



ASX:ADN

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## Brisbane Mining Conference

22-23 March 2023

**Our Vision:** Leading the world in the sustainable supply of superior quality industrial minerals and advancement of nanotechnologies

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## Mineral Resources and Ore Reserves Estimates

As an Australian company with securities listed on the Australian Securities Exchange (ASX), Andromeda is subject to Australian disclosure requirements and standards, including the requirements of the Corporations Act and the ASX. Investors should note that it is a requirement of the ASX listing rules that the reporting of ore reserves and mineral resources in Australia comply with the 2012 edition of the Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves (the **JORC Code**) and that the Ore Reserve and Mineral Resource estimates underpinning the production targets in this presentation have been prepared by a Competent Person in accordance with the JORC Code.

Information that relates to Mineral Resources estimates has been previously announced to ASX on 23 December 2019, "Significant increase in Mineral Resource for the Poochera Kaolin Project", 29 September 2020, "New mineral resource estimate for Hammerhead Halloysite-Kaolin Deposit" and 11 August 2020, "New Mineral Resource for the Mount Hope Kaolin project", all available at <https://www2.asx.com.au/markets/company/adn>. Andromeda confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and that all material assumptions and technical parameters underpinning the estimates continue to apply and have not materially changed. Andromeda confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcements.

## Competent Person's Statements

Information in this announcement has been compiled by Mr. James Marsh a member of The Australasian Institute of Mining and Metallurgy (AusIMM). Mr. Marsh is an employee of Andromeda Metals Limited who holds shares and options in the company and has sufficient experience, which is relevant to the style of mineralisation, type of deposits and their ore recovery under consideration and to the activity being undertaking to qualify as Competent Persons under the 2012 Edition of the 'Australasian Code for reporting of Exploration Results, Mineral Resources and Ore Reserves' (JORC Code). This includes Mr. Marsh attaining over 30 years of experience in kaolin processing and applications. Mr. Marsh consents to the inclusion in the report of the matters based on the information in the form and context in which it appears.

# Andromeda (ASX: ADN)

A near-term mining producer well placed for growth



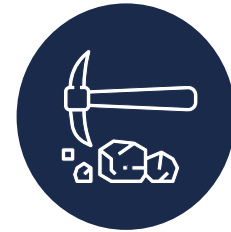
## Tier 1 Mining Jurisdiction

South Australia



## Exploration Endowment

Large portfolio of exploration tenements, totalling 8,313.7km<sup>2</sup> including earn-ins



