ASX ANNOUNCEMENT

ANDROMEDA METALS LTD (ANDROMEDA, ASX: ADN)

Andromeda

Andromeda Metals Limited

ABN: 75 061 503 375

Corporate details:

ASX code: ADN

Cash (31 Dec 2021): $42.8m

Issued Capital:

3,104,235,099 Ordinary Shares

70,300,000 Unlisted Options

27,833,325 Performance Rights

Directors

Melissa Holzberger

Non-Executive Chair

James Marsh

Managing Director

Joe Ranford

Operations Director

Andrew Shearer

Non-Executive Director

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6 April 2022

Great White Kaolin Project - Definitive Feasibility study and Updated Ore Reserve

Andromeda Metals Ltd (ASX:ADN, Andromeda) is pleased to announce that is has completed its Definitive Feasibility Study (DFS) for the Great White Kaolin Project (GWKP, or the Project) in South Australia.

The DFS reflects the latest information on the Project and confirms strong long-term cashflows from its high-grade kaolin Mineral Resource and its unique products.

Results from the DFS include the following:

- **High margin cashflows, with pre-tax net present value (NPV)$_8$ of AUD613m**
- **Internal rate of return (IRR) of 36%**
- **Earnings before interest, taxes, depreciation, and amortization (EBITDA) of AUD2,283m**
- **28 year life-of-mine**
- **Average annual EBITDA of AUD81.5m**
- **Four stage approach with an initial capital cost of AUD93.8m**
- **18-month design and construct duration to achieve first product to market**
- **All capital expenditure subsequent to Stage One is currently intended to be funded by cash flows from the Project**
- **Project payback period of 5.9 years to achieve 600,000 tpa ore throughput in Stage Three**
- **Conventional mining and processing, resulting in high quality products**
- **Andromeda will now progress secondary approvals and detailed design.**

The DFS provides for the development of the base-line project underpinned by initial product range and allows for the opportunity to supply and build the market and customer base.

Managing Director, James Marsh commented "The DFS confirms the Project as a globally significant supplier of high value kaolin to international ceramic, paint and other specialised markets. The completion of this stage in the development of the GWKP further advances Andromeda as a fast-growing South Australian company with a vision to lead the world in the sustainable supply of superior quality industrial minerals and advancement of nanotechnologies.

With the work undertaken in this DFS, the Project is positioned to produce a range of high value kaolin products for sale domestically and overseas. The high quality, consistency and large tonnage of the GWKP provides for a long-term operation offering generational employment opportunities for Poochera and the surrounding districts with opportunities to diversify and grow their economies. The Project offers up to 70 long term jobs on a residential basis and provides an opportunity to reverse the contracting of the regional community population.

Andromeda considers there is an ongoing and increasing demand for the GWKP products in a reducing global supply and Andromeda is well placed to capitalise on this opportunity.

A summary of key results is described below (Table 1). Additional information, including material assumptions are included in Appendix 1.

Table 1 GWKP Key Financial Indicators

Parameter		Life of mine (Total)
Plant feed (nominal)	dry metric tonnes (dmt)	300,000 (years 1-5) 600,000 (years 6-28)
Production (nominal)	Great White HRM™ (dmt)	260,000
	Great White KCM™90 (dmt)	246,000
	Great White PRM™ (dmt)	336,000
	Great White CRM™ (dmt)	6,400,000
Weighted average product sale price (AUD/dmt)		653
Life of mine (years)		28
Strip ratio		2.3
Start-up capital (Stage One)		93.8
Sustaining capital (AUD million)		26.0
Revenue (AUD million)		4,706
EBITDA[1] (AUD million)		2,283
Pre-tax cashflow (AUD million)		2,050
NPV_8 (before tax) (AUD million)		613
IRR (% before tax)		36
Payback period (years)[2]		5.9

[1] Earnings Before Interest, Taxes, Depreciation, and Amortization
[2] Includes payback of initial AUD 93.8 million as well as the further plant upgrades within that time

Overview of DFS

The DFS for the Great White Kaolin Project (**GWKP**, or the **Project**) was prepared by Andromeda Metals Ltd (**Andromeda**) and a range of experienced specialist consultants (Table 2). The DFS reflects the latest information on the Project, including marketing agreements and price forecasts. Technical research, including results from metallurgical test work, and confirmatory pilot plant batches have been included to inform the engineering design, project execution and financial modelling.

The DFS scope of work was to prepare a definitive level assessment of the Project, prepared to an accuracy level of +/-15% guided by the requirements of the Australian Institute of Mining and Metallurgy (**AusIMM**) guidelines *(AusIMM 2012. Cost Estimation Handbook. 2nd Edition, Monograph 27. The Australian Institute of Mining and Metallurgy)*.

Capital and operating cost estimates have been developed by Andromeda and supported by supplier provided prices on defined scope of works supporting the staged execution strategy. This DFS varies from the June 2020 Prefeasibility Study (PFS) with the removal of direct shipping ore (DSO) and focusses on higher quality products for direct-to-market customers.

The DFS focusses on several products:

- Great White KCM™90, a semi-refined high quality kaolin concentrate for sale for direct use, further refinement by other parties or to upgrade their resources.
- Great White HRM™, a refined kaolin for sale for use as an additive in the concrete industry and other associated applications.
- Great White CRM™, a refined, dried, bagged product for use by end-users in the high-end ceramics market.
- Great White PRM™, a refined, dried, and bagged product for use by end-users in coatings and polymers markets.

The Project is proposed in four production stages. The staged capital costs have been developed in conjunction with independent and highly reputable consultant/contractor firms with experience to support the value-add concept of the DFS. The change was driven primarily by volatility in transport costs, the benefit of having in-house quality control and the improved value of refined kaolin products, issues that have significantly moved since pre-Covid PFS. The DFS scenario was driven by value adding, controlling risk through reduced capital exposure, and providing a quality product to maximise the value of the Mineral Resource.

The DFS provides for the development of the Project based on foundation products to establish and build the market and customer base.

Table 2 Major DFS contributors

Content	Contributor
Study management	Andromeda Metals Ltd
Geology and Mineral Resource	Andromeda Metals Ltd H&S Consultants
Geotechnical	WSP Global
Mining and Ore Reserve	Proactive Mining Solutions Pty Ltd
Ore characteristics and historical testwork	Andromeda Metals Ltd AKW Equipment + Process Design, based in Hirschau Germany Innovative Filtration Solutions Metso Outotec
Mineral processing and plant engineering	Primero Group Ltd Ammjohn PE Pty Ltd MinEcoTech Pty Ltd
Infrastructure and services	Andromeda Metals Ltd Tonkin Consulting Pty Ltd
Environment	JBS&G Australia Pty Ltd
Community and stakeholder	Design for Growth (D4G)
Capital costs and operating costs	Primero Group Ltd Tonkin Consulting Pty Ltd Ammjohn PE Pty Ltd Andromeda Metals Ltd
Marketing	TZ Minerals International Pty Ltd (TZMI)

The DFS includes sections and supporting studies relating to:

- Tenements and ownership including approvals and permitting
- Legal, regulatory and policy
- Geology and Mineral Resource - geological evaluation and Mineral Resource estimation, reported in accordance with JORC 2012
- Hydrology, hydrogeology, and geotechnical analysis
- Mining and Ore Reserve - mining design, mine scheduling and Ore Reserve, reported in accordance with JORC 2012
- Ore characterisation and testwork - testwork, ore characterisation and process flowsheet development
- Mineral processing and plant engineering - process and non-process infrastructure engineering design
- Infrastructure and services – including road access, water supply infrastructure and power supply
- Workforce
- Logistics – road and sea freight

- Environment – existing environment and environmental impact
- Community and stakeholder engagement including social impact
- Project execution - including implementation schedule
- Capital and operating costs – mining, processing, engineering, procurement and construction, owners' costs and contingency.
- Products and marketing strategy including product quality evaluation and pricing review
- Risk and opportunity
- Financial analysis.

Ore Reserve

The GWKP DFS is based upon developing a single kaolin deposit, the Great White Deposit.

Using the modifying factors discussed in this report, Table 3 below can be considered an Ore Reserve for the GWKP, using the resource model classifications.

Table 3 Ore Reserve – GWKP

Ore Feed Category	Reserve Category	Tonnes	Yield		Halloysite	Brightness (R457)	Fe2O3
			Great White PRM™	Great White CRM™			
		(Mt)	(% of whole rock)		(% in -45 µm fraction)		
Great White PRM™ Feed	Proved	0.4	27	18	3	87	0.3
	Probable	1.1	24	16	1	87	0.3
	Subtotal	1.5	25	17	2	87	0.3
Great White CRM™ Feed (Great White KCM™90 & Great White HRM™)	Proved	4.8	-	45	15	84	0.5
	Probable	8.9	-	46	11	83	0.5
	Subtotal	13.7	-	46	12	83	0.5
Total		15.1[3]	-	-	-	84	0.5

Great White KCM™90/HRM™ are products of the CRM feed and process with minor changes in processing methodology.

An accompanying consent statement for this document applicable to the JORC 2012 Code for the publication of these reserves is attached as Appendix 1.

An accompanying Table 1 document the JORC 2012 Code for these Ore Reserves is attached as Appendix 2.

Material classified as Measured and Indicated in the Mineral Resource estimate have been directly converted to Proved and Probable Reserve. The Ore Reserve comprises of 34% Proved Reserve and 66% Probable Reserve (Table 4). The Production Target comprises of 34% Proved Reserve, 65% Probable Reserve and 1% Inferred Resource. Inferred Resources are not included in the Reserve and are not considered within the pit design process.

[3] Table subject to rounding errors.

Table 5 Comparison between Ore Reserve and Mining Inventory

Ore Reserve Category	Mt	%	Mining Inventory Mineral Resource Category	Mt	%
Proved	5.2	34	Measured	5.2	34
Probable	9.9	66	Indicated	9.9	65
			Inferred	0.1	1
Total	15.1	100	Total	15.2	100

ASX Listing Rule 5.9.1

Material assumptions

The Ore Reserves are based on key modifying factors that include designs, schedules and cost estimates of the DFS that describes the development of the GWKP over a 29-year time frame. Material assumptions of the DFS include:

- Metallurgical test work has been completed by reputable laboratories experienced in kaolin processing. This testwork supports modifying factors applied in the Ore Reserve estimate.
- The mining process has been based on Measured and Indicated Mineral Resources reported in accordance with the 2012 JORC code, together with mine designs and scheduling, geotechnical parameters and mining equipment determined from experienced mining engineers.
- The processing plant design has been developed by Andromeda personnel with experienced process engineers to support the flowsheet and the predicted yield, throughput, and production estimates of the Project.
- The infrastructure requirements have been defined by specialist engineers in conjunction with the Project Team.
- The detailed designs discussed above have been used as the basis for capital and operating costs estimates which have been corroborated by contractor and vendor quotes.

Classification Criteria

The Ore Reserves estimate comprises Measured and Indicated Mineral Resources only.

Mining method

Kaolin mining at the GWKP utilises conventional load and haul open pit mining methods with excavator and off-road trucks supported by ancillary equipment. The kaolin is shallow lying and truncated at depth by a weathered granite. The deposit is predominantly free dig with some overlaying discontinuous rafts of calcrete and silcrete requiring occasional drill and blast. Mining works in the DFS are proposed to be undertaken by Contractors with grade and ore control managed by Andromeda. Stockpiles will be generated as part of the mining schedule and backfilling of the exhausted pits will commence as soon as practicable. Ongoing rehabilitation is planned, with revegetation programs to stabilise final landforms.

Processing method

Great White Kaolin is a naturally high brightness kaolin clay. In situ the clay contains approximately 50% quartzite sand and 45% clay material. The raw clay is fed into the processing plant using a front-end loader. The concentrating process is a simple washing system that liberates the clay from the sand and then separates out the >45 µm fraction. The clay is dewatered and dried to make the Great White KCM™90 and Great White HRM™ products. Further refining of the concentrate is undertaken as a slurry prior to dewatering using hydrocyclones reducing the content of coarse-grained minerals and minerals containing deleterious elements such as iron. Higher quality products such as the Great White CRM™ and Great White PRM™ are further refined to meet customer specifications on brightness, halloysite content and fineness. The products are dried and packaged for delivery to distributors and end users.

Quality parameters

The following quality parameters have been considered in the Ore Reserve:

- Brightness (ISO R457%)
- +45 µm (wt%)
- +10 µm (wt%)
- -2 µm (wt%)
- -1 µm (wt%)
- Modulus of rupture (MOR) (MPa)
- Fired Brightness @ 1180°C
- Moisture (wt%)
- Al_2O_3 (%)
- Fe_2O_3 (%)
- SiO_2 (%)
- TiO_2 (%)
- $TiO_2 + Fe_2O_3$ (%)

Mine scheduling has shown a robust presentation for ore delivery, achievable mining rates for the equipment proposed, and highlighted the need for a top cut-off of Fe_2O_3 material.

Estimation methodology

The Probable Ore Reserve is based on that portion of the Measured and Indicated Mineral Resource within the mine designs that may be economically extracted and includes an allowance for dilution and ore loss.

The result appropriately reflects the Competent Person's view of the deposit.

Material modifying factors

Modifying factors used in the development of the mining plan include dilution, mining loss, removal of uneconomic blocks, and cut off grades based on a combination of 45 µm content, brightness, Fe content and halloysite. Mining feed for stockpile management and Ore Reserve estimation has been driven by metallurgical recovery attained through third party laboratories and collaboration through confirmatory batches processed in Andromeda's Streaky Bay pilot plant. Yield and product specification are aligned with customer offtakes and market driven demand.

Next steps

Over the next six months, Andromeda will continue to focus on marketing, securing additional binding offtake agreements, secondary approvals, and financing. It is anticipated that long lead items can be ordered, and mining preparation works started, on receipt of the secondary approvals. Further optimisation of the DFS will occur within the next stage of detailed engineering and the development of final works packages.

This stage is to include:

Detailed design and procurement

Andromeda will now move to the detailed design phase of the Project, focussing on the Stage One processing plant. Procurement of long lead times items (including filter presses and product dryer) will be undertaken to enable the timely commissioning of the processing plant.

Offtakes and marketing

Andromeda will seek to negotiate and execute additional binding offtake agreements for all planned GWKP products. This will include additional Great White kaolin products into the global market along with new application areas to further de-risk the project. Numerous samples have been sent to potential customers throughout Asia and approval testing is in progress. Marketing activities have led to a number of significant new opportunities which are being investigated. Andromeda will continue to engage with markets to further develop its marketing strategy to become a leading supplier of high quality kaolin products.

Secondary Approvals

The South Australian Minister for Energy and Mining granted a Mining Lease for the GWKP on December 17, 2021. The Mining Lease conditions must be addressed in the second stage of the South Australia approvals process the Program for Environment Protection and Rehabilitation (PEPR). Andromeda will continue to advance the PEPR with submission planned in mid-2022. Other secondary Project approvals include EPA works approvals, local council, dangerous substance storage licences and significant environmental benefit (SEB) measures to offset any vegetation removal.

Financing

Andromeda believes it is well placed to secure necessary funding for Stage One of the GWKP. Options being actively considered include:

- Equity
- Project finance
- Partner finance
- Offtake and working capital related finance
- Equipment and contractor finance
- Access to government grants.

This announcement has been authorised for release by the Board of Andromeda Metals Ltd.

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

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Competent Persons Statement

Information in this announcement has been assessed and 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, options and performance rights in the company and is entitled to participate in Andromeda's employee incentive plan (details of which are included in Andromeda's Annual Remuneration Report) 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 Person 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.

The data in this report that relates to Mineral Resource Estimates for the Great White Kaolin Resource is based on information evaluated 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.

The data in this report that relates to Mineral Reserve Estimates for the Great White Kaolin Resource is based on information evaluated by Mr John Millbank who is a Member of the Australasian Institute of Mining and Metallurgy (MAusIMM). Mr Millbank is the Director of Proactive Mining Solutions Pty Ltd, an independent mining consultancy, 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 Millbank consents to the information contained in this report being used in the form and context in which it appears. Mr Millbank, or any of the entities he directly controls, has no financial interests in Andromeda Metals Ltd or any of its subsidiaries.

Forward-looking Statements

This document contains or may contain certain "forward-looking statements" and comments about future events, that are based on Andromeda management'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, and may include, without limitation, statements regarding plans, strategies and objectives of management, anticipated production and production potential, estimates of future Mineral Resources and Ore Reserves.

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.

Forward-looking statements are only predictions and are subject to known and unknown risks, uncertainties, assumption and other important factors that could cause the actual results, performances or achievements to differ materially from future results, performances or achievements expressed, projected or implied by such forward-looking statements. Readers are cautioned not to place undue reliance on these forward-looking statements, which speak only as of the date thereof. Such risks and factors include, but are not limited to: changes in exchange rate assumptions; changes in product pricing assumptions; major changes in mine plans and/or resources; changes in equipment life or capability; emergence of previously underestimated technical challenges; increased costs and demand for production inputs; and environmental or social factors which may affect a licence to operate, including political risk.

Appendix 1 Great White Kaolin Project – Definitive Feasibility Study Executive Summary

Overview

The Great White Kaolin Project (**GWKP**, or the **Project**) comprises the following:

- Site preparation and development, including bulk earthworks and construction of an access road to the mine-site.
- Upgrade and maintain the local Poochera - Port Kenny Road from Streaky Bay Road to the mine access road.
- Upgrade of the Streaky Bay Pilot Plant (**SBPP**) to facilitate production of high value products for customers.
- Open pit mining using conventional mining equipment (excavator and truck, ripping dozer, loader and truck, or scrapers).
- Construction of a wet processing plant, in a staged approach.
- Ore from within the extraction pit stockpiled for blending into wet processing plant located to the east of the mine.
- Wet-processing of Run-of-Mine (**ROM**) material
- Establishment of overburden stockpiles for reshaping and revegetation for end of mine life landforms.
- Return of sand and overburden to open pit enabling progressive rehabilitation of site.
- Offices, workshop, and infrastructure to support the Project.
- Construction of a water pipeline from the Streaky Bay Road mains offtake to the mine site, along Poochera – Port Kenny Road and the mine access road.
- Product drying, bagging, storage, and truck loading facility.
- Product transport route via truck from the mine site to Poochera and then to port.

The Definitive Feasibility Study (**DFS**) focusses on several products:

- Great White KCM™90, a semi-refined high-quality kaolin concentrate for sale for direct use, further refinement by other parties or to upgrade their resources.
- Great White HRM™, a kaolin product for sale for use as an additive in the concrete industry and associated applications.
- Great White CRM™, a refined, dried, bagged product for use by end-users in the high-end ceramics market.
- Great White PRM™, a refined, dried and premium bagged product for use by end-users in coatings and polymers markets.

The Project is proposed in four production stages[4] (Table 1 and Figure 1):

- Stage One
  - Processing at a nominal rate of 300,000 tpa of ore for 24 months into 138,000 tpa (nominal) of kaolin concentrate product (Great White KCM™ 90) and 15,000 tpa (nominal) (Great White HRM™).
- Stage Two
  - Processing at a nominal rate of 300,000 tpa of ore for 24 months into 130,000 tpa (nominal) of kaolin refined product (Great White CRM™) and 35,000 tpa (nominal) (Great White HRM™).
- Stage Three
  - Processing at a nominal rate of 600,000 tpa of ore for 24 months into 284,000 tpa (nominal) of kaolin refined product (Great White CRM™) and 40,000 tpa (nominal) (Great White HRM™).
- Stage Four
  - Processing ore at a nominal rate of 600,000 tpa for 6 years, until exhaustion of suitable Great White PRM™ feed, into 282,000 tpa (nominal) of refined kaolin product comprising:
    - 56,000 tpa (nominal) of Great White PRM™
    - 226,000 tpa (nominal) of Great White CRM™.
    - 40,000 tpa (2 years) of Great White HRM™.
  - Following the exhaustion of the PRM feed, processing at a nominal rate of 600,000 tpa of ore for the remaining life of mine into 265,000 tpa (nominal) of kaolin refined product (Great White CRM™).

The Project currently has a 28-year mine life.

Table 1 GWKP – proposed production stages

	1	2	3	4
Description	Kaolin semi-refined concentrate production 1 x 300,000 feed tpa train Upgrade plant to produce refined kaolin CRM™	Fully refined kaolin production 1 x 300,000 feed tpa train Upgrade to 600,000 tpa capacity with construction of additional 300,000 tpa processing train	Fully refined kaolin production 2 x 300,000 feed tpa trains Upgrade of one train to Great White PRM™ plant	Fully refined kaolin production 2 x 300,000 feed tpa trains
Ore throughput (nominal)	300,000 tpa	300,000 tpa	600,000 tpa	600,000 tpa
Production tpa (nominal)	138,000 tpa Great White KCM™90 15,000 tpa Great White HRM™	130,000 tpa Great White CRM™ 35,000 tpa Great White HRM™	284,000 tpa Great White CRM™ 40,000 tpa Great White HRM™	56,000 tpa Great White PRM™ (6 years) 6,000 tpa Great White CRM™ (6 years) 284,000 tpa Great White CRM™ (16 years) 40,000 tpa Great White HRM™ (2 years)
Timing	2 years	2 years	2 years	22 years
Life-of-mine	28 years (excluding development period)			

[4] All ore throughput tonnages referred to are dry metric tonnes

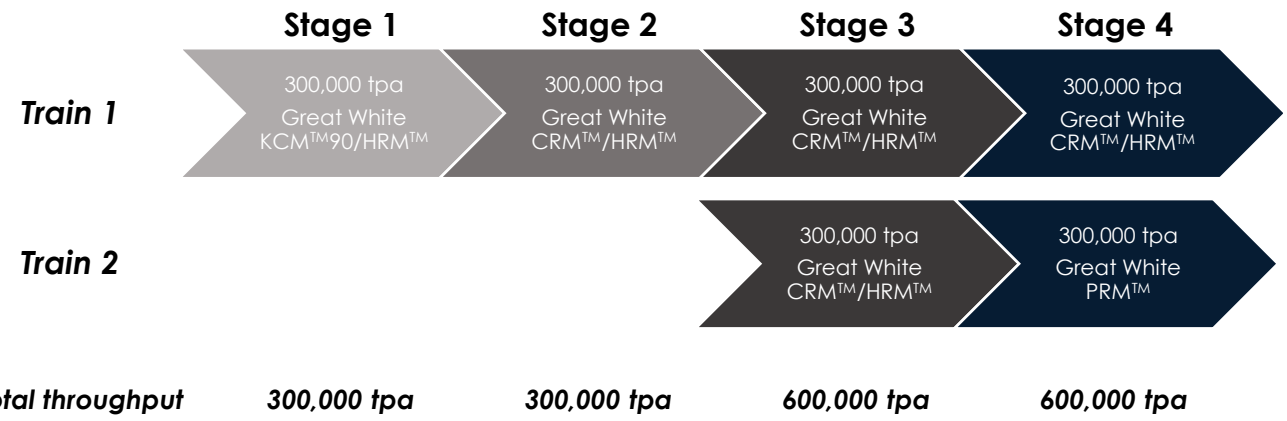


Figure 1 GWKP – proposed production stages

This approach provides for a staged lower cost, lower risk start-up, providing early cashflows, enabling a more robust business case.

