



Investor Presentation

19 August 2024

Green Rare Earths

Mine of the Future Now

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Competent person statement

The information in this report that relates to exploration results is based on information compiled by Mr. Antonio de Castro, BSc (Hons), MAusIMM, CREA, who acts as BCM's Senior Consulting Geologist through the consultancy firm, ADC Geologia Ltda. Mr. de Castro has sufficient experience which is relevant to the type of deposit under consideration and to the reporting of exploration results and analytical and metallurgical test work to qualify as a competent person as defined in the 2012 Edition of the Joint Ore Reserves Committee (JORC) "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr. Castro consents to the report being issued in the form and context in which it appears.

The information in this report that relates to exploration results released by the Company to the ASX on 2 April, 22 April, 3 May and 7 May 2024 is based on information compiled by Mr. Antonio de Castro, BSc (Hons), MAusIMM, CREA, who acts as BCM's Senior Consulting Geologist through the consultancy firm, ADC Geologia Ltda. Mr. de Castro has sufficient experience which is relevant to the type of deposit under consideration and to the reporting of exploration results and analytical and metallurgical test work to qualify as a competent person as defined in the 2012 Edition of the Joint Ore Reserves Committee (JORC) "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr. Castro consents to the report being issued in the form and context in which it appears.

The Company confirms that it is not aware of any new information or data that materially affects the information included in the relevant market announcement and, in the case of mineral resource estimate, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. Refer to ASX announcement dated 22 April 2024.

Exploration results and mineral resources

The information in this Presentation that relates to Exploration Results and Mineral Resources is based upon and fairly represents information previously released to the ASX on 22 May 2023, 6 June 2023, 17 July 2023, 31 July 2023, 13 September 2023, 3 October 2023, 19 October 2023, 7 December 2023, 29 January 2024, 6 February 2024, 22 February 2024, 13 March 2024, 3 April 2024, 22 April 2024, 3 May 2024, 20 May 2024, 8 July 2024, 2 August 2024 and 6 August 2024.

This presentation has been approved for release by the Board of Directors.

