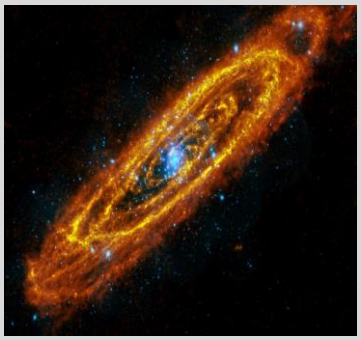

Andromeda Metals Limited
ABN: 75 061 503 375

Corporate details:

ASX Code: ADN

Cash (30 June 2020): $2.99 million

Issued Capital:
1,837,350,275 ordinary shares
313,186,465 ADNOB options
94,000,000 unlisted options

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

Contact details:

69 King William Road,
Unley, South Australia 5061

PO Box 1210
Unley BC SA 5061

Tel: +61 8 8271 0600
Fax: +61 8 8271 0033

admin@andromet.com.au
www.andromet.com.au

Andromeda METALS

ASX Announcement

28 October 2020

Halloysite Nanotechnology Breakthroughs for Natural Nanotech Joint Venture

Summary

- **Halloysite based nanocarbon (Fullerene) materials have been produced from Great White halloysite-kaolin and successfully activated with functional additives.**
- **Testing of these products is showing excellent results in a range of applications including carbon capture/conversion, hydrogen storage, remediation, energy storage and antibacterial.**
- **Pilot plant currently nearing completion to produce semi-commercial quantities of extremely high value halloysite based products.**
- **Carbon capture products have proven fit-for-use.**
- **Work on conversion of captured carbon into clean fuels is in progress.**
- **Water purification products are showing exceptional potential.**
- **New projects planned for halloysite use in medical and agricultural applications.**

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 nanotechnology applications for halloysite. NNT is working with the University of Newcastle's Global Innovation Center for Advanced Nanomaterials (GICAN) towards commercial solutions for high-tech applications, based on the halloysite nanotube material sourced from the joint venturers' high grade halloysite-kaolin deposits in South Australia.

Research Projects

Natural Nanotech's projects with GICAN are aiming to develop commercially attractive solutions for a range of high-profile environmental issues using nano-porous materials synthesised from natural halloysite-kaolin mixtures and optimised for applications including:

- Carbon capture and conversion
- Hydrogen storage
- Remediation of wastewater

- Detoxification of pollutants
- Energy storage technologies
- Antibacterial applications
- Herbicide and pesticide applications

The unique properties of the nanomaterials that makes 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. Having demonstrated potential applications at the laboratory scale, the GICAN team is nearing completion of the construction of a pilot plant for commercial scale sample preparation and testwork, with particular reference to the carbon capture and conversion potential of Great White Project halloysite-kaolin. GICAN is successfully developing technologies for carbon capture, and at the same time, the technology to convert the adsorbed CO_2 into clean fuels such as methane and methanol, which are recognised as future energy fuels.

Following the success with the capture of CO_2, NNT - GICAN is now addressing selective capture of CO_2 from a mixture of gases, with carbon capture at different pressure and temperature conditions using the halloysite derived nanomaterials - Fullerenes.

Engineered Nanomaterials

Fullerenes are an allotrope of carbon whose molecule is in the form of a closed or partially closed mesh, with fused rings of five to seven atoms. The closed fullerenes (C60 and C70) are being used in these studies and are informally known as 'buckyballs' due to their resemblance to a football. However, the molecule may be a hollow sphere, ellipsoid or tube and Graphene is an extreme member of the family.

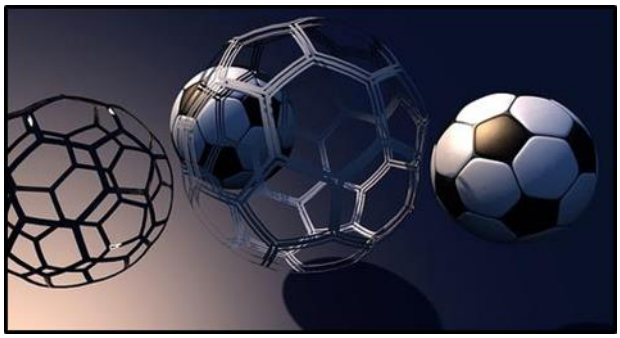

Fig.1 - Fullerene Buckyball Structure

- Fullerenes are symmetrical nanocarbon molecules
- They are caged compounds with high temperature stability and electrical conductivity
- Fullerenes have unique energy levels and high electron affinity
- They are the best candidates to be employed in nanocomposites
- Commonly used types are C_{60} and C_{70}

Research is well advanced in the following multiple high-value potential applications for halloysite engineered Fullerenes:

1. in batteries and super-capacitors
2. as antioxidants
3. for the controlled release of drugs
4. as antimicrobial agents

Professor Vinu and his team at GICAN have used halloysite-kaolin to successfully synthesise highly crystalline mesoporous C60 with an ordered pore structure and extremely high specific surface area (~400 m^2/g), which

is showing very high supercapacitance performance. They have also developed halloysite derived nanocarbons which show a high peroxidase activity which may be useful for water treatment including the degradation of organic pollutants.

