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Andromeda Metals Limited ASX: ADN

ASX Announcement

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Successful Commercial Scale Pilot Plant Ceramic Glaze Trials

- **Results validate Great White CRM™ for use in the industrial production of ceramic glazes**
- **Opens up new potential sales opportunities in ceramic glaze applications**
- **Trials conducted at established ceramic frit and glaze producer in Spain, replicating industrial equipment and conditions found in typical commercial tile production facilities**

Andromeda Metals Limited (ASX: **ADN**) (**Andromeda**, the **Company**) is pleased to announce the successful completion of commercial scale pilot plant trials conducted at an established ceramic frit and glaze producer, validating the use of Great White CRM™ in ceramic glaze formulations.

The findings of the trials successfully validate Great White CRM™ as a high-quality kaolin product for use in industrial glaze formulations, enhancing Andromeda Metals' position as a key supplier to the ceramic industry.

Andromeda's kaolin products have previously been certified by ceramics industry experts and customers for use in high-end ceramics, tableware and countertops. Ceramic frits and glazes are the glass coating on ceramics. The validation of Great White CRM™ for frits and glazes at industrial scale opens up new potential sales opportunities for Andromeda's high-quality kaolin.

The trials assessed the use of Great White CRM™ in two key glaze formulation segments:

- a standard glaze composition to manufacture single-fired wall tiles with a glossy white opaque finish, with kaolin content of 8.3% by weight; and,
- a matt "smaltobbio" glaze composition for the manufacture of porcelain tiles, with a kaolin content of 22%.

For each glaze formulation, the trials also compared the results to glazes using the industry benchmark kaolin used by most ceramic glaze companies in Southern Europe.

Key trial findings, successfully validating Great White CRM™ for use in glaze formulations, were[1]:

- **Tests strongly support using Great White CRM™ in the industrial manufacture of ceramic glazes**, providing improvement in key glaze properties, such as adhesion, cohesion, and whiteness;
- **Enhanced Glaze Properties**: The use of Great White CRM™ significantly enhanced the properties of the glazed tiles. Notably, the adhesion and cohesion of the glaze layer before

[1] Industrial validation of Andromeda CRM kaolin for ceramic glazes, Galesk Consultancy, May 2025.

firing were improved, ensuring greater stability and reduced risk of defects such as chipping or peeling during handling; and,

- **Feasibility for Industrial Scale Production**: Great White CRM™ can be successfully used in industrial-scale ceramic glaze production, with positive impacts on adhesion, whiteness, and overall tile performance.

The trials were conducted at an established ceramic frit and glaze producer in Alcora, Spain. Using their glazing pilot plant, which replicate the industrial equipment and conditions found in typical commercial tile production facilities, the trials were under the control and monitoring of the Institute of Ceramic Technology (ITC)[2] and overseen by Galesk Consultancy.

Sarah Clarke, Andromeda's Acting Chief Executive Officer said:

"The successful trials validate Great White CRM™ as a reliable, high-performance material for ceramic manufacturers, delivering sought-after properties such as improved adhesion of the glazes and higher whiteness when fired.

"The positive results from the trials can now be used to market the high-quality products from the Great White Project for use in ceramic glaze formulations, expanding the range of uses and potential customers for Great White CRM™.

"These positive results open up additional sales opportunities, supporting future potential expansion, while the Company progresses finalising the binding financing documentation for a debt facility with Merricks Capital[3] and securing the balance of funding necessary to support a final investment decision for the Stage 1A+ development of the Great White Project."

COMPETENT PERSONS STATEMENT

Information in this announcement that relates to exploration results is based on information compiled and thoroughly reviewed by 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.

[2] Instituto de Tecnología Cerámica (ITC), located at the University Jaime I of Castellón in Spain.

[3] Refer ADN ASX dated 4 June 2025 titled Andromeda enters into exclusive negotiations for debt financing.

Summary findings of the trials

Following is a summary of the findings of the trials successfully validating Great White CRM™ for use in glaze formulations, were:

- **Great White CRM™ can be used in industrial conditions to produce single fast fired glossy tiles**, resulting in higher whiteness (ie quality) values when compared to tiles using the standard kaolin currently used commercially;[4]
- **Great White CRM™ can be used in industrial conditions to produce porcelain glazed tiles**,[5] resulting in:
  - ✓ **Improved adhesion** of the ceramic glaze leading to significant improvements in the force required to chip off the unfired glaze from the ceramic substrate. This is particularly important in reducing the rate of defects in the production of large-format tiles or ceramic slabs.
  - ✓ **Improved Lightness**: Standout increases in L* values, representing lightness in the glaze, indicating that the glaze became brighter and whiter, which is a highly desirable aesthetic quality, especially for super-white tiles. This improvement contributes to a cleaner, fresher look, which enhances the overall visual appeal of the tiles, making them more suitable for a wide range of applications including premium countertops.
  - ✓ **Lower Red-Green (a*) and Yellow-Blue (b*) colour values**, with the tiles displaying less red and yellow tones, which is beneficial for achieving whiter, more neutral glazes. A reduction in yellowness (b*) in particular, ensures a cooler and more contemporary finish, which is preferred for modern tile designs that emphasise clean, neutral aesthetics.
  - ✓ **Enhanced Whiteness**: The overall whiteness of the tiles was significantly improved, as indicated by the higher L* values and lower a* and b* values. This enhanced whiteness is crucial for producing high-quality tiles with a pure, clean look. It also improves the reflective quality of the surface, making the tiles appear brighter and more vibrant, which is highly valued in both wall and decorative tile applications and countertops.

