

FINAL DESORPTION SLURRY RESULTS FOR EMA RARE EARTH PROJECT VERY LOW IMPURITIES

Highlights

Final ANSTO optimised slurry leach assays have resulted in very low impurities:

Uranium = 0.2 mg/l
 Thorium = 0.02 mg/l
 Aluminium = 73 mg/l
 Iron = <1 mg/l
 Calcium = 11 mg/l, and
 Silica = 6 mg/l

- Slurry desorption tests were completed on the Ema project master composite, 50 kg of material collected from 12 holes and 62 samples³ to mimic a tank leaching project setup
- These results are a key step to achieving low impurities in the final product Mixed Rare Earth Carbonate (MREC)
- Final process steps of impurity removal then precipitation of REEs from solution to make the MREC have commence at ANSTO
- Slurry desorption results were achieved using standard weak 0.3 M ammonium sulfate leaching solution, pH 4.5, at ambient temperature, short leach times of only 30 minutes duration with a solid density of 40 wt%
- Four exploration auger rigs have commenced operating within the Ema central high-grade zone, over a 12-week program with first results expected during August
- Scoping Study and re-commencement of environmental baseline studies in final negotiation

Andrew Reid, Managing Director, commented:

"These results confirm BCM finds itself in the enviable position, after having completed a suite of tests under differing conditions with different reagents, that the Ema mineralisation has a fairly large window of conditions where rare earth recoveries and impurity concentrations are similar.

The unique characteristics of Ema means that BCM can now evaluate different processing strategies such as heap leaching and in-situ leaching on its journey towards a low CAPEX practical project solution that is tailored towards the current rare earth market and does not require pricing levels which are 2 or 3 times current spot levels as most projects now need. Testwork programs to prove these alternative process strategies have commenced.

The current drilling program is progressing smoothly and we expect to kick start the scoping study very shortly as we bed down the final criteria which will be used as the basis for the assessment".



Brazilian Critical Minerals Limited (ASX: BCM) ("BCM" or the "Company") is pleased to provide an update on work programs from Australia's Nuclear Science and Technology Organisation (ANSTO) with respect to the Ema Rare Earths Project which hosts an Inferred Mineral Resource¹ of **1.02Bt @ 793ppm** TREO.

Work being undertaken by ANSTO over the last several months has resulted in very high recoveries of NdPr² as was announced on the 7th May 2024. ANSTO has now reported the final slurry leach test results which confirm very low concentrations of deleterious or impurity elements.

Table 1. Impurity values following optimised testing and leaching of Ema master composite sample.

| | Uranium | Thorium | Aluminium | Iron | Calcium | Silica |
|------|---------|---------|-----------|------|---------|--------|
| mg/l | 0.2 | 0.02 | 73 | < 1 | 11 | 6 |

Impurity Levels

Impurities affect REE recovery and precipitation efficiencies and are therefore a vital component of the process to understand. Control of the most troublesome impurities (Al, Fe, Th, U) depends on their concentration and the degree of purity required in MREC.

Figure 1. Key steps in the process flow sheet for ionic clay MREC production. REE Leaching section highlighted represents stage of processing where results from Table 1. above were sourced.



The Company is now confident that these low uranium and thorium values can be removed through simple pH adjustment during the next stage of impurity removal leading to a final MREC product that meets European, North American and Asian offtake partners for specification testing to advance discussions regarding commercial offtake.

References

- ¹ Brazilian Critical Minerals (ASX:BCM) ASX Announcement "Massive Maiden Mineral Resource Estimate for Ema Project 22.04.24
- ² Brazilian Critical Minerals (ASX:BCM) ASX Announcement "World Leading Recoveries Confirmed at Ema Project 07.05.24
- ³ Brazilian Critical Minerals (ASX:BCM) ASX Announcement "World Class REE Recoveries at Ema project" 13.03.24



Competent Person Statement

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.

About Brazilian Critical Minerals Ltd

Brazilian Critical Minerals Limited (BCM) is a mineral exploration company listed on the Australian Securities Exchange.

Its major exploration focus is Brazil, in the Apuí region, where BCM has discovered a world class Ionic Adsorbed Clay (IAC) Rare Earth Elements deposit. The Ema IAC project is contained within the 781 km² of exploration tenements within the Colider Group.

BCM has defined an inferred MRE of **1.02Bt** of REE's with metallurgical recoveries averaging **68%** MREO some of the highest for these types of deposits anywhere in the world.

The Company is currently converting this MRE from Inferred into the Indicated category with an extensive drill program which will inform the scoping study and economic analysis due for completion in late 2024.





Appendix 4

The following Table and Sections are provided to ensure compliance with JORC Code (2012 Edition).