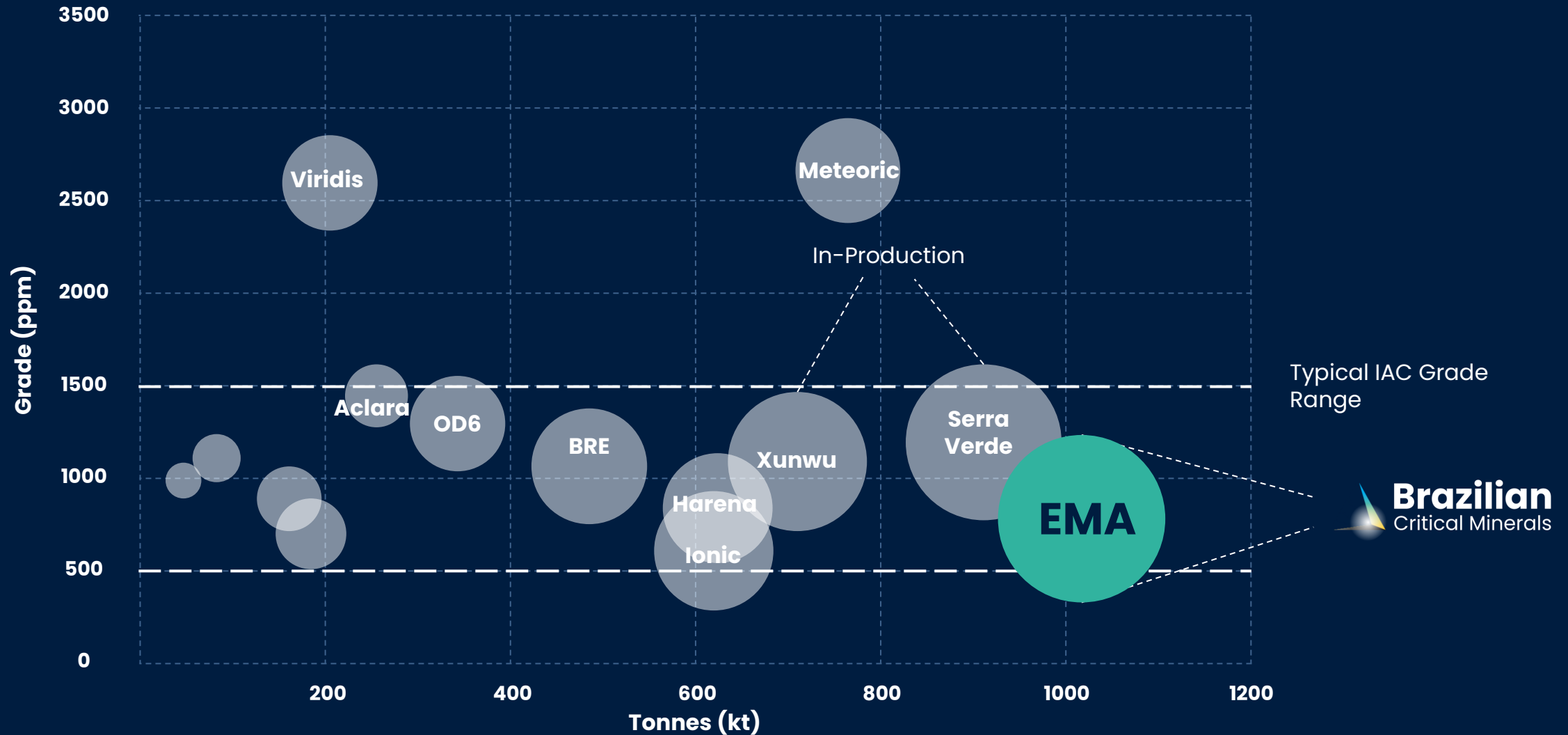
Brazilian REE Landscape

**EMA Rare Earths – >1Bt MRE
Apuí Rare Earths**

30 km south from Apuí



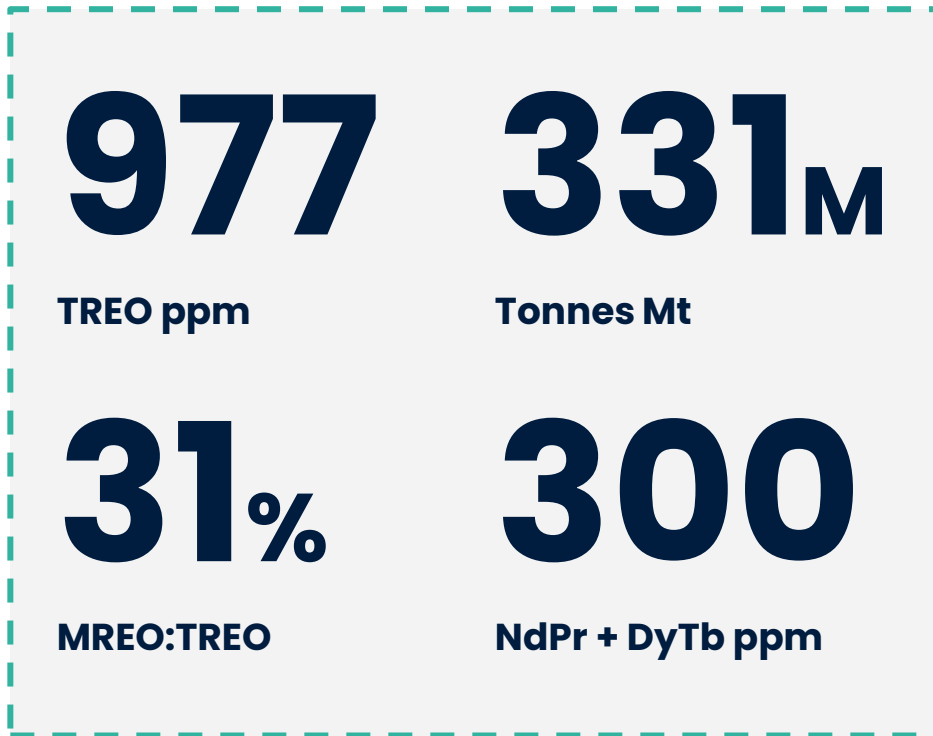
Rare Earth Clay Deposits



Large Resource Base



Ema REE Project 2024 Mineral Resource Estimate



Ema REE Project 2024 Mineral Resource Estimate – by cut-off grade

JORC Category	cut-off ppm TREO	Tonnes Mt	TREO ppm	NdPr ppm	DyTb ppm	MREO ppm	MREO:TREO %
Inferred	0	1,340	694	163	15	178	26
Inferred	500	1,017	793	199	17	216	27
Inferred	600	863	836	218	18	236	28
Inferred	700	685	885	237	20	257	29
Inferred	800	494	936	259	21	280	30
Inferred	900	331	977	278	22	300	31

