

First Stage Metallurgical Results Confirm Ionic Rare Earths and Gallium Recoveries at Caladão Project

HIGHLIGHTS:

- Initial metallurgical test work completed by ANSTO on only two diamond drill samples (DDH-018 and DDH-036, 2km apart) showed positive recoveries by desorption of Rare Earth Elements (REE) using simple, low-cost sodium chloride (NaCl) and ammonium sulfate (AMSUL) leaching methods at pH 4
- Strong recoveries of high value magnet rare earth elements¹ (Nd, Pr, Dy, Tb) achieved, up to 52% from first-pass tests. This mirrors initial recovery efficiencies reported from other global ionic clay REE deposits
- Results confirm a considerable portion of the REE at Caladão are adsorbed onto clays allowing recovery by a simple leaching process

DDH-018 – Confirmed Ionic Adsorption Clay REE

- Excellent REE desorption was achieved at DDH-018 using a standard ammonium sulphate solution at pH 4, crucially confirming that the high-grade Caladão Project contains *Ionic Adsorption Clay (IAC) REE*
- High value magnetic rare earths (MREO) average head grades of 632ppm MREO over 18m demonstrating exceptional thickness

DDH-036 – Exceptional Heavy Rare Earths (HREE) + Yttrium in Primary and Secondary REE phases

- High MREO content including up to 139 ppm DyTb and substantial Yttrium concentrations recoverable via acid leach

Strong First-Pass Gallium Recoveries

- Strong initial gallium recovery results, achieving 25% through acid leaching in preliminary tests
- Elevated near-surface gallium grades in DDH-036 suggests supergene enrichment
- Ongoing test work underway to develop a dedicated low-cost gallium recovery process

Next Steps

- Ongoing development of a simple, two-stage heap leach process designed for low CAPEX and OPEX operations, significantly reducing environmental footprint
- Partnership secured with CETEM (Centro de Tecnologia Mineral), a Federal Research Center dedicated to technological innovation for the mineral industry, to carry out further metallurgical investigations for gallium and REE of the Caladão Project
- ANSTO partnership continues to progress metallurgical test work aimed at utilising heap leach to optimise previous leach recoveries, impurity removal and precipitation tests for REE
- Maiden JORC Inferred Resource for Area A expected late July / August 2025

¹ MREO (Magnetic Rare Earth Oxide) = Nd₂O₃ + Pr₆O₁₁ + Dy₂O₃ + Tb₄O₇

Non-Executive Chairman, Paul Dickson, commented:

“We are genuinely excited by these first pass results, which confirm Caladão’s potential to host both ionic and non-ionic rare earths, as well as gallium - all shaping to be recoverable through straightforward leaching techniques. Factoring in the high-grade nature of our REE and gallium intercepts to date, the recovered values of MREO and gallium from these high first pass head grades is in line with world class projects.

The use of low-cost reagents like NaCl and AMSUL, combined with the absence of complex mining requirements, positions Axel incredibly well to develop a low-CAPEX, low-OPEX operation with strong environmental credentials.

With the growing global focus on supply chain diversification outside China, we believe Caladão has the foundations to become one of the largest and most strategically significant rare earth and gallium projects globally.”

Axel REE Limited (**ASX: AXL, FSE:HN8, “Axel” or “the Company”**) is pleased to announce that the first metallurgical diagnostic test work completed at ANSTO on 3 meter composites from 2 diamond holes, **2 km apart** (Figure 1, Appendix 2) has successfully leached ionic adsorption clay rare earths (**IAC**) by standard ammonium sulphate (**AMSUL**) leach at pH 4 for 30 min with similar recoveries using NaCl under the same conditions.

Acid leach tests were conducted on diamond drill holes DDH-018 and DDH-036 and in a composite with gallium, with promising results to recover both IAC REE (DDH-018) and REE from the primary and secondary REE minerals (DDH-036), as well as gallium, under acid leach conditions (Figure 2).

Due to the significant distance between the two holes tested and large-scale REE-Gallium project area (over >65km²), the metallurgical results from these two holes can not be extrapolated across any area in the project at this stage and only represent a style of REE mineralisation in the immediate vicinity to each sampled hole.

Gallium Opportunity

Axel’s gallium zones, unexpectedly rich and now confirmed recoverable by acid leach, may position the Company to become a significant supplier of this globally critical, high-value metal.

