vincent Algar commented, “The highly positive results from this initial leach work by Neomet serves to further support the high quality nature of the high-grade material at Gabanintha. As AVL moves towards defining the exact nature of the Gabanintha operation through its definitive test work, processing circuit design and mine design, we will continue to have all options on the table. The exciting results from the initial Neomet leach test work allow us to better understand the potential recovery of other valuable metal credits.”

The Company will consider with Sedgman an additional testwork programme using the Neomet process following the completion of other ongoing test work.

Metallurgical Bench Scale Test Work

AVL is currently undertaking detailed comminution, magnetic separation and desilication test work at Bureau Veritas Metallurgical Laboratories under the management of Wood Group Consultants and an AVL engineer. Work is being conducted using diamond drill core from Gabanintha.

The testwork program commenced in November 2017 and work completed to date includes:

- Comminution tests including SMC, Abrasion and Bond Ball Mill Index tests, and
- Magnetic Separation test work including Davis Tube Recovery.

Ongoing work includes:

- Low Intensity and High Intensity Magnetic Separation, and
- Desilication and Exploratory flow sheet test work.

The test work programme is currently on schedule for completion by the end of January 2018. Results, analysis and interpretation will be prepared thereafter and should be available later in this quarter.

The aim of the test work is to provide inputs at a pre-feasibility study (PFS) level for the development of a concentrator plant flowsheet for the Gabanintha project.

“The Company’s previous test work has demonstrated excellent concentrate recovery and we anticipate the work currently underway will improve that further, as well as providing defined inputs into the next phase of work. We are very keen to get on with the PFS in this buoyant vanadium market”, commented Vincent Algar.

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About Gabanintha

Australian Vanadium Limited holds 100% of the Gabanintha Project near Meekatharra in Western Australia. Gabanintha hosts a declared Mineral Resource at Gabanintha comprising 179.6Mt at 0.75% Vanadium Pentoxide (V_2O_5), made up of a Measured Mineral Resource of 10.2Mt at 1.06% V_2O_5 , an Indicated Mineral Resource of 25.4Mt at 0.62% V_2O_5 and an Inferred Mineral Resource of 144Mt at 0.75% V_2O_5 .

The Mineral Resource includes a distinct and globally significant, massive magnetite high-grade zone of 92.8 Mt at 0.96% V_2O_5 consisting of a Measured Mineral Resource of 10.2Mt at 1.06% V_2O_5 , an Indicated Mineral Resource of 4.8Mt at 1.04% V_2O_5 and an Inferred Mineral Resource of 77.8Mt at 0.94% V_2O_5 .

Competent Person Statement — Mineral Resource Estimation

The information in this report 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 Davis is a shareholder of Australian Vanadium Limited. Mr Barnes and Mr Davis are members of the Australasian Institute of Mining and Metallurgy and 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 report of the matters based on their information in the form and context in which they appear.

The information is extracted from the report entitled “Significant vanadium resource upgrade at Gabanintha” released to ASX on 5 September 2017 and is available on the company website at www.australianvanadium.com.au.

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 Resource 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 has not been materially modified from the original market announcement.