World's first fully green REE mine



Large Resource Base

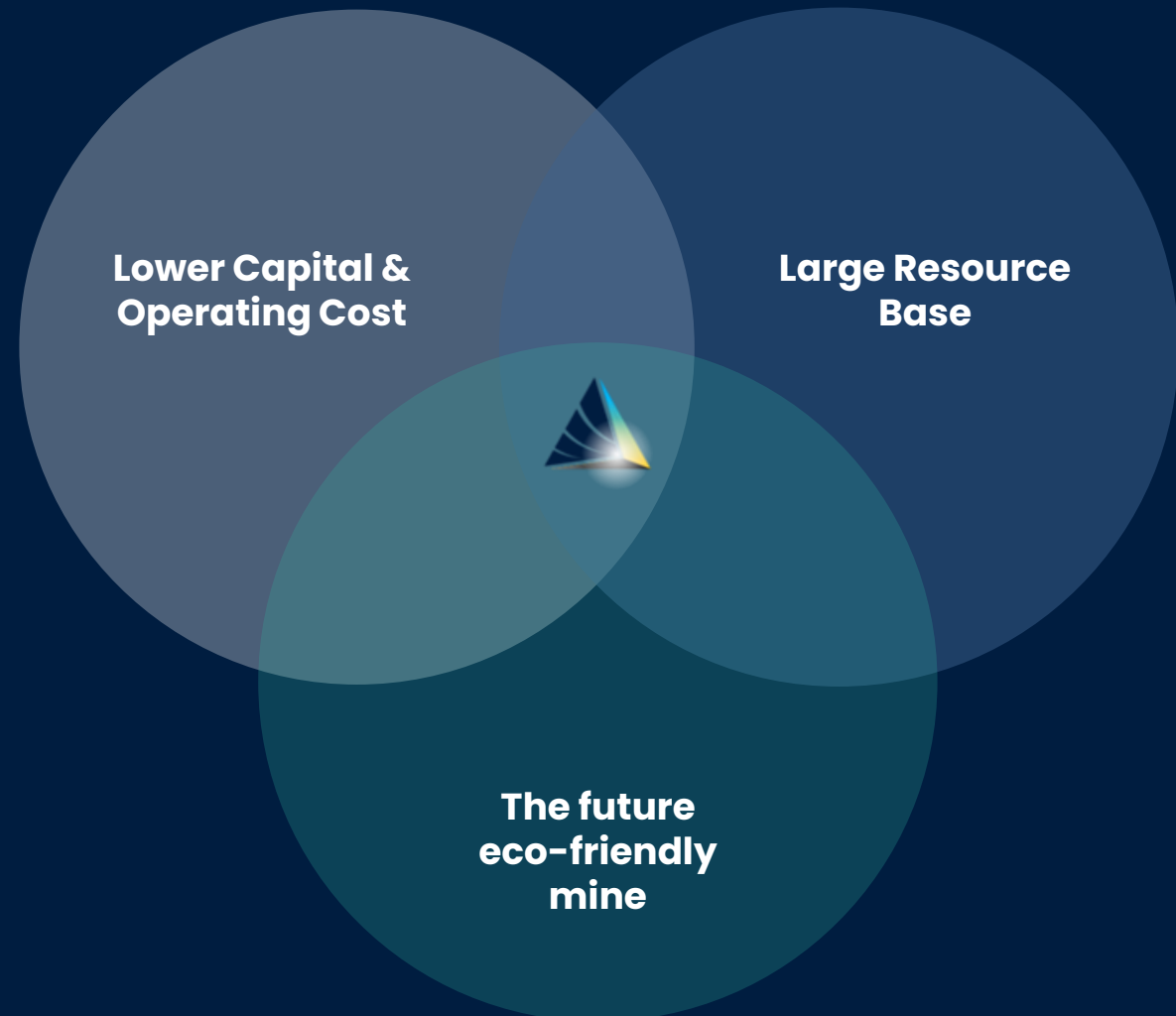
Lower Capex and Opex , Lower Cut-off Grade utilised, More material can be mined

Lower Capital

ISR offers a lower capital expenditure to first cash flow with no mining costs and fewer processing steps involved to final product.

Lower Impact Mining

No mining No blasting No waste rock, No noise, No dust and No large tailings dams or large open pits. Eco-friendly chemicals.



Most cost effective Environmentally friendly method of Mining



RIGHT
Geology

Weathering less
than 20m deep



RIGHT
Style of Mineralisation

Ore grades directly
above bedrock



RIGHT
Confining Layer

Non-fractured
bedrock at shallow
depths



RIGHT
Chemistry

High recoveries and
Ionic leaching



RIGHT
Reagents

Reagents with no detrimental
effects on the environment



RIGHT
Product

MREC with 99% purity



Brazilian
Critical Minerals



NO
Land Clearing



NO
Open Pit Mining



NO
Dirty Mining
Equipment



NO
Noisy Dusty Tuck
Haulage



NO
Large Processing
Facility



NO
Need for
Reclamation

In-Situ Leach potential



Evaluation work to date says we can

Deposit Required Conditions			Ema Applicability Evaluation	Remarks
Deposit Conditions	Parent Rock	Shallow crustal weathering	Excellent	Bedrock at 15-20m depth
	Deposit Permeability	Fine (1-3m / day)	Excellent	Initial testing confirms within range. More test work required to confirm
Hydrogeological conditions		The groundwater level coincides with the bedrock	Excellent	Water is free draining
Engineering Conditions	Occurrence of Bedrock	Full confining layer	Good	
	Dip angle of Ore	Gentle tilt	Excellent	
	Thickness of Ore	Thick	Excellent	5-10m orezones