Unlike traditional gallium producers (residues from bauxite or sphalerite/zinc ores), Caladão’s gallium is hosted in weathered laterite over granite, reflecting a novel and attractive geochemical context. The presence in the soils and saprolite environment offers potential for hydrometallurgical extraction, via acid leach, in conjunction with the REE, generating gallium as a co-product alongside REE - an uncommon and cost-effective dual-commodity strategy.

Initial testing indicates up to 25% gallium recovery via acid leaching, underscoring significant potential for supergene-enriched gallium production. The acid leach method demonstrated that gallium extraction significantly increases with acidity and longer leach duration, indicating further optimisation potential.

This initial recovery highlights the project’s potential for a dedicated gallium production stream, complementing the extraction of rare earth elements and enhancing overall project economics.



Figure 1 - Map of central Area A with location of DDH-018 and DDH-036.

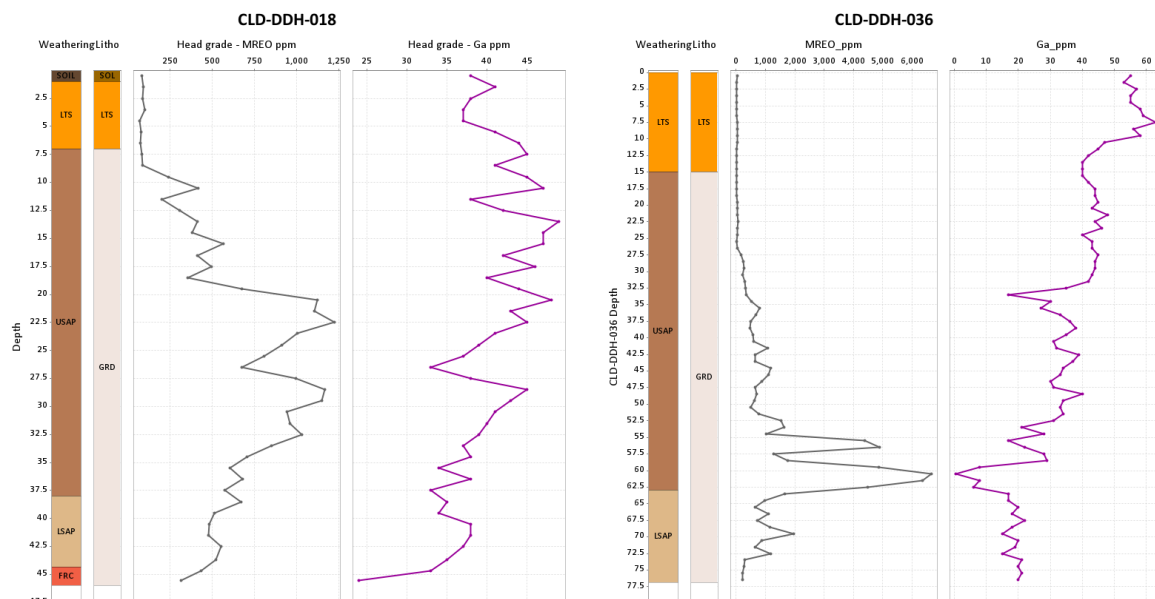


Figure 2 – Strip log of DDH-18 and DDH-36

Low Cost, Low Impact Development Strategy

Axel is reviewing the potential for a simple two-stage heap leach process utilising readily available reagents (NaCl or ammonium sulfate). The first stage at pH 4 and the second one increasing the acidity to extract additional REE and gallium. This novel approach may significantly lower environmental impacts and operational costs, aligning with global ESG standards.

The proposed heap leach process requires **no drilling, blasting, crushing, or milling, and no tailings dam**, greatly reducing environmental impact and capital expenditure requirements. The process to collect the Pregnant Leach Solution (**PLS**) is gravity-fed, with PLS flowing naturally from the various leach pads in the plateaus to a central processing plant - enhancing operational simplicity and sustainability.

Further work will include:

- Finalisation of maiden JORC Inferred Resource Estimate for Area A in the coming weeks;
- Development of two-stage heap leach processing flowsheet at ANSTO for both IAC REE and gallium;
- Metallurgical testing for alternative processes to recover the proportion of non-ionic REE;
- Ongoing gallium-focused metallurgical testing at CETEM;
- Infill drilling to support resource classification upgrade;
- Commencement of baseline environmental studies to expedite project permitting.