Location

The Project is located on the Eyre Peninsula of South Australia (SA) (Figure 2), approximately 15 km southwest of the township of Poochera. Poochera is located on the Eyre Highway about 635 km by road from Adelaide and 65 km east of Streaky Bay.

The DFS considers the Great White Deposit which is part of the greater GWKP (Figure 3) which also holds additional prospective kaolin deposits.

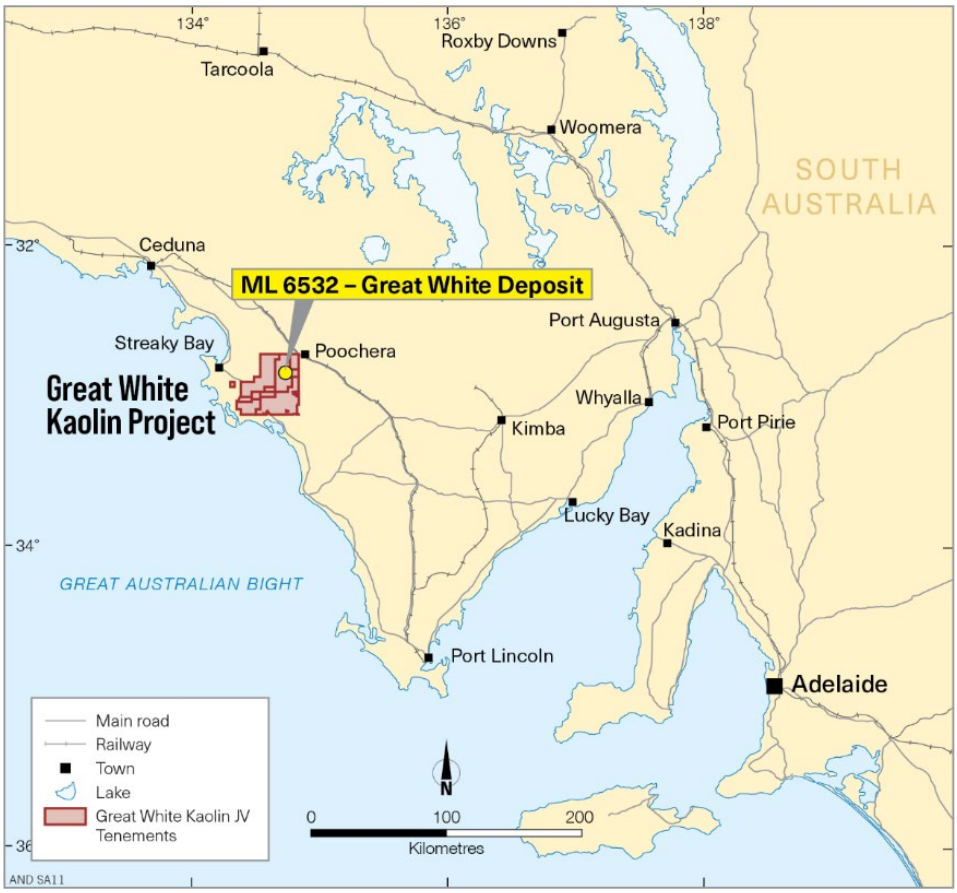


Figure 2 Project regional location map

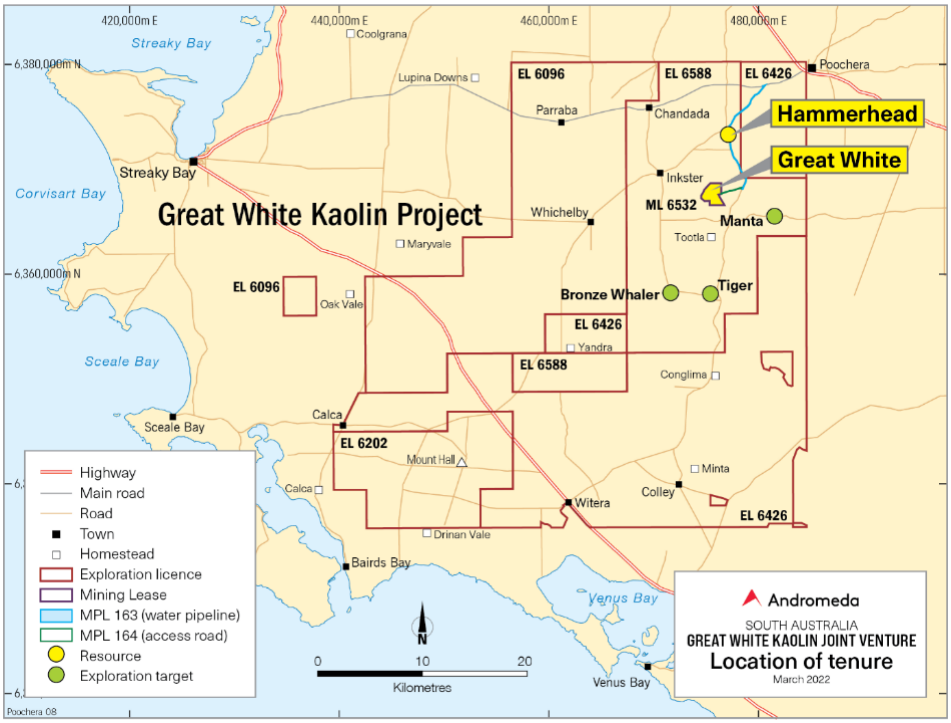


Figure 3 Project location map

Tenements and Ownership

The Project is held by Andromeda Industrial Minerals Pty Ltd (**AIM**) and Great Southern Kaolin Pty Ltd (**GSK**), wholly owned subsidiaries of Andromeda Metals Ltd (**Andromeda**). The Project contains four Exploration Licences (EL 6096, 6202, 6426 and 6588) covering 1,614km² located east of Streaky Bay, Eyre Peninsula (Figure 3) along with three mining tenements (Table 2).

On 17 December 2021 the South Australian Minister for Energy and Mining granted the following mining tenements for the Project:

- Mining Lease (ML) 6532
- Miscellaneous Purposes Licence (MPL) 163 for a water pipeline from Streaky Bay Road to the ML and
- MPL 164 for an access road to the ML from Poochera – Port Kenny Road.

Table 2 GWKP tenement schedule (mining)

Tenement	Tenement Name	Grant Date	Current Expiry Date	Area	Nature of Company's Interest %
ML 6532	Great White ML	17/12/2021	16/12/2056	318.66 ha	AIM 75% GSK 25%
MPL 163	Water Pipeline MPL	17/12/2021	16/12/2056	77.72 ha	
MPL 164	Access Road MPL	17/12/2021	16/12/2056	12.69 ha	

Andromeda is currently undertaking negotiations to purchase the land covered by ML 6532.

Native title has been extinguished on all parcels of land affected by ML 6532, as they are Fee Simple estates, which extinguished native title upon valid grant.

Geology and Mineral Resource

Extensive kaolin exploration has been undertaken since the mid-1980s in the area surrounding the Great White Deposit. Geological units to be mined and stratigraphy observed at the Great White Deposit are outlined in Figure 4.

Drilling has defined the limits of the halloysite kaolin mineralisation of the Great White Deposit and a distinct high purity kaolinite, with low halloysite content.

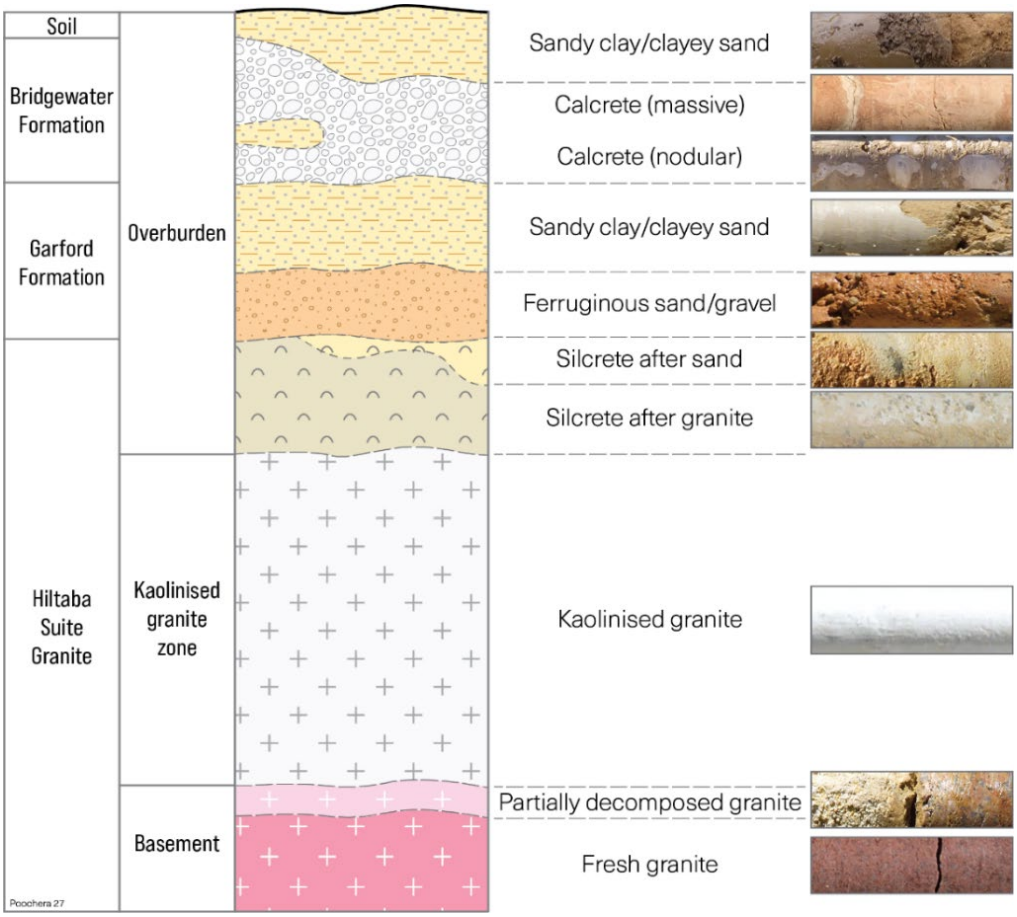


Figure 4 Simplified Great White Kaolin Deposit stratigraphic column

The 2022 DFS is based on the 2020 Great White Mineral Resource estimate (refer ADN ASX announcement dated 26 November 2020 titled "Updated Mineral Resource for the Great White Kaolin JV Deposit"). The updated Mineral Resource estimate for the Great White Deposit is 34.6 Mt of kaolinised granite reported at an ISO Brightness cut-off of 75% in the minus 45 µm size fraction (refer Table 3).

Table 3 2020 Great White Kaolin Mineral Resource

Class	Mt	PSD -45 µm (%)	Kaolinite (%)	Halloysite (%)
Measured	5.7	50.2	39.5	6.9
Indicated	14.2	51.1	42.0	5.0
Measured + Indicated	20.0	50.8	41.3	5.6
Inferred	14.7	49.3	40.3	4.9
Total	34.6	50.2	40.9	5.3

Note that all figures are rounded to reflect appropriate levels of confidence

The 2020 Mineral Resource includes two subdomains; a halloysite-kaolin sub-domain "Halloysite Domain" and an ultra-high bright (ISO B >84%) high-purity kaolin subdomain "Ultra Bright Domain", as summarised in Table 4.

Table 4 Defined subdomains within 2020 Great White Kaolin Mineral Resource

Zone	Mt	PSD -45 µm (%)	Kaolinite %	Halloysite %
Halloysite Domain	15.9	50.6	40.0	6.8
Ultra Bright Domain	1.2	54.0	50.3	0.8

The Mineral Resource yields 17.4 Mt of High Bright (ISO B >75%) kaolin product in the minus 45 µm fraction, with the remaining approximate 50% of material being largely residual quartz derived from the weathered granite, as summarised in Table 5.

Table 5 Great White Kaolin Mineral Resource minus 45 µm

Class	Mt	ISO B	Kaolinite (%)	Halloysite (%)	Al2O3 (%)	Fe2O3 (%)	TiO2 (%)
Measured	2.9	83.9	78.8	13.8	36.7	0.52	0.32
Indicated	7.3	82.8	82.3	9.9	36.6	0.51	0.50
Measured + Indicated	10.1	83.1	81.3	11.0	36.6	0.51	0.45
Inferred	7.2	83.3	81.7	9.9	36.4	0.51	0.45
Total	17.4	83.2	81.5	10.5	36.5	0.51	0.45

Note that all figures are rounded to reflect appropriate levels of confidence

The halloysite kaolin subdomain contains 8.0 Mt of minus 45 µm material comprised of 13.3% halloysite and the Ultra Bright sub domain contains 0.6 Mt of minus 45 µm material with an ISO B of 86.8%, as summarised in Table 6.

Table 6 Defined subdomains within Great White Kaolin Mineral Resource minus 45µm

Domain	Mt	ISO B	Kaolinite (%)	Halloysite (%)	Al2O3 (%)	Fe2O3 (%)	TiO2 (%)
Halloysite	8.0	82.9	79.0	13.3	36.6	0.54	0.43
Ultra Bright	0.6	86.8	93.2	1.4	37.4	0.34	0.63

Note that all figures are rounded to reflect appropriate levels of confidence

The Ultra Bright Domain Recent drilling to the north of the Halloysite Domain consists of extremely high purity kaolinite with ultra-high brightness (ISO B >84%) and low halloysite levels that is ideally suited to high-value markets in specialist coatings and polymers.

Hydrology, hydrogeology, and geotechnical analysis

Hydrology and hydrogeology studies including a groundwater user survey, bore drilling, pump tests, hydrogeological analysis and numerical modelling have been undertaken to understand the potential for impacts to any identified groundwater users and groundwater dependent ecosystems. There are no identified impacted groundwater or surface water receptors due to the low volume and poor quality of groundwater and the lack of rainfall across the region.

Groundwater is likely to occur primarily in two units – fractured basement rocks (Hiltaba Granite) and ferruginous Tertiary sands and gravels (Garford Formation). Although groundwater was not encountered in the partially decomposed granite (PDG) (transition between the kaolinised granite and fresh granite), groundwater could occur in places where fracturing is present, as such the lowermost aquifer is termed the "PDG-granite aquifer".

Groundwater within the PDG-granite aquifer is restricted to areas where fracturing of the basement rock has occurred, indicating groundwater volume and location is likely to be discontinuous. Thickness of the PDG-granite aquifer is indeterminate due to the discontinuous nature of fractured aquifers.

The Garford Formation is present throughout the entire study area with varied thickness from 2 m west of the Project to approximately 30 m east of the Project. The aquifer is unsaturated over most of the proposed pit, with saturation inferred to occur in a narrow trough-like area along the north-eastern portion of the proposed pit.

Geotechnical analysis was carried out using actual site parameters based on data from six vertical PQ3 diamond cored holes. The geotechnical model comprises three broad geotechnical horizons; an upper overburden (Quaternary and Tertiary units), a middle kaolinised granite (mineralised zone mainly logged as a sandy clay with low plasticity) and a lower granite basement rock (weathered granitic rock). The pit slope components for the overburden and kaolinised granite are presented in Table 7.

Table 7 Recommended pit slope components

Geotechnical horizon	Depth bgl	Bench height	Berm width	Bench slope angle	Inter-ramp angle	Overall slope angle
Overburden	0 to 10 m	5 m, mined in 2 x 2.5 m flitches	5 m	65°	34°	27°
Kaolinised Granite	10 to 40 m	6 m, mined in 2 x 2.5 m flitches	5 m	35°	23°	

Mining and Ore Reserves

An optimisation was conducted on the 2020 Mineral Resource block model. The destination for the Great White kaolinite is focussed on the high-end kaolin users' markets. To ensure the kaolinite quality, grade control will focus on halloysite percentage, iron and titanium impurities (brightness). Due to the flat lying nature of the orebody, the optimised pit extents were limited by ore thickness rather than grade or quality. Staged pit designs were created to delineate specific mining areas for scheduling of feed material to meet the product schedule. These designs were created on the following assumptions:

- each design would operate for multiple years
- mining faces would not be static
- temporary ramps can be mined into place as the faces progress and
- shallow pit depth.

The initial pit design was based on minimising the pre-strip and providing access to ore for delivering to either the pilot plant or the processing plant. A series of cutbacks were designed on the initial pit building up to the steady state mining sequence. A total of nine staged pits have been designed as part of the Life-of-Mine (LOM) schedule (Figure 5).

LOM scheduling was completed using Minesched software. Flagging was used to determine that each block assigned to a pit shell is mined only once for scheduling purposes.

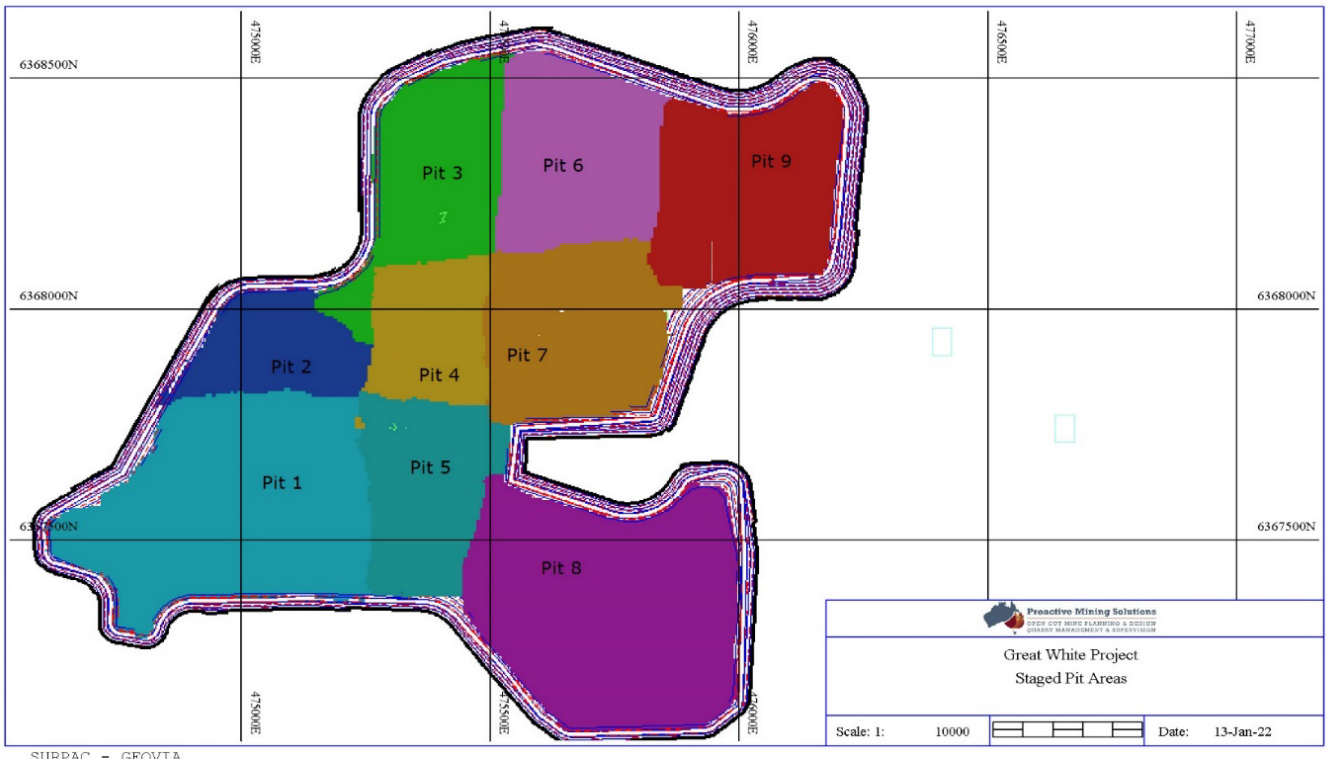


Figure 5 Final design with staged pit footprints

Inputs have been based on the methodology used in the Whittle optimisation. Material attributes were set based upon codes within the block model, and appropriate product specifications. Up to 28 different materials were specified within the block model.

Feed specifications

The mine schedule was driven by ore blending through the processing plant to reach the required plant feed (Table 8) and product specification and optimising value. Stockpile schedule and mining rates provided for the blended feed specification. Materials were categorised on brightness, halloysite grade, ore zone, and -45 µm yield. Brightness, 45µm fraction and halloysite were the key elements informing the feed schedule and yield. Iron content in the feed is associated with the end product brightness with Fe_2O_3 grades deleterious to the end products. Consequently, product grade materials were split using Fe_2O_3 grades between 0.5% and 0.8% with intervals at 0.1%. As an example, high brightness low halloysite material from mining zone 2 inside pit 3 was sent to PRM™ feed material.

Table 8 Plant feed specification

Property	Great White PRM™ feed (including Great White CRM™ by-product)	Great White CRM™ Feed (including Great White KCM™90 and Great White HRM™)
Brightness (ISO R457%)[2]	89 +/-2.5	85 +/-2
<45 µm (wt%)[1]	nom 54	nom 50
-2 µm (wt%)[2]	nom 65	nom 65
Halloysite Content (wt.%) [2]	Max 5	15 +/-5
Fe_2O_3 (%)[2]	0.3 +/-0.2	0.5 +/-0.2
TiO_2 (%)[2]	nom 0.3	0.3 +/-0.2
TiO_2 + Fe2O3 (%)[2]	Max 1	N/A
Form	Run-of-Mine (**ROM**) Ore	ROM Ore

[1] Properties of the whole rock

[2] Properties of the -45 µm fraction

Mining Operations

The mining method is simple and well proven using conventional open cut mining with excavators and trucks. Access to the ore is via a shallow open cut mine with a series of cutbacks to open the initial pit, provide a steady state work area and mine production level. If necessary small satellite pits targeting specific quality clay can be opened to access feed stock to meet product requirements at the time. The pit will be developed in stages with the initial pit being 250m long by 200m wide. This pit will grow and as the clay is removed, be backfilled by the overburden from subsequent mining steps.

The extent of the mining area is approximately 2 km long in a southwest to southeast direction and a maximum of 1.2 km in a northwest to southeast direction. Due to the proposed mining method and progression of the mine, the open mining area (approximately 300 m by 350 m) is expected to be smaller than this the full extent of the Ore Reserve. The maximum depth of the pit is expected to be ~40 m from the existing surface.

Pit designs were based on the following design parameters:

- 5 m berms every 15 m vertically
- inter-berm face angles of 27° in the kaolinized granite and 34° in the overburden
- 13 m wide pit haulage ramps at a 10% grade.

Conventional mining methods using excavators and off-road mining trucks will be utilised to move ore and overburden. Topsoil and subsoil will be pushed up and moved as required. The mining method and overburden return/washed sand concepts were devised to reduce capital and operating costs, while taking into consideration environmental, physical, technical and operational aspects of the Project. In particular, the mining system eliminates the need for an above-ground sand storage facility and minimises rehandling of soil and overburden. It is proposed that initially a mining contractor will be used to provide safety and training systems, resourcing and equipment.

