Andromeda Metals Limited ASX: ADN

10/431 King William Street
Adelaide, SA 5000

Tel:+61 8 7089 9800
ir@andromet.com.au

ABN
75 061 503 375

ASX Announcement

Andromeda Achieves HPA Breakthrough: Successful Production of 4N HPA & Validation of Novel Flow Sheet

Andromeda Metals Limited (ASX: **ADN**) (**Andromeda**, the **Company**) is pleased to announce it has progressed its plan to commercialise the production of the critical mineral high purity alumina (**HPA**)[1].

- *Lab-scale test work undertaken to produce HPA on novel flowsheet using high-quality refined kaolin from the Great White Project (**GWP**)[2].*
- *Independent analysis confirms HPA produced above 99.99% purity (**4N HPA**), at 99.9985%.*
- *Process is expected to be significantly more cost effective and less carbon intensive than other reported processes.*
- *Scoping Study will be advanced as a next step.*
- *Andromeda's priority remains the development of its Great White Project, with successful progress on HPA providing additional potential upside for the Company.*

The successful test work follows over 7 years of investigation, research and metallurgical test work by the Company, which ultimately led to the development of the novel process flowsheet.

HPA samples produced from the test work were submitted for independent analysis to EAG Eurofins USA, a globally recognised leader in materials testing located in the United States of America; and,

The analysis conducted by EAG Eurofins USA confirmed the HPA sample as 99.9985% pure, which was independently confirmed by analysis conducted by Australia's National Science Agency, the Commonwealth Scientific and Industrial Research Organisation (CSIRO).

The drive to produce HPA from kaolin stems from the growing demand in established expanding markets for the manufacture of synthetic sapphire used in light-emitting diodes (LEDs), semi-conductors, wearable tech, lithium-ion batteries and high-tech ceramics. Demand for HPA is predicted to outstrip global supply by 45% by 2028[3].

Reportedly 88%[4] of global HPA production is currently being made by hydrolysis through synthesizing aluminium alkoxide from high-cost aluminium metal which currently trades at between US$2,000-2,500/T and is predicted to continue rising. Andromeda's novel process using kaolin from the GWP provides a significant cost advantage[5,6].

[1] HPA is included on the Australian Government's Critical Minerals List – https://www.industry.gov.au/publications/australias-critical-minerals-list-and-strategic-materials-list
[2] Refer to ASX announcement dated 20 June 2024 titled *Andromeda progresses HPA product development*.
[3] Source: The Global High Purity Alumina Market, Altech Chemicals, March 2020.
[4] HPA Market size and share analysis: Growth trends and Forecasts (2025-2030), Mordor Intelligence
[5] https://tradingeconomics.com/commodity/aluminum
[6] https://www.statista.com/statistics/675845/average-prices-aluminum-worldwide/

Andromeda's novel flowsheet uses established metallurgical unit operations to refine the aluminium oxide (Al_2O_3) from kaolin. The successful trials at lab scale of the flowsheet sets Andromeda apart from other HPA producers, as the process is more cost and carbon effective than other reported processes.

Importantly, the novel flowsheet does not require hydrochloric acid (HCl) crystallisation of ACH (aluminium chloride hexahydrate), nor re-leaching using acid at high temperatures and under high pressure to achieve high purity levels. It also does not need the product to be calcined typically above 1250°C to remove chlorides. Andromeda's novel process produces HPA that can be calcined starting at 700 °C and provides a wide range of product forms, from amorphous to crystalline (gamma to alpha). Further, the process is very flexible and the HPA produced can be tailor made to suit the customer and application.