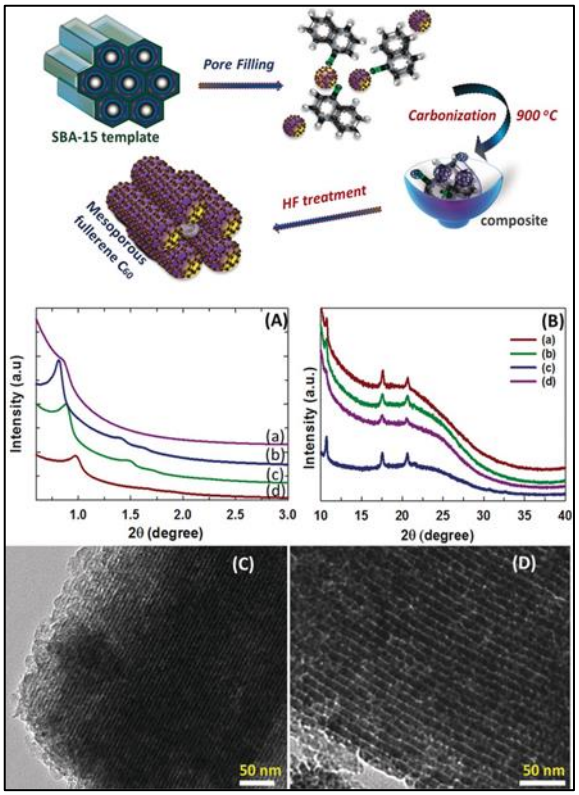

Fig.2 - Fullerene Carbon nanostructures Produced from Halloysite-Kaolin

Great White Resource halloysite-kaolin product was used in a simple but unique templating strategy adopted to synthesise fullerene C60 porous carbon. This material is proving to be the best alternative to the very expensive commercial products currently synthesised using mesoporous silica, and the process should be easily scalable at low cost.

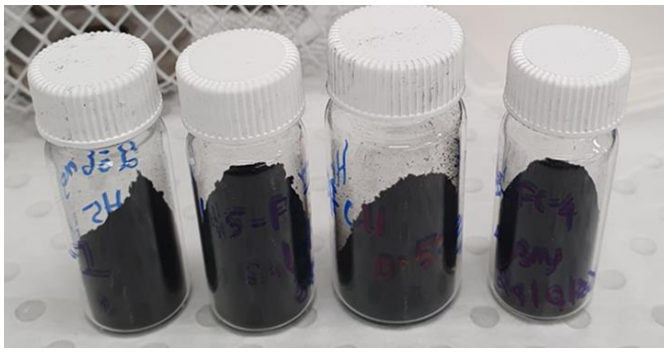

Fig.3 – Nanocarbon Fullerene Product made from Halloysite-Kaolin

Testing of this material for the remediation of waste water (organic and inorganic contaminants) and detoxification of pollutants such as dioxins, phenolic compounds, polychlorinated biphenyls, petroleum hydrocarbons, industrial dye effluents, herbicides, endocrine disrupting chemicals and pesticides is in progress and showing exceptional results.

Future Work is now planned in the following areas:

- Functionalised porous carbon materials for antimicrobial applications and removal of pollution
- Optimisation of the carbon materials using varying halloysite purities
- Production and testing of carbon material in lithium ion batteries
- Completion and operation of the CO_2 capture pilot plant
- Great White High Purity Alumina (HPA) membrane coating on battery separators

Andromeda is excited by these world-class results achieved by GICAN in a relatively short period of time using halloysite sourced from the Great White Kaolin Project in South Australia and the opportunities they present to develop new markets for halloysite in the emerging high growth area of nanotechnology applications.

Contact:

James Marsh
Managing Director
Email: james.marsh@andromet.com.au

Peter Taylor
Investor Relations
Ph: 0412 036 231
Email: peter@nwrcommunications.com.au