The mining cycle involves topsoil, subsoil and overburden removal prior to excavating the kaolin ore. Soils will be pushed up using a dozer and stockpiled for ease of replacement during rehabilitation. Where required, soil will be moved and stockpiled for future use. Once the mine is established and the kaolin ore has been removed, the mine will be backfilled with subsequent overburden. Overburden and washed sand from the processing plant are trucked to the overburden landform or returned to the mining void directly. After a period of consolidation, the landform is dozed to a stable shape and the subsoil and topsoil are replaced. The landform will be contour ripped and then revegetated.

Mining will commence in the southwest area of the deposit proceeding with a number of cutbacks based on the opening up of kaolin working floor. Due to the nature of the kaolinite market and qualities required for specific products, there may be a need to open additional pits to collect a bulk sample for processing or blending. The mining schedule is currently designed as a progressive pit that spreads out from the initial pit. Overburden stockpiles are designed and located adjacent to the pit to minimise haulage requirements.

The pit inventories have been divided into 2.5 m vertical intervals which give the definition required for a conventional truck excavator operation. Scraper mining and road planers have been considered but due to the small mining volumes required and the possibility of hard overburden rafts, they have been dismissed in preference of a conventional excavator. The digging method of the excavator allows for a blended cut of the horizontal layers of kaolin and provides better grade control of ore.

The overburden material from the initial mining will be placed into adjacent landforms. When sufficient capacity is available in the mined-out sections of the pit, overburden will be placed directly into the pit void.

A calcrete layer close to surface beneath the topsoil and subsoil covers most of the proposed pit. Surface expression of this material, where it outcrops in the eastern end of the mining zone, shows a high level of fracturing. While much of the calcrete will probably be readily broken out with an excavator, the remainder is expected to be rippable with a bulldozer. Inspections of this material in nearby council road borrow pits support this assumption.

Below the calcrete layer is a series of bands of silt, clay, fine to coarse sands. These occur in varying thicknesses. Sections of the pit have a silcrete layer of varying thickness up to 3 m. While the top of the silcrete is generally quite soft, lower sections can have hardness up to a fresh rock. Drilling indicates that while much of this material has fractures and will be rippable with a D9 size bulldozer, a percentage of it will require blasting. Andromeda geological staff have modelled four zones of silcrete requiring blasting.

The kaolin layer averages 9 m thickness. Dry kaolin will be easily trafficable, wetter material less so, however with the in-situ kaolin containing 50% coarse sand, it is expected that off-road trucks will have year-round access in the semi-arid environment. The upper zones of the kaolin are dry across the mine area and amenable to either excavator truck or bulldozer scraper operations. In the eastern section of the LOM, pit modelling indicates potential higher moisture contents, where this occurs mining will continue with top-loading using excavator and truck.

Ore Reserve

Using the modifying factors discussed in this report, Table 9 below can be considered an Ore Reserve for the GWKP, using the resource model classifications.

Table 9 Ore Reserve – GWKP

Ore Feed Category	Reserve Category	Tonnes	Yield		Halloysite	Brightness (R457)	Fe2O3
			Great White PRM™	Great White CRM™			
		(Mt)	(% of whole rock)		(% in -45 µm fraction)		
Great White PRM™ Feed	Proved	0.4	27	18	3	87	0.3
	Probable	1.1	24	16	1	87	0.3
	Subtotal	1.5	25	17	2	87	0.3
Great White CRM Feed (Great White KCM™90 & Great White HRM™)	Proved	4.8	-	45	15	84	0.5
	Probable	8.9	-	46	11	83	0.5
	Subtotal	13.7	-	46	12	83	0.5
Total		15.1[5]	-	-	-	84	0.5

Great White KCM™90/Great White HRM™ are products of the Great White CRM™ feed and process with minor changes in processing methodology.

An accompanying Table 1 Section 4 document applicable to the JORC 2012 code for the publication of these reserves is attached in Appendix 2.

Material classified as Measured and Indicated in the Mineral Resource estimate have been directly converted to Proved and Probable Reserve. The Ore Reserve comprises of 34% Proved Reserve and 66% Probable Reserve (Table 10). The Production Target comprises of 34% Proved Reserve, 65% Probable Reserve and 1% Inferred Resource. Inferred Resources are not included in the Reserve and are not considered within the pit design process.

Table 10 Comparison between Ore Reserve and Mining Inventory

Ore Reserve Category	Mt	%	Mining Inventory Mineral Resource Category	Mt	%
Proved	5.2	34	Measured	5.2	34
Probable	9.9	66	Indicated	9.9	65
			Inferred	0.1	1
Total	15.1	100	Total	15.2	100

[5] Table subject to rounding errors.

Processing Testwork and Ore Characterisation

Ore mineralogy

The mineralogy of the Project has been extensively studied throughout its history, specifically within the -45 µm fraction. The mineral assemblage across the orebody was determined by x-ray diffraction (XRD) carried out by CSIRO. The typical minerals identified in the -45 µm fraction are limited to:

- kaolinite
- quartz
- halloysite
- mica
- with minor traces of other minerals, specifically mica and microcline.

The orebody is predominantly sands (i.e., ~ 45 % - 55 %) and kaolinised granite (i.e., ~45 % - 55 % clays). The primary objective is to separate the sands from the clay. Normal gravity or enhanced gravity processes to achieve the primary separation do not work as the density of quartz, 2.63 g/cm^3, is close in density of kaolinite-halloysite of approximately 2.64 g/cm^3.

The grain size of the quartz is extremely coarse, >45 µm when compared with the kaolin <25 µm allowing for classification via several methods, including sedimentation, hydrocycloning and sieving.

Testwork

Extensive metallurgical testwork and market testing has been carried out on the Great White halloysite kaolin material over the last decade to determine an optimum process flow sheet and product range. The DFS process flow sheet has been developed, to a high level of confidence, based on an extensive range of testwork carried out since 1998.

Prior to Andromeda's involvement testing was conducted by Commercial Minerals using their pilot plant trials in 1998. Commercial Minerals surrendered the Poochera Kaolin Project which was later taken up by Minotaur Exploration Ltd (MEP) in 2008. MEP commissioned and undertook extensive pilot plant processing as well as calcining trials to produce hydrous kaolin product samples for potential customers. MEP also undertook dry processing trial in 2013.

Andromeda commenced work on the project in 2018. Since then, further comprehensive trials have been undertaken. These trials included work done by specialist kaolin processing companies in Australia, UK, China, Japan, Germany and the USA.

Metallurgical/processing testwork has been undertaken at laboratory and pilot scales, to assess the response of the kaolinized granite to various processing approaches. Trials to date include the following various processing methodologies:

- wet processing (for the DFS)
- dry processing (for the Scoping Study and Prefeasibility Study (PFS))
- magnetic separation testing
- hydro cyclone and gravity separation
- centrifuge tests
- sedimentation (flocculation) trials
- thickening tests
- filter press trials
- noodling/extruding trials.

Testwork programs have been conducted by a range of independent and internationally recognised organisations including AKW Equipment + Process Design, based in Hirschau, and Germany (**AKW**), selected because of their specialist kaolin expertise.

As process flow and development of the understanding of the Great White Kaolin material characteristics have been developed, components identified for use in the Project processing plant have been procured and installed in Andromeda's SBPP.

The detailed testing including confirmation and validation at the SBPP has enabled the development, with a high level of confidence, of the process flow sheet for the Project.

Based on the testwork conducted and advice from domain experts including AKW and Primero, flow sheets were developed for each of the project stages starting with Great White KCM™90 and upgrades to Great White CRM™ and Great White PRM™ processing plants.

Mineral Processing and Plant Engineering

Andromeda engaged Primero Group Ltd (Primero) to carry out the Engineering and Cost Study for the Project. Andromeda considered four stages of processing for this DFS.

The Project proposes wet processing that involves:

- Mixing the raw kaolin into a slurry
- Adjusting the particle size distribution of the product using hydrocyclones to meet customer specifications
- Further reducing the content in the product of coarser grained minerals and minerals containing deleterious elements such as iron
- Drying the kaolin
- Bagging the product for distribution and sale to regional and export markets.

Delivery of the Project is proposed in the following four main stages[6]:

- Stage One – 300,000 tpa processing train to produce Great White KCM™90 and Great White HRM™.
- Stage Two – Upgrade to the 300,000 tpa processing train to produce Great White CRM™, and continuing to produce Great White HRM™ (upgrade of Great White KCM™90 plant).
- Stage Three – The addition of a second 300,000 tpa processing train, increasing the total capacity to 600,000 tpa processed to produce Great White CRM™ and Great White HRM™.
- Stage Four – Upgrade to the second 300,000 tpa processing train to produce Great White PRM™ and Great White CRM™. The first processing train will continue to process an additional 300,000 tpa to produce Great White HRM™ and Great White CRM™, with the total processing capacity of both trains being 600,000 tpa.

Based on test work, indicative metallurgical performance has been anticipated and, to allow for pilot to full plant scale up factors. As a lead into Stage One it is proposed that the existing SBPP is upgraded to enable it to produce early commercial quantities of selected high value products including the Great White HRM™. This will allow early market adoption of the GWKP products to give a smooth transition into Stage One processing train output and create some early cash flow.

The 2020 Pre-feasibility Study (**PFS**) examined direct shipped ore (**DSO**) unprocessed and both site-based dry and wet-processing options. The preferred option selected was the initial phase of DSO based production followed shortly thereafter by onsite wet processing.

[6] All ore throughput tonnages referred to are dry metric tonnes

The key benefit of wet-processing over dry-processing is significant improvement in recovery of additional valuable kaolin clay. Production of a wet processed filter cake gives a higher refinery recovery, lower transport costs and achieves a higher price than the unprocessed DSO feed.

The kaolin processing flowsheet was developed, based upon test work conducted over an extended period by a selected group of respected local and international test houses. Further verification of flowsheet was obtained through extensive testing at Andromeda's SBPP.

An outline of each of the four delivery stages are provided below.

Stage One

The Primero designed Stage One (as shown in Figure 6) processing plant capacity is sized at nominally 37.5 dry tonnes per hour. The plant will operate continuously with an assumed operating time of 8,000 hours per year for 91.3% utilisation.

The Great White KCM™90 and Great White HRM™ wet plant process (as represented in Figure 6) is as follows:

- Front-end Loader (**FEL**) feeds Run-of-Mine (**ROM**) material into ROM bin that is equipped with static grizzly bars, with each bar spaced at 300 mm, removing tramp size +300 mm materials.
- At predefined rate, the ROM bin feeder extracts and discharges ore into the drum washer as well as process water, dispersant, and all other potential major liquid addition streams. The drum washer breaks up the -300 mm materials with a target size of -4 mm.
- The drum washer discharge passes through a 4 mm trommel screen and all oversize material reports to the rejects bin and transferred via FEL to the reject stockpile.
- Trommel screen undersize materials are pumped to a double deck screen consisting of an initial screen at 2 mm aperture and the second screen at 500 µm.
- The screen undersize fraction reports to the desanding, refining and scavenging cyclone stages.
- The screen oversize, desanding and scavenging underflows all combine flowing to the dewatering cyclone and then to the sand stockpile.
- The product from the refining and scavenging hydrocyclones is directed to the thickener where it is dewatered before being pressed into filter cake.
- The filter cake it transported to the dryer and then packaged in 1.5 t bulka bags for shipment.

Figure 5 Great White Kaolin processing Primero Designed Stage One plant – 3D model Great White KCM™90

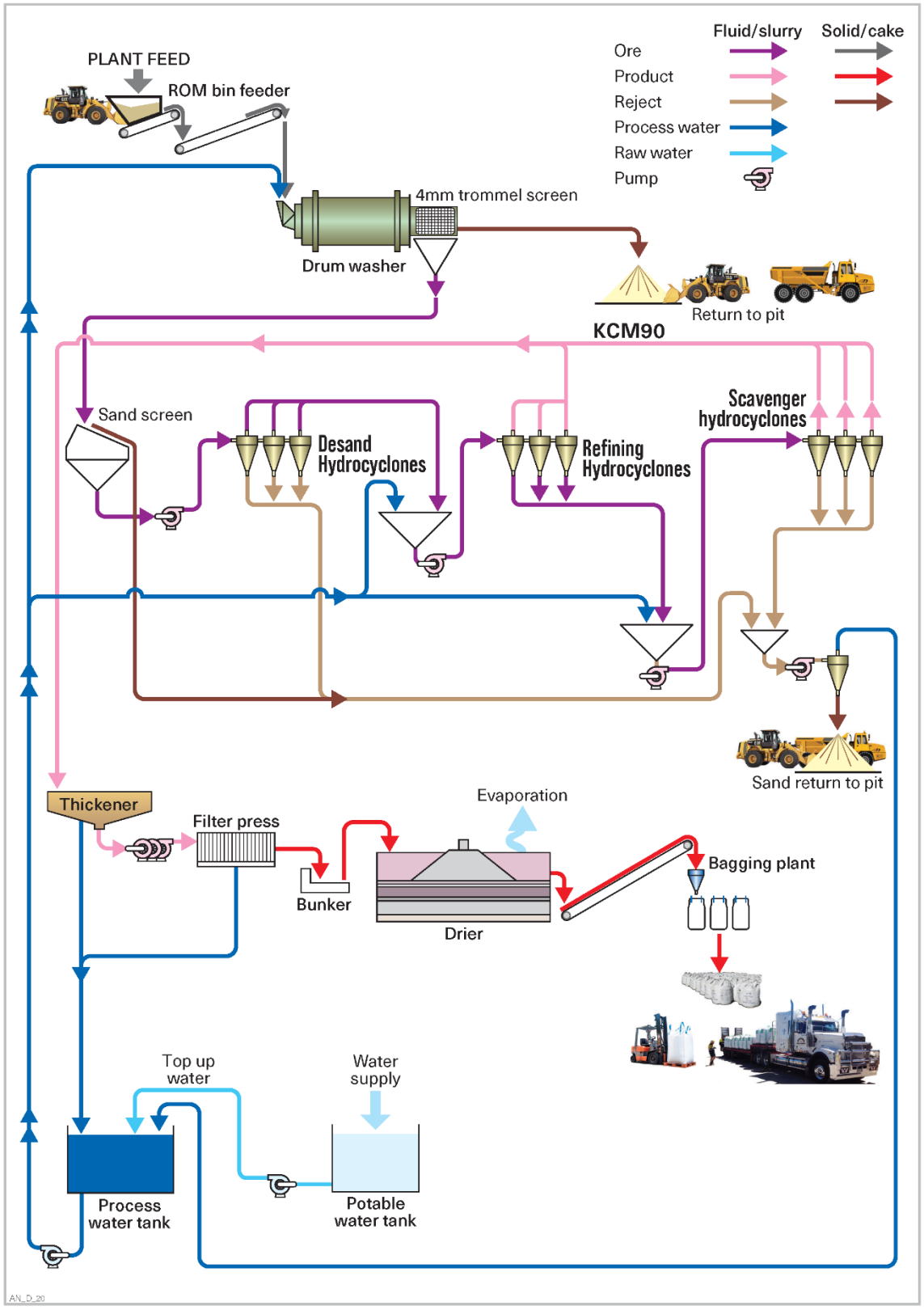


Figure 6 Great White KCM™90 Processing flowsheet

Stage Two

Stage Two (as represented in Figure 7) involves the upgrade of the Stage One processing train to produce Great White CRM™ in addition to Great White HRM™ and includes:

- A second refining hydrocyclone cluster.
- A 45 µm trash screen before the thickener.
- A feeder for the addition of product additives before drying.

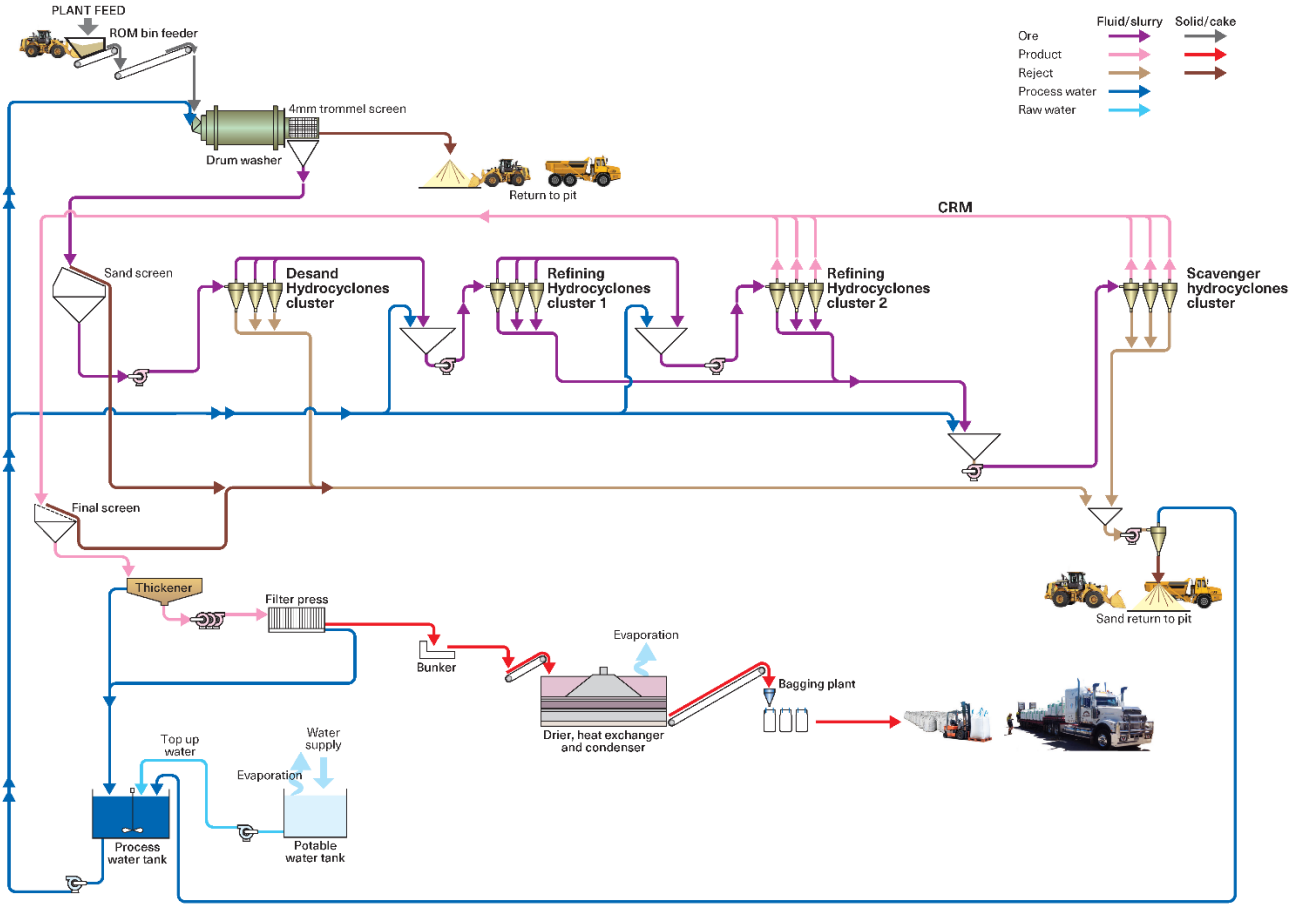


Figure 7 Great White CRM™ Processing flowsheet

Stage Three

The addition of a second 300,000 tpa processing train for the production of Great White CRM™. The additional train duplicates the Primero designed Stage One Great White KCM™90 plant with the additions included in the Stage Two upgrade.

With the additional train the total feed capacity is increased to 600,000 tpa with the capability of producing both Great White CRM™ and Great White HRM™.

Stage Four

An upgrade (as represented in Figure 8) is undertaken to the second processing train build from Stage Three to enable the production of Great White PRM™. The upgrade includes:

- Addition of magnetic separation to increase the product brightness.
- A third hydrocyclone refining stage.
- Trash screens for the refined Great White PRM™ product stream before the thickener.
- A dedicated Great White PRM™ thickener.

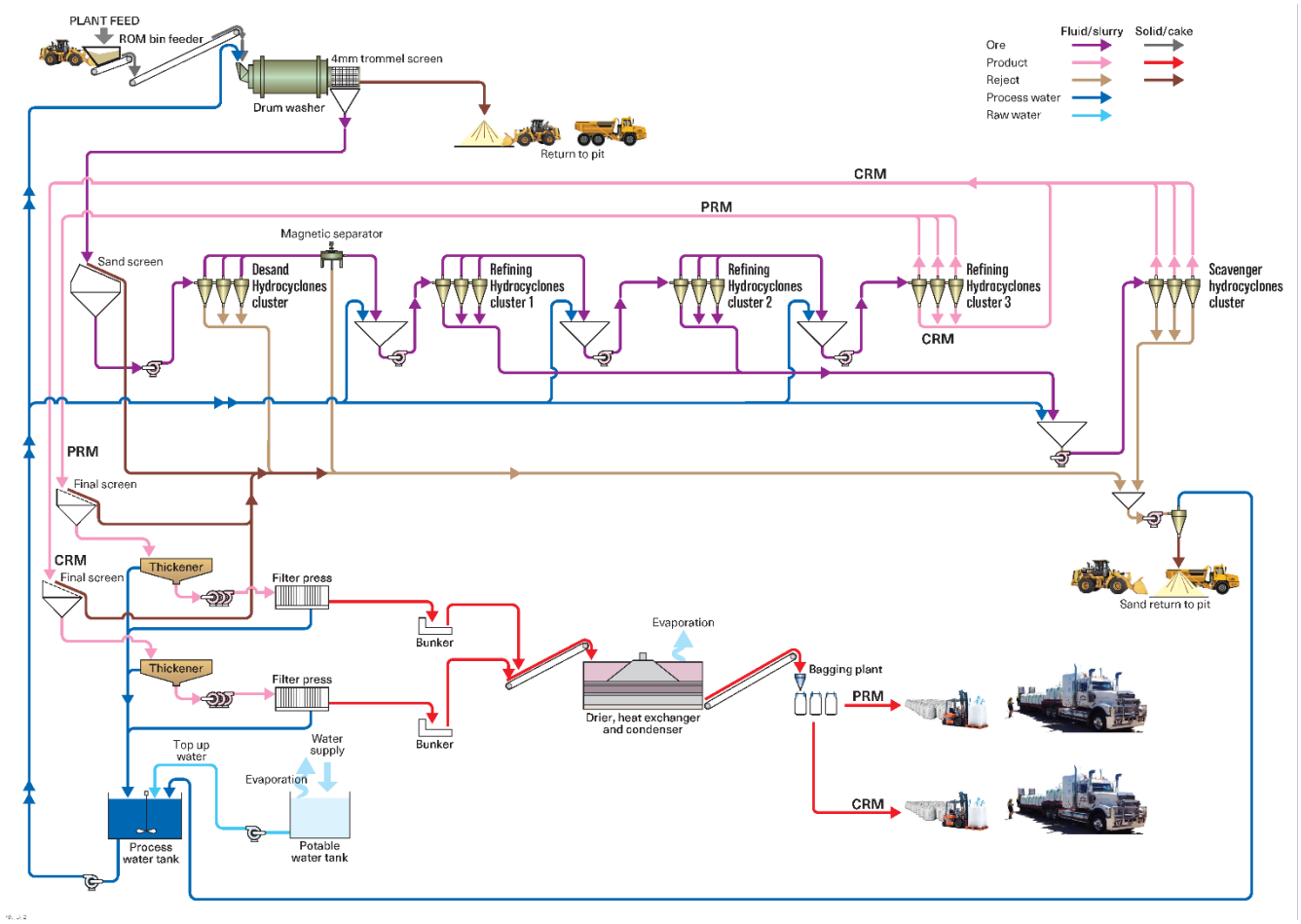


Figure 8 Great White PRM™ Processing flowsheet

Infrastructure and Services

Topographically, the area is flat to gently undulating with much of the land cleared for sheep grazing and cereal crops, with remnant patches of Mallee open scrub vegetation in wider area.