## Mineral Resources

Kaolin Mineral Resource: >110Mt of JORC Resources<sup>2,3,4,5,6</sup>



## Ore Reserves

Kaolin Ore Reserve (GWP): 15.1Mt of JORC Reserves<sup>7</sup>



## Experienced Team

Experienced and industry focused Board and Executive team

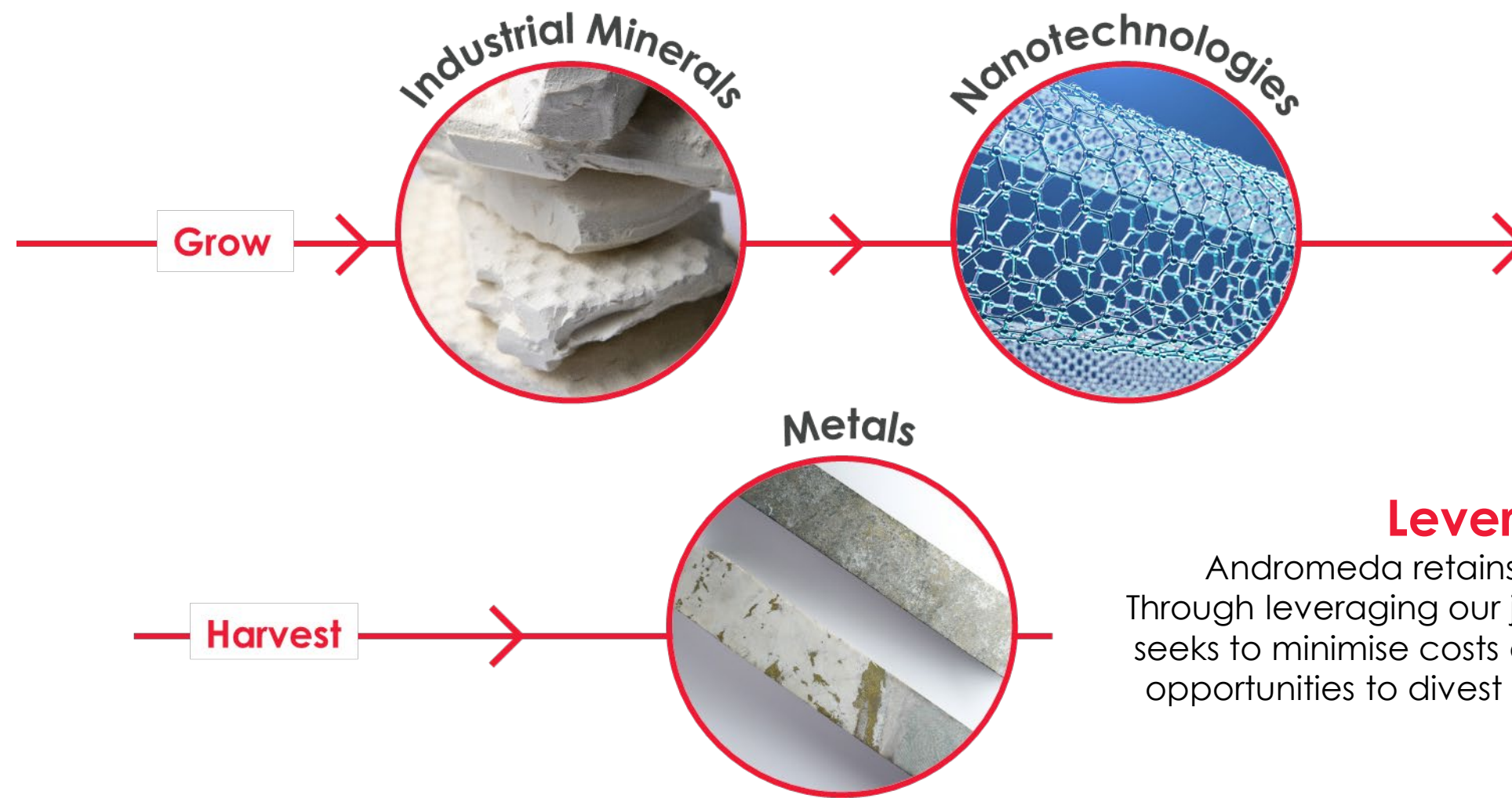
1. ASX 6 April 2022 Great White Kaolin Project - Definitive Feasibility Study  
 2. ASX 23 December 2019, "Significant increase in Mineral Resource for the Poochera Kaolin Project".  
 3. ASX 29 September 2020, "New mineral resource estimate for Hammerhead Halloysite-Kaolin Deposit".  
 4. ASX 11 August 2020, "New Mineral Resource for the Mount Hope Kaolin project"  
 5. "The Company is not aware of any new information or data that materially affects the information in the relevant market announcements. All material assumptions and technical parameters underpinning the estimates in the relevant market announcements continue to apply and have not materially changed."  
 6. ASX 23 March 2022, Maiden Tiger Kaolin Resource and Regional Rare Earth Element Potential. Halloysite reported with kaolinite.  
 7. ASX 6 April 2022 Great White Kaolin Project - Definitive Feasibility Study

### Our purpose

Through the use of our halloysite-kaolin and nanotechnologies, we strive to enrich the lives of people by improving the environment, creating prosperity for our shareholders and delivering value for our stakeholders

### Our vision

Lead the world in the sustainable supply of superior quality industrial minerals and advancement of nanotechnologies.



### Our mission

To mine and process industrial minerals for supply, together with advancing nanotechnologies, to a global customer base by leveraging our unique natural resources and intellectual property portfolio.

### Leverage for growth

Andromeda retains legacy gold and copper assets. Through leveraging our joint venture partnerships, Andromeda seeks to minimise costs and management time, while seeking opportunities to divest and reinvest funds in growth projects.

### Our Values



Innovation



Teamwork



Integrity



Quality

The safety and wellbeing of our employees and our communities is our first priority

# Ideally positioned to meet growing global demand



Estimated Size of Global Kaolin Market

**US\$9.0 billion<sup>1</sup>**

in 2023 (41Mt)