In-Situ Mining



1 Magnesium Sulfate Solution is injected at top of orebody

2 Solution **extracts** REE's from orezone and runs along top of basement

3 Solution carrying REE's is **extracted** via pumps

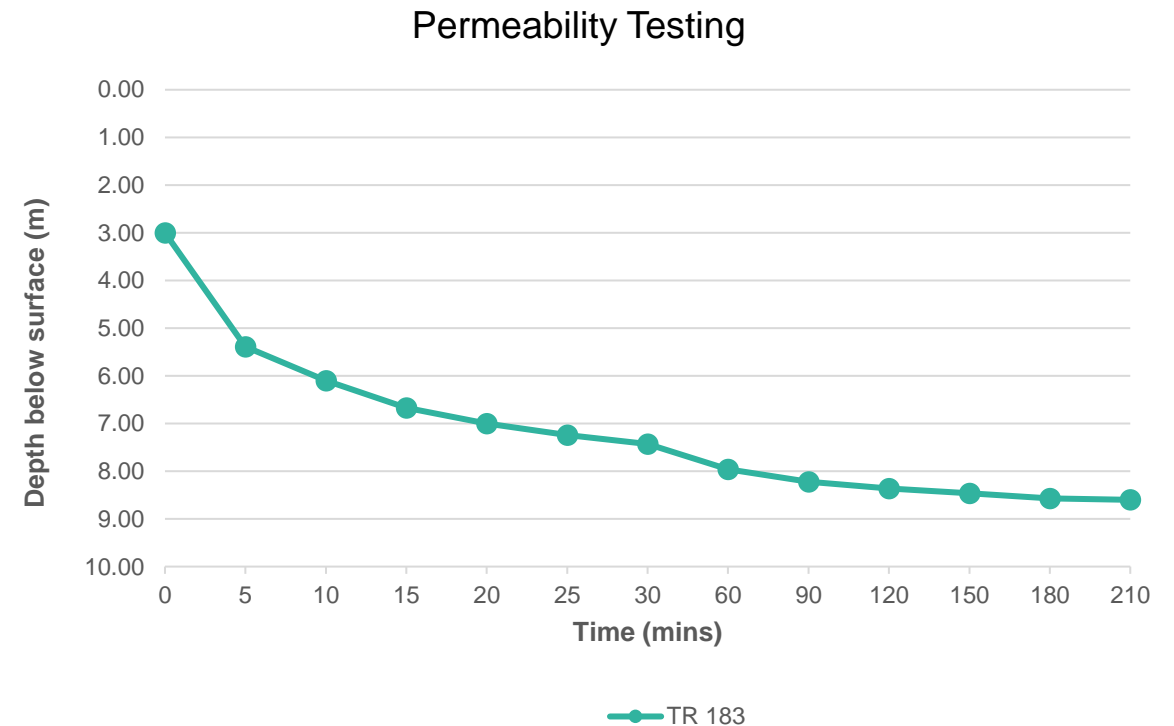
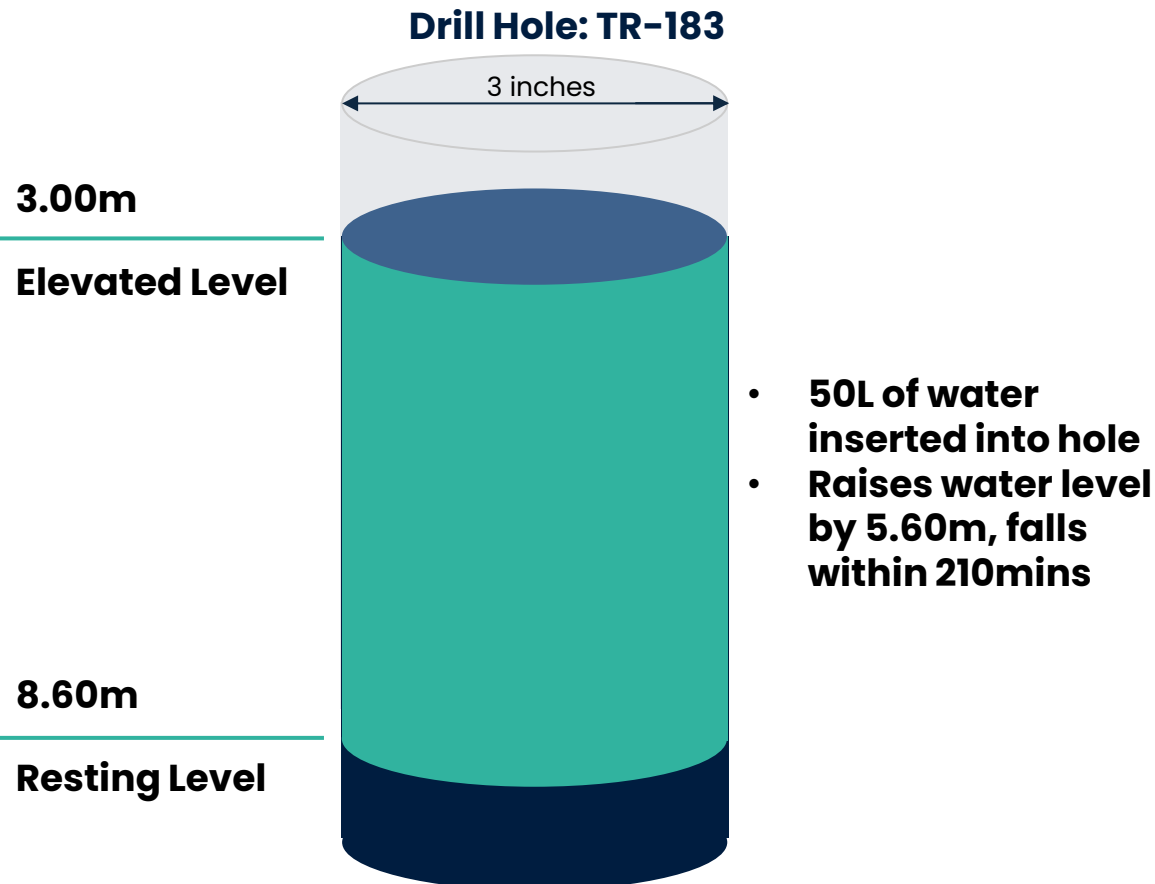
4 The **solution is removed of impurities** and precipitated to form **MREC**.