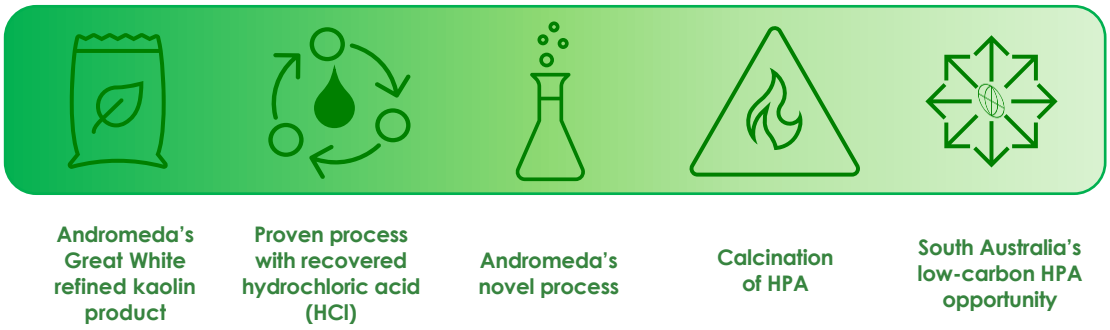

Figure 1 – *Andromeda's end-to-end process for the production of HPA from GWP.*

The test work results at lab scale indicate that one tonne of Andromeda's 4N HPA can be produced with less than 4 tonnes of carbon dioxide (CO_2) emitted, which is68% lower than the 12.3 tonnes of CO_2 produced per tonne of HPA using the traditional aluminium alkoxide process[7]. Furthermore, this can be driven down further through leveraging South Australia's leadership in generating more than 70% of its electricity from renewable sources[8].

Following the positive results from the test work, the Company intends to complete a Scoping Study.

In parallel, Andromeda will seek to engage with HPA customers to assist in developing the product form, morphology and crystalline structure to suit their applications.

The Company also intends to investigate government funding opportunities.

Sarah Clarke, Andromeda's Acting CEO said:

"Whilst Andromeda's primary focus remains the development of the Great White Project, the production of HPA is a high-value and complementary opportunity.

"This latest test work validates our novel flowsheet, showing our Great White CRM™ product from the Great White Project can be used to produce HPA at an impressive 99.9985% purity.

[7] White Paper – Green credentials of Altech High Purity Alumina process, March 2020 (page 3).
[8] https://www.energymining.sa.gov.au/consumers/energy-grid-and-supply/our-electricity-supply-and-market

"These outstanding results demonstrate the potential to expand Andromeda's product portfolio in the future to include a value-added critical mineral. These results also underpin our confidence in progressing HPA through to the next stage of development.

"The premise of producing HPA – a high-value, in-demand product – at lower cost and reduced carbon intensity compared to established processes should be highly attractive to any manufacturers using HPA in their products. We look forward to sharing these results and collaborating closely with HPA end-users in support of progressing this opportunity."

This announcement has been approved for release by the Board of Andromeda Metals Limited.

For more information about the Company and its projects, please visit our website, www.andromet.com.au or contact:

Manager, Investor Relations & Corporate Affairs
Patrick Sinclair
T: 08 7089 9819
M: 0403 708 431
E: Patrick.Sinclair@andromet.com.au

COMPETENT PERSONS STATEMENT

Information in this announcement that relates to metallurgical results is based on information compiled by, or under the supervision of, Mr Eric Whittaker who is a Member of the Australasian Institute of Mining and Metallurgy (MAusIMM). Mr Whittaker is the Chief Geologist of Andromeda Metals Limited and has sufficient experience relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking 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 (the "JORC Code"). Mr Whittaker has 30 years of experience in the mining industry. Mr Whittaker consents to the information in the form and context in which it appears. Mr Whittaker holds Performance Rights in the Company and is entitled to participate in Andromeda's employee incentive plan.

FORWARD-LOOKING STATEMENTS

This document contains or may contain certain forward-looking statements and comments about future events, that are based on Andromeda's beliefs, assumptions and expectations and on information currently available to management as at the date of this document. Often, but not always, forward-looking statements can generally be identified by the use of forward-looking words such as "may", "will", "expect", "plan", "believes", "estimate", "anticipate", "outlook", and "guidance", or similar expressions. Such statements are only expectations or beliefs and are subject to inherent risks and uncertainties which could cause actual values, results or performance achievements to differ materially from those expressed or implied in this presentation. Where Andromeda expresses or implies an expectation or belief as to future events or results, such expectation or belief is expressed in good faith and on a reasonable basis. No representation or warranty, express or implied, is made by Andromeda that the matters stated in this presentation will in fact be achieved or prove to be correct. Except as required by law, Andromeda undertakes no obligation to provide any additional or updated information or update any forward-looking statements, whether on a result of new information, future events, results or otherwise. Readers are cautioned against placing undue reliance on forward-looking statements. These forward-looking statements are not guarantees of future performance and involve known and unknown risks, uncertainties, assumptions and other important factors, many of which are beyond the control of Andromeda, the directors, and management of Andromeda.