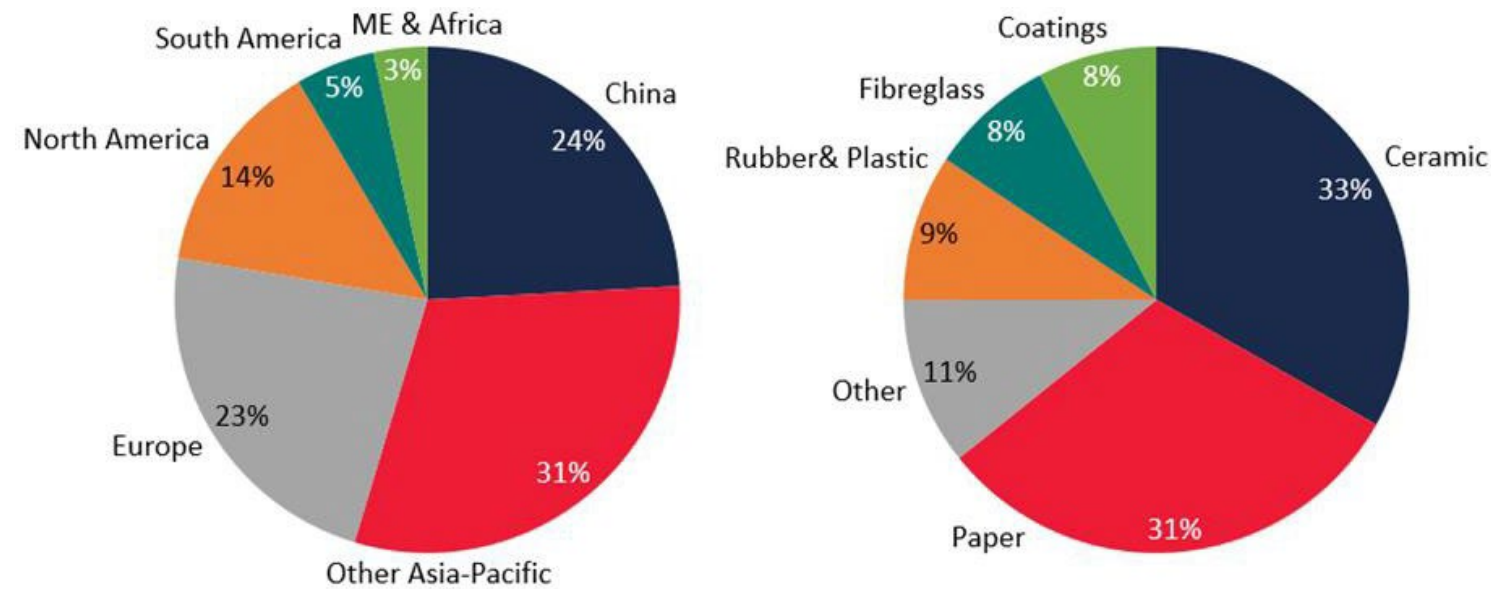


Estimated Growth of Global Kaolin Market

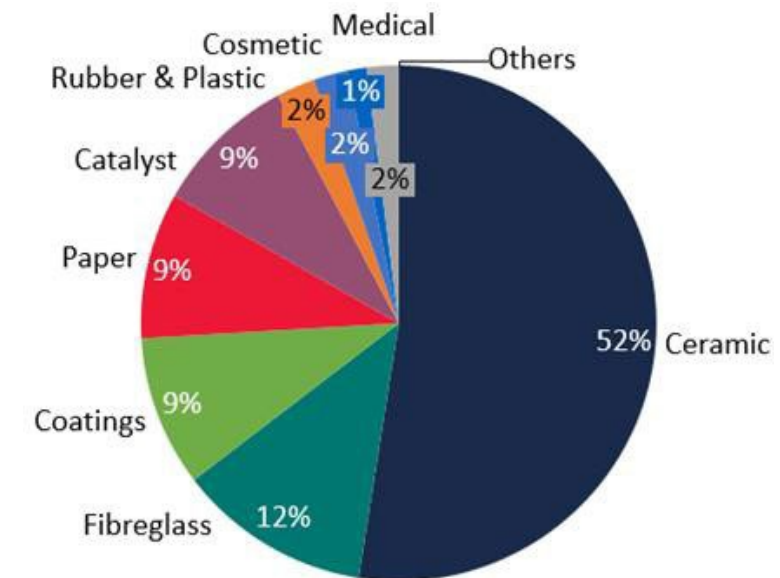
**11.1% p/a<sup>1</sup>**

2020-2027 CAGR (Asia Pacific)