CETEM Partnership for Gallium Concentration Study

Axel has engaged Brazil's national mineral technology research centre, Centro de Tecnologia Mineral (**CETEM**), to conduct a detailed characterization and concentration study of gallium-bearing material from the Company's Caladão Project. The study will focus on evaluating the use of magnetic separation techniques to concentrate gallium, a critical metal of growing global strategic importance.

Under the agreement, approximately 5 kg of ore selected by AXEL will be analysed at CETEM's laboratories in Rio de Janeiro. The program includes chemical mapping, particle size distribution, mineralogical studies via XRD and MLA, and magnetic separation tests using high-gradient magnetic equipment. The study will be executed over a 6-week period and all intellectual property generated will remain the property of Axel.

Metallurgical Results

39 composites (Appendix 2) representing 3 metres each from two diamond drill holes (DDH-018 and DDH-036) from the Caladão Project Area A, **2 km apart**, were leached at ANSTO by 0.5 Mol ammonium sulphate as lixiviant at pH 4, for 30 min at ambient temperature.

The tests on the 3m composites from the two diamond drill holes showed the presence of IAC REE in the DDH-018 (Figure 3) in the desorbed zone returning strong recoveries of IAC magnetic rare earths by AMSUL up to 48% and 52% using NaCl (Table 1) from an interval of 18 metres with 632ppm MREO average from which 249ppm MREO was leached, representing a high grade nominal extracted MREO compared to other IAC projects.

A high average grade of 395ppm MREO remained in primary or secondary mineral phases mixed with clays that contained high Dy and Tb grades that could be recovered under a varied acid condition.

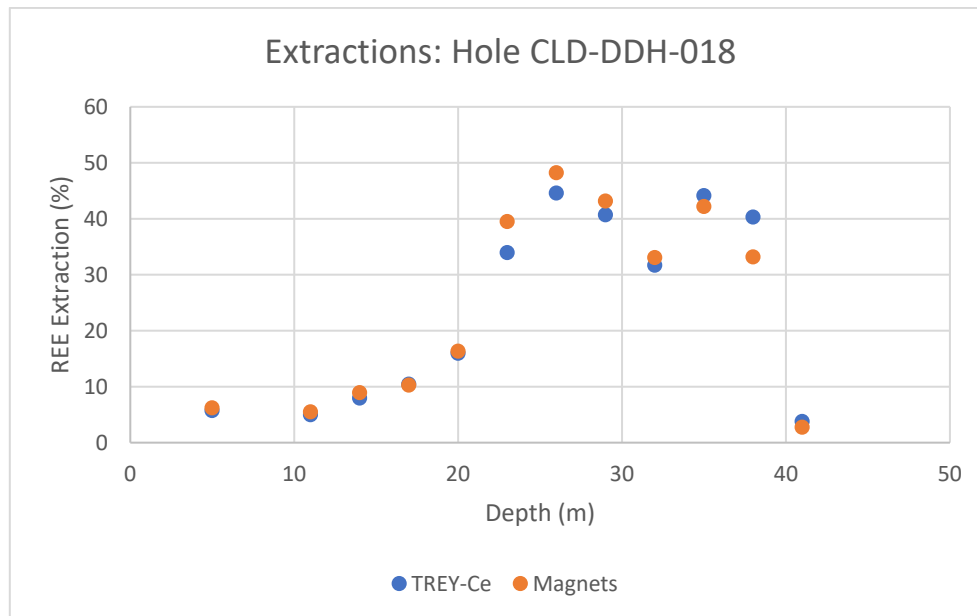


Figure 3 - Down hole extraction of IAC rare earths from regolith profile.

Extraction of magnetic REEs increased with depth up to 35m proportional of desorbable REE with depth for CLD-DDH-018 hole (Appendix 2).

Desorption tests were conducted also by 1.5M NaCl solution on 6 selected composites from hole DDH-018, with results similar to the ammonium sulphate leachate (Table 3), which is relevant as NaCl is easy to source in Brazil and a potentially cheaper alternative.

