

# VENUS METALS



**"Venus Metals Corporation holds a significant and wide-ranging portfolio of Australian gold, base metals, vanadium and lithium exploration projects in Western Australia that has been carefully assembled over time."**

## VENUS METALS CORPORATION LIMITED

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### DIRECTORS

Peter Charles Hawkins  
*Non-Executive Chairman*

Matthew Vernon Hogan  
*Managing Director*

Kumar Arunachalam  
*Executive Director*

Barry Fehlberg  
*Non-Executive Director*

### COMPANY SECRETARY

Patrick Tan

Ordinary shares on Issue	151m
Share Price	\$0.16
Market Cap.	\$24.17m
Cash & Investments	\$6m

(As at 31 March 2022)

# ASX ANNOUNCEMENT

11 May 2022



ASX CODE: VMC

## YOUANMI VANADIUM PROJECT

### MURDOCH UNIVERSITY STUDIES DELIVER ROBUST PROCESSING RESULTS FOR UNIQUE YOUANMI CRITICAL MINERAL VANADIUM OXIDE DEPOSIT PROCESS PATENT APPLICATION LODGED

Venus Metals Corporation Limited ("Venus" or the "Company") is pleased to present the results of a comprehensive hydrometallurgical study to develop an integrated process flow sheet for the extraction of vanadium, iron and titanium, conducted by the Hydrometallurgy Research Group (HRG) at Murdoch University, Western Australia.

#### HIGHLIGHTS

- Venus owns (90%) a unique open pit vanadium oxide resource of world-scale at Youanmi in the Midwest region of Western Australia. The resource has the potential to be a significant supplier to the world vanadium market particularly for the emerging renewable battery energy needs.
- Tests show blended composite raw material grading 0.66% V<sub>2</sub>O<sub>5</sub> and 44.38% Fe<sub>2</sub>O<sub>3</sub> can be upgraded by a simple concentrate process to 1.07% V<sub>2</sub>O<sub>5</sub> and 65.3% Fe<sub>2</sub>O<sub>3</sub> (Hematite).
- Reductive roast followed by low temperature acid leaching achieves a recovery of 80% vanadium (V) and 80% of iron (Fe).
- Low acid consumption is achieved after a 70% acid recovery by a new process.
- A provisional patent application for the Youanmi oxide ore process has been lodged and accepted with IP Australia.

#### WORK PLANNED

- Techno-economic assessment of the beneficiation-leaching and recovery workflow (in progress).
- Pilot plant study to be conducted at Murdoch Universities' Kwinana industrial facility, planned commencing in 2022.
- Critical Mineral grant application.
- Feasibility study targeting low capital and operating costs.



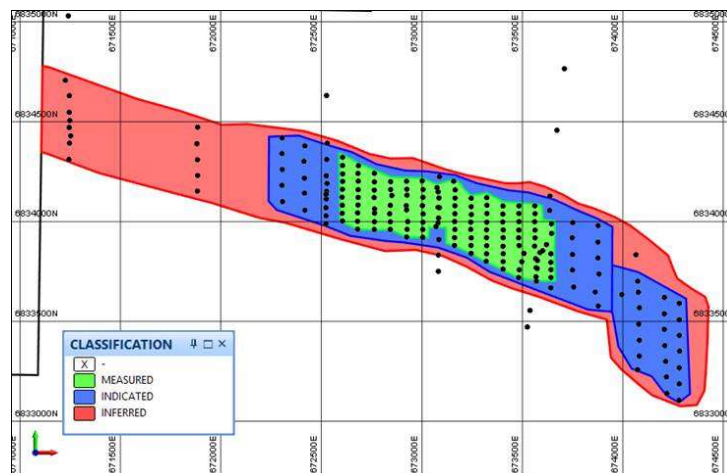
## BACKGROUND

Venus' Youanmi Vanadium deposit is located on the exploration licence 57/986 (198.5 km<sup>2</sup>), approximately 40km southeast of the very substantial vanadium deposit at Windimurra. The Youanmi Vanadium deposit has good access to major infrastructure such as gas pipeline and roads. Venus holds a 90% interest, and a prospector holds a 10% interest in this tenement.

In March 2019, Venus announced a **JORC 2012 Measured, Indicated and Inferred Oxide Resource of 134.7 million tonnes grading 0.34% V<sub>2</sub>O<sub>5</sub>, 6.27% TiO<sub>2</sub> and 21.33% Fe** (Table 1) (refer ASX release 20 March 2019)

**Table 1. Youanmi Vanadium Oxide JORC 2012 Resource Estimates -2019**

Resource	Cut-off	Tonnes	V <sub>2</sub> O <sub>5</sub>
Classification	V <sub>2</sub> O <sub>5</sub> %	(Millions)	%
Measured	0.1%	31.55	0.33
Indicated	0.1%	54.37	0.33
Inferred	0.1%	48.82	0.36
<b>Total</b>	<b>0.1%</b>	<b>134.73</b>	<b>0.34</b>



**Figure 1. Plan View showing Measured, Indicated and Inferred Resources area**

In 2019, Venus signed a metallurgical research contract with Professor Aleks Nikoloski and his team at Murdoch University, Perth, to advance the Youanmi Vanadium Oxide project (refer ASX release 17 June 2019) under a Commonwealth co-funded research grant. The research work was carried out over the past three years.