Figure 1 - Commercial scale trial showing Glazing line a pilot plant facility in Spain (Source: Galesk, 2024)

[4] Feasibility of using Kaolin CRMt in ceramic glazes (I). Production of glossy glazed tiles on a pilot scale, ITC, January 2025.
[5] Feasibility of using Kaolin CRMt in ceramic glazes (II). Production of porcelain glazed tiles on a pilot scale, ITC, January 2025.

The results from the trials are detailed in the following reports completed by ITC:

- C244023 – Feasibility of using Great White CRM™ kaolin in ceramic glazes (I). Production of glossy glazed tiles on a pilot scale; and,
- C245295 – Feasibility of using Great White CRM™ kaolin in ceramic glazes (II). Production of porcelain glazed tiles on a pilot scale.

The test work detailed in C244023 involved comparing glaze compositions for wall tiles using Andromeda's Great White CRM™ kaolin and the industry benchmark kaolin currently employed by most of the ceramic glaze manufacturing companies in Southern Europe. These glazes were prepared and applied to tile engobes on a pilot scale, then fired under industrial conditions.

Similarly, the test work described in C245295 focused on comparing matt "smaltobbio" glaze compositions using Andromeda's Great White CRM™ kaolin and the industry benchmark kaolin used by most of the ceramic glaze manufacturing companies in Spain. These glazes were prepared and applied to green porcelain tiles on a pilot scale, followed by firing under industrial conditions.

Both ceramic glaze compositions were subjected to cohesion and adhesion tests, whose results are presented in Table 1, to evaluate the bonding strength between the glaze and the tile. The results indicated that the Andromeda glaze required greater force to fracture or peel off compared to the standard glaze.

Table 1. *Cohesion and adhesion tests results for C244023 and C245295*

Composition	Glossy glazed tiles Force (N)	Matt glazed tiles Force (N)
Glaze Standard	14 ± 1	62 ± 2
Glaze Andromeda	17 ± 1	69 ± 3

The aesthetic properties for both tests are summarised in Tables 2 and 3. The results indicate that glazes incorporating Andromeda's Great White CRM™ kaolin produced brighter (L*) and less yellow (b*) finishes, leading to a slightly higher whiteness index (WI).

Table 2. *C244023 – Glossy glazed tiles – chromatic co-ordinates, whiteness index (WI), yellowness index (YI) and gloss.*

Composition	Temperature (ºC)	L*	a*	b*	WI	YI	Gloss 60º	Gloss 20º
Glaze Standard	1120	91.4	-0.73	0.36	77.7	0.1	93	76
Glaze Andromeda	1120	92.1	-0.69	0.10	80.4	-0.3	92	76

Table 3. *C245295 – Matt glazed tiles – chromatic co-ordinates, whiteness index (WI), yellowness index (YI) and gloss.*

Composition	Sealing temperature (ºC)	L*	a*	b*	WI	YI	Gloss 60º	Gloss 85º
M- Standard	1210	78.5	0.30	1.34	47.3	3.1	2	0
M- Andromeda	1230	80.1	0.10	0.75	53.0	1.8	2	0

The methods for the above analyses are summarised in JORC Table 1 under "Quality of assay data and laboratory tests".

Figure 2 - Test tiles fired in an industrial kiln (Source: Pamesa)

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:

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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 ceramic glaze trials was a refined kaolin product (Great White CRM™) from the Great White Project. • The glaze formulations used in the glaze trials 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 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.*	• Analysed samples were homogenised, refined kaolin product (Great White CRM™) from the Great White Project.

Criteria	JORC Code explanation	Commentary
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 conditions used for glazing and firing the tiles were representative of those used in industrial production. • Assessment of cohesion and bonding of the applied layers is tested using a blade connected, by a rod, to the load cell of an INSTRON universal testing machine that continuously measures the force that must be applied for the blade to cut into the layer. The test ends when the layer peels or fractures, and the maximum force (F_{max}) registered to that point is recorded. • Determination of the chromatic coordinates L* (L*=0 black, L*= 100 white), a* (a*<0 green, a*>0 red), and b* (b*<0 blue, b*>0 yellow) of the glaze coatings, produced as set out above, were determined on a GretagMacbeth Color-Eye spectrophotometer, the measurements being performed according to the CIELab system using a D65 illuminant and 10° standard observer. For the engobed tiles, the CIE Ganz whiteness index (WI) and the ASTM D1925 yellowness index (YI) were also determined. • Glaze surface gloss of the engobed tiles (C244023) was determined on a reflectometer, measuring at an angle of 60° and an angle of 20°, angle of measurement recommended for very glossy surfaces (gloss values higher than 70 at an angle of 60°). • Glaze surface gloss of the glazed tiles (C245295) was determined on a reflectometer, measuring at an angle of 60° and an angle of 85°, angle of measurement recommended for matt surfaces (gloss values lower than 10 at an angle of 60°). • The differences in fluxibility between both compositions were evaluated in the laboratory by determining their sealing temperature (temperature at which they became impermeable). Tiles were tested at 1200°C, 1210°C, 1220°C and 1230°C. The permeability was checked by dropping a drop of water on the surface of the cold fired tile and observing if it was absorbed.
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.*	• The tests that were conducted at a commercial ceramic frit and glaze producer in Alcora, Spain, using their glazing pilot plant, was under the control and monitoring of the Institute of Ceramic Technology and overseen by Galesk Consultancy.
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.*	• Not applicable - manufactured sample

	• *Quality and adequacy of topographic control.*	
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 employed by Andromeda since February 2020, and is comfortable in reviewing the work reported in this release.

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.*	• Not applicable – no maximum or minimum grade truncations have been applied, and no metal equivalent values have been quoted.
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.*	• The outcomes of this trial will support engagement with potential offtake partners.