Roads

Access to the site from Adelaide is via the Eyre Highway, with most fuel and operational supplies likely to be freighted to site via this route. Within the local area, access is available by a network of established, well-maintained District Council Streaky Bay (**DCSB**) unsealed and South Australian Government Department for Infrastructure and Transport (**DIT**) sealed roads. The mine and plant will be serviced by a planned mine access road from Poochera –Port Kenny Road several kilometres to the east, via a route determined by environmental, land ownership, terrain, and haul distance considerations.

Andromeda has committed to upgrading and maintaining Poochera – Port Kenny Road and associated intersections to accommodate haulage trucks from the Project. During survey works it was identified that existing sections of the road were unsafe for modern transport. Upgrades to those sections provide for a safer road for all users. The ongoing maintenance of the road for the LOM will provide improved safety for all road users and better haul conditions for the Project and local businesses.

Tonkin Consulting (**Tonkin**) has designed the road upgrades to Australian standard for vertical and horizontal alignment based on geotechnical investigations and engineering surveys undertaken. Proposed upgrades are predominantly within the existing road corridor, minimising impact on neighbouring land. The proposed technical specification details the requirements for the construction of a 12 km section (approximate) of Poochera – Port Kenny Road and a 2 km section (approximate) of a new mine access road between the proposed mine site and Poochera – Port Kenny Road.

Andromeda has committed to funding the upgrade to the intersection of Poochera – Port Kenny Road with Streaky Bay Road. Upgraded designs for the intersection have been provided to the DIT for review and approval. Andromeda is also working with DCSB on the required road upgrades and committed to the implementation of pavement monitoring management and rehabilitation procedures, if required.

Water Supply

The Project plans to access the mains water supply from the Tod Main at Poochera. Initially water will be supplied using road tanker, until a pipeline is installed with a connection from the local SA Water network at Poochera through to the site. Additional water for dust suppression, wash water, will be collected from rainwater, process water, water collected through dewatering and the mine pit, and water reclaimed from mined material.

Water used for dust suppression will be minimised using binding agents that retain moisture in the roads and hold the dust particles together. A number of proprietary products are used throughout the mining and civil industries to assist in water conservation and dust suppression and are available for use.

A reverse osmosis (RO) system will be installed to recycle of the processing water on site.

Power

Power options in the region were considered with a link to the grid proposed as the best option for long term supply, however the capital cost to connect to the grid was not justified over the life of the project. A LPG fuelled turbine generator system has been included to provide baseline power on a Build-Own-Operate (**BOO**) basis by an independent power producer under a price per kWhr contract. While the company believes that a move away from fossil fuels will be undertaken in the future, the LPG/ turbine combination provides for a reduction in energy used for product drying with the generator exhaust heat able to be used on the process plant driers. This provides for a 25% savings in gas through co-generation. It is expected that in the future these generators will be able to be converted to alternative green energy fuels such as hydrogen.

Workforce

There will be an estimated direct workforce (incl. haulage and other services) of approximately 70 people dependent on the Project delivery stage. Employees will be sourced from the local area wherever possible.

Andromeda intends to train and employ local and regional people wherever appropriate. Andromeda will work with the DCSB, government agencies (including the Education Department) and community groups to ensure appropriate training programs are in place to provide genuine opportunities for members of the local community to obtain employment at the Project. Andromeda will also implement 'Cultural Awareness' training for employees and contractors which will assist in developing a mutual understanding of the local indigenous culture.

As employment opportunities arise, Andromeda will provide job advertisements to Wirangu representatives for consideration within the community. Indigenous employment will be encouraged and discussion with relevant parties will continue to determine how this could be successfully implemented (e.g., including the possibility of contracting local indigenous businesses).

The typical local businesses that may provide goods and services related to the Project during the construction, operation and closure phases include:

- freight and couriers
- haulage transport
- crane hire
- environmental monitoring
- earth moving/civil works
- general construction
- safety equipment suppliers
- hardware/automotive suppliers
- supermarkets
- local hotels/bakery/catering
- engineering and maintenance
- drilling.

Andromeda will take a risk based, systematic and best practice approach of managing work health and safety (**WHS**) which is consistent with good business practice and ensuring that WHS processes are integrated into all aspects of business. The basis of this strategy is outlined in the Andromeda Health Safety Environment and Community (**HSEC**) Management System which will be developed to provide a framework of policies, processes, and plans that enable a consistent approach, providing opportunities for review and continuous improvement.

Logistics

Andromeda reviewed various logistics options for the Project. Bulk DSO, bulk product, bagged final product, bagged noodled and bagged filter cake product were all considered as product options for supply to customers from the Project.

Current customer requirements dictate the requirement for both the final concentrate, and refined products to be transported in bulka bags. Bulka bags of product can be loaded into the hold of a ship in a full or part shipment, they are sealed from moisture ingress and contamination, are easily separated for distribution to end users and acceptable by offtake partners for handling across international ports. Refined kaolin and concentrate filter cake have been selected for the DFS as the preferred supply option, as it value adds, improves product handing, increases bulk density of the final product, and eliminates the transport cost of sand.

Transport from site by road to the port is the only land transport method proposed, with no other options regarded as practicable. In contrast, the railway closest to the Project is the narrow-gauge line between Port Lincoln and Thevenard (with the section between Wudinna and Thevenard used for rolling stock maintenance traffic only). This line is currently not in use, nor maintained. The nearest access to the standard gauge rail line linking Perth to Adelaide would be at the intermodal terminal at Port Augusta 330 km east of the mine-site.

Ports under consideration for export of ore and kaolin product include Thevenard, Whyalla, and Lucky Bay. Several other ports are currently in planning stages across the Eyre Peninsula and a watching brief will continue on those developments.

Andromeda has reviewed transport and route alternatives to identify the best options for the Project. Information from studies to date enabled total unit transport costs for Andromeda product to be developed.

Environment

As part of the regulatory approvals process, an environmental assessment for the Project was conducted to establish baseline characteristics and the Project's potential impact on the environment. This environmental assessment included studies that supported a combined Mining Proposal and Management Plan ("**the Mining Proposal**") under Section 36 of the Mining Act. The Mining Proposal accompanied applications lodged on 25 February 2021 for a Mining Lease (**ML**) and two Miscellaneous Purpose Leases (**MPLs**) for a water pipeline from Streaky Bay Road to the ML and an access road to the ML from Poochera – Port Kenny Road.

The Mining Proposal and its supporting appendices provided:

- information on the proposed mining operations,
- potential environmental impacts of those operations,
- environmental outcomes expected to occur; and
- results of community and stakeholder consultation that had been undertaken on the Mining Proposal.

In addition, details of the existing cultural, social, economic and natural environment were provided, with all information designed to assist Government agencies and other stakeholders to make an informed assessment about the risks and benefits associated with the Project.

Andromeda has adopted an integrated planning approach, feeding results from stakeholder engagement and environmental studies into the Project's development to minimise impact on the surrounding environment and community, as well as reducing the regulatory risk.

On 17 December 2021 the South Australian Government Minister for Energy and Mining granted:

- ML 6532
- MPL 163 (for a water pipeline)
- MPL 164 (for an access road).

The terms are consistent with the original Mining Lease Application (including the Mining Proposal).

The second stage of the Project's regulatory approvals process is the requirement for a Program for Environment Protection and Rehabilitation (**PEPR**) in respect of the mining tenements to enable operations to commence. This is currently being prepared.

The land on and surrounding the Project has historically been used for cropping and the grazing of sheep, with agricultural activities undertaken by the landowners for approximately 100 years. A section of the MPL 164 (access road) is held under a Native Vegetation Heritage Agreement pursuant to the Native Vegetation Act 1991 in the name of the Minister for Environment and Water.

The land comprising the Project is zoned 'Rural', supporting dry land primary production activities and value adding opportunities (PlanSA 2020). An assessment of the Project under the Planning and Design Code established under the *Planning, Development and Infrastructure Act 2016* has been undertaken, with the conclusion being that ML 6532 and MPL 163 (water pipeline) and MPL 164 (access road) are generally envisaged activities for the region.

Extensive environment impact assessments have been undertaken by independent experts, who worked alongside Andromeda to develop a Project which aims to minimise potential environmental impacts, while maximising potential benefits. The assessments indicate that most impacts will be minimal or minor, and in some instances, create positive impacts, particularly the economic impact on the local community and broader Eyre Peninsula region.

Modelling by the University of Adelaide shows the overburden material is unlikely to be potentially acid generating as all tested samples have been shown to be either non-acid forming (NAF) or to have a 'low capacity' to release potential or actual acidity. The overburden material is also highly calcareous which will provide buffering of any potential leachate.

Air quality and noise modelling has been undertaken to determine the potential for nuisance dust, the potential for health impact from particulates and the overall expected noise and vibration impacts. The Proposed Development is expected to be compliant against the relevant air quality standards through each stage, as predicted by modelling undertaken. Modelling noise level demonstrates that through control and management strategies, the Proposed Development can comply with the Environment Protection (Noise) Policy 2007. Blasting would be designed, adjusted, and monitored in accordance with the appropriate Australian Standards to ensure that the ground vibration and airblast overpressure criteria are achieved.

Native vegetation will need to be cleared to support the Project, for which a Significant Environmental Benefit (**SEB**) will be required.

Andromeda has further committed to implementing design and control measures to ensure the environmental impacts are reduced to as low as reasonably practicable.

Community and Stakeholder Engagement

Andromeda is committed to effective, ongoing, and transparent consultation with stakeholders directly and indirectly impacted by the Project. Andromeda is also committed to developing long term relationships with its stakeholders and will work with them to minimise potential negative impacts and maximise beneficial outcomes of the Project for the local, regional and broader South Australian community.

Experienced consultants Design 4 Growth (D4G), support Andromeda and provide input to planning and advice on engagement strategies for the various stakeholder groups of the Project.

Continuous engagement will be undertaken to understand the views and context of affected parties, to provide opportunities for stakeholder participation in the Project and to discuss suitable environmental and social outcomes. The information gathered through an inclusive stakeholder engagement process has been incorporated into the design of the Project. This is reflected in the impact assessment process, including the development of the proposed outcomes. The specific design and mitigation measures to address the issues raised are outlined in the relevant chapters of the Mining Proposal and actions will be included in the PEPR.

Andromeda will continue to actively engage with stakeholders during all stages of the Project.

Implementation Schedule

The project development schedule contemplates completing detailed design in late-2022, before funding and, subject to obtaining regulatory approvals, and commencing construction in late 2022. A final investment decision is expected post this DFS, after discussions with potential offtake and funding partners. Mining is scheduled to commence in fourth quarter 2022 pending the granting of secondary approvals. This development schedule is indicative only and delays may arise for a variety of reasons including delays in obtaining secondary approvals, market disruptions impacting funding and supply of equipment and delays in finalising land access.

Capital Costs

The overall capital cost estimate is shown in Table 11. It has been developed in five parts as follows:

Table 11 Capital cost estimate

	Stage One	Stage Two	Stage Three	Stage Four
	AUD million			
Approvals, Design & Construction	75.87	10.16	66.42	19.49
Operations Readiness	4.43	0.32	1.19	7.15
Mine Development	2.19	0.00	0.00	0.00
Rehabilitation	5.50	0.00	2.50	0.00
Sales and Marketing	0.34	0.00	0.00	0.00
Total (excluding contingency and sustaining capital)	88.33	10.48	70.11	26.64
Contingency	5.46	0.55	3.72	1.69
Sustaining Capital	0.00	0.00	0.00	26.01
Total Capital Expenditure	93.79	11.03	73.83	54.34

Capital expenditure has been time-phased based on the following factors:

- lead times for major components provided by Primero
- assumed nine-month construction period
- indirect costs apportioned across pre-construction through to commissioning.

Operating costs

A summary of operating costs for the production cases for the LOM is shown in Table 12.

Table 12 LOM summary operating cost

Cost Centre	Life-of-Mine AUD million	AUD/t feed
Mining	232.10	15.22
Processing	750.38	49.21
General & Administration	125.22	8.21
Total Production Operating Costs	**1,107.70**	**72.65**
Logistics – Transport & Shipping	1,176.13	77.14
Royalties & Government Charges	121.07	7.94
Corporate & Other	18.92	1.24
Total Non-Production Operating Costs	**1,316.12**	**86.32**
Total Operating Costs	**2,423.82**	**158.97**

Mining Costs

Mining incorporates the earth moving plus the technical services required to plan and manage the works, geological overview, and grade control for plant feed. Costs include all operating aspects associated with the mining. Earthmoving costs have been established through request for proposals on a scope of work covering the mining schedule by capable mining contracting companies. The contract price covers provision of all infrastructure (contractor offices, fuel storage and workshops), equipment, maintenance and mobilisation on a wet basis. Civil works is costed on a day works basis and mining rates are calculated on a schedule of rates. Estimates determined by Andromeda s were built up in parallel to the contractor rates for comparison based on dry hire of required equipment from suitable suppliers.

Processing Costs

This includes all operating costs for the establishment of a functioning process plant plus plant specific infrastructure. The battery limits for the processing plant for the DFS are:

- ROM bin feed to the processing plant
- Gas supply point
- Final product bagging station and product loadout
- SA Water pipe connection.

General and administration

This includes all items required for the establishment of the operations not covered by mining or processing above and includes:

- Site office and associated charges including information technology (IT) and communications
- Insurances
- Commercial
- Occupational Health and Safety (OHS)
- HR, recruitment and training
- Travel and accommodation
- Community and stakeholder engagement
- Equipment hire
- Equipment operation (non-processing and mining)
- Tenement fees
- Environmental testing and monitoring
- Maintenance of infrastructure (non-mining or processing)
- Labour.

Royalties and government charges together with corporate and other costs have been included based on current and projected production levels and growth.

Product logistics

This includes all required items for final product land transport costs and cost, insurance, and freight (CIF) shipping delivery of kaolin product to customer/port. Pricing proposals, received from suppliers for each stage of road transport, port handling, and sea-freight charges provide independent market-based estimates for total product delivery to overseas customers.

Qualifications and exclusions

Corporate costs of $1m per annum have been allowed for in respect of charges for centralised services and resources that may be utilised such as accounts payable, legal, marketing, and project management.

No allowance has been made for the following items in the operating cost estimate:

- Exchange rate variations
- Escalation
- Project financing costs
- Interest charges.

All goods and services tax (GST), import duties, surcharges and any other statutory taxation, levies or government duties are excluded.

No allowance for contingency has been made in these operating cost estimates.

Products and marketing

TZMI were engaged by Andromeda as an independent marketing consultant to assess the global kaolin market with particular emphasis on China. TZMI provides services to an extensive number of global coatings, ceramics and financial institutions.

- The outlook for global demand growth between 2020 and 2025 is 4.3% Compound Annual Growth Rate (CAGR), adding 7.3 million tonnes to market over this period.
- Given the GWKP proximity to the largest global market for kaolin, and a decreasing domestic supply in terms of volume and quality, Andromeda is very well positioned to provide high quality kaolin into the Chinese and wider Asian market.
- Andromeda is expected to achieve a weighted average Cost, insurance, and freight (**CIF**) price ranging from AUD560 per tonne to AUD826 per tonne for fully refined Great White CRM™ and Great White PRM™ products depending on the addressable market (Table 21).
- The semi-refined Great White KCM™90 product is expected to achieve a CIF price ranging from AUD425 per tonne to AUD465 per tonne.
- The potential demand for Great White KCM™90 is significant and growing due to shrinking availability of equivalent, consistent, high quality kaolin products globally. Currently, the annual Great White KCM™90 production modelled in the DFS represents less than 1% of the annual global kaolin market.
- The refined Great White HRM™ product has been approved for use in construction products with pricing and volumes based on negotiations with potential customers.
- Great White HRM™ testing is being expanded to several additional new high value applications where preliminary approvals have already been obtained.

What is kaolin

Kaolin is a white industrial clay consisting of the mineral kaolinite ($Al_2Si_2O_5(OH)_4$) which is commonly found around the world. Based on its colour and other physical characteristics, kaolin is utilised as a filler, additive, and pigment in a variety of industries. Whiteness, brightness, opacity, electrical resistivity, low abrasion, high purity, consistency, and fine particle size are all qualities customers desire in high quality kaolin.

There is no shortage of kaolin in general, with worldwide reserves estimated at around 45 million tonnes and many hundreds of millions of tonnes of total resources. However, supply of high-quality kaolin is under pressure as existing resources become depleted and demand continues to grow.

The total market for kaolin is large at approximately 30 million tonnes per annum, but not homogeneous. There is a wide array of kaolin products offered including unprocessed ore, each with different qualities, performance characteristics, and therefore end-use markets. Within the broad end-use markets, there is significant spread in pricing based on the specific requirements of each application.

Types of kaolin

All kaolin resources are different, even those which may occur naturally within a single deposit or deposits can vary within a relatively short distance of each other. It is usual for customers to vary their material recipes and production methods to suit the unique type of available kaolin. Once they have a recipe that works, they tend to stay with it, saving them time to prove up the new recipe. It is therefore difficult for most customer applications to simply change from one kaolin product to another.

Essentially kaolins are produced in three forms: hydrous, meta-kaolin or fully calcined. Some kaolins are also surface treated to make them more reactive for specific applications.

As a rule, all naturally formed kaolins, no matter the final form, start by being in the hydrous state. Halloysite-kaolin is a relatively rare form of kaolin, which has a significant halloysite (kaolin nanotube) content that is highly desirable in some applications where it attracts a premium price.

When offered as a powder, kaolin is processed to form fine and/or ultra-fine dry particles through a variety of separation, sizing, and drying process. This fine powdered kaolin is the product form used in most applications.

Hydrous kaolin is also available in the form of lumps as semi-dry noodles which are predominantly used in the ceramic and paper industries. This form of kaolin is preferred in certain ceramics and sanitaryware end-use industries where it is more economic.

Calcined kaolin is derived from hydrous kaolin by a high temperature (1000 - 1100°C) calcination process, which drives away the bound water. This product is mainly used in the paper, ceramics, polymer, and coatings sectors. Metakaolin is a lower temperature processed version (750 - 800°C) mainly used in the polymer and construction sectors.

The global kaolin markets

The increased demand for kaolin from end-use sectors such as paper, ceramics and sanitaryware, and coatings is driving the overall market demand upwards. The demand for paper has increased primarily because of increased ecommerce activity. The ceramics, coatings, fibreglass and plastics markets are driven by strong demand in the building sector of densely populated nations with increasing urbanisation rates such as India and China, as well as high demand in mature markets like Europe and North America where real-estate churn and economic growth is robust. In pharmaceutical and cosmetics goods, high quality kaolin is utilised as an inert filler and active ingredient and these markets command some of the highest prices.

When performing an analysis of the kaolin market, it should be considered that the impact of the global COVID-19 pandemic has significantly lowered historical growth rates in the period 2018-2020. The global kaolin market contracted 4.3% between 2018 and 2020, before rebounding strongly in 2021 on the back of significant monetary stimulus by the world's largest economies that prevented an economic collapse in 2020.

The outlook for global demand growth for kaolin between 2020 and 2025 is 4.3% CAGR (refer Table 13), adding 7.3 million tonnes to the market over this period.

In 2021, the ceramics industry was estimated to account for 33% of the global market for kaolin, closely followed by the paper sector with 31%.

Table 13 Global kaolin demand by end use 2018-2025

000 tonnes	2018	2019	2020	2021	2022	2023	2024	2025	CAGR '20-'25
Ceramics	11,436	10,492	9,504	11,484	11,813	12,198	12,584	12,942	**6.4%**
Paper	10,547	10,537	10,491	10,739	10,980	11,228	11,482	11,742	**2.3%**
Fibreglass	2,374	2,692	2,620	2,778	2,991	3,165	3,352	3,580	**6.4%**
Rubber & Plastics	2,721	2,735	2,799	3,242	3,262	3,024	3,054	3,113	**2.2%**
Coatings	2,279	2,291	2,326	2,630	2,700	2,619	2,707	2,817	**3.9%**
Other	3,346	3,447	3,549	3,711	3,896	4,076	4,244	4,429	**4.5%**
Total	**32,702**	**32,194**	**31,289**	**34,584**	**35,641**	**36,310**	**37,422**	**38,623**	**4.3%**

Source: TZMI private communication 2022

On a regional basis, Asia-Pacific is by far the largest consumer of kaolin (see Table 14), with an estimated 54.7% market share in 2021, followed by Europe at 23.1%. At a country level, China dominates, accounting for 24.1% of global demand.

Table 14 Global kaolin demand by region 2018-2025

000 tonnes	2018	2019	2020	2021	2022	2023	2024	2025	CAGR '20-'25
China	7,438	7,570	7,884	8,349	8,816	9,233	9,659	10,123	**5.1%**
Other Asia-Pacific	9,550	9,350	9,103	10,554	10,629	10,565	10,703	11,023	**3.9%**
Europe	8,052	7,799	7,219	7,954	8,214	8,370	8,648	8,787	**4.0%**
North America	4,789	4,671	4,409	4,785	4,937	5,032	5,191	5,327	**3.9%**
South America	1,719	1,681	1,603	1,760	1,820	1,857	1,922	2,005	**4.6%**
Middle East & Africa	1,153	1,124	1,071	1,184	1,226	1,254	1,300	1,358	**4.9%**
Total	**32,702**	**32,194**	**31,289**	**34,584**	**35,641**	**36,310**	**37,422**	**38,623**	**4.3%**

Source: TZMI private communication 2022

[1] This analysis was completed before a clear picture could be developed on the lagging effects of the Ukrainian geopolitical crisis on the European and global economies.

China is expected to lead the global growth rate for kaolin between 2020 and 2025 at 5.1% CAGR, closely followed by the Middle East & Africa, albeit off a significantly smaller base. The mature economies of Europe and North America are expected to see robust growth on the back of strong consumer and business activity[1].