### Global kaolin demand by end use and region in 2021



### Chinese kaolin demand by end use in 2021

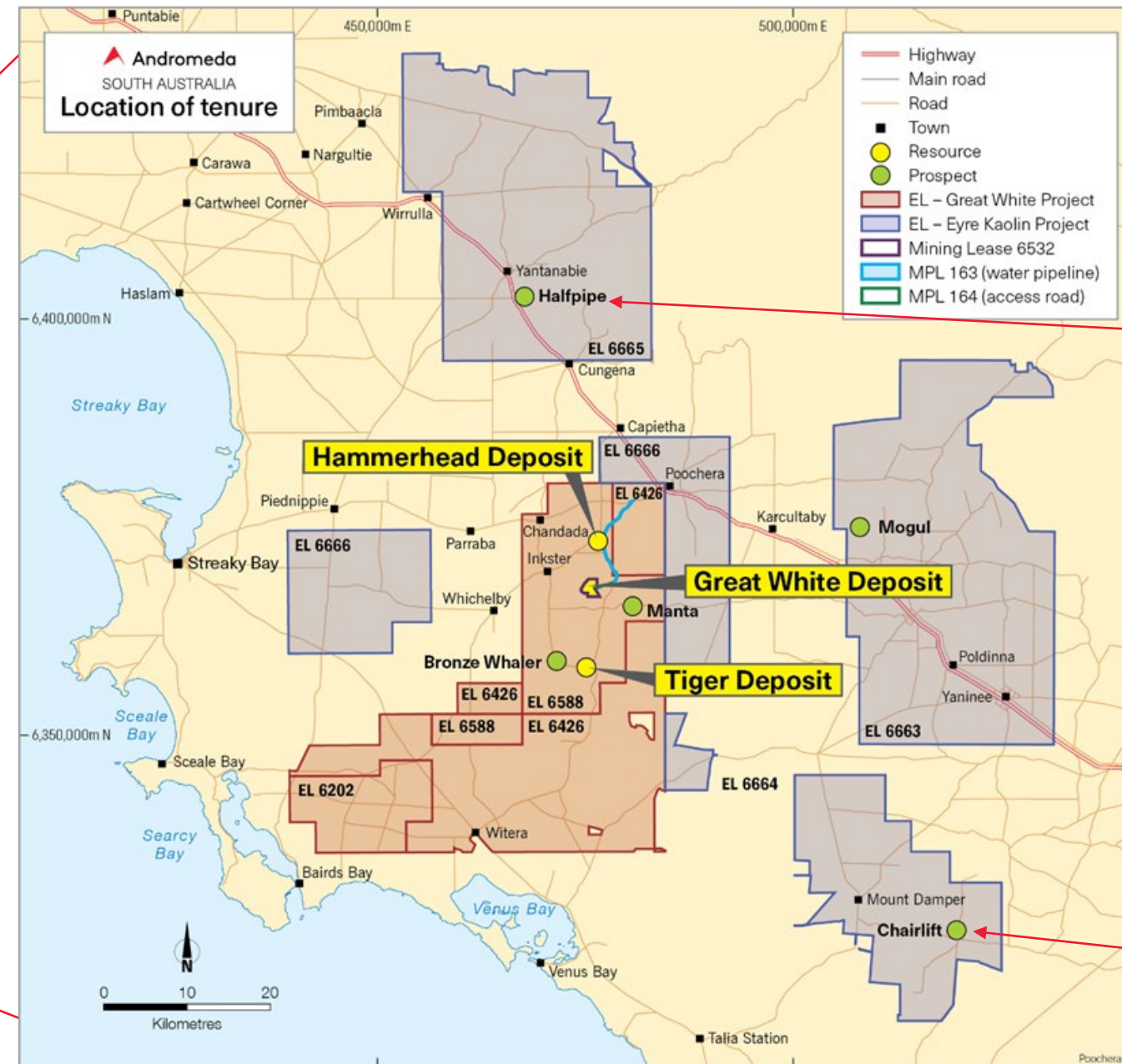
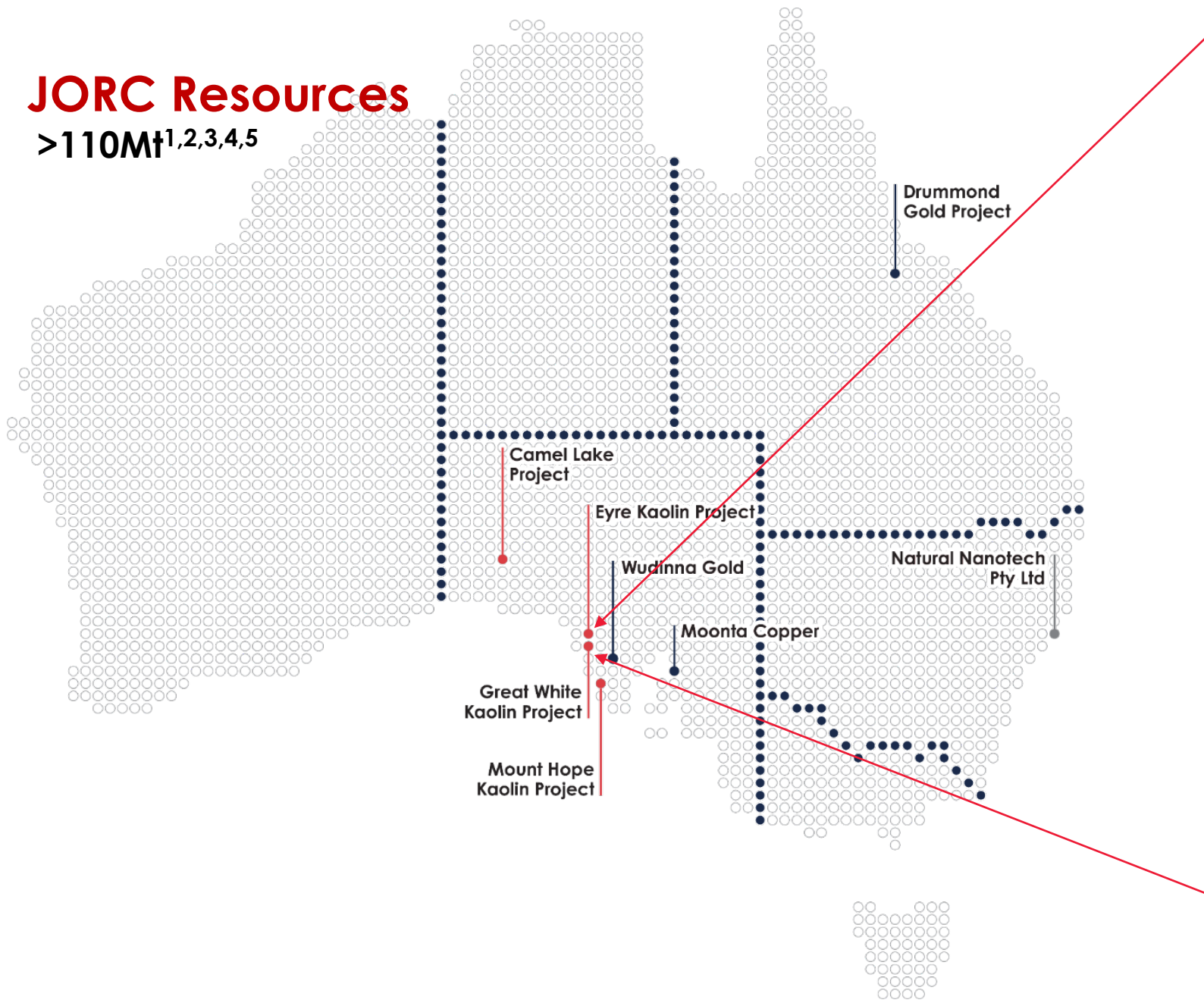