SampleID	Head Grade	Ammonium Recovery		NaCl Recovered	
	MREO ppm	MREO ppm	MREO %	MREO ppm	MREO %
CLD-COMP-007	796	314	39.5	323	40.6
CLD-COMP-008	594	287	48.2	312	52.4
CLD-COMP-009	665	287	43.2	300	45.1
CLD-COMP-010	688	228	33.1	204	29.7
CLD-COMP-011	641	270	42.2	270	42.2
CLD-COMP-012	409	136	33.2	146	35.7
Average	632	254	39.9	259	41.0

Table 1 - Ionics recovered by NaCl and AMSUL leaching test on diamond drillhole CLD-DDH-018.

Exceptional nominal average recovered grade of 259ppm MREO for 41% recovery using NaCl on 18 meters of hole DDH-018.

The DDH-036 did not show significant IAC REE in the leaching test at pH 4, retaining exceptional high average MREO grades up to 1,125ppm MREO in the primary or secondary mineral phases within the saprolite. The exceptional values of Dy and Tb up to 139ppm with high Yttrium in this hole demonstrated a significant heavy REE (**HREE**) mineralisation style.

Additional tests were conducted in four selected samples from DDH-036 for leaching at higher acidity to improve REE recovery (Figure 4). Leach tests were conducted at 4wt% slurry density on pulverized ore in 0.5M (NH₄)₂SO₄ at room temperature. The pH was decreased from pH 1.5 (for 1 h) and then to pH 1. The test was then maintained at pH 1 for 5 days.

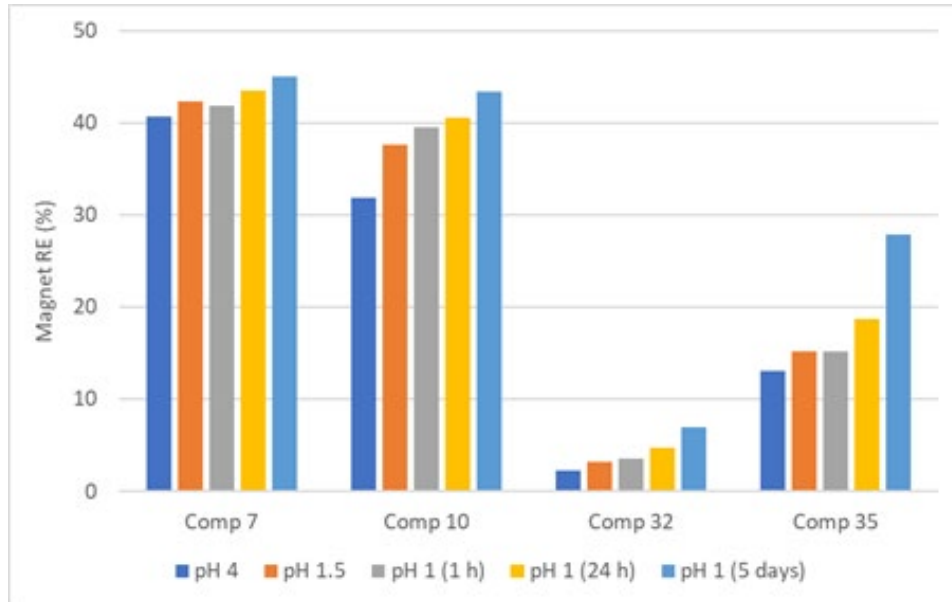


Figure 4 - Acid leaching progress for Magnet REE.

Magnet extraction from composite 35 from hole DDH-036 had a steady increase in recovery under acid leaching achieving 28% recovery after 5 days, opening a new front to recover REE from non-ionic REE mineralisation at the Caladão project.

There was no gallium recovery under leaching (AMSUL) at pH 4 but gallium was extracted in acid leaching with extraction enhanced with leach duration (Figure 5). The varied gallium extraction despite similar grades suggest different gallium mineralisation, where a systematic increase in grade from surface is clearly seen in hole DDH-036. This indicates a supergene enrichment following the same behaviour of iron.

The definition of the mineralogical association, in progress, of gallium in this oxidized horizon is crucial to work out a potential concentration method from where it can be extracted with low costs.