Field Permeability Testing



Evaluation of clayzone hydraulic conductivity elicits strong rapid response with very good percolation rates

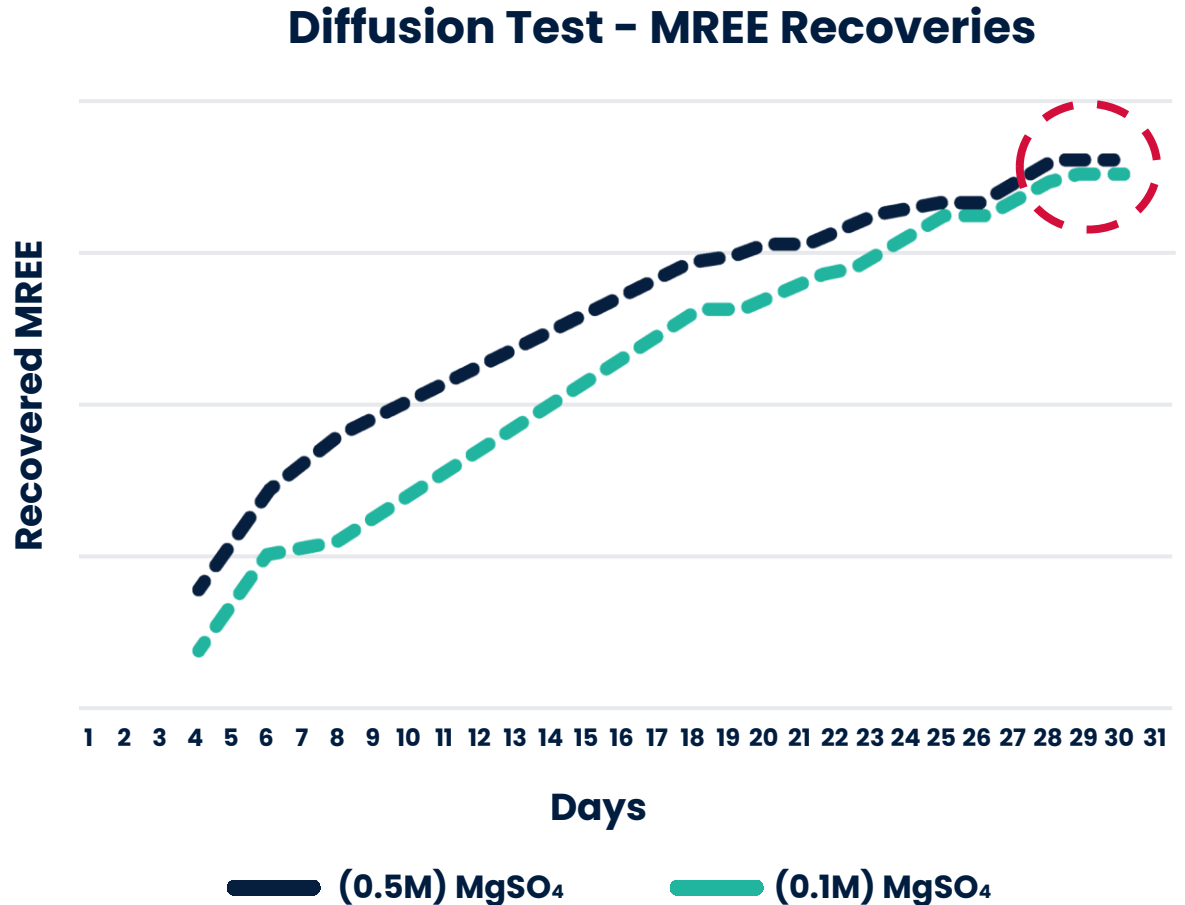
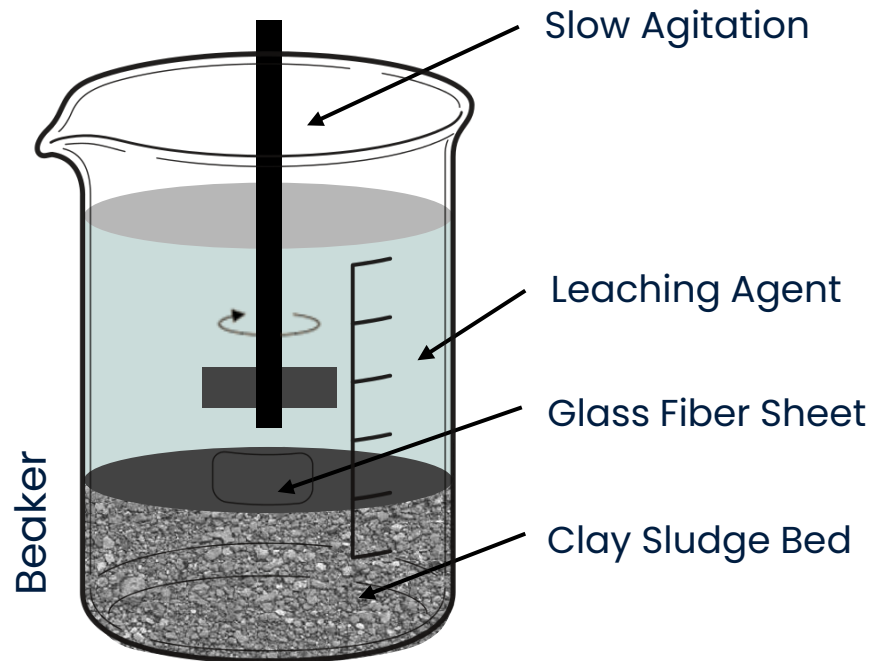