1. Grand View Research Kaolin Market Estimates and Trend Analysis to 2025

# Halloysite - Kaolin Resources & Exploration

Exploration efforts by our experienced Geological Team to grow the market base for value products.

**JORC Resources**  
**>110Mt<sup>1,2,3,4,5</sup>**



**Halfpipe extensive high-halloysite (>20%) identified by SEM images**

**Great White Project:**  
**15.1Mt of JORC Kaolin Ore Reserves**  
**>110Mt of JORC Kaolin Mineral Resources**

**Chairlift a 80-120Mt Exploration Target of High Bright White kaolin (+80 ISO B)**

**4,896.8km<sup>2</sup>**  
Regional potential kaolin of exploration tenements, including earn-ins

1. ASX 23 December 2019, "Significant increase in Mineral Resource for the Poochera Kaolin Project".
2. ASX 29 September 2020, "New mineral resource estimate for Hammerhead Halloysite-Kaolin Deposit".
3. ASX 11 August 2020, "New Mineral Resource for the Mount Hope kaolin project".
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5. ASX 23 March 2022, Maiden Tiger Kaolin Resource and Regional Rare Earth Element Potential, Halloysite reported with kaolinite.
6. ASX 12 August 2021, "Andromeda enters new kaolin Joint Venture on the Eyre Peninsula, SA".

# Halloysite-Kaolin applications – current and potential

Andromeda is focused on high-value segments of Halloysite-Kaolin across multiple uses in many everyday products and across many emerging nanotechnologies and applications.



# Great White Kaolin Products & Marketing

Increasing acceptance of Andromeda's high-grade Kaolin products

## Concentrate Product Great White KCM™90

*A semi-refined high-quality kaolin for direct use, further refinement or upgrade of resources*

## Concrete Product Great White HRM™

*A refined kaolin for sale for use as a concrete and building product additive*

## Ceramic Product Great White CRM™

*A fully refined product for the high-end ceramics market*

## Coatings Product Great White PRM™

*A fully refined product for the coatings and polymers markets*

Stage 1  
100,000t/pa ore feed = 50,000t/pa products

Stage 2  
Additional 100,000t/pa of products

Stages 3 & 4  
Total of 300,000t/pa of products



- Highly consistent premium grade
- Halloysite optimised
- Suitable as feed for HPA

*2 Binding Offtakes signed for minimum 66,000t during first 3 years with remaining capacity under negotiation*