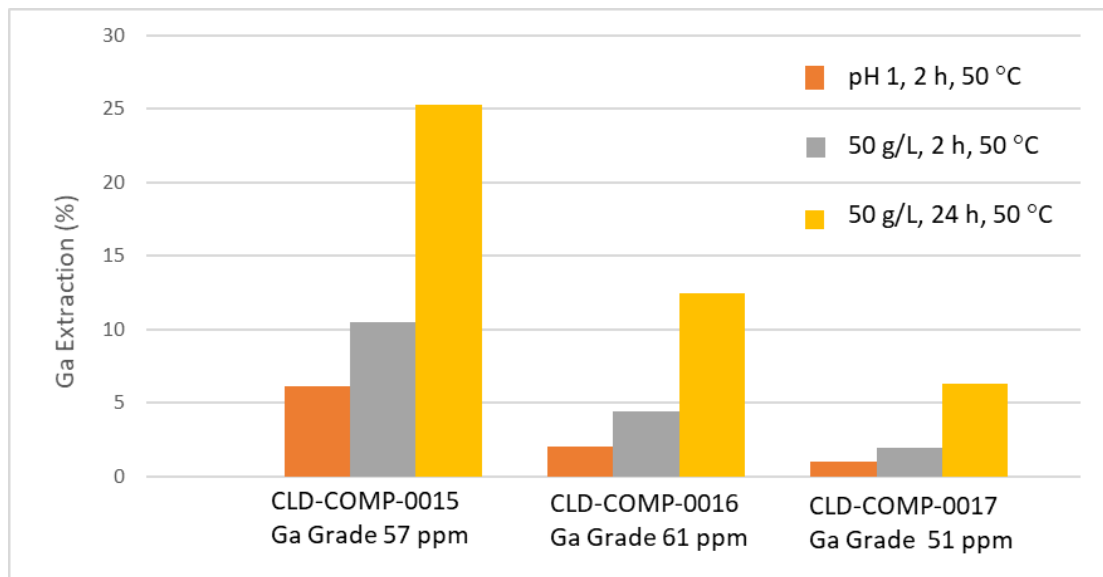


Figure 5 - Acid leaching progress for gallium.

This announcement was authorised by the Board of Directors.

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About Axel REE

Axel REE is an exploration company which is primarily focused on exploring the Caladão REE-Gallium and Caldas REE Projects in Brazil. Together, the project portfolio covers over 1,000km² of exploration tenure in Brazil, the third largest country globally in terms of REE Reserves.

The Company's mission is to explore and develop REE and other critical minerals in vastly underexplored Brazil. These minerals are crucial for the advancement of modern technology and the transition towards a more sustainable global economy. Axel's strategy includes extensive exploration plans to fully realize the potential of its current projects and seek new opportunities.

Competent Persons Statement

The information in this announcement that relates to Exploration Results and Metallurgy and Metallurgical Test Work is based on and fairly represents information and supporting documentation compiled by Mr Antonio de Castro, BSc (Hons), MAusIMM, CREA who acts as AXEL 's Senior Consulting Geologist through the consultancy firm, ADC Geologia Ltda. Mr. de Castro has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the reporting of exploration results and analytical and metallurgical test work 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 Castro consents to the inclusion in the announcement of the matters based on his information in the form and context in which it appears.

Forward Looking Statement

This announcement contains projections and forward-looking information that involve various risks and uncertainties regarding future events. Such forward-looking information can include without limitation statements based on current expectations involving a number of risks and uncertainties and are not guarantees of future performance of the Company. These risks and uncertainties could cause actual results and the Company's plans and objectives to differ materially from those expressed in the forward-looking information. Actual results and future events could differ materially from anticipated in such information. These and all subsequent written and oral forward-looking information are based on estimates and opinions of management on the dates they are made and expressly qualified in their entirety by this notice. The Company assumes no obligation to update forward-looking information should circumstances or management's estimates or opinions change.

Reference to Previous Announcements

In addition to new results reported in this announcement, the information that relates to previous exploration results is extracted from:

- AXL ASX release 14 February 2025 "*Mineral Resource Estimate and Metallurgy Testing to Commence*"

The Company confirms that it is not aware of any new information or data that materially affects the information contained in these announcements and, in the case of estimates of mineral resources, that all material assumptions and technical parameters underpinning the estimates in the announcements continue to apply and have not materially changed.