10 Holes completed to date with similar results

Field pumping trials to be conducted during Q3 & Q4

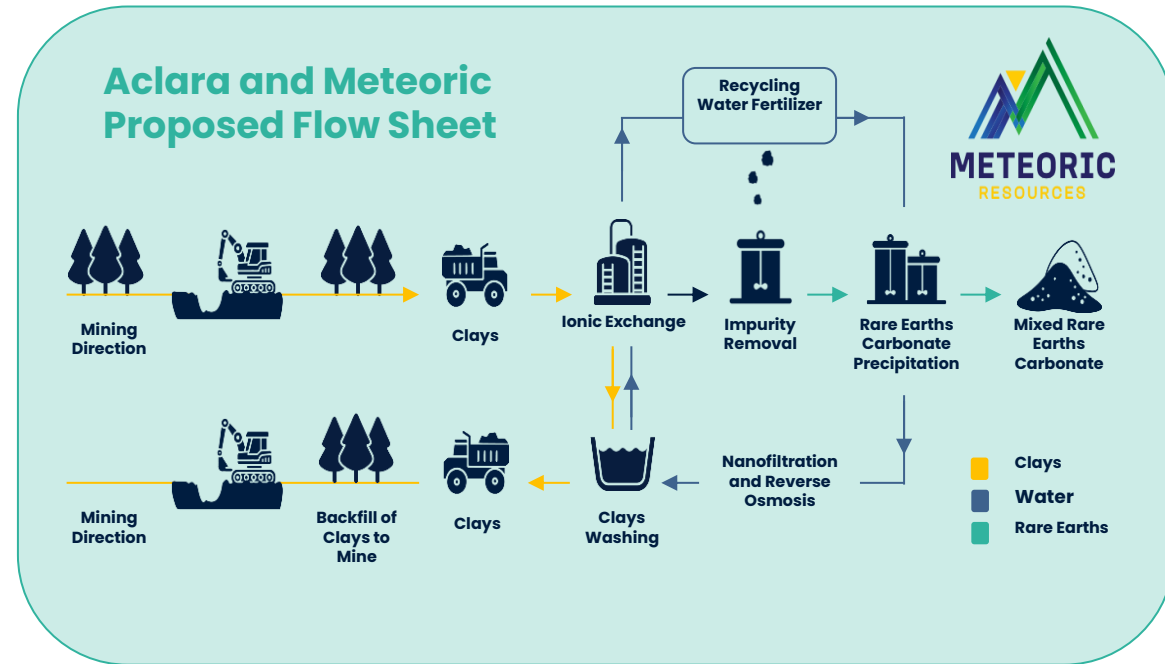
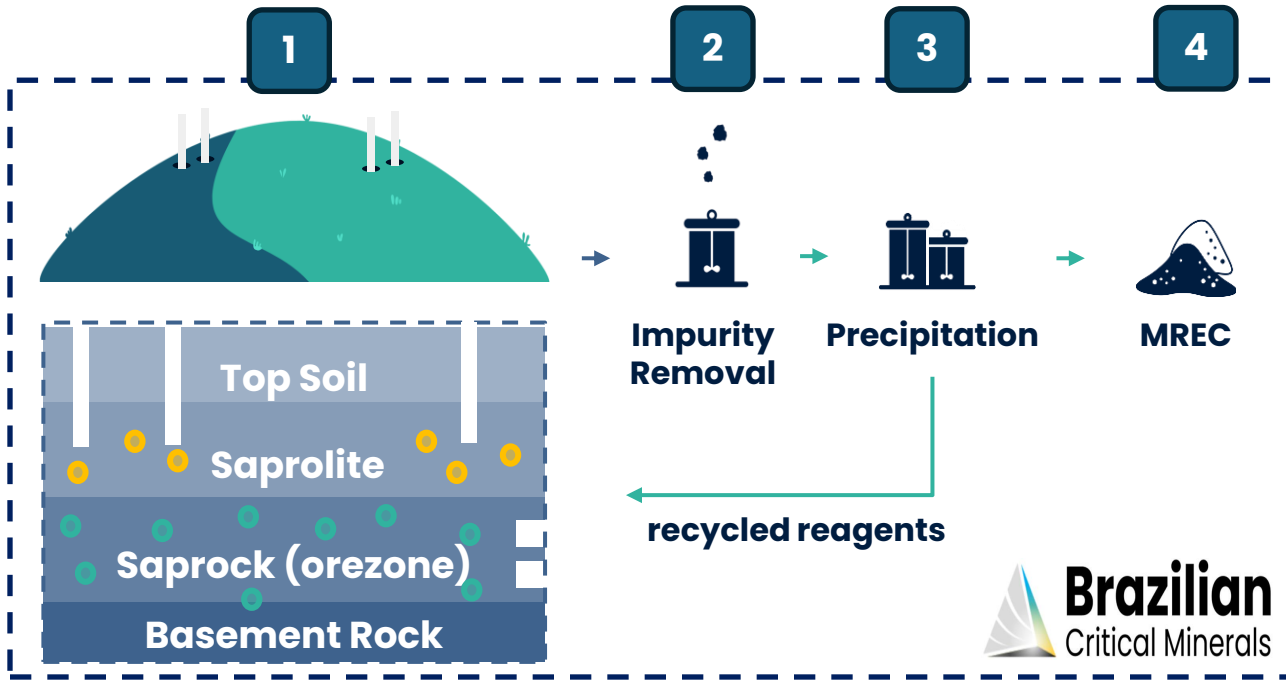
Lab Diffusion Testing

