

**Andromeda Metals Limited**

ABN: 75 061 503 375

**Corporate details:**

ASX Code: ADN

Cash (31 Mar 2021): \$6.70 million

Issued Capital:

2,160,727,827 ordinary shares

86,320,000 unlisted options

19,750,000 performance rights

**Directors:****Rhod Grivas**

Non-Executive Chairman

**James Marsh**

Managing Director

**Nick Harding**Executive Director and  
Company Secretary**Joe Ranford**

Operations Director

**Andrew Shearer**

Non-Executive Director

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# ASX Announcement

4 June 2021

## New Research Project into Agricultural Applications for Halloysite Nanotubes

### Summary

- **Andromeda Metals and Minotaur Exploration, through their jointly owned entity Natural Nanotech, are to participate in a major new research project on nutrient delivery to cropping soils utilising halloysite nanoclays.**
- **The 3 year \$2.4M Project, which includes a successful research grant application through the Cooperative Research Centre for High Performance Soils (Soil CRC), is scheduled to commence in June and will be led by University of Newcastle's Professor Ajayan Vinu.**
- **The Project will include a consortium of soil scientists, agronomists and industry partners under the Soil CRC umbrella (including amongst others the University of Newcastle, Murdoch University and the NSW Department of Primary Industries).**
- **The Project will focus on engineered nanomaterial derived from Great White halloysite as novel nutrient delivery vehicles for the Australian cropping industry.**

### Discussion

Natural Nanotech Pty Ltd (NNT) is a research and commercialisation venture jointly owned (50:50) by Andromeda Metals Limited (ASX: ADN, Andromeda) and Minotaur Exploration Limited (ASX: MEP, Minotaur), formed to investigate advanced nanotechnology applications for halloysite. NNT is working with the University of Newcastle's Global Innovative Center for Advanced Nanomaterials (GICAN) on high-tech applications for halloysite, which are natural clay nanotubes, sourced from the Great White Kaolin Joint Venture's high-grade halloysite-kaolin deposits in South Australia.

Natural Nanotech's projects with GICAN are directed at developing commercially attractive solutions for a range of environmental issues using nano-porous materials synthesised from natural halloysite-kaolin mixtures. Previous research has highlighted outstanding potential for adsorbent-related applications in a broad range of areas including carbon capture and conversion, hydrogen storage and transport, remediation of water and wastewater, energy storage technologies, and antibacterial and agricultural applications. The unique properties of Great White Project halloysite-derived

nanomaterials that make them so amenable to these applications are their enormous surface area per unit weight, their porous nature and differential charge capabilities between inner and outer surfaces.

A number of specific research grant applications are in the pipeline to provide additional funding to accelerate activity in these key areas. This successful agricultural grant application by Andromeda, Minotaur and GICAN though relates specifically to novel technologies for nutrient delivery to cropping soils.

### **Soil CRC Research Grant**

The research project “Engineered carbon-clay composite based novel fertilisers to overcome nutrient stratification in soils” will test the ability of halloysite nanoclays from the Great White deposit to contribute to novel fertiliser formulations for solving the huge problem of phosphorous stratification in Australian soils.

This is a \$2.4 million project over 3 years, with a majority of the funds and in-kind support coming through the Soil CRC. The joint venturers will together contribute \$50,000 p.a. and supply the required halloysite nanoclays from the Great White halloysite-kaolin deposit.

The researchers will design and evaluate specifically engineered nanocomposite materials for enhanced nutrient delivery to the subsoil, particularly P and Zn, and quantify improved crop productivity. The Soil CRC has extensive research facilities under controlled and field environments together with pre-eminent agronomic research experience.

Australia spends more than \$12 billion annually on fertiliser use in the agricultural sector. The use of phosphorous fertilisers is inefficient, particularly in minimum tillage operations with about 75% of applied phosphorus fertilisers wasted due to stratification barriers. The products developed under this project will aim to create novel formulations to overcome the stratification issue and boost crop productivity. The innovative products developed from natural clay nanomaterials has the potential to provide significant environmental benefits while also delivering improved farm outcomes.

Andromeda Managing Director James Marsh stated: “This is an exciting new application for the high halloysite mineral from the Great White Deposit in a sector producing what the world increasingly wants and needs”.

Professor Ajayan Vinu, Director of GICAN added: “It is an amazing way of using naturally available nanostructures for the nutrient delivery to cropping soils and a successful outcome from this research may result in a highly efficient fertilizer product which could have a significant impact on the agricultural industry”.

Dr Michael Crawford, CEO of the Soil CRC commented: “We are very excited to be entering into research partnerships with industry collaborators such as Minotaur and Andromeda. The purpose of Cooperative Research Centres is for industry and research to work together to solve real world problems and create opportunities. This research will ultimately help farmers to improve their soil management and increase their productivity and profitability”.

The Soil CRC is funded by the Australian Government’s Cooperative Research Program.

For further information Contact:



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