Appendix 1: JORC Code, 2012 Edition – Table 1

Section 1 Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code explanation	Commentary
Sampling techniques	<i>Nature and quality of sampling</i>	<p>ANSTO, Australian Nuclear Science and Technology Organization were supplied with 39 composites samples numbered CLD-COMP-001 to 039 compiled from the weathered portion of area A in the Caladão project. They consist of disaggregated rejects from ½ core, received back from SGS laboratory derived from the 2024 drill program. Collar locations are presented in appendix 1.</p> <p>ANSTO were tasked to conduct 39 diagnostic desorption tests with ammonium sulfate followed by tests with 4 selected samples with ammonium sulfate at reduced pH to access the potential for additional REE recovery and 3 acid tests on selected samples to assess gallium recovery (refer table 3, 4, 5 and 6).</p> <p>Test work results are for 39 individuals 3 meter composite samples, from the diamond holes DDH-018 and DDH-036, both from 2m to end of the saprolite zone.</p> <p>The use of disaggregated rejects and the its composites are considered appropriate for leaching test works and reporting exploration results.</p>
Drilling techniques	<i>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).</i>	<p>The drilling technique is a diamond drill rig Mach 320-03 with HQ diameter using the wireline technique.</p> <p>Each drill site was cleaned and leveled with a backhoe loader.</p> <p>All holes are vertical.</p> <p>Drilling is stopped once the intersection with unweathered basement intrusive is confirmed = +3 to 5m of fresh rock.</p>
Drill sample recovery	<i>Method of recording and assessing core and chip sample recoveries and results assessed.</i> <i>Measures taken to maximise sample recovery and ensure representative nature of the samples.</i>	<p>Core recoveries were measured after each drill run, comparing the length of core recovered vs. drill depth. Overall Core recoveries are 92.5%, achieving 95% in the saprolite target horizon, 89% in the transitional rock (fresh fragments in clay), and 92.5% in fresh rock.</p>

Criteria	JORC Code explanation	Commentary
	<i>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.</i>	
Logging	<p><i>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.</i></p> <p><i>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</i></p> <p><i>The total length and percentage of the relevant intersections logged.</i></p>	<p>The geology was described in a core facility by a geologist - logging focused on the soil (humic) horizon, saprolite, and fresh rock boundaries. The depth of geological boundaries is honored and described with downhole depth – not meter by meter. The total lengths of all holes have been geologically logged.</p> <p>Other important parameters for collecting data include grain size, texture, and color, which can help identify the parent rock before weathering.</p> <p>All drilled holes have a digital photographic record. The log is stored in a Microsoft Excel template with inbuilt validation tables and a pick list to avoid data entry errors.</p>
Sub-sampling techniques and sample preparation	<p><i>If core, whether cut or sawn and whether quarter, half or all core taken.</i></p> <p><i>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</i></p> <p><i>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</i></p> <p><i>Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.</i></p> <p><i>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.</i></p> <p><i>Whether sample sizes are appropriate to the grain size of the material being sampled.</i></p>	<p>The core was cut in half which was taken on a meter basis to SGS for preparation.</p> <p>Sample preparation (drying, crushing, splitting and pulverising) is carried out by SGS laboratory, in Vespasiano MG, using industry-standard protocols:</p> <p>Dried at 100°C, the fresh rock is 75% crushed to sub 3mm, the saprolite is just disaggregated with hammers, riffle split sub-sample, 250 g pulverized to 95% passing 150 mesh, monitored by sieving, aliquot selection from pulp packet.</p> <p>Each disaggregated rejects were riffled split at equal weight to produce the 3 meter composites.</p> <p>No duplicate or repeat composite sampling has been run at this stage.</p> <p>As received disaggregate rejects are considered appropriate to represent the REE mineralization.</p>