- Decarbonisation of concrete
- Performance improvements
- Cost and labour savings

*Binding offtake agreement signed with IMCD for 22,500t during first 3 years*



- World class grade
- High whiteness and translucency
- Good green and fired strength

*Binding Offtake for 5,000t/pa*



- World class grade
- Ultra-high brightness
- Cost savings

*Binding Offtake for 70,000t/pa*



# Great White HRM™ – Concrete Decarbonisation Study

Independent study finds Great White HRM™ offers a cost-effective solution to decarbonise concrete

## Industry drivers to decarbonise:

- 8% of global emissions of carbon dioxide (CO<sub>2</sub>) from cement
- United Nations' Net Zero Emissions by 2050
- Australian target of 43% reduction by 2030
- Australian Cement and Concrete industry declared commitment to net zero carbon concrete by 2050
- Australian concrete industry is targeting an 11% reduction from altered mix designs as part of their Road Map to net zero

## Niki Jackson MSc (Eng) ACT, MICT, DFSS



Independent study conducted by internationally recognised concrete expert and a Material and Concrete Technology specialist with extensive mining and civil construction experience specialising in concrete decarbonisation, sustainability, and durability.

### Concrete Product Great White HRM™

*A refined kaolin for sale for use as a concrete and building product additive*



## Study key findings<sup>1,2,3</sup>:

- ✓ 7% reduction in carbon footprint of concrete for standard commercial concrete mix designs of 32MPa and 40MPa
- ✓ Concrete properties materially unaffected
- ✓ Only 1kg of Great White HRM™ required per m<sup>3</sup> of concrete
- ✓ Potential cost savings of between \$2/m<sup>3</sup> and \$3/m<sup>3</sup> depending on mix design
- ✓ Total potential global (excluding China) market opportunity for Great White HRM™ is over 1.8 billion/m<sup>3</sup> of concrete pa

## Other highlights:

- ✓ Great White HRM™ is certified for use in concrete under Australian Standards
- ✓ Provisional patent application for Great White HRM™ has been filed

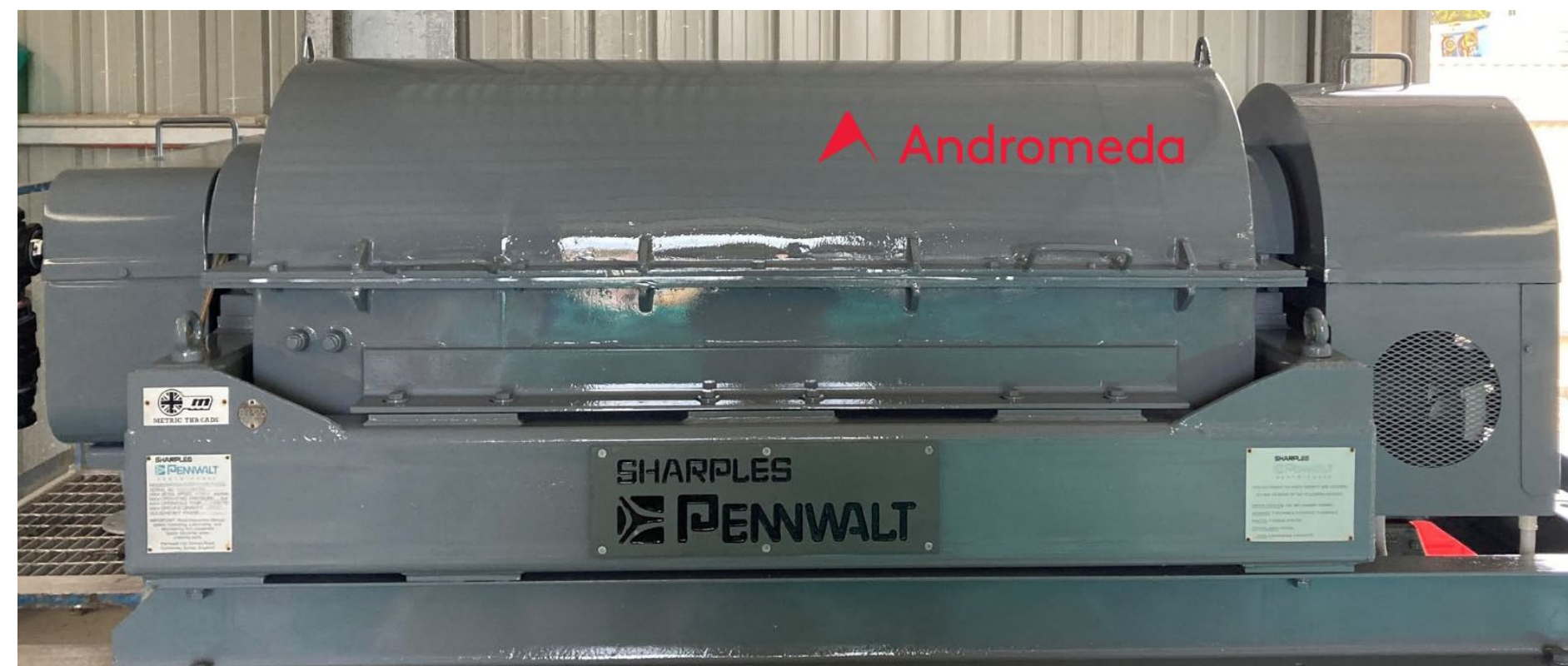
1. ASX 22 March 2023 "Results of Concrete Decarbonisation Study"