The study was undertaken on ore from four RC drill holes spanning an area around 400 m wide in the Youanmi deposit. The samples were characterized separately and then blended to produce a composite which was used for the majority of the testwork.

The blended composite grades were **0.66%  $V_2O_5$  and 44.38%  $Fe_2O_3$** . Different beneficiation options were evaluated to reject reagent consuming gangue components. Grades of **1.07%  $V_2O_5$  and 65.3%  $Fe_2O_3$**  were produced. The best extractions for **vanadium (80%) and iron (80%)** were obtained using low-temperature acid leach following reductive roast leaches. Low acid consumption was recorded, 151 kg/t and 236 kg/t (7 and 24 hours respectively). Around **72% sulfuric acid was extracted** from the leach liquor by a proprietary process. **Purified vanadium** was produced by separation of the titanium using iron as a reductant.

Further test work is planned to quantify vanadium pentoxide from the leach liquor produced. Results from this research together with the outcomes of the previous research will form the basis for the design and operation of a pilot plant study, proposed to start in 2022.

Reference:

Hydrometallurgy Research Group, Murdoch University, Final Reports Part 1 & 2, 2022,  
“Hydrometallurgical process for the treatment of iron-titanium-vanadium ore from Youanmi”.

This announcement is authorised by the Board of Venus Metals Corporation Limited.

For further information please contact:

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### **Acknowledgements**

Financial support of the research by AusIndustry is gratefully acknowledged as is the outstanding outcome focused scientific work by Professor Nikoloski and his team.

### **Forward-Looking Statements**

This document may include forward-looking statements. Forward-looking statements include, but are not limited to, statements concerning Venus Metals Corporation Limited planned exploration program and other statements that are not historical facts. When used in this document, the words such as "could," "plan," "estimate," "expect," "intend," "may", "potential," "should," and similar expressions are forward-looking statements. Although Venus Metals Corporation Ltd believes that its expectations reflected in these forward-looking statements are reasonable, such statements involve risks and uncertainties and no assurance can be given that actual results will be consistent with these forward-looking statements.

### **Competent Person's Statement**

The information in this release that relates to the Youanmi Vanadium Project is based on information compiled by Mr Barry Fehlberg, a Competent Person who is a Member of the Australasian Institute of Mining and Metallurgy. Mr Fehlberg is Exploration Director of Venus Metals Corporation Limited. Mr Fehlberg has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity that is being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Minerals Resources and Ore Reserves'. Mr Fehlberg consents to the inclusion in the release of the matters based on his information in the form and context that the information appears.

## JORC Code, 2012 Edition – Table 1

### Youanmi Vanadium Project

#### Section 1 Sampling Techniques and Data

Criteria	Commentary
<i>Sampling techniques</i>	<ul style="list-style-type: none"> <li>In 2018 Venus Metals Corporation (VMC) drilled 139 RC holes for a total of 5,919m. Samples were collected for every meter with a representative split taken for analysis using a riffle splitter before bagging the residue and temporarily storing on site (see ASX release 20 March 2019).</li> <li>Four samples (SC040, SC041, SC066 and SC074) from the 2018 RC drilling were used for the metallurgical test work. The samples were characterized separately and then blended to produce a composite sample which was used for the metallurgical testwork.</li> </ul>
<i>Drilling techniques</i>	<ul style="list-style-type: none"> <li>RC drilling by VMC in 2018; RC holes drilled to fresh rock interface.</li> </ul>
<i>Drill sample recovery</i>	<ul style="list-style-type: none"> <li>No recovery issues were reported in the Venus drilling reports. For further information refer to ASX release 20 March 2019.</li> </ul>
<i>Logging</i>	<ul style="list-style-type: none"> <li>All RC drill holes were geologically logged.</li> </ul>
<i>Sub-sampling techniques and sample preparation</i>	<ul style="list-style-type: none"> <li>The subject of the study were four RC drillhole samples (SC040, SC041, SC066 and SC074) from the Venus Metals' Youanmi project in Western Australia, which were blended to produce a composite that was characterised and used in the hydrometallurgical study.</li> </ul>
<i>Quality of assay data and laboratory tests</i>	<ul style="list-style-type: none"> <li>Blended ores and solid samples and solutions generated during the metallurgical test program were submitted to Bureau Veritas in Canning Vale for Fe, V, Ti, Al and gangue elements analysis, while identifications of minerals in solid samples and analysis of leach solutions were done at Murdoch University.</li> <li>QC of assay data was by the research team at Murdoch University and showed acceptable accuracy and precision of analytical data.</li> </ul>
<i>Verification of sampling and assaying</i>	<ul style="list-style-type: none"> <li>No independent verification of sampling and assaying has been reported.</li> </ul>
<i>Location of data points</i>	<ul style="list-style-type: none"> <li>The RC drill hole locations (collar) were surveyed using DGPS. Grid systems used were Geodetic datum: GDA 94, Vertical datum: AHD and Projection: MGA, zone: 50.</li> <li>Vertical and horizontal accuracies c. 10cm.</li> <li>Drillhole locations refer ASX release 20 March 2019.</li> </ul>
<i>Data spacing and distribution</i>	<ul style="list-style-type: none"> <li>RC drilling was on a 80m by 40m grid; holes were stopped just below the oxide/fresh interface.</li> </ul>
<i>Orientation of data in relation to geological structure</i>	<ul style="list-style-type: none"> <li>RC drill holes were inclined at -60° and drilled to the north; for collar details see ASX release 20 March 2019.</li> <li>The drilling was approximately perpendicular to the strike of the targeted mineralized zones.</li> </ul>
<i>Sample security</i>	<ul style="list-style-type: none"> <li>Samples were transported and handled by Venus staff and contractors only.</li> </ul>
<i>Audits or reviews</i>	<ul style="list-style-type: none"> <li>No audits or reviews have been carried out to date on sampling techniques and data.</li> </ul>