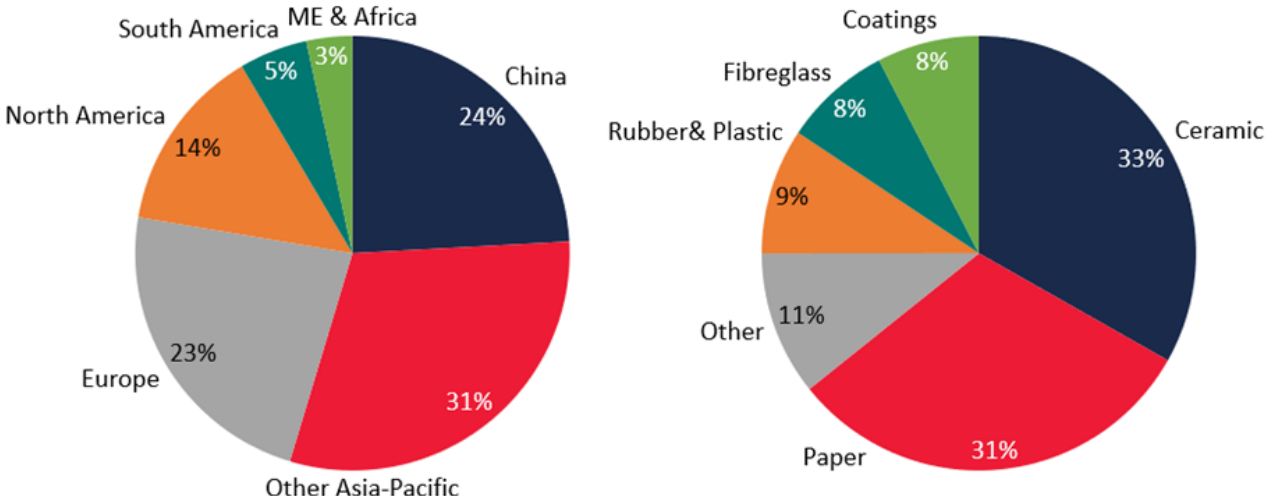


Figure 9 Global kaolin demand by end use and region in 2021

Source: TZMI 2022

China is the largest market for Andromeda kaolin products

Given its proximity to the largest market for kaolin, and a decreasing domestic supply in terms of volume and quality, Andromeda is very well positioned to provide high quality kaolin in the Chinese market.

China has undertaken significant industrial and manufacturing growth over the last 20 years and is presently transitioning to a consumer driven economy. China's middle class has tremendous purchasing power, demanding a wide array of goods and services containing kaolin. Dislocation of manufacturing from mature economies to China has slowed in recent years, but China is expected to remain one of the largest global manufacturing hubs for the foreseeable future.

TZMI has performed an in-depth study of the Chinese kaolin market and considers it is significantly larger than has previously been reported. There is a significant supply deficit unfolding since 2019 (see Table 15). In 2021, TZMI estimates 1.56 million tonnes of kaolin was imported into China, a near 15% CAGR growth off 2017 levels. While demand growth is expected to be strong, domestic sources are limited and product quality is tending towards the lower end of the market.

TZMI has identified the aggregate total addressable Chinese market for Andromeda's kaolin products to be approximately 1.6 million tonnes in 2021. By 2025, TZMI estimates China will require an additional 1.3 million tonnes of imported high quality kaolin.

Table 15 Chinese kaolin demand by end use 2018-2025

000 tonnes	2018	2019	2020	2021	2022	2023	2024	2025	CAGR '20-'25
Ceramic	4,235	4,051	4,151	4,382	4,524	4,658	4,799	4,919	**3.4%**
Glass fiber	712	848	920	1,012	1,155	1,258	1,370	1,521	**10.6%**
Coating	731	746	756	790	849	912	983	1,058	**7.0%**
Paper	601	670	723	765	797	831	867	905	**4.6%**
Catalyst	646	698	722	753	802	842	862	891	**4.3%**
Rubber & Plastic	162	180	203	200	201	202	204	206	**0.3%**
Cosmetic	126	145	158	180	203	229	256	286	**12.6%**
Medical	76	81	93	100	108	116	124	134	**7.6%**
Other	149	151	158	167	176	185	193	202	**5.1%**
Total	**7,438**	**7,570**	**7,884**	**8,349**	**8,816**	**9,233**	**9,659**	**10,123**	**5.1%**

Source: TZMI 2022

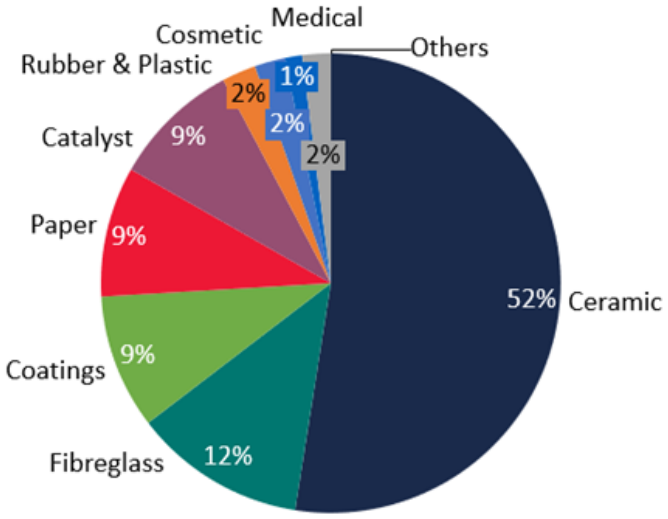


Figure 10 Chinese kaolin demand by end use in 2021

Source: TZMI 2022

Paper

While paper accounts for approximately 31% of the global demand for Kaolin in 2021, the market is well supplied with a range of products. Andromeda's market strategy does not include targeting this end use application as users typically require large amounts of high brightness and fine particles sized kaolins which sell for very small margins.

Ceramics

Kaolin is an essential feedstock for ceramics manufacture. It is principally utilised in the production of whiteware, technical porcelain, ceramic tiles, and refractory materials. Thus, the growing demand for ceramic goods in the building and construction sector is expected to fuel the kaolin market's expansion.

Globally, kaolin demand from the ceramics sector has been estimated at 11.5 million tonnes, or approximately 33% of the global market. Of this, China accounts for approximately 35% of global demand, or 4.4 million tonnes. Projecting forward to 2025, global consumption of kaolin in the ceramics sector is expected to increase at 6.4% CAGR to 12.9 million tonnes, with the ceramics market share remaining stable.

While China is the world's largest ceramic manufacturing base, expansion of ceramic tiles is expected to slow as consolidation and organisation of the sector is forecast to lead to a net production capacity reduction. Sanitaryware, tableware and other ceramic parts are expected to grow in line with increasing consumer driven demand.

High-end ceramics and porcelain markets require high quality kaolin. This includes tableware, technical ceramics (for electrical applications), and a small number of specialised glazes for porcelain.

The halloysite-kaolin market is specialised and almost exclusively used for ceramics and typically the higher end porcelain/tableware applications. This is because the halloysite component (nanotubes) impart additional desirable qualities of plastic strength and translucency. Andromeda's Great White CRM™ product contains a minimum of 10% halloysite which is an optimum content for this sector and a comparison with premium competitive products is shown in Table 17.

Coatings

Kaolin is used in the paints and coatings industry as a functional filler and extender. Relative to other components in the formulation, it is inexpensive but for kaolin producers it is seen as a highly profitable sector.

Kaolin provides the following benefits to coatings: cost savings; brightness; durability; opacity (mainly calcined kaolin); viscosity control and spreading properties; chemical and heat resistance; and good suspension (non-settling) properties. High quality kaolin demand is expected to increase with its intensity of use in many paint products, offsetting some of the much higher cost of titanium dioxide, the primary opacifier used in paint manufacture. The Great White PRM™ paint grade is shown in comparison to market leading competitive products in Table 18.

Catalysts

The largest use of kaolin in catalyst substrates is the catalytic cracking of petroleum where halloysite content is especially valued due to its effectiveness. Kaolin is also used to synthesis zeolite and alumina.

Fibreglass

Kaolin is used as a filler in fibreglass to reinforce the fibres embedded in the material, hence providing the essential strength and longevity. The fibreglass market has seen strong growth from applications in wind power, new energy, electronic appliances, and the transportation sectors.

Cosmetics & Medical

Kaolin is a common element used in cosmetics, powders, and deodorants where it acts as an emollient and drying agent. Kaolin is used in pharmaceutical production to prepare tablets and to filter ingredients and eliminate colour. Kaolin has been shown to be beneficial in the treatment of some common gastrointestinal symptoms.

Given its use, kaolin used in this market needs to be of high quality and purity. Kaolin containing halloysite is highly valued for this application.

Rubber & Plastics

Hydrous kaolin is used to increase the tensile strength, abrasion resistance and modulus of rubber composites as well as improving processing and reducing cost. Kaolin elastomer applications include the manufacture of footwear, conveyor belts, rubber seals, flooring, cables and tyres.

Kaolin works as a rheological modifier and functional filler in many polymers. Among its numerous uses metakaolin is added to PVC cables. Surface treated calcined kaolin is a common addition used in the production of vehicle components made of engineering thermoplastics.

Supply of kaolin

Given there are many suppliers of kaolin, consumers of lower quality kaolin can select from a variety of alternatives. Kaolin buyers can select a product based on its price, type/grade, and mechanical/physical attributes that are appropriate for the product they are manufacturing. However, in the market for high quality kaolin the options are significantly reduced (Table 17 and Table 18).

Imerys S.A. (France), BASF SE (Germany), Ashapura Group (India), SCR-Sibelco N.V. (Belgium), Quarzwerke (Germany) and KaMin LLC (US) lead in the global market as suppliers of kaolin products followed by EICL Limited (India), Thiele Kaolin Company (US), LASSELSBERGER Group (Hungary), and 20 Microns Limited (India).

Imerys is the largest supplier of high-quality kaolin but has a limited focus and presence in the Asia-Pacific kaolin market compared to other parts of the world. India's two largest producers, EICL Limited and Ashapura Group, have a strong presence in the region, along with a multitude of Chinese producers using domestic and imported sources. High quality kaolin is imported into Asia-Pacific from North America and Europe.

High-quality kaolin is currently mined in countries including the United States, the United Kingdom, Germany, Ukraine and the Czech Republic. There exists a significant and growing market gap for high quality kaolin from Andromeda.

Andromeda's Kaolin Products

This DFS focusses on developing the Great White Kaolin Deposit to produce several products with various qualities as specified in Table 16 .

Great White KCM™90

Great White KCM™90 is a semi-refined halloysite-kaolin concentrate for sale for use in suitable applications. It can also be used for further refinement by other parties to give a premium grade product, or to add directly into lower grade resources to increase the total value of the resultant combined product.

Great White KCM™90 is:

- high purity with kaolin content of 90 ± 5% and alumina (Al_2O_3) content of 37 ± 2%
- bright white (powdered brightness (ISO) 84 ± 2).

Great White HRM™

Great White HRM™ is a highly reactive halloysite-kaolin rheology modifier for use in high solids slurries including concrete and a large range of associated applications where its suspension properties are very effective.

Great White PRM™

Great White PRM™ is a fully refined premium grade kaolin for use in the coatings market, with high purity, brightness, and fine particle size. It also has desirable flowability due to having no halloysite content. A competitive product comparison is shown in Table 19.

Great White PRM™ is:

- ultra-fine (85±2% passing 2 µm)
- bright white (powdered brightness (ISO) 90 ± 2.5).

Great White CRM™

Great White CRM™ is a fully refined, dried, bagged halloysite-kaolin product for use by end-users in the high-end ceramics market, with high brightness and significant halloysite content. A competitive product comparison is shown in Table 18.

Great White CRM™ is:

- ultra-fine (70±5% passing 2 µm)
- bright white (powdered brightness (ISO) 85 ± 2).

In June 2021, Andromeda announced "Significant Binding Offtake Agreement Signed for GWKP" with Jiangsu Mineral Sources International Trading Co. Ltd (MSI) for sales of 70,000 tpa +/- 10% of Great White PRM™ (refined ultra-bright high-purity kaolin) product for an initial term of 5 years at a price fixed for the first 3 years[7].

Andromeda had previously announced its first binding offtake agreement with a Japanese porcelain producer (refer ADN ASX announcement dated 17 March 2021 titled "First Customer Binding Offtake Signed for Great White Project") for Great White CRM™.

Marketing activity for the Project has focussed on the Great White CRM™, Great White PRM™, Great White KCM™90 and Great White HRM™ branded products.

[7] It should be noted the DFS contemplates different timing and different finished product than was contemplated in the ASX announcement on the 10 June 2021.

Confirmation of product market pricing and current demand, using refined kaolin produced from representative samples, is ongoing.

Table 16 Great White Product specifications – semi-refined and refined products

Brand name	Great White KCM™90	Great White HRM™	Great White CRM™	Great White PRM™
Project Stage	Stage 1	Stage 1 to 4	Stage 2 to 4	Stage 4
Brightness (ISO R457%)[2]	84 +/-2	N/A	85 +/-2	90 +/-2.5
+45 µm (%)	10 +/-5	30 +/-5	Max 0.05	Max 0.05
+10 µm (%)	N/A	N/A	N/A	1 +/- 0.2
-2 µm (%)[2]	60 +/-10	N/A	70 +/-5	85 +/-5
-1 µm (%)	N/A	N/A	N/A	75 +/-5
Modulus of rupture (MOR) (MPa)	N/A	N/A	2 +/-0.5	N/A
Fried Brightness @ 1180°C[2]	N/A	N/A	92 +/-2	N/A
Moisture (%)[2]	10 +/-2	10 +/- 2	10 +/-2	10 +/-2
Al_2O_3 (%)[2]	37 +/-2	37 +/-2	37 +/-2	38 +/-2
Fe_2O_3 (%)[2]	0.5 +/-0.2	N/A	0.5 +/-0.2	0.3 +/-0.2
SiO_2 (%)[2]	47 +/-2	47 +/-2	47 +/-2	47 +/-2
TiO_2 (%)[2]	0.5 +/-0.1	N/A	0.3 +/-0.2	nom 0.3
TiO_2 + Fe_2O_3 (%)	N/A	N/A	N/A	Max 1
Product Form	Filter cake	Filter cake	Filter cake	Filter cake

[1] All properties are of the total final product

[2] Property of -45 µm fraction for Great White KCM™90

Refining trials have been undertaken in the Andromeda SBPP and at commercial refining facilities in Australia, UK, Germany, China, Japan and the USA. The refined products are being used to provide confidence in quality and secure customer off take agreements. Market pricing for all the planned products have been indicated by end users and commercial contacts in Asia and Europe, and contracts are being negotiated.

The DFS is focussed on the fully refined Great White CRM™, Great White PRM™ and Great White HRM™ branded products along with the semi-refined Great White KCM™90, however product testing has been expanded to new applications to diversify market opportunities. This includes several new potentially high value sectors in domestic and international markets. Emerging markets in construction additives and technology applications are being pursued and present a significant upside opportunity.

Andromeda's product quality assessment

A comparison with competitive high quality international kaolin products was carried out as shown in Table 17 and Table 18.

Table 17 Great White CRM™ product comparison (typical values)

Country	China	NZ	China	UK	UK	Australia	UK
Company	Longyan	Imerys	Maoming	Imerys	Imerys	Andromeda	Imerys
Grade	Longyan	Premium	XLK-90	Kaopearl	SSP**	Great White CRM™	SP
Moisture (%)	10	3	20	10	10	10	10
Al_2O_3 (%)	35.5	35.5	36.0	37.1	37.0	37.4	36.5
Fe_2O_3 (%)	0.22	0.29	0.30	0.56	0.47	0.50	0.72
TiO_2 (%)	0.05	0.09	0.02	0.05	0.01	0.17	0.04
Halloysite (%)	30	92	-	-	10	Min 10	-
Surface area (m^2/g)	5	25	-	-	14	14	15
pH	-	4.0	-	-	5.0	5.5	5.0
Fired brightness (1180°C)	94	-	-	94	94	96[8]	89
Contract (%)	5.0	-	-	13.5	11.0	7.0	9.5
Water absoprtion (%)	18.3	-		7.3	13.0	20.0	11.5
MOR (kg/cm^2)	10	29	38	32	50	32	32

Source: internal and published company literature

Table 18 Great White PRM™ product comparison (typical values)

Grade	Great White PRM™	Eckalite YMT	Supreme	Speswhite	Ashakot AK45	Polwhite E
Country	Australia	Australia	UK	UK	India	UK
Company	Andromeda	SUVO	Imerys	Imerys	Ashapura	Imerys
Brightness (%)	90	88	88	85	84	79
Yellowness (%)	4.2	4.5	3.8	4.3	4	6.2
Oil absorption (g/100g)	62	50	46	42	38	33
<2 µm (%)	90	-	94	78	80	32
>53 µm (%)	0.01	-	0.02 max	0.02 max	0.05	0.05

Source: internal and published company literature

Comparison with Chinese domestic products

The quality of Andromeda's Great White CRM™ product is better than 95% of domestic ceramic grade products available in China (Table 19). The Great White CRM™ product can also be used in medical, cosmetic, fiberglass and catalyst sectors with its advantage of low K_2O & Na_2O content, halloysite content, good Modulus of Rupture (**MOR**) value.

[8] As per testwork carried out by Foshan Ceramic Research Institute, 2021

Andromeda's Great White PRM™ is a high quality wet-refined product for coating application and is better than all wet-refined coating grade kaolin supplied by China domestic producers (Table 20). Great White PRM™ is believed to provide better stability than other premium grade kaolins in high-end coatings products due to its ultra-high purity and optimised particle size distribution. Great White PRM™ can also be used in the plastics, medical, cosmetics, fibreglass, and catalyst sectors due to fine particle size, good brightness, low K_2O and Na_2O content and halloysite content (desirable for catalyst use).

Table 19 Andromeda's Great White CRM™ kaolin quality compared to Chinese domestic supplies

	Andromeda	Guangxi	Guangdong	Fujian	Jiangxi	Yunnan
Al_2O_3 (%)	**37.4**	34.3	36.9	35.5	37.9	35.7
Fe_2O_3 (%)	**0.5**	0.48	0.54	0.31	0.36	0.45
TiO_2 (%)	**0.17**	0.02	0.41	0.06	0.06	0.04
SiO_2 (%)	**47.4**	47.1	49.4	47.6	46.6	49.1
K_2O (%)	**0.27**	0.64	1.18	-	0.22	0.96
Na_2O (%)	**0.02**	0.10	0.12	-	0.06	0.97
Fired Brightness 1,180-1,200°C	**949**	71.3	72.6	91.0	91.1	92.0
MOR (MPa)	**3.4**	<1	>5	>3-5	<1	-
LOI	**13.8**	-	12.8	-	-	-
Halloysite (%)	**≥10**	-		30	-	-

Source: ADN, TZMI 2022

Table 20 Andromeda's Great White PRM™ kaolin quality compared to Chinese domestic supplies

	Andromeda	Guangxi	Guangdong	Fujian	Jiangxi	Yunnan
Al_2O_3	**39**	38	36	38	36.6	40
Fe_2O_3	**0.20**	0.50	0.32	0.3-0.4	0.40	0.4
TiO_2	**0.20**	0.10	0.04	0.27	0.03	0.4
SiO_2	**46**	47	48	49.6	48	50
K_2O	**0.10**	0.65	1.00	1.13	0.49	-
Na_2O	**0.02**	0.09	0.30	0.13	0.65	-
<2 µm	**90%**	-	-	90%	-	80-90%
Process	**Wet refined**	Wet refined	Wet refined	Wet refined	Wet refined	Calcined

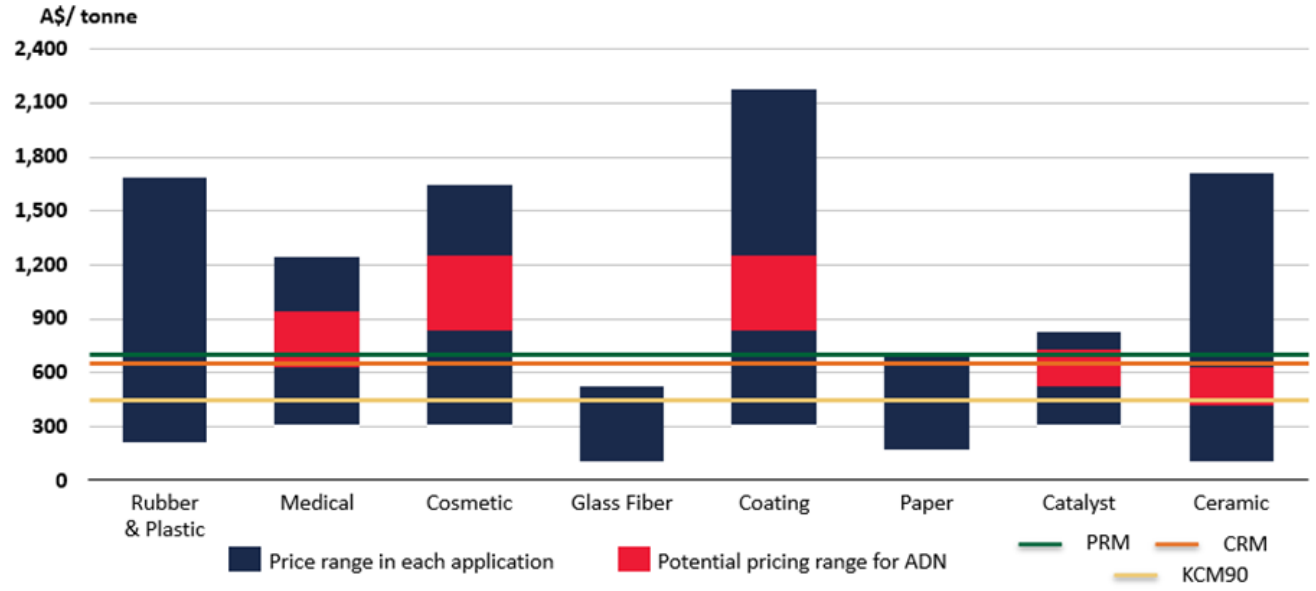
Source: internal and, TZMI private communications 2022

Product pricing

Kaolin pricing varies depending on the product quality required in each application. While pricing will vary within geographies and sub sectors, TZMI performed a detailed analysis of the world largest market, and Andromeda's primary target sales location, China. The quality requirements and generally accepted pricing mechanisms for each application were identified from primary research in this market.

[9] As per testwork carried out by First Test Minerals, UK, 2021

Based on potential customer assessments, Andromeda's Great White CRM™ and Great White PRM™ products are considered as medium- -high quality product for each application and are expected to achieve a weighted average CIF price ranging from DAUD560 per tonne to AUD826 per tonne based on the size of the addressable market price.



Source: TZMI private communications 2022

Figure 11 Chinese kaolin market price by end-use market in 2021

Table 21 Andromeda's potential kaolin price range & addressable by end use in the Chinese market

	Low Price AUD	High Price AUD	Ave Price AUD	Addressable market (000 tonnes)	Product suitability
Medical	625	938	781	40	Great White PRM™>CRM™
Cosmetic	833	1,250	1,042	126	Great White PRM™>CRM™
Coating	833	1,250	1,042	68	Great White PRM™
Catalyst	521	729	625	209	Great White CRM™>PRM™
Ceramic	417	625	521	331	Great White CRM™

Source: TZMI private communications 2022

Great White KCM™90 Market and Pricing

The opportunity to produce and sell a semi-refined kaolin into the Chinese and Asian market has arisen due to a serious reduction of consistent high quality kaolin resources for existing kaolin companies to process. Many large kaolin mines have either been closed by government environmental regulations or due to exhaustion of resources. Andromeda identified the opportunity to fill this significant and growing gap in the market with the Great White KCM™90 product. This is an attractive product for potential offtake partners to either further refine or value add as a blend to their existing products and offers the potential for a de-risked market entry with reduced capital and operating costs and yet still attractive profit margins. This approach will establish Andromeda's position and branding in the market whilst testing relationships and supply chains to reduce exposure to numerous risks. It then allows the ramp-up approach to transition to premium grade products as outlined in the DFS.