JORC (2012) Table 1 – Section 1: Sampling Techniques and Data for auger hole drilling

| Item | JORC code explanation | Comments |
|---------------------|--|--|
| Sampling Techniques | Nature and quality of sampling (eg 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 representativity 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 (eg '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 | Metallurgical results are for a 49.6 kg composite sample of 12 auger holes, from the drilling conducted by BCM's exploration team during 2023, conducted at ANSTO, Sydney, Australia. 0.8 kg of the homogenized sample from each interval, was used to make the composite. The preparation of the composite was supervised by a BCM geologist. Holes were sampled using a powered auger drill (open hole) conducted by BCM's exploration team. Sampling was supervised by a BCM geologist or field assistants. Every 1-metre sample was collected in a raffia bag in the field and transported to the exploration shed to be dried in the sun, prior to homogenisation. Samples were homogenised and subsequently riffle split with about 1 kg sent to SGS for preparation and analysis and a similar amount stored on site. 1 certified blank sample. 1 certified reference material (standard) samples and 1 field duplicate sample were inserted into the sample sequence for each 25 samples. |



| Item | JORC code explanation | Comments |
|-----------------------------|--|---|
| | required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information. | |
| Drilling Techniques | Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc). | Auger drilling was completed by a hand held mechanical auger with a 3" auger bit. The drilling is an open hole, meaning there is a significant chance of contamination from surface and other parts of the auger hole. Holes are vertical and not oriented. The maximum depth achieved with the powered auger was 31m, and this was only achievable if the hole did not encounter fragments of rocks/boulders etc. sitting within the weathered profile, and/or the water table. Final depths were recorded accordingly to the length of the rods in the hole. |
| 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. | No recoveries are recorded. The operator observes the volume of each metre and notes any discrepancy. When recovery is below 75% in two sequential one metre interval, the field crew stops the drill hole. No relationship is believed to exist between recovery and grade. |
| 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. | All holes were logged by BCM geologists or field technicians, detailing the colour, weathering, alteration, texture and any geological observations. Care is taken to identify transported cover from in-situ saprolite/clay zones and the moisture content. Logging was done to a level that would support a Mineral Resource Estimate. Qualitative logging with systematic photography of the stored box. |



| Item | JORC code explanation | Comments |
|---|---|--|
| | Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography. The total length and percentage of the relevant intersections logged. | The entire auger hole is logged. |
| Sub- Sampling Techniques and Sampling Procedures | 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 subsampling stages to maximise representativity 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. | The homogenised sample was screened/crushed to 100% passing 1 mm and rotary split into representative portions for head assay, screening and desorption testing. Samples for head assay and desorption testing were pulverised. The composite sample was prepared in the Apui exploration facility with 0.8 kg of each mineralized interval previously homogenized from 12 auger holes, then homogenised and split in three plastic bags which were then sealed prior to shipment to Catalão and then to ANSTO by regular mail. The 0.8 kg sample size is adequate to represent each individual samples in the composite. The homogenised sample was screened/crushed to 100% passing 1 mm and rotary split into representative portions for head assay, screening and desorption testing. Samples for head assay and desorption testing were pulverised. 6 aliquots used for the first diagnostic ammonium sulfate leaching, under different parameters for the ammonium sulfate concentration and pH, all for 2 hours in ambient temperature and pressure. Auger sampling procedure is completed in the exploration shed in Apui. The entire one metre sample is bagged on site, in a raffia bag which is transported to the exploration shed, where it is naturally dried prior to homogenisation, then quartered to about 1kg to go to SGS and another 1kg to store on site. The composite sample was from the 1 kg sample stored on site. Sample preparation for the composite, such as pulverization and homogenization of the 49.6 kg was conducted at ANSTO. Sample preparation for the auger samples was conducted at SGS Vespasiano (greater Belo Horizonte) comprising oven drying, crushing of entire sample to |