2. Based on the assumptions and qualifications in the study – a copy is available at [www.andromet.com.au/investors/asx-releases](http://www.andromet.com.au/investors/asx-releases)

3. This study is an independent study and as such, Andromeda Metals Ltd does not warrant the accuracy, reliability or completeness, or the opinions and conclusions, of the study. Regard should be had to the assumptions and qualifications on which the study is based. Andromeda Metals Ltd believes that the value of its products to customers will be determined by various factors including the industry, use and location of the customer.

# GWP Pilot Plant

## Ongoing upgrades made to enhance operations



# Great White Project– Post DFS Works

- Pilot Plant scaled-up for product samples to support marketing for Ceramics, Coatings, HPA and Nanotechnologies
- Starter Plant sized for production to match offtake profile
- Up-front capital requirements reduced
- Procurement ordering process for long lead items underway
- Operational readiness - establishment, construction and starter pit detailed planning

## DFS Highlights<sup>1</sup>

**NPV<sub>8</sub>**  
**A\$613M**  
**(pre-tax)**

**LOM**  
**28yrs**

**15.1Mt**  
**Total Ore**  
**Reserves**

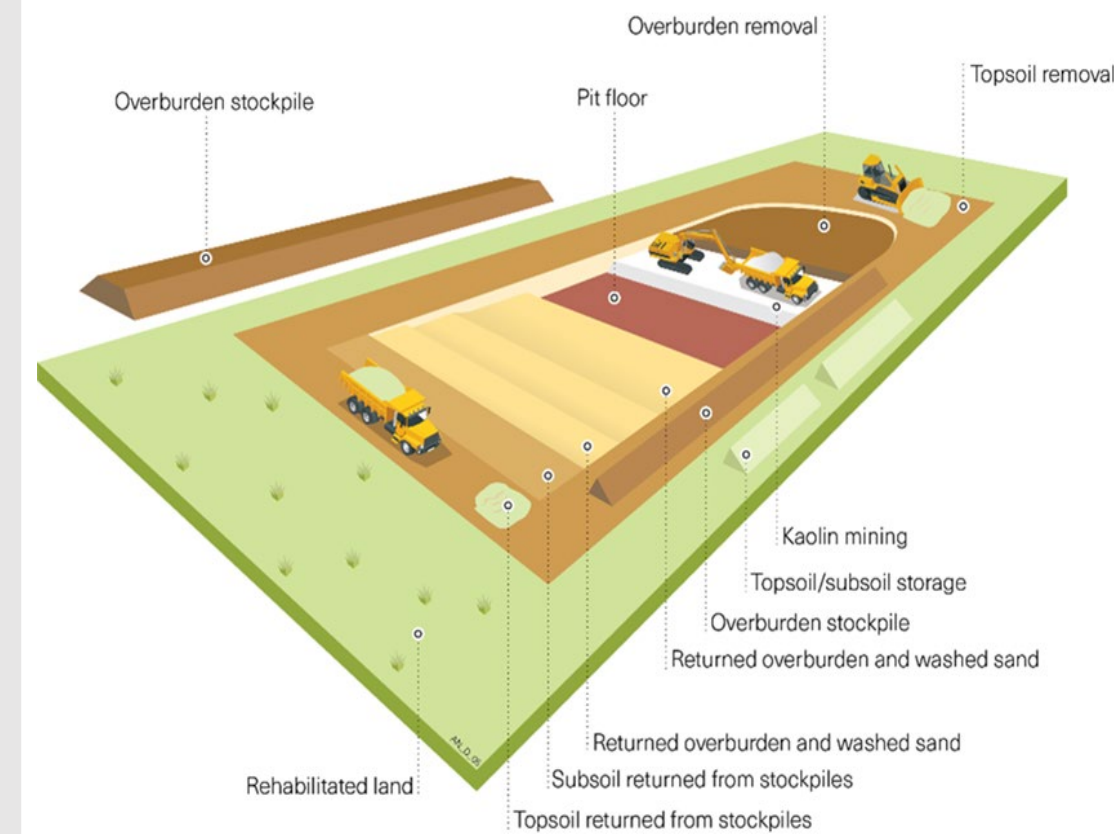
- IRR = 36%
- Stage 1 capital of A\$93.8M includes Starter Plant<sup>2</sup> capital of A\$50-60M

## Great White Deposit and Stage 1A Starter Processing Plant Design

DFS design concept minimises capital with a staged approach to production capacity and product quality to self-fund capital upgrades.