Appendix 1: EAG Eurofins HPA assay purity results

eurofins | EAG Laboratories

GDMS
Analytical Report

103 Commerce Blvd. Liverpool, NY 13088
T (315) 431-9900 F (315) 431-9800
info.ny@eag.com www.eag.com

Customer: **Andromeda Metals Ltd.** *P.O.#*
Level 10, 431 King William Street, Adelaide, 5000 Australia
Date: 28-Apr-2025 *Job #* S0PVQ417
Customer ID: **Alumina** *Sample ID:* S250421114
Batch No: GW-HPA-0001

[Rev: 2025-04-28 17:20:34]

Element	Concentration [ppm wt]	Element	Concentration [ppm wt]
Li	< 0.05	Ag	< 0.5
Be	< 0.05	Cd	< 0.5
B	< 0.05	In	< 5
O	Matrix	Sn	< 0.5
F	=< 10	Sb	< 0.1
Na	0.25	Te	< 0.1
Mg	0.48	I	< 0.1
Al	Matrix	Cs	< 0.1
Si	3.6	Ba	< 0.1
P	< 0.1	La	< 0.5
S	4.4	Ce	< 0.5
Cl	1.9	Pr	< 0.1
K	< 0.5	Nd	< 0.1
Ca	0.55	Sm	< 0.1
Sc	< 0.05	Eu	< 0.1
Ti	0.07	Gd	< 0.1
V	< 0.05	Tb	< 0.1
Cr	< 0.5	Dy	< 0.1
Mn	< 0.05	Ho	< 0.1
Fe	1.3	Er	< 0.1
Co	< 0.05	Tm	< 0.1
Ni	< 0.5	Yb	< 0.1
Cu	2	Lu	< 0.1
Zn	< 0.5	Hf	< 1
Ga	< 0.1	Ta	Electrode
Ge	< 1	W	< 10
As	< 1	Re	< 0.5
Se	< 1	Os	< 0.1
Br	< 0.5	Ir	< 0.1
Rb	< 0.05	Pt	< 1
Sr	< 0.05	Au	Interference
Y	< 0.05	Hg	< 0.5
Zr	< 0.1	Tl	< 0.5
Nb	< 50	Pb	< 0.5
Mo	< 20	Bi	< 0.5
Ru	< 0.5	Th	0.02
Rh	< 0.5	U	< 0.01
Pd	< 0.5		

Referenced to application note M074723 (eag.com/m074723)

ISO 17025

Testing Cert. #2797.03

Purity = 99.9985%

Reviewed by _____ G. BARTOV (Analyst)

JORC CODE, 2012 EDITION – TABLE 1

Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	• *Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.* • *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* • *Aspects of the determination of mineralisation that are Material to the Public Report.* • *In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.*	• The feed product used in Andromeda's HPA process was a refined kaolin product (Great White CRM™) from the Great White Project. • The samples of high purity alumina analysed by EAG Eurofins USA (with validation analyses done by CSIRO) were produced from Great White CRM™ through a proprietary method developed by Andromeda. • The HPA process and reagents used are commercial-in-confidence.
Drilling techniques	• *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).*	• Not applicable - manufactured product
Drill sample recovery	• *Method of recording and assessing core and chip sample recoveries and results assessed.* • *Measures taken to maximise sample recovery and ensure representative nature of the samples.* • *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*	• Not applicable - manufactured product
Logging	• *Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.* • *Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.* • *The total length and percentage of the relevant intersections logged.*	• Not applicable - manufactured product
Sub-sampling techniques and Sample Preparation	• *If core, whether cut or sawn and whether quarter, half or all core taken.* • *If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.* • *For all sample types, the nature, quality and appropriateness of the sample preparation technique.* • *Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.* • *Measures taken to ensure that the sampling is representative of the in situ material*	• Analysed samples were homogenised, lab produced alumina.