| Item | JORC code explanation | Comments |
|--|---|---|
| Quality of | • The nature quality and | 75% < 3 mm followed by rotary splitting and pulverisation of 250 to 300 g at 95% minus 150# The <3 mm rejects and the 250-300 g pulverised sample were returned to BCM for storage, after all assays were reported. The assays for REE in the ammonium solution from the |
| 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 (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established | The assays for REL in the ammonium solution from the 6 leaching tests and for the head grade were conducted by ANSTO. All data reported from ANSTO were in elemental form including the TREY and presented in this announcement as received. ALS introduced its own QA/QC controls, incorporating standards, blanks and duplicates. The ALS method for analysis of REEs in solution was ME-MS02 (ICP-MS) and for head assay was ME-MS81 (lithium tetraborate fusion digest/ICP-MS finish). Gangue elements in solution were assayed by ICP-OES at ANSTO and gangue elements in the head sample by XRF at ANSTO. 1 blank sample. 1 certified reference material (standard) sample and 1 field duplicate sample were inserted by BCM into each 25-sample sequence. Standard laboratory QA/QC procedures were followed. including inclusion of standard. duplicate and blank samples. The assay results of the standards fall within acceptable tolerance limits and no material bias is evident. The assay technique used for REE's was lithium tetaborate fusion / ICP-MS finish (SGS code ICP95A and IMS95A). This is a recognised industry standard analysis technique for REE suite and associated elements. Elements analysed at ppm levels: Ba Ce Co Cs Dy Er Eu Ga Gd Hf Ho La Lu Nb Nd Pr Rb Sm Sn Sr Ta Tb Th Tm U V W Y Y Yb Zr Zn Co Cu Ni The sample preparation and assay techniques used are industry standard and provide total analysis. The ICP95A reports the major elements oxides used to calculate the Chemical Index of Alteration (CIA) at % levels: Al2O3 CaO Cr2O3 F2O3 |



| ltem | JORC code explanation | | | C | omments | | |
|---------------------------------------|---|---|--|--|--|--|---|
| | | | K2O | MgO | MnO | Na2O | |
| | | | P2O5 | SiO2 | TiO2 | | |
| | | • | and 14001 a Analytical si material in a The assay with the ce no bias is ex The blanks elements Co Duplicate si numbers an as the prim results is co is evident. Laboratory were analys | tand 17025 tandard fo the batche results for rtified leve vident. s used co e. Nd. Dy a samples w nd submitte hary sampl onsidered a inserted s sed as per i | ed for the RI accredited. r REE ITAK-7 is sent to SGS the standards of accuracy antain some and Y present acceptable acceptable acceptable acceptable affrom these results. | of was used S. rds were concept and precent to separate ame analyting between and no samplanks and didard practices. | d as CRM consistent ision and n critical cantities. e sample cal batch duplicate pling bias uplicates |
| 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. | • | and assayin The metallu in Australia Analytical directly fro BCM's Explo No twinned Geological of to Excel sp transferred Access is us and incorpo integrity che the Microso No adjustm All REE ass element for Conversion | g procedular graces of elements of elements of elements of section of elements of the section of elements of eleme | egged onto poss at end of drill hole of tabase storage nerous data say data is in | ed out. directly to B e supplied y in Vespa de Janeiro. aper and tra f the day a database. N ge and man validation mported dire e data. m the labo ta entry. EE) to stoich | digitally, siano to ansferred and then dicrosoft agement and data ectly into aratory in niometric |



| ltem | JORC code explanation | | Comments | |
|------|-----------------------|------------------------------------|--|---|
| | | | es/element-to-stoic | ndvanced-analytical- chiometric-oxide- |
| | | Element ppm | Conversion Factor | Oxide Form |
| | | Ce | 1.2284 | CeO2 |
| | | Dy | 1.1477 | Dy2O3 |
| | | Er | 1.1435 | Er2O3 |
| | | Eu | 1.1579 | Eu2O3 |
| | | Gd | 1.1526 | Gd2O3 |
| | | Но | 1.1455 | Ho2O3 |
| | | La | 1.1728 | La2O3 |
| | | Lu | 1.1371 | Lu2O3 |
| | | Nd | 1.1664 | Nd2O3 |
| | | Pr | 1.2082 | Pr6O11 |
| | | Sm | 1.1596 | Sm2O3 |
| | | Tb | 1.1762 | Tb4O7 |
| | | Tm | 1.1421 | Tm2O3 |
| | | Υ | 1.2699 | Y2O3 |
| | | Yb | 1.1387 | Yb2O3 |
| | | reporting rare e | e is the industry ac arths. The followir ing REO into their i ps: | g calculations are |
| | | Pr6O11 + Nd2O | | 12O3 + CeO2 + 3 + Gd2O3 + Tb4O7 03 + Yb2O3 + Y2O3 + |
| | | LREO (Light Rare Pr6O11 + Nd2O | e Earth Oxide) = La 3 | 2O3 + CeO2 + |
| | | | - | Sm2O3 + Eu2O3 + + Er2O3 + Tm2O3 + |
| | | CREO (Critical R Tb4O7 + Dy2O3 | are Earth Oxide) = + Y2O3 | Nd2O3 + Eu2O3 + |
| | | (From U.S. Depa Strategy, Decem | artment of Energy, nber 2011) | Critical Material |
| | | MREO (Magneti + Tb4O7 + Dy2C | | e) = Nd2O3 + Pr6O11 |
| | | NdPr = Nd2O3 + | - Pr6O11 | |
| | | DyTb = Dy2O3 + | · Tb4O7 | |
| | | | m the classificatio | ns are: |