Commercially representative Great White KCM™90 has been produced by Andromeda and sampled by several potential customers throughout Asia. Feedback to date is positive and price/volume negotiations are in progress with indicative CIF pricing of AUD425 to AUD465 per tonne being given at this stage.

Great White HRM™ Market and Pricing

Great White halloysite rheology modifier was identified as an opportunity for Andromeda to use its unique halloysite-kaolin mineral to enter the new high value market of construction materials over twelve months ago. Since then, Andromeda has done a considerable amount of work on the science, geology, and market potential for this product, Great White HRM™.

A patent application has been filed and the Australian Concrete Industry Standards passed for Great White HRM™. Technical approvals have been obtained for use in concrete and in an additional construction industry product and supply agreements are being negotiated.

This is a whole new market for this specialised halloysite-kaolin product and so potential pricing is based on other additives and solutions that give equivalent properties and performance benefits. Negotiations with offtake partners are in progress and have indicated a price in the range of AUD1,000- AUD1,500 per tonne ex-gate can be achieved. This is based on commercial scale trials carried out by major construction and mining companies within Australia. Great White HRM™ has been evaluated against these products by independent experts and been proven to give superior performance than the highest cost materials.

Risk and Opportunity

The GWKP is an high quality kaolin resource that has a number of compelling reasons for proceeding with its development including:

- Size of the resource and potential mine life
- Superior quality of the in-situ kaolin and Al_2O_3 grade
- High consistency
- Low waste-ore ratio of the resource and shallow ore depth
- Favourable flat topography of the project area
- Location relative to services and local population

Other favourable supporting attributes include:

- Proximity to infrastructure (roads and ports)
- Access to a skilled workforce
- Supportive government position
- Positive market drivers.

A number of environmental management plans will be developed, ensuring that Andromeda meets its social and environmental obligations.

A project risk assessment was carried out by Andromeda project personnel with contributions from specialist processing, mining, environmental, and transport consultants. The risk assessment was prepared in accordance with ISO 31000 risk management principles and guidelines (ISO 2009). The purpose of this assessment was to identify high-level risks so that they could be prioritised, treatment options could be developed, and preventative or mitigative actions could be initiated in advance of project activities.

Risk management is a critical part of the development and operating strategy used in assessing the viability of a mineral deposit and proceeding to a decision to mine. Risk management will be ongoing and subject to regular review. In connection with the preparation of the DFS, Andromeda undertook a project risk assessment to identify and assess key risks to the commercial and operational success of the Project, whilst abiding with Andromeda's commitments to the environment, safety and the project's stakeholders.

A risk register was prepared with project risks identified, together with mitigation strategies. Ratings were assigned to each risk based on the probability of occurrence and the impact to the project. The DFS risk assessment did not identify any material risks that were likely to prevent the development and operation of the project in accordance with the DFS. The risk register will be updated throughout the continued development of the project to reflect the scope of work being pursued at any point in time and how the risk may impact various stages of development.

Financial Analysis

Financial analysis for this DFS was undertaken by Andromeda. The capital cost estimate for the project was prepared by Andromeda with the assistance of specialist technical consultants. Costs were derived from first principles to accuracy within ±10% to ±15%. The estimate is presented in Australian dollars.

The project's total capital cost (over four stages), inclusive of contingency and life of mine sustaining capital expenditure is AUD233.0 million (as referenced in Table 22). This comprises the sum of the following individual stage costs:

- Stage One AUD93.8 million
- Stage Two AUD11.1 million
- Stage Three AUD$73.8 million
- Stage Four AUD54.3 million.

Table 22 Capital cost estimate (life-of-mine)

Item	Capital cost	Contingency	Sustaining capital	Total capital cost
	AUD million			
Approvals, Design & Construction	171.39	9.18	26.01	206.58
Operations Readiness	13.09	1.31	0.00	14.40
Mine Development	2.19	0.13	0.00	2.32
Rehabilitation	8.00	0.80	0.00	8.80
Sales & Marketing	0.34	0.00	0.00	0.34
CITF Levy10	0.26	0.03	0.26	0.55
Total capital expenditure	195.27	11.45	26.27	232.99

The estimate assumes that all equipment is purchased new and includes the cost of transporting items to the Project site. Owner's costs were calculated based on the information of other companies with relatable local mines' experience and currently agreed rates. All costs exclude Goods and Services Tax (GST) on the basis that refunds will be processed every month.

Operating costs (as referenced in Table 23) were estimated for the mining, processing plant, transport and handling, and support services required for the operations at the Project.

Processing plant-operating costs were estimated assuming that Andromeda will directly perform all functions using company-owned equipment. Mining operating costs were estimated on a contract basis.

[10] Construction Industry Training Fund

Table 23 Operating cost estimates

Item		Stage One	Stage Two	Stage Three	Stage Four
Mining[1]	AUD million	16.88	11.33	25.07	178.82
Processing	AUD million	25.21	32.64	57.97	634.56
Transport	AUD million	42.61	33.52	83.21	1,016.79
Administration and other	AUD million	15.83	14.59	21.98	212.81
Total cash cost	**AUD million**	**100.53**	**92.08**	**188.23**	**2,042.98**
Mining	AUD/t ore	16.43	16.77	19.55	13.13
Processing	AUD/t ore	24.54	48.32	45.20	46.58
Transport	AUD/t ore	41.48	49.62	64.88	74.64
Administration and other	AUD/t ore	15.41	21.59	17.14	15.62
Total cash cost	**AUD/t ore**	**97.86**	**136.30**	**146.77**	**149.97**

[1] Includes waste removal costs.

Salaries are based on industry standards for professional staff and regional averages for like roles for operating staff. Employee on-costs include payroll tax, superannuation, and workers' compensation insurance.

All maintenance costs are allocated to the area of maintenance work rather than to a separate maintenance cost centre. Mining maintenance costs are incorporated in the dry-hire arrangement with no additional Andromeda costs added.

Final products are transported by sealed road to port. All product pricing is based on cost, insurance, and freight (**CIF**) ex-port.

The Project's all-in sustaining cost (**AISC**) summary incorporating all operational and sustaining capital expenditure is presented in Table 24.

Table 24 AISC Summary

Item	Unit	Great White HRM™	Great White KCM™90	Great White CRM™	Great White PRM™	Total
Final Product Sold	dmt	260,000	246,202	6,361,644	336,371	7,204,217
Mining	AUD/dmt	33	36	32	32	32
Processing	AUD/dmt	106	90	104	115	104
General & Admin	AUD/dmt	20	24	17	17	17
Trucking	AUD/dmt	0	49	44	44	43
Transport & Shipping	AUD/dmt	9	126	124	127	120
Royalties	AUD/dmt	31	5	17	20	17
Corporate & Other	AUD/dmt	5	6	2	4	3
Total Operating Costs	**AUD/dmt**	**204**	**336**	**340**	**359**	**336**
Sustaining Capital	AUD/dmt	1	0	4	4	4
AISC	**AUD/dmt**	**205**	**336**	**344**	**363**	**340**

By value, the Project will be principally a kaolin mine with a low marginal cost of kaolin production. The robust operating performance of the project is reflected in a LOM gross operating margin of 48%.

Basis of evaluation

As a new project, and in keeping with generally accepted practice and Australasian Institute of Mining and Metallurgy (**AusIMM**) guidelines for economic evaluation, the Project was evaluated by analysing the forecast cash flows generated by the Project.

For the purposes of the DFS the impact of financing costs has not been included, cash flows related to Project funding will be analysed as part of the Project's fund-raising process.

The discount rate of 8% used to calculate the net present value of the Project is therefore not considered to be a corporate cost of equity nor a robustly calculated weighted average cost of capital (WACC) but is an estimate of a risked rate of return suitable for an investment of this magnitude, in a low sovereign risk jurisdiction.

The economic evaluation considers the Project as a standalone operation. Modelling also ignores any previously expended costs— including resource definition and project assessment. It only considers costs incurred from final investment decision to develop the Project.

The Project has Ore Reserves of approximately 28 years and financial analysis has been undertaken over the total 28-year project period.

Assumptions

Table 25 shows the key economic, market and pricing assumptions used in the financial analysis used to derive and analyse the Project. All values are based on product demand, supply and price ranges supported by marketing experts.

Table 25 Key financial assumptions

Item	Value	Data Source
AUD:USD exchange rate	AUD1.00 buys: US$0.74 (long-term)	KPMG Coal Price and FX Market Forecast – January 2022
Corporate tax rate	30%	Australian Tax Office
Royalties	New mine royalty rate of 2.00% until 30 June 2026 3.50% post 30 June 2026	Department for Energy and Mining (South Australian Government)

The key operational assumptions (Table 26) used in the financial analysis. These values were extracted directly from the underlying technical data sources, such as the process maps, mine plan and construction schedules developed by Andromeda and various technical consultants.

Table 26 Key operational assumptions

Item	Value	Data Source
Construction start date Stage One Stage Two Stage Three Stage Four	 October 2022 January 2025 October 2026 October 2028	Andromeda
Production start date Stage One Stage Two Stage Three Stage Four	 July 2023 July 2025 July 2027 July 2029	Andromeda
Mining method	Conventional earthmoving	Andromeda
Processing method	Blunging, separation, dewatering, product drying and packaging.	Primero process flow diagrams
Processing rate Stage One Stage Two Stage Three Stage Four	 300,000 tpa 300,000 tpa 600,000 tpa 600,000 tpa	Andromeda
Average annual saleable production Stage One Stage Two Stage Three Stage Four	 ~153,000 tonnes ~165,000 tonnes ~324,000 tonnes ~295,000 tonnes (during Great White PRM™ Production) ~285,000 tonnes (after PRM depleted)	Andromeda mine schedule, Primero recoveries

Item	Value	Data Source
Production end date	June 2051	Andromeda mine schedule

Economic model

A detailed cash flow model was developed by Andromeda to conduct economic evaluation of the Project. The model was internally reviewed for mathematical accuracy. The inputs to the model were the capital and operating costs developed by Andromeda and its consultants. The model was developed by Andromeda personnel who have significant experience in developing major project financial models for financial institutions.

For the purposes of this DFS, no inflation has been applied, all values were calculated on a real-dollar basis, with second quarter 2022 as the base date.

Cash flow, present value, payback

The cash flows in the model were discounted at 8% to determine a value for the project using expected values and assumptions. The analysis has been carried out on a pre-tax basis, resulting in a net present value (NPV) as of 1 April 2022 of AUD613 million with an internal rate of return (IRR) of 36% (as referenced in Table 27).

The payback period is 5.9 years, including Stage Two upgrade and Stage Three plant expansion capital expenditure (to reach 600 ktpa processing capacity). All capital expenditure subsequent to Stage 1 is intended to be funded by cash flows from the Project.

Table 27 Financial indicators

Parameter		Life of mine (total)
Plant feed (nominal)	tonnes per annum	300,000 (years 1-5) 600,000 (years 6-29)
Production (nominal)	Great White HRM™ (dmt)	260,000
	Great White KCM™90 (dmt)	276,000
	Great White PRM™ (dmt)	336,000
	Great White CRM™ (dmt)	6,600,000
Weighted average product sale price (AUD/dmt)		653
Life of mine (Years)		28
Strip ratio		2.27
Start-up capital (Stage One)		93.8
Development capital (AUD million) (four stages)		207.0
Sustaining capital (AUD million)		26.0
Revenue (AUD million)		4,706
EBITDA[11] (AUD million)		2,283
Pre-tax cashflow (AUD million)		2,050
NPV_8 (before tax) (AUD million)		613

[11] Earnings Before Interest, Taxes, Depreciation, and Amortization

Parameter	Life of mine (total)
IRR (% before tax)	36
Payback period (years)[12]	5.9

Sensitivity analysis

To obtain further confidence in the Project's financial returns and value, a sensitivity analysis was conducted by varying key input values and recalculating NPVs.

The results of the sensitivity analysis for NPV and IRR, respectively, are presented in Figure 12 and Figure 13.

The results show that the Project's value is most sensitive to the following changes:

- Product prices - a 10% movement in prices over the period of analysis increases or reduces the NPV by 26%.
- AUD:USD exchange rate - A 10% depreciation increases NPV by 20%, a 10% appreciation decreases NPV by 17%.
- Operating costs – a 10% movement in total operating costs over the period of analysis increases or decreased the NPV by 13%.

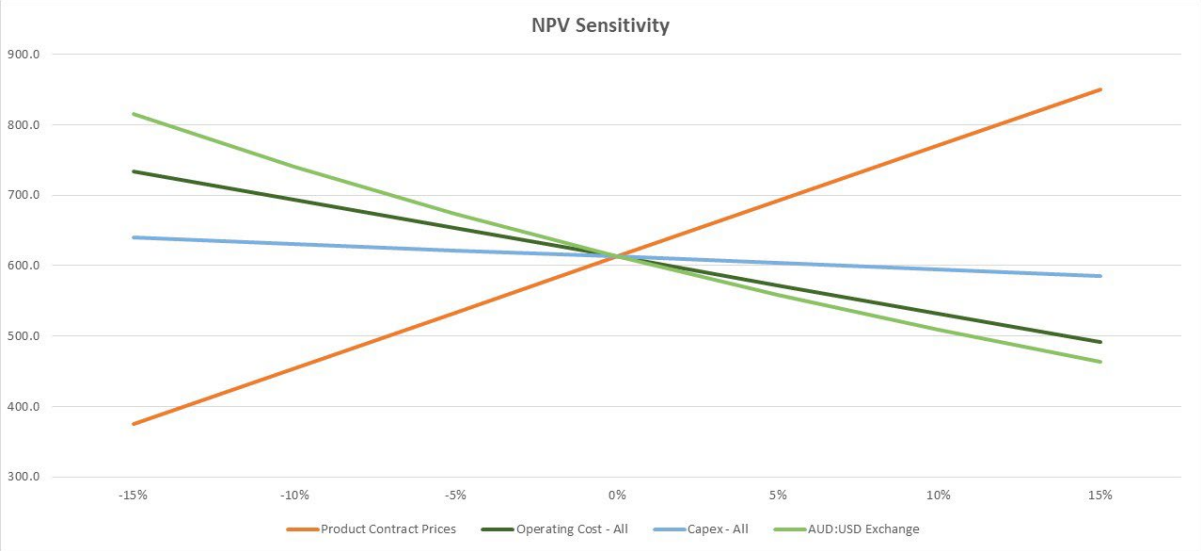


Figure 12 Results of sensitivity analysis to NPV

[12] Includes payback of initial AUD 93.8 million as well as the further plant upgrades within that time

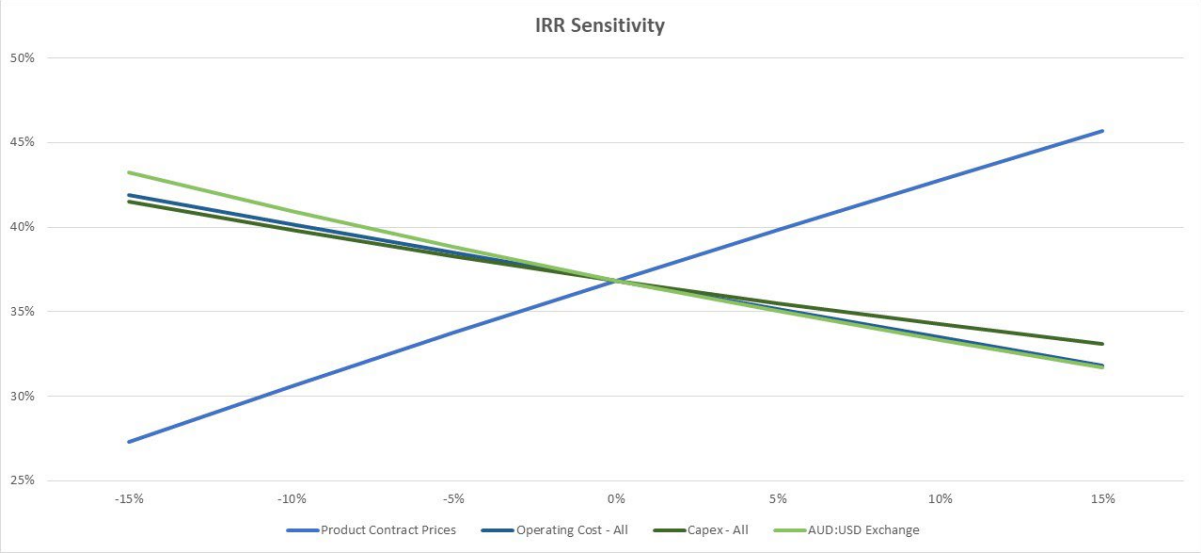


Figure 13 Results of sensitivity analysis to IRR

Evaluation summary

The valuation assessment of the project indicates that it has an internal rate of return of 36%, which is well above the 8% risked rate of return.

The sensitivity analysis carried out indicates that valuation is most sensitive to changes in commodity prices, exchange rates and yield. Valuation is less sensitive to changes in the other assessed variables.

The results of the economic evaluation show that when negatively sensitising the following multiple financial inputs for the entire operating period, the Project still has a positive NPV and IRR of 21%:

- Product prices decrease by 10%
- Operating costs and capital expenditure increase by 10%
- AUD appreciates by 10%.

This indicates that the Project economics could withstand an unlikely negative swing on all major inputs based upon the parameters and assumptions used in this DFS.

The Project, as currently structured, has Ore Reserves sufficient for 28 years of mining.

The Project has a strong resource and reserve base when compared with its peer projects.

Using expected financial and marketing parameters, on a pre-tax basis, the Project has a robust:

- NPV of $613 million
- IRR of 36%
- Payback of 5.9 years. (of all production stages to that point, with further expansion to be funded by Project cashflow.

The Project will produce superior quality kaolin products not previously available in industrial quantities from this part of the world. The Project is considered to have a strong product position in the kaolin market in relation to its peer projects.

On this basis, the Project has the potential to be a long-term producer of high-quality kaolin products.

The Project as outlined in this DFS document is robust, and commercially and technically feasible.

Funding

The GWKP DFS is designed to allow flexibility in funding. The staged-option offers a lower pre-production capital expenditure to commence production activities, before transitioning to the larger-scale production stages, with higher value products.

In addition to a lower up-front capital requirement, a potential benefit of the staged approach is the opportunity to develop a customer base during the first years of smaller-scale production to support the larger capital requirement needed to fund the larger scale operation.

Andromeda considers it is well placed to secure necessary funding for Stage One. Funding options being actively considered include:

- Equity
- Project finance
- Partner finance
- Offtake and working capital related finance
- Equipment and contractor finance
- Access to government grants.

Appendix 2 JORC Code, 2012 Edition – Table 1 Great White Deposit

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 (e.g. 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 (e.g. '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 (e.g. submarine nodules) may warrant disclosure of detailed information.	Drilling utilised in resource calculation 2011 MEP: Aircore drilling of vertical holes to industry standard completed by Minotaur ("MEP") generating 1m chip samples. A total of 153 holes for 3,795m completed in 2011. Drilling generally penetrated beyond the kaolinite to the partially decomposed parent granite. Maximum drilling depth was 81m. Samples composited based on visually assessed reflectance levels. Composite intervals range from 1-5m. Aircore 1m samples were composited based on perceived reflectance levels. Composite intervals range from 1-5m Sample preparation and initial testing was carried out at the kaolin processing facility at Streaky Bay(Streaky Bay Pilot Plant), South Australia. Sample processing generated results for minus 45µm material and reflectance measurement suite. Additional XRF and XRD analysis for halloysite was undertaken as a separate phase. May 2019, Dec 2019, May 2020, June 2020 AC ADN: Aircore drilling consisted of 202 vertical holes completed to industry standard. A total of 5,609m were completed generating 1m chip samples holes. Drilling penetrated beyond the kaolin to the partially decomposed parent granite. Maximum drilling depth was 54m. Sample compositing was carried out at Andromeda's kaolin processing facility at Streaky Bay, South Australia. Samples were then transferred to a commercial laboratory, Bureau Veritas (BV), in Adelaide for further processing. Dec 2019 – Feb 2020 diamond drilling ADN: Seven PQ diamond holes were drilled for a total of 223.96m. The holes were drilled to collect geotechnical and density data. The density data collected from these holes was used in the mineral resource estimation. July 2020 RAB ADN: Three 200mm diameter rotary air blast (RAB) holes were completed by Andromeda, drilled into the area identified in the June 2020 PFS (refer ADN announcement 1 June 2020 titled "*Pre-Feasibility Study Further Improves Poochera Economics*"). A total of 79m were drilled of which 47m was used to generate 23 composited samples ranging from 1 to 4m. The holes had casing installed to restrict overburden contamination. Representative

Criteria	JORC Code explanation	Commentary
		samples were collected from each meter drilled, aided by stopping the drill rig between each metre interval to allow for the bagging of each sample and the cleaning of sample equipment before the recommencement of drilling. Samples were dried and analysed with a handheld XRF to aid in the compositing of samples (typically 2 to 3m) to be processed by BV. Total material recovered from the program was 2800kg of white kaolinised granite which is to be used in upcoming ceramic testing. Drilling excluded from resource calculation 2008 Calweld MEP: Drilling completed by contractor Kim Thiele using a Calweld rig to drill 810mm diameter holes enabling collection of approximately 1 tonne of kaolinised material per downhole metre drilled. Data from this drill program is considered unsuitable for resource estimation due to sub sampling method, poor documentation, and risk of up hole contamination. As such no results from this drill program have been incorporated in the 2020 Great White Resource. 2013 ABC: 13 Reverse circulation (RC) drilling completed by D J Coughlan Drilling Pty Ltd totalling 882m for Adelaide Brighton Cement Ltd (ABC). ABC undertook logging and sample analyses specific to their needs and no material is left for the analyses required by ADN. As such no results from this drill program have been incorporated in the 2020 Great White Resource. 2018 Bulk sample auger drilling ADN: Samples were collected from each meter drilled from the spoil dumps from the 2018 900mm auger drill program. This was done by collecting scoops of sample after the auger had spun off the approximate 1T of kaolinised material from the flights. Samples from this drill program were not submitted for the standard suite of analytical methods used by ADN. No results from this drill program have been incorporated in the 2020 Great White Resource. Drilling undertaken post 2020 Mineral Resource Estimate Aircore and RAB drilling was undertaken in 2021. Results to date appear to be consistent with expectations but no modelling has been undertaken. The drilling was primarily done to obtain additional material for metallurgical testing.
Drilling techniques	Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether	Drilling techniques for the drillholes utilised in the resource calculation 2011 MEP: Drilling completed by contractor Johannsen Drilling using an Edson 2000 drill rig. Some drillholes were pre-collared using a rotary air blast (RAB) open hole hammer technique to penetrate hard bands of shallow calcrete and, where present, a

Criteria	JORC Code explanation	Commentary
	core is oriented and if so, by what method, etc).	silcrete horizon at the top of the kaolinised granite. Most of the drilled metres were completed with 75mm diameter aircore drilling technique. May 2019, Dec 2019, May 2020 and June 2020 ADN: Drilling completed by McLeod Drilling Pty Ltd using an MD1 Almet drill rig. All drilled metres were completed with 77mm diameter bit using aircore or slim line drilling techniques. With a few exceptions all intervals sampled for analysis were drilled by aircore. July 2020 ADN: RAB Drilling completed by Underdale Drilling using an Atlas T3W rig. Drilling was with a 200mm blade bit for bulk recovery of sample and recovered approx. 60kg of kaolinised material per downhole metre drilled. Drilling excluded from resource calculation 2008 MEP: Drilling completed by contractor Kim Thiele using a Calweld rig to drill 810mm diameter holes enabling collection of approximately 1 tonne of kaolinised material per downhole metre drilled. 2013 ABC: Reverse circulation (RC) drilling completed by Coughlan Drilling contractors; diameter and drill bit. 2018 ADN Bulk Sampling: Drilling was completed by All Access Civil using a Soilmec SR-30 Auger Piling Rig to drill vertical 900mm diameter holes.
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.	2011 aircore MEP: No recovery data is available. Damp intervals were recorded in logging. The depth of penetration of the drill bit was noted and the downhole interval recorded for each aircore sample. On each drill program geological logging was undertaken by the onsite geologist. Determination of optimal samples and, conversely, intervals of poor recovery were based on visual observation of kaolinised material collected from each metre drilled. 2019-2020 AC ADN: All metre bags from the air core drilling that were sampled had their weights recorded before compositing and splitting for assay purposes. With a few exceptions, samples recovered were excellent, dry and competent. The depth of penetration of the drill bit was noted and the downhole interval recorded for each aircore sample. July 2020 RAB ADN: Approximately 60kg of material was collected from each metre drilled. RAB Drilling bulk samples were recovered in 1m intervals, where drilling would cease and the sample containers from that 1m were collected and amalgamated. Due to the nature of the mineralisation the sample recovery is expected to have minimal negative impact on samples collected.