Criteria	JORC Code explanation	Commentary
	collected, including for instance results for field duplicate/second-half sampling. • *Whether sample sizes are appropriate to the grain size of the material being sampled.*	
Quality of assay data and laboratory tests	• *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.* • *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.* • *Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.*	• The primary analysis of the high-purity alumina (HPA) sample was determined by EAG Eurofins USA using glow discharge mass spectroscopy. • Primary selected analytical method is appropriate with acceptable levels of accuracy and precision.
Verification of sampling and assaying	• *The verification of significant intersections by either independent or alternative company personnel.* • *The use of twinned holes.* • *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* • *Discuss any adjustment to assay data.*	• Verification of EAG Eurofins USA's analytical results are supported by CSIRO's analytical results done on triplicate samples. • The CSIRO method involved a lithium borate fusion and digestion in hydrochloric acid. The digested solutions were analysed using an Agilent 8900 ICP-MS. • It is acknowledged that the selected CSIRO analytical method does not have the same level of detection as EAG Eurofins USA's method of glow discharge mass spectroscopy but is sufficient to determine that the samples tested were better than 99.99% purity.
Location of data points	• *Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.* • *Specification of the grid system used.* • *Quality and adequacy of topographic control.*	• Not applicable - manufactured sample
Data spacing and distribution	• *Data spacing for reporting of Exploration Results.* • *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.* • *Whether sample compositing has been applied.*	• Not applicable - manufactured sample
Orientation of data in relation to geological structure	• *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.* • *If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.*	• Not applicable - manufactured sample
Sample security	• *The measures taken to ensure sample security.*	• The Chain of Custody was managed by Andromeda. Double sealed samples were electronically tracked during transport by commercial courier contractors between processing facilities and analytical labs.
Audits or reviews	• *The results of any audits or reviews of sampling techniques and data.*	• No external audits have been undertaken • The competent person has been involved with Andromeda's research into HPA for over 5 years and has worked closely with the chemists in the development of the current HPA flowsheet.

1.2 Section 2 Reporting of Exploration Results

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

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	• *Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.* • *The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.*	• The Great White Kaolin Project is located on ML 6532. • The ML 6532 is held by Andromeda Industrial Minerals Pty Ltd, a Andromeda Industrial Minerals Pty Ltd Andromeda Industrial Minerals Pty Ltd • 100% owned subsidiary of Andromeda Metals Ltd. • There are no known non-government royalties due. • Andromeda owns the freehold land beneath ML 6532. • The underlying land title being freehold has extinguished Native Title. • There are no known heritage sites within the Great White area which preclude exploration or mineral development. • All tenements are secure and compliant with requirements issued by the Government of South Australia's Department for Energy and Mining (DEM) at the date of this report.
Exploration done by other parties	• *Acknowledgment and appraisal of exploration by other parties.*	• Not applicable - manufactured product
Geology	• *Deposit type, geological setting and style of mineralisation.*	• Great White Kaolin deposit developed in situ by lateritic weathering of the feldspar-rich Hiltaba Granite. • The Great White kaolin deposit is a sub-horizontal zone of kaolinised granite resting with a sharp contact on unweathered granite. The kaolinised zone is overlain by loosely consolidated Tertiary and Quaternary sediments. • High quality kaolin-halloysite deposits occur extensively across the Great White Project area

Criteria	JORC Code explanation	Commentary

Drill hole Information	• *A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:*
	  ○ *easting and northing of the drill hole collar*
	  ○ *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar*
	  ○ *dip and azimuth of the hole*
	  ○ *down hole length and interception depth*
	  ○ *hole length.*
	• *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*
		• Not applicable - manufactured product

Data aggregation methods	• *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.* • *Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.* • *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	• The 4N purity result of 99.9985% was calculated by the addition of all the assayed element impurities that reported above the detection limit (14.57 ppm = 0.001457%) then subtracting this result from 100%.
Relationship between mineralisation widths and intercept lengths	• *These relationships are particularly important in the reporting of Exploration Results.* • *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* • *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	• Not applicable - manufactured product
Diagrams	• *Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	• Not applicable - manufactured product
Balanced reporting	• *Where comprehensive reporting of all Exploration Results is not practicable, representative* • *reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	• Comprehensive results are reported.
Other substantive exploration data	• *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density,* • *groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	• Not applicable - manufactured product
Further work	• *The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* • *Diagrams clearly highlighting the areas of possible extensions, including the main geological* • *interpretations and future drilling areas, provided this information is not commercially sensitive.*	• Andromeda intends to commence a pilot plant operation to validate the process flow sheet on a semi-continuous, end-to-end basis.