| Item | JORC code explanation | Comments |
|---|--|--|
| Location of Data Points | Accuracy and quality of | TREE: La+Ce+Pr+Nd+Sm+Eu+Gd+Tb+Dy+Ho+Er+Tm+Tb+Lu+Y HREE: Sm+Eu+Gd+Tb+Dy+Ho+Er+Tm+Tb+Lu+Y CREE: Nd+Eu+Tb+Dy+Y LREE: La+Ce+Pr+Nd • Auger collar locations were surveyed initially by GPS, at |
| Data Points | 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. | Posterior to the end of the drilling campaign, the collar locations were picked up by a licensed surveyor using a Trimble total station (+/- 5cm), referenced to a government survey point. All drill holes have been checked spatially in 3D. The grid system used for all data types in a UTM projection is SIRGAS Zone 21 Southern Hemisphere. No local grids are used. The auger holes collar coordinates for the holes used in the resource estimation were surveyed to subdecimetre accuracy by a licenced surveyor. |
| 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. | Auger holes were over 200m to 800m apart, designed for testing iREE mineralisation over the mapped felsic volcanics. The data spacing and distribution is sufficient to establish the level of REE elements present in the target area and its continuity along the regolith profile appropriate for a Mineral Resource. No sample composition was applied. |
| 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 | The location and depth of the sampling is appropriate for the deposit type. Relevant REE values are compatible with the exploration model for ionic REEs. No relationship between mineralisation and drilling orientation is known at this stage. |



| ltem | JORC code explanation | Comments |
|---------------------|--|--|
| | mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material. | |
| Sample security | The measures taken to ensure sample security. | The auger samples in sealed plastic bags were sent directly to SGS by bus and then airfreight. The Company has no reason to believe that sample security poses a material risk to the integrity of the assay data. |
| Audit or Reviews | The results of any audits or reviews of sampling techniques and data. | The sampling techniques and data have been reviewed by the Competent Person and are found to be of industry standard. |



JORC (2012) Table 1 - Section 2: Reporting of Exploration Result

| 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 Ema and Ema East leases are 100% owned by BCM with no issues in respect to native title interests, historical sites, wilderness or national park and environmental settings. The Company is not aware of any impediment to obtain a licence to operate in the area. |
| Exploration done by Other Parties | Acknowledgment and appraisal of exploration by other parties. | Some non-listed entities have conducted limited exploration in the region. No results are publicly available. |
| Geology | Deposit type, geological setting and style of mineralisation. | The REE mineralisation at Ema is contained within the tropical lateritic weathering profile developed on top of felsic rocks (rhyolites), as per the Chinese deposits. The REE mineralisation is concentrated in the weathered profile where it has dissolved from the primary mineral, such as monazite and xenotime, then adsorbed on to the neo-forming fine particles of aluminosilicate clays (e.g. kaolinite, illite, smectite). This adsorbed iREE is the target for extraction and production of REO. |
| 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 | Auger hole locations and diagrams are presented in this announcement. Details are tabulated in the announcement. |



| Criteria | JORC code explanation | Commentary |
|---|---|---|
| | 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. | |
| Data aggregation methods | In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated. | Weighted averages were calculated for all intercepts and announced. No metal equivalent values reported. |
| | 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. | |
| Relationship between mineralisation widths and | These relationships are particularly important in the reporting of Exploration Results. | Significant values of desorbed REE were reported for the auger samples. Mineralisation orientation is not known |
| intercepted lengths | If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported. | at this stage, although assumed to be flat. The downhole depths are reported, true widths are not known at this stage. |
| | If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known'). | |



| Criteria | JORC code explanation | Commentary |
|---|---|---|
| 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 hole collar locations and appropriate sectional views. | Maps and tables of the auger hole location and target location are inserted. |
| 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. | Relevant REE mineralisation with grades higher than 500ppm TREO in auger holes was reported and previously announced. All mineralized intercepts used in the composite are reported. Only the relevant metallurgical recoveries are published in table 1 in body of report. |
| 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. | No other significant exploration data has been acquired by the Company. A maiden Inferred resource was published to the ASX on 22nd April 2024. |
| Further Work | The nature and scale of planned further work (eg 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 | Infill drilling to upgrade the MRE. Additional metallurgical test work is planned at ANSTO – Sydney. |



| Criteria | JORC code explanation | Commentary |
|----------|---|------------|
| | interpretations and future drilling areas, provided this information is not commercially sensitive. | |