Criteria	JORC Code explanation	Commentary
		It remains unknown whether any relationship exists between recovery and grades but none is expected.
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.	All 2011, 2019 and 2020 drill samples were logged by experienced geologists on-site at the time of drilling. Observations on lithology, colour, degree of weathering, moisture, mineralisation and alteration for sampled material were recorded. All intersections were logged.
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.	2011 aircore MEP: Sample compositing consisted of only contiguous 1m drill samples composited up to a maximum of 5m. The compositing length was based on drill logs and visual estimation of whiteness of material i.e. reflectance. Sample composites were prepared with the aim of including kaolinised granite of similar quality within each composite, although in some cases narrow bands of discoloured kaolinised granite were included in the composite to determine if poorer quality could be carried within the interval. Composite samples ideally weighed between 10 and 15 kg with equal amounts of kaolinised granite being taken from each 1m drillhole sample. In a few cases, because of a lack of sample, the composite samples weighed less than 10kg. When sample processing commenced it was soon found that a minimum sample weight of about 8kg was required for satisfactory blunging and processing. Consequently, a very few composite samples could not be processed. Depending upon sufficient sample being available, about every tenth sample was duplicated, and was processed as a separate sample. Two individual metre samples from 2011 drillholes were prepared and tested for brightness and particle size distribution. Both of these samples were assayed by XRF and tested by XRD in 2020. May 2019, Dec 2019, May 2020 and June 2020 ADN: Riffle split sample compositing consisted of contiguous 1m drill samples up to 5m in total length, based on drill logs and visual estimation of whiteness of material. Sample composites were prepared with the aim of including kaolinised granite of similar quality within each composite, although in some cases narrow bands of discoloured kaolinised granite were included in the composite to determine if poorer quality could be carried within the interval. Each metre bag drill sample was weighed before splitting.

Criteria	JORC Code explanation	Commentary
		Sample riffle splitting took place in the kaolin processing plant in Streaky Bay in sterile conditions. The samples were run through a three-tier splitter to compile composite samples of between 2 and 4kg in weight before being transported for processing at Bureau Veritas. May 2019 ADN: Composited samples were wet screened by soaking and agitating the sample to disaggregate the kaolinite and passed over a Kason 2 screen vibrating deck. Coarser particles were collected, re-agitated and passed through again until a visual estimation that all the kaolin had been removed (ie the water was clear). The finer separating screen was 45µm. The plus and minus 45µm material was oven dried at 35C and weighed. The minus 45µm material was then split into several portions by a rotary splitter. Samples were processed by laboratory Bureau Veritas. Sample weights were recorded before any sampling or drying. Samples are dried at low temperature (60C) to avoid destruction of halloysite. The dried sample was then pushed through a 5.6mm screen prior to splitting. Dec 2019, May 2020 and June 2020 ADN: A small rotary splitter is used to split an 800g sample for sizing. The 800g split was then wet sieved at 180µm and 45µm. The +180 and +45µm fractions were filtered and dried with standard papers then photographed. The -45µm fraction was filtered and dried with 2 µm paper. July 2020 ADN: Representative portions were spear sampled to form 1 sample/meter drilled. These samples were then split manually into composites of similar quality material based on visual observations and handheld XRF data. From selected intervals a small portion of the -45 µm material was split for XRF analysis and 4x100 gm reserves are retained by Andromeda. At CSIRO, Division of Land and Water, Urrbrae, South Australia testing was conducted on selected -45µm samples by the method below. The dried -45µm sample was analysed for quantitative elemental and mineralogical testing (including kaolinite: halloysite ratio estimation) by XRD. A 3 gram subsample was micronised, slurried, spray dried and a spherical agglomerated sample prepared for XRD. Quantitative analysis of the XRD data was performed by CSIRO using SIROQUANT and Halloysite:Kaolinite proportions determined using profile fitting by TOPAS, calibrated by SEM point counting of a suite of 20 standards.

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 (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	All assay methods were appropriate for the kaolin's intended end use. Laboratory and field duplicates were submitted for assessment. 2020 ADN: ISO Brightness B and colours L*, a*, b* were determined on -45µm kaolin powder in-house in an enclosed laboratory room at Bureau Veritas using ADN's Technidyne Colourtouch CT-PC Spectrophotometer in accordance with Tappi standard T534 om-15 with appropriate brightness and colour paper tab standards sourced from Technidyne Corporation. 2011 aircore MEP: ISO Brightness (R_{457}) and L*, a*,b* colour of the dried -45µm kaolin powder were determined according to TAPPI standard T 534 om-03 using a Technibrite 1B spectrophotometer at MEP's Streaky Bay kaolin processing facility. Appropriate brightness and colour paper tab standards sourced from Technidyne Corporation. ISO Brightness B is an internationally accepted spectral criteria for determinations of brightness, refer MEP's ASX announcement 8 February 2012 for more detail. ISO Brightness data values of +75 are classified as Bright White and further subdivided as follows; Ultra High Brightness >84, High Brightness >80 <84 and Moderate Brightness >75 <80.
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.	Sample and assay data from 2011 MEP aircore drilling have been compiled and reviewed by the senior geologists involved in the logging and sampling of the drill core at the time. No independent intercept verification has been undertaken. No twin holes were completed by MEP for the 2011 drilling.
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.	No downhole surveys have been completed – all holes are vertical and shallow. Grid projection is MGA94 Zone 53 2019-2020 ADN: All aircore drill collar locations had survey pick up done by GNSS (Global Navigation Satellite System). Collar surveys were completed by licensed surveyor Steven Townsend of Townsend Surveyors using a Leica 1200 RTK (Real Time Kinematic) System with horizontal accuracy of +/- 20mm and vertical accuracy of +/- 20m. 2018 ADN Bulk Sampling: Drillhole locations were recorded with handheld GPS only. Survey pickup of 2011 aircore drilling collar locations by differential GPS accurately located and levelled all collars. Collar surveys completed by contractor Peter Crettenden using a Trimble R8 RTK (Real Time Kinematic) System with horizontal accuracy of +/- 20mm and vertical accuracy of +/- 30mm, cross-checked against differential GPS survey data

Criteria	JORC Code explanation	Commentary
		collected by licensed surveyors Hennig & Co in March 2011.
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.	Great White extensional drillhole spacing is 100m by 100m with downhole sampling at 1m intervals with sample compositing of only contiguous 1m samples up to 5m based on drill logs and visual estimation of whiteness of material i.e. reflectance. Drillhole spacing within the area identified from where the first two years of production will come *(refer ADN ASX 10 announcement dated July 2020 Maiden Ore Reserve for Carey's Well Drillholes)* has been reduced to 50m spacings. The current drillhole spacing has established a high level of geological continuity for the kaolinite. The spacing is also suitable for establishing a reasonable level of grade continuity for the kaolinite and any impurities for the respective resource classifications. Dec 2019, May 2020, June 2020 ADN Sample splitting took place in the Streaky Bay kaolin processing facility in sterile conditions. The samples were run through a 7:1 3 tier splitter to compile composite samples of between 2 and 4kg in weight. July 2020 ADN bulk samples were composited by taking representative samples from each meter of the recovered material. These samples were then tested with a handheld XRF and that data along with visual observations of the meter samples was used to select composite intervals for sample analysis. Samples were nominally composited over 4 or 5m intervals but smaller intervals where utilised to fit geological boundaries and outside extremities of the mineralisation.
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.	Vertical drilling generally achieved a very high angle of intercept with the flat-lying, stratabound mineralisation. Drilling orientations are considered appropriate with no obvious bias.
Sample security	The measures taken to ensure sample security.	The 2020 ADN aircore drill samples were collected by Andromeda personnel and delivered to the kaolin processing facility at Streaky Bay. Transport of samples from the Streaky Bay kaolin processing facility to Adelaide and other locations for further test work has been undertaken by competent exploration contractors. Remnant samples are stored securely at the premises in Streaky Bay or Adelaide.

Criteria	JORC Code explanation	Commentary
Audits or reviews	The results of any audits or reviews of sampling techniques and data.	The Competent Person, Andromeda's Chief Geologist Eric Whittaker has visited the Great White site during resource drilling to review drilling and sampling procedures. Resource has been reviewed externally by H&S Consultants

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 comprised of Exploration Licences 5814, 6096, 6202 and 6426. The Great White deposit (formerly Carey's Well deposit) is located on EL5814. There are no known non-government royalties. The underlying land title is freehold that extinguishes 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 Government of South Australia Department for Energy and Mining (DEM) requirements at the date of this report.
Exploration done by other parties	Acknowledgment and appraisal of exploration by other parties.	MEP conducted exploration in the Great White area between 2005 and 2018. The general area that is the subject of this report has been explored for kaolinitic products in the past by Transoil NL, SA Paper Clays ECC (Pacific) & Commercial Minerals Ltd. ADN has reviewed the past exploration conducted by MEP and other explorers.
Geology	Deposit type, geological setting and style of mineralisation.	Kaolin deposits, such as Great White, developed in situ by lateritic weathering of the feldspar-rich Hiltaba Granite. The kaolin deposit at Great White is a sub-horizontal zone of kaolinised granite resting with a fairly 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 Poochera Project area Halloysite is a rare derivative of kaolin where the plates have either rolled up or grown as nanotubes. Halloysite has a wide variety of industrial uses beyond simple kaolin and commands a significant premium above the average kaolin price. The Poochera kaolin deposits contain variable admixtures of kaolinite and halloysite that appear amenable to selective mining to produce specific low, medium and high halloysite blends for the ceramic markets, new nanotechnology applications and as a

Criteria	JORC Code explanation	Commentary
		strengthening additive in the cement and petroleum fracking industries.
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.	The report includes a tabulation of drillhole collar set-up information sufficient to allow an understanding of the results reported herein.
Data aggregation methods	In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. 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.	Reported summary intercepts are weighted averages based on length. Samples selected for XRD analysis at CSIRO by were selected based on a nominal reflectance of >75$_{R457}$ and Al_2O_2 > 35% Maximum or minimum grade truncations have not been applied. 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 (e.g. 'down hole length, true width not known').	Drillhole angle(vertical) is essentially perpendicular to the flat lying mineralisation. The stratabound intercepts are close to true width.
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	Appropriate maps (plan view) and tabulations are presented in the body of the announcement.

Criteria	JORC Code explanation	Commentary
	hole collar locations and appropriate sectional views.	
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.	Ceramic testing by Kaolins D'Arvor in France and First Test Minerals in the UK have shown that as little as 5% halloysite adds a minimum of 50psi increase in green strength (determined by modulus of rupture). Based on these results Andromeda will target a minimum of 10% halloysite. Hydrogeological modelling is currently being undertaken by Aldam Geoscience. First Test Minerals is currently undertaking test work to determine potential applications of the ultra-bright white halloysite poor kaolin. Test work is being undertaken by AKW Equipment and Design (Germany) to determine optimum plant design.
Further work	The nature and scale of planned further work (e.g. 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.	Further metallurgical test work and additional halloysite analyses will be conducted as part of future studies. Drilling undertaken in 2020 has identified new areas of halloysite kaolin to the south east of Great White. These areas remain open and follow up drilling has been planned.

Section 3 Estimation and Reporting of Mineral Resources

(Criteria listed in section 1, and where relevant in section 2, also apply to this section.

Criteria	JORC Code explanation	Commentary
Database integrity	Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral Resource estimation purposes. Data validation procedures used.	All relevant data were entered into an Access database where various validation checks were performed including; duplicate entries, sample overlap, unusual assay values and missing data. Further data validation was undertaken using Vulcan again checking for overlap and visual reviews of data were conducted to confirm consistency in logging. Assessment of the data by H&SC confirms that it is suitable for resource estimation.
Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits. If no site visits have been undertaken indicate why this is the case.	The Competent Person has been present when the same field crew and drillers were undertaking resource drilling at Great White and has confidence previous work was undertaken to the same standard.

Criteria	JORC Code explanation	Commentary
Geological interpretation	Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit. Nature of the data used and of any assumptions made. The effect, if any, of alternative interpretations on Mineral Resource estimation. The use of geology in guiding and controlling Mineral Resource estimation. The factors affecting continuity both of grade and geology.	The geological understanding is quite straightforward with the drillhole spacing allowing for a high level of confidence. Consistent logging allows for the 3D modelling of geological surfaces. These surfaces include a top of kaolinite mineralisation and a base of kaolinite (generally coincides with the top of partially decomposed granite). The surfaces indicate the flat-lying nature to the mineralisation although there are significant variations in thickness of the kaolinite. Wireframe; termination of wireframes is due a combination of geology and extent of drilling (100m). The interpretation honours all the available data; an alternative interpretation is unlikely to have a significant impact on the resource estimates.
Dimensions	The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	The deposit covers an area 1.7km east-west by 1.7km north-south and has an average depth below surface is 23.9m with a range of 10m (top of shallowest mineralisation)in the west to 46m (base of deepest mineralisation) in the east. The deposit has an average thickness of 9.4m with a maximum thickness of 23.9m and with extremities modelled down to 1m.
Estimation and modelling techniques	The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used. The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data. The assumptions made regarding recovery of by-products. Estimation of deleterious elements or other non-grade variables of economic significance (e.g. sulphur for acid mine drainage characterisation). In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed. Any assumptions behind modelling of selective mining units. Any assumptions about correlation between variables.	Mineral wireframes and geological surfaces are generated in Vulcan by picking lithological contact points on drillholes then using those 3D points to generate an initial surface. The initial surface is then used to guide the 100m lateral extrapolation beyond the last assayed drillhole. The kaolin lithology was then subdivided into upper and lower saprolite using 1% K_2O to define the lower saprolite. Not all kaolin intersected in drilling has undergone the full set of analyses due to the high cost of sample analysis (~$410/sample). Wireframes for unsampled intervals were modelled and used to flag blocks as internal waste. Waste wireframes were modelled using drillholes from the 2011, 2019 and 2020 programs where no mineralisation was intersected, and no samples were submitted for assay. Within the kaolin lithology a mineralisation wireframe was modelled that restricted upper and lower contacts to +75% ISO Brightness. In sampled closing holes The +75% ISO Brightness triangulation of the kaolin was used to control the composite selection and the loading of subsequently modelled data into the block model. Geostatistics were performed for the -45m recovered material, Al_2O_3, Fe_2O_3, SiO_2, TiO_2,

<table>
<tr><th>Criteria</th><th>JORC Code explanation</th><th>Commentary</th></tr>
<tr><td></td><td>Description of how the geological interpretation was used to control the resource estimates.
Discussion of basis for using or not using grade cutting or capping.
The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.</td><td>ISO Brightness (reflectance), halloysite and kaolinite.
Vulcan software was used for the block grade interpolation and block model reporting.
There is a distinct inverse relationship between halloysite and kaolinite. There is a positive correlation between K_2O and microline. There is a weak positive correlation between halloysite and Fe_2O_3.
Parent block sizes were 25m in the X (east) direction, 25m in the Y (north) direction and 5m in the Z (RL) direction with sub-blocking to 6.5m by 6.5m by 1.25m.
The ordinary kriging was used estimation.
Data consisted of; 764 XRD and 785 XRF and 864 ISO Brightness and -45µm measurements.
Samples were weighted by length for both statistical analyses and block estimation. The decision to use straight lengths was to minimise vertical smearing. The average length is 3.5m with length distribution summarised in the table below.
<table><tr><td>Length (m)</td><td>%</td></tr><tr><td>1</td><td>8.4</td></tr><tr><td>2</td><td>17.9</td></tr><tr><td>3</td><td>26.1</td></tr><tr><td>4</td><td>25.2</td></tr><tr><td>5</td><td>22.3</td></tr></table>
No top cutting was applied; the coefficients of variation for the relevant composite datasets suggest that the data is not sufficiently skewed or unstructured to warrant top cutting.
Search ellipsoid major 250m semi-major 250m (horizontal) and minor 15m (vertical).
Resource
Inferred - internal blocks populated by single interval within 250m but outer holes limited to 100m.
Indicated “ceramic“- minimum of 2 octants populated by combined minimum of 4 samples within 150m search radius
Indicated “ultrabright” - minimum of 2 quadrants each populated by two samples within 150m. (Note tighter restriction reflects smaller mining unit and tighter specifications on contaminants)
Measured - 4 quadrants each populated by two samples within 150m.
Model validation has consisted of visual comparison of block grades to drillholes and composite block grades to composite drillhole values and indicated a good match.</td></tr>
</table>

Criteria	JORC Code explanation	Commentary
Moisture	Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content.	Tonnages are estimated on a dry weight basis. The dry bulk density used for the resource estimate is based off dry bulk density measurements from PQ diamond core calculated using a modified Archimedes density measurement. The method involved vacuum sealing fresh drill samples and completing weight in air weight/water measurements along with oven-drying the sample. An average density was determined for each lithology and assigned accordingly to the block model.
Cut-off parameters	The basis of the adopted cut-off grade(s) or quality parameters applied.	The resource estimate has been reported at ISO Brightness reflectance of 75% within the upper and lower previously defined mineralised surfaces. The -45µm values were used as a mass adjustment factor for reporting the kaolinite and halloysite content. The ISO Brightness cut-off grade at which the resource is quoted reflects the intended bulk-mining approach.
Mining factors or assumptions	Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	The Resource assumes a conventional open pit mining scenario. The proposed mining method will be a truck-excavator operation A flitch height of 2.5m is assumed using a 90t to 100t excavator and a fleet of 45t to 65t trucks Assumptions for the mining dilution and recovery for the open pit mine are 0% dilution and 90% recovery. It is anticipated that most of the pit excavation will be mined sequentially with previous voids backfilled by overburden and sand reject material from the processing plant. Material intended for processing will be delivered to a Run of Mine stockpiles based on physical and chemical properties of the ore. It is likely that processing plant feed will be blended from a variety of in pit sources and stockpiles to maximise the delivery of product meeting market specification requirements.
Metallurgical factors or assumptions	The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where	Test work is being undertaken by AKW Equipment and Design (Germany) to determine optimum plant design. Plantan Yamada have successfully produced a trial batch of porcelain products from Great White halloysite kaolin. First Test Minerals is currently undertaking test work to determine potential applications of the ultra-bright white halloysite poor kaolin.

Criteria	JORC Code explanation	Commentary
	this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	
Environmental factors or assumptions	Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	The Great White Deposit area is currently utilised for grazing and cereal cropping. A 12-month baseline flora study has been completed and which has been peer reviewed by EBS Group. Stage One and Stage 2 hydrology and hydrogeology have been completed by Aldam Geoscience. No large drainage systems pass through the area. Only minor groundwater intersected in cover and mineralized zone. A storage area for the overburden will be required initially. If processing is undertaken on site approx. 50-60% of sand rejects will be used for sequential backfilling of voids. There will be no tailings.
Bulk density	Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples. The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc), moisture and differences between rock and alteration zones within the deposit. Discuss assumptions for bulk density estimates used in the evaluation process of the different materials.	The average dry bulk densities that were assigned to each lithology were calculated from 7 PQ diamond holes. The Great White dry bulk density measurements were calculated using a modified Archimedes method. The process involved vacuum sealing oven dried samples and completing weight in air weight/water measurements. The dry bulk density of 1.46t/m^3 that was assigned to the upper saprolite is the average of 23 measurements that ranged between 1.24 and 1.75t/m^3. The dry bulk density of 1.67t/m^3 that was assigned to the lower saprolite is the average of 10 measurements that ranged between 1.42 and 2.18t/m^3 The average density determined for the Great White Halloysite-Kaolin mineralisation is 1.56 t/m^3.
Classification	The basis for the classification of the Mineral Resources into varying confidence categories. Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data). Whether the result appropriately reflects the Competent Person's view of the deposit.	As discussed under "Estimation and modelling techniques" the Mineral Resource has been classified on the estimation subject to assessment of other impacting factors such as drillhole spacing, sampling procedures, QAQC outcomes, geological model and previous resource estimate. The only variation to the previously described estimation process is when the kaolinite crystallite size is below 50nm. At this size the XRD technique use to quantify clay minerals has difficulty distinguishing between halloysite and kaolinite. This affects 460kt of what would otherwise have been classified as Measured but due to uncertainty has been classified as Indicated (~7% reduction in Measured). It is important to note that

Criteria	JORC Code explanation	Commentary
		there is no uncertainty in the total clay content or measurements in impurities or ISO B and that there is excess halloysite present within the deposit to allow for blending to meet the minimum 10% halloysite within the refined kaolin product to meet market specifications. The classification appropriately reflects the Competent Person's view of the deposit.
Audits or reviews	The results of any audits or reviews of Mineral Resource estimates.	The database, triangulations and the block modelling process has been reviewed by H&SC and no significant issues were noted.
Discussion of relative accuracy/ confidence	Where appropriate a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate. The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	The Mineral Resources have been classified using a qualitative assessment of a number of factors including the geological understanding in conjunction with the simplicity of mineralisation, the drillhole spacing, drill sample recoveries, sampling procedure, QA/QC data and density data. The Mineral Resource estimate is considered to be accurate globally, but there is some uncertainty in the local estimates due to the sample compositing and density data giving a lack of detailed definition of any subtle variations in the deposit. No mining of the deposit has taken place so no production data is available for comparison.

Section 4 Estimation and Reporting of Ore Reserves

Criteria	JORC Code Explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve	The 2022 Definitive Feasibility Study is based on the 2020 Great White Mineral Resource estimate (refer Andromeda Australian Securities Exchange (ASX) announcement dated 26 November 2020 titled "Updated Mineral Resource for the Great White Kaolin JV Deposit"). The updated Mineral Resource estimate for the Great White Deposit is 34.6 Mt of kaolinised granite reported at an ISO Brightness cut-off of 75% in the minus 45 µm size fraction.
	Clear statement as to whether the Mineral Resources are reported additional to, or inclusive of, the Ore Reserves	Mineral Resources are reported inclusive of Ore Reserves.