Test mimicks ISR (leaching in the ground)



- Test shows REE's flow through clay easily
- Results using different strength MgSO₄ reach same value after 30 days

Substantially Reduced Flow Sheet



Insitu leach
4 Step process flow sheet
Opportunities to substantially reduce
CAPEX and OPEX

Tank (VAT) leach
10 Step process flow sheet

Commercial ISR Projects Malaysia



ISR Mining Rare Earths in Malaysia

ISR construction and setup

- **I – inground leaching**
- **S – simple (tanks and pipes)**
- **R – rapid leaching kinetics enhance the viability**
- **Cost effective**
- **Quick establishment**
- **Low opex**



reagent storage

2

Impurity removal

3

Precipitation of REE's

4

Production of MREC

Magnesium Sulfate

Eco friendly reagent



Evaluation of $MgSO_4$ shows strong recoveries for

- **heap leaching – 63% MREE¹**
- **Diffusion testing – similar to Chinese deposits²**

Magnesium Sulfate	Amonium Sulfate
Fully water-soluble, and therefore immediately plant-available	Can be harmful to aquatic organisms upon long-term exposure
Magnesium is a metal which has a strong ionic bond compared to ammonium and aids leaching	losses of Ca, Mg and Al in the leaching process make it difficult for plants to grow
reduces production of ammonia nitrogen wastewater	can be harmful if used in excess
supply the Mg needed by soils	century-old industrial process that produces a lot of greenhouse gas
	impact of nitrogen accumulation on plant species diversity and composition

1. (ASX: BCM) Excellent Heap Leach Recoveries Ema Project 06.08.24

2. (ASX: BCM) Excellent Heap Leach Recoveries Ema Project 06.08.24


Leach Recoveries to Date



Test	Reagent	Target pH	Temp °C	Leach Duration	MREE (%)	Leaching Type
1	0.5 (NH ₄) ₂ SO ₄	4.5	ambient	2 hrs	68	VAT (tank) leaching
2	0.5M MgSO ₄	4.5	ambient	18 days	63	Heap Leaching
3	MgSO ₄	Field pumping trials to commence in Q4 2024				In-Situ Leaching

- In-situ leaching trials to commence in the coming months
- Leaching with Magnesium Sulfate is the most environmentally friendly reagent as it contains no nitrogen

Leach Impurities to Date



A horizontal timeline with five circular markers. The second marker from the left is highlighted in green, corresponding to the 'REE Leaching' stage in the table below.

	REE Mining	REE Leaching	Impurity Removal	REE Precipitation	MREC Production	
	Uranium (U)	Thorium (Th)	Aluminium (Al)	Iron (Fe)	Calcium (Ca)	Silica (Si)
mg/l	0.2	0.02	73	< 1	11	6

- Very low uranium and thorium values¹
- Impurities can be removed through simple pH adjustment in REE precipitation
- Final MREC product needs to meet European, North American and Asian offtake partner specification testing to advance discussions regarding commercial offtake.