3D elevation of Great White Project – Stage 1A Starter Plant



1. ASX 6 April 2022 Great White Kaolin Project - Definitive Feasibility Study  
 2. ASX 26 August 2022 Andromeda Commencing Procurement of Long Lead Time Items for Great White Kaolin Project

# Why Andromeda?

 <b>Completed over last 18 months</b>	
 <b>Mining Approval</b>	Granted
 <b>Minotaur Acquisition</b>	Completed
 <b>Natural Nanotech</b>	100% Owned
 <b>DFS</b>	Released
 <b>Binding Offtakes</b>	Five Binding offtake agreements signed
 <b>Team</b>	Expert and dedicated team expanded
 <b>PEPR</b>	Environmental Management Plan approved
 <b>Land acquired</b>	Agreements signed to acquire land covered under Mining Lease

## Halloysite - Kaolin

- Rare world class resource
- Halloysite is the highest value form of kaolin
- Developed significant in-house knowledge base



## New High Value Product Opportunities

Developing new high-value products which may include High Purity Alumina (HPA)



## Nanotechnologies

Strategic research relationship with University of Newcastle



## Intellectual Property

### Building our IP portfolio

- Carbon capture international patent application filed
- Carbon dioxide conversion provisional patent application filed
- HPA production process provisional patent application filed
- HRM approved for use in concrete

# Our focus on sustainability

Our low-impact mining and processing operations will be aligned with leading Environmental, Social and Governance (ESG) frameworks and standards.

## ✓ Sustainable Production

## ✓ Products supporting sustainability

Sustainable extraction and processing	Low environmental footprint	Strong licence to operate and local economic benefits
<ul style="list-style-type: none"> <li>✓ Shallow deposits mitigating large-scale mine impact</li> <li>✓ Naturally occurring white clay</li> <li>✓ Virtually chemical-free processing</li> <li>✓ Circular approach to ore processing including use of recycled water for sand washing and heat capture for product drying.</li> <li>✓ Water recycling (~90% recovery)</li> </ul>	<ul style="list-style-type: none"> <li>✓ No impact to users of groundwater or local water supply</li> <li>✓ Progressive environmental rehabilitation</li> <li>✓ Low/no conservation and heritage impact</li> <li>✓ no tailings facility required, washed sand, overburden returned</li> </ul>	<ul style="list-style-type: none"> <li>✓ Landowner support and no native title concerns.</li> <li>✓ Local supplier policy employed</li> <li>✓ Up to 40 Direct jobs when production commences<sup>1</sup></li> <li>✓ Up to 70 Direct jobs at full operating capacity<sup>1</sup></li> <li>✓ Up to 426 Indirect jobs created<sup>1</sup></li> <li>✓ \$118.1M in SA state royalties<sup>2</sup></li> <li>✓ \$1.7B increase to GDP<sup>2</sup></li> </ul>

**Future focus** New products and technologies to enable decarbonisation and sustainability:

- Great White HRM™ concrete additive:**
  - ✓ Offtake agreement signed
  - ✓ Decarbonises concrete and reduce costs
  - ✓ Approved for use in concrete in Australia
- High purity alumina (HPA):**
  - ✓ Innovative proprietary process
  - ✓ Cost-effective production of HPA and smelter grade alumina (SGA)
  - ✓ Multiple use-cases, incl; li-ion battery enhancement
- Carbon capture and conversion:**
  - ✓ Carbon capture international (PCT) patent application filed
  - ✓ CO<sub>2</sub> conversion provisional patent application filed in Australia
- Research & Development:**
  - ✓ Funding research into industry applications for GWP halloysite based nanomaterials

<sup>1</sup> Job numbers are full-time equivalent (FTE)  
<sup>2</sup> Over 28 year life of mine

# Next Steps - Future catalysts



## In Progress

- **Binding Offtakes** For remainder of planned capacity and expansion stages under negotiation
- **PEPR** Payments for Environmental Bond & Native Vegetation Fund
- **Construction** Early-stage site preparations for Stage 1 construction
- **Long Lead Items** Procurement in progress
- **Funding** Various funding options under active consideration – both debt and equity
- **High Growth Opportunities** HPA and Nanotechnologies



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