## Section 2 Reporting of Exploration Results

(Criteria listed in the preceding section also apply to this section.)

Criteria	Commentary
<i>Mineral tenement and land tenure status</i>	<ul style="list-style-type: none"> <li>The Youanmi Project tenement E57/986 is a granted Exploration License jointly owned by Venus Metals Corporation Limited (90%) and a Prospector (10%). Rox Resources owns 50% in gold rights only.</li> <li>To the best of Venus' knowledge, there are no known impediments to continue the project development.</li> </ul>
<i>Exploration done by other parties</i>	<ul style="list-style-type: none"> <li>The tenement area was historically explored by many explorers since 1967. Australian Gold Resources Limited (AGR) explored extensively for vanadium resources within historical tenement E59/419.</li> </ul>
<i>Geology</i>	<ul style="list-style-type: none"> <li>The project area lies on the northern part of the Youanmi layered intrusion. Most of the area of interest is east-west striking with layering dipping to the south.</li> <li>Gabbro (ranging from leucocratic to melanocratic), anorthosite, fine-grained gabbro, magnetite-gabbro and magnetite have been recognised in drilling and outcrop. The target zone is characterised by meter-scale layering of magnetite, magnetite-gabbro, anorthosite and leucogabbro. Leuco and melano gabbro are more common away from the vanadium target zone.</li> <li>The magnetite-bearing horizons appear to be more resistant to weathering and therefore the top of fresh rock is generally at a higher relative elevation than that in adjacent gabbro. However, in erosional areas where part of the regolith has been stripped, saprolite derived from magnetite-rich units has proved to be more resistant to erosion and often forms the top of breakaways. Depth to fresh rock (Top of Fresh Rock-TOFR) in the topographically higher ground is usually about 35m, but can be up to 55m.</li> </ul>
<i>Drill hole Information</i>	<ul style="list-style-type: none"> <li>For drill hole information refer to ASX release 20 March 2019.</li> </ul>
<i>Data aggregation methods</i>	<ul style="list-style-type: none"> <li>The four samples subject to the metallurgical test work were produced by combining individual one-meter drill samples (stored in plastic bags) for the respective intervals from four drill holes and producing four composite batches: SC040, SC041, SC066 and SC074.</li> </ul>
<i>Relationship between mineralisation widths and intercept lengths</i>	<ul style="list-style-type: none"> <li>The vanadium mineralization dips at approximately 30° to the south. Drilling was at -60° to the north, approximately perpendicular to the mineralization.</li> </ul>
<i>Diagrams</i>	<ul style="list-style-type: none"> <li>For plans and diagrams see ASX release 20 March 2019.</li> </ul>
<i>Balanced reporting</i>	<ul style="list-style-type: none"> <li>For RC drill results refer to ASX release 20 March 2019.</li> </ul>
<i>Other substantive exploration data</i>	<ul style="list-style-type: none"> <li>For earlier metallurgical test work refer to ASX releases dated 16 October 2018 and 29 January 2019..</li> </ul>
<i>Further work</i>	<ul style="list-style-type: none"> <li>Techno-economic assessment of the beneficiation-leaching and recovery workflow (in progress).</li> <li>Pilot plant study to be conducted at Murdoch Universities' Kwinana industrial facility, planned commencing in 2022.</li> <li>Critical Mineral grant application.</li> <li>Feasibility study targeting low capital and operating costs.</li> </ul>