Capex – Hard Rock vs Soft Rock Capex





Lower capital and operating costs

Cost efficiency



Minimal noise, dust, greenhouse gas impact

Responsible mining



Minimal visual disturbance

Minimal disruption



The most environmentally friendly way to mine

Green mining



Safer for mine workers and surrounding communities

Enhanced protection



No creation of open holes, waste dumps, leach pads or tailings

Waste-free operations



The Value of In-Situ Recovery

- Ionic REE are highly leachable
- Rapid leaching kinetics enhance the viability of lower cost ISR mining

Work fronts



Rare Earths

- Large auger drilling program underway – 240 holes
- Increase MRE from Inferred to Indicated
- Looking for 20 yr minelife as a minimum for scoping study
- MRE update Q4 2024

Rare Earths

- Environmental baseline study awarded
- ANSTO test work on impurity removal and final product precipitation has commenced
- Scoping Study to define economics awarded
- In-Situ leach lab and field trials testwork planning underway

Tax Incentive – Sudam



A hub for industrial activity in Brazil. Established in 1967

Incentive	Description	Requirements
Investments in Amazon Development Superintendence (SUDAM)	Reduces corporate income tax by 55% for a 10 year period	Approval by SUDAM (responsible regulatory agency)

“Corporate Income tax reduction from 34% to 15.25%.”

Corporate Overview



830_M

Shares on Issue

8_M

Performance Rights

1.4_c

Share Price (13/8/2024)

11.6_M

Market Cap

Board of Directors



Jeremy Robinson

Non-Executive Chairman



Andrew Reid

Managing Director



Abby Smith

Non-Executive Director



Brazil

Av. Jornalista Ricardo Marinho
360 Ed. Cosmopolitan Sala 113
CEP: 22631-350 Barra da Tijuca
– Rio de Janeiro – RJ – Brasil

Australia

Level 28, 140 St Georges Terrace,
Perth WA 6000

Thank You.

Appendix 1 – Mineral Resources



Company	Tonnes (Mt)	Grade (ppm)	Measured: Indicated: Inferred ratio (Mt)	Reference
BCM	1017	793	0 : 0 : 1017	Brazilian Critical Minerals (ASX:BCM) Massive Maiden Mineral Resource for Ema Project 22.04.24
Aclara	258	1,452	0 : 0 : 258	Aclara (TSX:ARA) Aclara announces 77% increase in inferred mineral resources at Carina Module In Goias, Brazil 09.08.24
Australian Rare Earths	186	712	0 : 0 : 186	Australian Rare EARTHS (ASX:AR3) 84% Increase in Resource for Koppamurra REE Project 19.03.24
Brazilian Rare Earths	485	1071	0 : 0 : 485	Brazilian Rare Earths (ASX:BRE) Prospectus - Part 1 19.12.23
Ionic Rare Earths	617	630	0 : 517 : 99	Ionic Rare Earths (ASX:IXR) Major Increase to Globally Significant Rare Earth Resource 23.06.20
Longnan	48	1,000	0 : 0 : 48	Research Reports
Meteoric	740	2,572	11 : 297 : 431	Meteoric Resources (ASX:MEI) Updated Figueira Mineral Resource Estimate 05.08.24
OD6 Metals	628	1,338	0 : 0 : 628	OD6 (ASX:OD6) Mineral Resource Estimate Upgrade Investor Presentation 29.05.24
Serra Verde	911	1,200	n/a	Research Reports
Harena Resources	628	895	0 : 0 : 628	https://harenaresources.com.au/ampasindava-rare-earth-projects/
VMM	201	2,590	0 : 62 : 139	Viridis Mining and Minerals (ASX:VMM) Globally Significant Colossus Rare Earth Ionic Adsorption Clay Project Maiden Mineral Resource Estimate 04.06.20
West Cobar Metals	83	1,117	0 : 39 : 151	West Cobar Metals (ASX:WC1) Salazar Clay - REE Resource Quadruples 09.08.23
Xinfeng	162	900	n/a	Research Reports
Xunwu	710	1,100	n/a	Research Reports

Appendix 2 – Capex Requirements **Brazilian** Critical Minerals

Company	Capital AUD\$M USD: AUD 0.7	Level of Assessment	Deposit Type	Final Product	Reference
Arafura	1,590	DFS	Hard Rock	oxides	Arafura Rare Earths Ltd (ASX:ARU) Nolans Project Update 11.11.22
Aclara	822	Scoping study	Ionic Clay	MREC	Aclara (TSX:ARA) Aclara delivers a positive PEA for its Carina project in Goias, Brazil 23.01.24
Hastings	948	DFS	Hard Rock	MREC	Hastings (ASX:HAS) YANGIBANA PROJECT UPDATE Staged development to reduce project delivery risk and enable faster pathway to cash flow 31.05.23
Ionic Rare Earths	173	DFS	Clay	MREC	Ionic Rare Earths (ASX:IXR) MAKUUTU STAGE 1 DFS CONFIRMS TECHNICAL AND FINANCIAL VIABILITY FOR SUSTAINABLE, LONG-LIFE OF MAGNET AND HEAVY RARE EARTHS, MAIDEN ORE RESERVE ESTIMATE 20.03.23
Meteoric Resources	600	Scoping study	Ionic Clay	MREC	Meteoric Resources (ASX:MEI) Caldeira Project Scoping Study confirms potential for the world's lowest cost source of rare earths with outstanding financial metrics 08.07.24