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Site visits	Comment on any site visits undertaken by the Competent Person and the outcome of those visits.	The Competent Person visited and inspected the Project site in May 2021 for the express preparation of this report.
	If no site visits have been undertaken indicate why this is the case.	The Project site has also been visited by the Resources' Competent Person and at least one of the authors of each of the following contributing technical reports contributing to the DFS: Hydrology and Hydrogeology, Geotechnical, Mining, Ecology.
Study status	The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves.	The Ore Reserves contained in this report have been prepared to a Feasibility Study Level.
	The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore Reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered.	A Scoping Study for the Project was completed in September 2019 and updated in April 2020, and a Pre-Feasibility Study completed on 1 June 2020 titled "Pre-Feasibility Study further improves Poochera Halloysite-Kaolin Economics".
		The DFS mine plan is based on staged pit designs and mining schedules, along with processing and refining methods, which are all using established and conventional technology.
		Modifying factors (mining, processing, transport and shipping, refining, marketing, infrastructure, environmental, legal, social and commercial) have been considered in the DFS and the Ore Reserve estimation.
		Financial modelling completed as part of the study for this report shows that the Project is economically viable under current assumptions.
Cut-off parameters	The basis of the cut-off grade(s) or quality parameters applied.	A mining breakeven cut-off grade (%-45 µm) has been calculated to 16% -45 µm material. There are no blocks within the current mineralised resource with a -45 µm grade of less than 16%. As such the cutoff grade will not affect material classifications. This estimate has been based on estimates for product price, product recovery, operating costs, transport and refining costs, general and administrative costs, and royalty costs. Application of the cut-off grade was found to be below the grade of the lowest block in the resource model. Deleterious elements Fe and Ti were modelled and incorporated in the ore definition for brightness (powdered and fired brightness). Scheduling showed difficulty incorporating high Fe_2O_3 material into the product blend, so a top cut of 0.7% Fe_2O_3 has been applied. A combination of size and impurities were used to determine the Reserve for Great White PRM™. Percentage of halloysite was also modelled to provide for the development of the Great White CRM™ product with a 5% halloysite cut-off grade (equating to a +10% halloysite content) applied to the Great White CRM™ feed.
		A Whittle optimisation was undertaken to determine the economic extent of the potential Resource. Due to the high quality of the Great White Kaolin Deposit combined with the flat

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		lying ore structure, the optimisation was limited by the physical characteristics rather than cut-off grade. The pit design was developed with reference to contained kaolin clay classed as bright white, and focusing on measured and indicated resources, but including <1% of inferred resources where required to achieve a practical mine design.
		All bright white kaolinised granite contained within the pit design is scheduled to be mined, stockpiled for blending and processed.
Mining factors or assumptions	The method and assumptions used as reported in the Pre-Feasibility or Feasibility Study to convert the Mineral Resource to an Ore Reserve (i.e. either by application of appropriate factors by optimisation or by preliminary or detailed design).	The Great White 2020 Mineral Resource block model was used in the Whittle optimization. Metallurgical parameters were applied to the resource model to assess product grades and yields. Pit optimisations utilising the Lerchs-Grossmann algorithm with industry standard software were undertaken. This optimisation utilized the Mineral Resource model together with geotechnical inputs, cost, and revenue inputs. The mine design was developed based on the metallurgical recoveries which informed the cut-off grade for brightness, halloysite content and deleterious elements (Fe and Ti). Modifying factors used to determine the minable portion of the in situ kaolinised granite, were a 10% mining ore loss factor with 0% mining dilution. There is a definite visual boundary between the overburden and the kaolin clay ore for establishing the mine. The base of the kaolin transitions into weathered granite and onto fresh solid granite. The weathered granite is classified as a potential dilutant for the feed but due to the course nature will be screened from the process in the washing phase of the process. The 10% ore loss is based on leaving a sacrificial layer of kaolin in the floor.
	The choice, nature and appropriateness of the selected mining method(s) and other mining parameters including associated design issues such as pre-strip, access, etc.	Pit optimisations were done and based on the selected optimised pit shell, a detailed manual and interactive pit design was completed. The mine is a very simple shallow open cut mine that is predominantly free dig. Some thin over laying calcrete and silcrete sheets have been identified. It is assumed that most of the hard rock can be ripped prior to mining. Where required blasting has been considered with drill and blast services supplied by a third party on an as needed basis. As the mine progresses and reaches the extent of the kaolin, the void will be backfilled with subsequent overburden and washed sand from the processing plant. Conventional mining methods have been assumed with overburden and kaolin being removed using excavator and truck. The mine will be opened in stages with ramp access being moved as the mine progresses. Potential cost savings are anticipated with the use of hydraulic scrapers for overburden removal. In order to control the ore selection for blending in the initial stage of the mining operation, excavators have been chosen. Moxi style, 6-wheel, articulated trucks have been chosen for their low bearing pressure and speed. A fleet of ancillary equipment has been included to provide for construction, maintenance and other earth moving and shaping, including bulldozer, grader, front end loader, water cart and service vehicles. A scope of work was issued to suitable sized contracting companies for budget pricing, those unit rates were used in the DFS.

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	The assumptions made regarding geotechnical parameters (e.g., pit slopes, stope sizes etc.) grade control and pre-production drilling.	Detailed staged pit designs were done with due consideration of geotechnical, geometric, and access constraints. These pit designs were used as the basis for production scheduling and economic evaluation. A geotechnical assessment was undertaken (WSP, 2020) and the recommendations used in the Whittle optimization and pit design. The final wall angles have been designed on the conservative side given that the pit is shallow and will not be open for long.
	The major assumptions made, and Mineral Resource model used for pit and slope optimisation (if appropriate).	The geotechnical parameters applied in the pit deigns were compliant with those suggested in the 2020 geotechnical study.
	The mining dilution factors used.	No additional modifying factors have been applied to the block model for dilution or ore loss. The resource model has been built such as the top of the ore zone for the model is typically 0.4 m lower than the actual ore horizon. This makes for an allowance for ore loss without modifying factors being required
	The mining recovery factors used.	Due to the simplicity of the mining, low production rates, small equipment size (bucket size) and strong visual definition of the kaolin, 100% mineable ore recovery within the designed pit has been assumed. The resource model has been constructed to include a sacrificial layer of kaolin material to preserve brightness.
	Any minimum mining widths used.	The orebody is flat lying and extends outside the pit design. Minimum mining widths will not impact on the reserve.
	The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion.	Inferred mineral resources have been excluded from the mine optimisation and design process. Sensitivity analysis was completed including the Inferred material to determine the effect of including these on the overall project. Inferred resources were not used in completion of the overall pit design but have been included in the generation of in pit resource physicals. Inferred resources make up less than 1% of these physicals. Mine scheduling has been completed including the inferred resource material, making up less than 1% of the scheduled tonnes. The Mineral Resources, published on 26 November 2020, underpin the Production Target
	The infrastructure requirements of the selected mining methods.	The infrastructure required for the Great White kaolin mine includes transportable offices and support facilities to establish the mine. Other infrastructure is limited to access roads, stockpile areas, stockpiles for soils, overburden and ore, which will be constructed using the mining equipment. The mine is essentially dry; dewatering equipment will be available for weather events. Bores for groundwater measuring and monitoring will be installed. Production bores for dust suppression have been installed.
Metallurgical and mineral processing factors or assumptions	The metallurgical process proposed and the appropriateness of that process to the style of mineralisation.	Site based wet refining is considered in the DFS. This process has been successfully tested at both laboratory and pilot scale.
	Whether the metallurgical process	The metallurgical processing involves washing the sand from the clay (blunging) and then size separation of the resultant slurry

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	is well tested technology or novel in nature.	using hydro cyclones. A magnetic separator is utilized to remove impurities. The processing and refining techniques are long-established and widely and routinely used at full plant scale throughout the kaolin industry.
	The nature, amount and representativeness of the metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallurgical factors applied.	Representative samples of mineralisation types suited to the processing approaches above have been obtained by RAB or air core drilling and tested in kaolin processing laboratories and by bulk auger drilling and testing in pilot plants. Bulk auger drilling was focused on an accessible portion of the orebody and further drilling and testing is required to assess the variability of the metallurgical properties across the extent of the proposed open pit. Geological samples were identified from each zone of the orebody, including the upper and lower saprolite. Representative samples for ore zones were made and tested to determine the recovery and product specification. Samples were sent to third party laboratories for analysis and control samples tested in the Andromeda's pilot plant at Streaky Bay to calibrate the pilot plant for further refined sample production
	Any assumptions or allowances made for deleterious elements.	Deleterious contaminants were considered as part of developing the geological block model. An iterative process between metallurgical testing and building the block model was taken. These elements were incorporated into the mine scheduling to determine the processing plant feed blend. A top cut for Fe_2O_3 has been applied based on schedule results. The final refined product specification informed every step of the process to ensure that any deleterious element was accounted for. Understanding of the variability in metallurgical properties is required for detailed plant design but is not considered material to overall plant performance.
	The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole.	A range of bulk samples have been taken across the extent of the Resource. Bulk samples collected in 2019, 2020 and 2021 that focused on priority areas of the pit; early mine life, ore body as a whole and specific product areas such as Great PRM™, Halloysite Rheology Modifier (Great White HRM™) and cosmetic grade halloysite. These samples were used to determine processing and refining capabilities of off-site processing facilities. Representative samples have been made from the extent of resource definition drilling and tested to ensure understanding of the orebody as a whole. The bulk samples have been tested at Andromeda's pilot plant as well as several consultancies including; Foshan Ceramic Research Institute Testing Co., Ltd, Plantan Yamada Co. Ltd., Longi Magnet Co. Ltd and AKW Apparats + Verfahren GmbH (AKW). Metallurgical product based yields were applied to the block model from work undertaken by Andromeda and its consultants from a range of samples from throughout the planned LOM.
	For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications?	Yes. Mine scheduling has focused on ensuring quality specifications set forth in offtake agreements have been met. Quantitative analysis of halloysite and kaolinite were estimated from X-ray diffraction (XRD) data was performed by the Commonwealth Scientific and Industrial Research Organisation (CSIRO) using SIROQUANT. Halloysite:Kaolinite proportions determined using profile fitting by TOPAS, calibrated by Scanning Electron Microscope (SEM) point counting of a suite of 20 standards from the Great White Kaolin Project area.
		Steady site-plant throughputs of 300 ktpa to 600 ktpa dry feed basis are assumed after the pre-stripping phase for the LOM.

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		Representative samples of mineralisation types suited to the processing approaches above have been obtained by drilling and tested in metallurgical laboratories.
		A steady plant throughput of 600 ktpa is maintained from commencement of site processing after year 2.
Environmental	The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options considered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported.	All environmental, heritage and tenure approvals required under State and Commonwealth legislation are being progressed. The mine is to be developed under the South Australian Mining Act 1971.
		Apart from a starter pit overburden landform, most of the overburden will be retained within the open pit and placed into the preceding stage mining void.
		Sand will be generated as a waste product by the processing operation. This will be dewatered and returned to the pit with mined overburden.
		Overburden and processing sand characterisation is currently underway and will contribute to the detailed overburden landform and in pit backfill design work during detailed design
		An Acid and Metalliferous Drainage Assessment was undertaken under the supervision of Dr. Brett Thomas from the University of Adelaide's Acid Sulfate Soils Centre. The study examined the geochemical characteristics of 86 drill samples selected to be representative of the overburden and ore from the Great White Deposit. The study showed that although kaolin samples with pH 4.5–4.6 were identified, the potential for material to be net acid producing was considered to be overall low. Test work shows the potentially acidic and acidic material has a low capacity to release potential or actual acidity as the acidity is bound up in low permeability clay. The calcareous materials in the waste (calcrete) will provide a sufficient source of alkalinity for treating any acidic leachate generated from overburden stockpiles.
Infrastructure	The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided or accessed.	The mine site is readily accessible by multiple sealed highways and local gravel roads. The majority of the workforce will be sourced from the local region and reside within driving distance of the project site.
		The mine development will be on private land to which access is to be obtained by Andromeda.
		Appropriate power and water supplies have been identified and costed.
Costs	The derivation of, or assumptions made, regarding projected capital costs in the study.	Capital cost estimates have been based on quoted budget prices or known factors and industry standard unit costs provided predominantly by specialist suppliers as well as current knowledge and industry experience where applicable.
	The methodology used to estimate operating costs.	Mining costs are based on industry standard unit rates and checked by contractor budget prices. Processing operating cost estimates were provided by Primero Group Ltd and from vendor budget quotes, and first principles.

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		Power costs are based on industry standard rates, and gas and water costs are based on quoted budget prices.
	Allowances made for deleterious elements.	Deleterious elements (iron and titanium) and product characteristics were assessed in the assay process, and subgrade materials were largely excluded from the mineral resource. Where minor amounts of such materials are encountered, selective mining removes them or they are blended with above average quality materials to maintain the product specification
	The source of exchange of exchange rates used in the study.	Cost estimates are made in 2022 Australian dollars, using the following assumed exchange rates where applicable: Source of exchange rates - KPMG Coal Price and FX Market Forecast – January 2022
	Derivation of transportation charges.	Transport and shipping costs are based on quoted budget prices.
	The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification etc.	No penalty clauses in current agreements (negotiated as required)
	The allowances made for royalties payable, both Government and private.	The SA Government retains a 3.5% net royalty on product sales, less prescribed costs of delivery to customer, and this is accounted for in the DFS financial assessment together with a "new mine discount" until June 2026 of 2.0%.
Revenue factors	The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns etc.	The processing plant feed head grades (as kaolin clay content expressed as %-45µm in the kaolinised granite) are estimated utilising industry accepted geostatistical techniques with the application of relevant modifying Factors. Required head grade to plant will be maintained through the use of stockpiles for blending. The Great White PRM™ and Great White CRM™ refined product specification has been taken from Binding Offtake agreements as announced by Andromeda. Andromeda secured two significant offtake agreements to underpin the progress of the Great White Kaolin Project, the first 5,000 tonnes per annum (tpa) to a Japanese porcelain manufacturer and the second 70,000 tpa with a Chinese industrial minerals' customer for paints and polymers markets. Based off the production profile of 116,500 tpa, these two offtake agreements form 64% of the Phase 1 capacity, with options to sell the balance of the production into the market. Pricing and volume for the Great White KCM™90 and Great White HRM™ products are based on executed LOIs and negotiations with potential customers and market analysis advice received from industry specialist advisors who have a good understanding of market volumes and pricing. Assumptions for exchange rates, transportation and treatment charges, penalties, net smelter returns etc. have been included.
	The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products.	The halloysite-kaolin price (commercial-in-confidence) assumed for LOM operations on an dry product packaged basis is based on expert advice and discussions with potential customers, with Chinese Renminbi/Yuan (CNY) or USD conversions to AUD.

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Market assessment	The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future.	Whilst the international market for kaolin is based on individual supplier vendor negotiations, Andromeda's experienced staff and industry specialist advisors have a good understanding of market volumes and prices, and this information has been used in the DFS.
	A customer and competitor analysis along with the identification of likely market windows for the product.	There is a growing shortage of high purity (Fe_2O_3 <0.5%) bright-white kaolin clay with a significant halloysite content suitable for the premium ceramic market. The size of the project is based around established binding offtake agreements.
	Price and volume forecasts and the basis for these forecasts.	The customer acceptance criteria are well understood, and the refined product is known to be technically equal to most competitor premium products.
	For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract.	Based on advice from Andromeda's industry advisors and discussions with its agents and potential customers, the DFS adopted packaged ex-refinery product price higher than AUD700/t (USD500/t at an exchange rate of 0.70 USD: AUD).
		In June 2021, Andromeda announced "Significant Binding Offtake Agreement Signed for Great White Kaolin Project" with Jiangsu Mineral Sources International Trading Co. Ltd (MSI) for sales of 70,000 tpa +/- 10% of Great White PRM™ (refined ultra-bright high-purity kaolin) product for an initial term of 5 years at a price fixed for the first 3 years. Great White PRM™ brand is a premium grade for the coatings and polymers markets. Andromeda had previously announced its first binding offtake agreement with a Japanese porcelain producer (refer ADN ASX announcement dated 17 March 2021 titled "First Customer Binding Offtake Signed for Great White Project") for Great White CRM™.
		The impact of the COVID-19 pandemic is not considered material to the product pricing because sales are scheduled to extend for 28 years from 2022. Exposure to any one market is limited due to sales being anticipated to China, broader Asia, Japan and Europe.
		For halloysite-kaolin mineral products, supply/sales agreements are specific to customer requirements and are made with numerous parties including direct customers, agents who are paid commission for securing sales, and distributors who purchase stock for supply to their own downstream customers. Commercial scale representative products will be provided to demonstrate the expected consistency and quality in order to secure binding supply agreements. At this stage testing and discussions are in progress with agents/distributors covering Australia/NZ, Asia (two large distribution houses), China (four companies), India, the Middle East and Europe. This is in addition to the direct customers who have already signed offtake letters of intent, customers where testing is in progress, and new potential customers that have either requested samples or are being targeted. Representative samples of Great White halloysite-kaolin previously evaluated by prospective customers have been favourably assessed.
Economic	The inputs to the economic analysis to produce the net	A financial model of the Project has been prepared by Andromeda using input factors as outlined above.

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	present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate etc.	
	NPV ranges and sensitivity to variations in the significant assumptions and inputs.	The model shows the Project is economically viable with a short payback, high net present value (NPV) and high internal rate of return (IRR). A discount rate of 8% has been used in the NPV analysis. Nil inflation has been modelled, with costs and product prices fixed through the LOM.
		Sensitivity of the Project to changes in the key drivers of sales price, operating cost (mining and processing cost) was carried out and showed the Project is robust. The NPV to be most sensitive to significant changes in sales price.
		The Study uses both a Pre-tax and After-tax basis, and a 100% Project basis for the financial assessment.
Social	The status of agreements with key stakeholders and matters leading to social licence to operate	Andromeda is negotiating a range of commitments with private landowners for land access.
		Negotiations are ongoing with the landholder.
		Andromeda has been involved with the site for more than 3 years and engaged with key local community stakeholders over that period. Positive working relationships have been established with directly affected landowners, the District Council of Streaky Bay and the Wirangu Native Title Claimant Group.
Other	To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves:	The DFS has confined itself to determining the economic viability of developing the Project, and its potential material impacts on the environment and community.
	Any identified material naturally occurring risks.	There are no identified material naturally occurring risks affecting the Project or the Ore Reserve estimate and classification.
	The status of material legal agreements and marketing arrangements.	A Mining Lease (ML) 6532 was granted on 17 December 2021 with associated Miscellaneous Purposes Licenses (MPL) 163 and 164 for supporting infrastructure. Negotiations are ongoing with the landholder to enable operations of the Project to proceed.
	The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be	Additional commercial scale representative products are currently in the process of being produced to demonstrate the expected consistency and quality in order to support the negotiation of secure binding supply agreements. At this stage testing and discussions are in progress with agents/distributors covering Australia/NZ, Asia (two large distribution houses), China (four companies), India, the Middle East and Europe. This is in addition to the direct customers who have already signed offtake letters of intent, customers where testing is in progress, and new potential customers that have either requested samples or are being targeted.
		It is common for binding sales contracts to be negotiated towards or after the completion of a DFS, once bulk final product has been distributed and tested, and there is a higher level of confidence between the buyer and seller about delivery timing, quantity, quality specification and pricing.

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	received within the timeframes anticipated in the Pre-Feasibility or Feasibility Study. Highlight and discuss the materiality of any unresolved matter that is dependent on a third party on which extraction of the reserve is contingent.	Arranging finance to develop the Project is required and would occur after completion of the DFS, along with tendering for suitable contractors to carry out the mining and to construct the process plant and infrastructure.
		A range of governmental agreements and licenses are required prior to the decision to commence construction can be made. The Mining Lease and two Miscellaneous Purpose Licenses were granted on 17 December 2021. Work is now underway on the Program for Environmental Protection and Rehabilitation to address the Mining Lease conditions as set out by the South Australian Government Department for Energy and Mining, in accord with the South Australian Mining Act 1971.
		It is expected all necessary approvals and licenses will be forthcoming when applied for progressively over the ensuing phases of the Project.
Classification	The basis for the classification of the Ore Reserves into varying confidence categories.	The underlying Mineral Resource classification has been used as the basis for conversion, and consists of Measured and Indicated Resources together with some Inferred Mineral Resources comprising a minor part (1%) of the Production Target. Inferred resources andare not included in the Ore Reserves.
	Whether the result appropriately reflects the Competent Person's view of the deposit.	The Ore Reserve Estimate consists of Proved and Probable Reserves reported in accordance with JORC Code (2012) guidelines. Measured and indicated material classified in the Mineral Resource estimate has been directly converted to Proved and Probable reserve. It is the opinion of the Competent Person that these classifications appropriately reflect the risk and variability of this deposit.
	The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any).	No Inferred Mineral Resources are included in the Ore Reserve Estimate.
		The Competent Person is satisfied the stated Ore Reserve classification reflects the outcome of the technical and economic studies.
Audits or reviews	The results of any audits or reviews of Ore Reserve estimates.	The Ore Reserve Estimate was prepared by Proactive Mining Solutions based on inputs from independent consulting groups, contractors, suppliers and Andromeda personnel.
		Independent review of the Ore Reserve estimate is underway by Behre Dolbear Australia (BDA) and interim findings have been addressed within this document in the DFS.
Discussion of relative accuracy/confidence	Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated	The confidence in the Ore Reserve Estimate is reflected by the classifications shown above. This report has been completed to a feasibility level with potential variances to inputs considered within limits suitable for this level of study. Sensitivity analysis has been completed at each phase of mine planning for this study to determine the impacts of variations. Cut off grade calculations result in values below all blocks within the resource, indicating robust economics. Existing offtake agreements indicate a high margin product. The product specifications are within the variabilities of the quality attributes of the resource model. Available mining face length and mine scheduling will reduce inherent variability of the final product specifications.

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	confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate.	
	The statement should specify whether it relates to global or local estimates, and if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used.	The estimate is supported by a ±15% level of accuracy technical study which included a contingency of 10 to 20% on all capital costs.
	Accuracy and confidence discussions should extend to specific discussions of any Modifying Factors that may have a material impact on the Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage.	In the opinion of the Competent Person, the Ore Reserve Estimate is supported by appropriate design, scheduling, and costing work as reported in the prefeasibility study. The cost assumptions and modifying factors applied in the process of estimating the Ore Reserve are considered reasonable. These are subject to further refinement in future Definitive Feasibility Studies which may influence the accuracy and confidence of Ore Reserve.
	It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available.	Market price and exchange rate assumptions are subject to market forces and present an area of uncertainty, though the low breakeven cut-off grade provides a high tolerance to the Project.
		The accuracy and confidence expressed above applies equally to the whole Ore Reserve.
		In the opinion of the Competent Person, it is reasonable to anticipate that all relevant social environmental and legal approvals to operate will be granted within the indicated project timeframe.