Criteria	JORC Code explanation	Commentary
Quality of assay data and laboratory tests	<p><i>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</i></p> <p><i>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.</i></p> <p><i>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.</i></p>	<p>All head samples were analysed by a combination of XRF at ANSTO and fusion digest/ICP-MS (ALS, Brisbane) for the following elements:</p> <p>XRF – Al, As, Ba, Ca, Co, Cr, Cs, Cu, Fe, Hf, K, Mg, Mn, Mo, Na, Nb, Ni, P, Pb, Rb, S, Si, Sn, Ta, Ti, V, Zn, Zr</p> <p>Lithium Tetraborate Fusion Digest/ICP-MS – Ba, Ce, Cr, Cs, Dy, Er, Eu, Ga, Gd, Hf, Ho, La, Lu, Nb, Nd, Pr, Rb, Sc, Sm, Sn, Sr, Ta, Tb, Th, Ti, Tm, U, V, W, Y, Yb, Zr</p> <p>A summary of the REE head analysis for each sample is presented in table 3 for hole 18 and for hole 36. Full chemical analysis was provided in the Data Pack.</p> <p>Liquors were analysed by ALS for ICPMS (because of the low detection limits required) and at ANSTO by ICPOES.</p> <p>ANSTO and ALS included standards and blank materials to monitor the performance of the laboratory. The standards and blanks used displayed acceptable levels of accuracy and precision.</p>
Verification of sampling and assaying	<p><i>The verification of significant intersections by either independent or alternative company personnel.</i></p> <p><i>The use of twinned holes.</i></p> <p><i>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</i></p> <p><i>Discuss any adjustment to assay data.</i></p>	<p>Result reviewed by the Company's Chief Geologist and the Operator Manager, and specialists at ANSTO.</p> <p>Apart from the routine QA/QC procedures by the Company and the laboratory, there was no other independent or alternative verification of sampling and assaying procedures.</p> <p>No twinned holes were used.</p> <p>Primary data is stored both in its source electronic form and where applicable, on paper. Assay data is retained in both the original certificate (pdf) form, where available, and the text files received from the laboratory. Primary data collection follows a structured protocol, with standardized data entry procedures ensure that any issues are identified and rectified. All data is stored both in physical forms, such as hard copies and electronically, in secure databases with regular backups.</p> <p>The adjustments to the data were made when required, converting the rare earth element values into the industry standard rare earth format. The conversion factors used are included in the table below. (source: https://www.jcu.edu.au/advanced-</p>

Criteria	JORC Code explanation	Commentary																																																			
		<p>analytical-centre/resources/element-to-stoichiometric-oxide-conversion-factors)</p> <table border="1"> <thead> <tr> <th>Element ppm</th><th>Conversion Factor</th><th>Oxide Form</th></tr> </thead> <tbody> <tr><td>La</td><td>1.1728</td><td>La₂O₃</td></tr> <tr><td>Ce</td><td>1.2284</td><td>CeO₂</td></tr> <tr><td>Pr</td><td>1.2082</td><td>Pr₆O₁₁</td></tr> <tr><td>Nd</td><td>1.1664</td><td>Nd₂O₃</td></tr> <tr><td>Eu</td><td>1.1579</td><td>Eu₂O₃</td></tr> <tr><td>Gd</td><td>1.1526</td><td>Gd₂O₃</td></tr> <tr><td>Tb</td><td>1.1762</td><td>Tb₄O₇</td></tr> <tr><td>Dy</td><td>1.1477</td><td>Dy₂O₃</td></tr> <tr><td>Ho</td><td>1.1455</td><td>Ho₂O₃</td></tr> <tr><td>Er</td><td>1.1435</td><td>Er₂O₃</td></tr> <tr><td>Tm</td><td>1.1421</td><td>Tm₂O₃</td></tr> <tr><td>Yb</td><td>1.1387</td><td>Yb₂O₃</td></tr> <tr><td>Lu</td><td>1.1371</td><td>Lu₂O₃</td></tr> <tr><td>Y</td><td>1.2699</td><td>Y₂O₃</td></tr> <tr><td>Sc</td><td>1.5337</td><td>Sc₂O₃</td></tr> <tr><td>Ga</td><td>1.3442</td><td>Ga₂O₃</td></tr> </tbody> </table> <p>Rare earth abbreviations typically used in industry reporting and throughout this report were in accordance with IUPA guidelines, and were as follows:</p> <p>REE - Rare Earth Elements, value presented as oxide assay.</p> <p>REO – Rare Earths Oxides, value presented as oxide assay.</p> <p>TREE – La+Ce+Pr+Nd+Sm+Eu+Gd+Tb+Dy+Ho+Er+Tm+Yb+Lu plus Y and Sc.</p> <p>MREE – Pr, Nd, Tb, Dy.</p> <p>LREE: La+Ce+Pr+Nd and Sm.</p> <p>HREE: Eu+Gd+Tb+Dy+Ho+Er+Tm+Yb+Lu plus Y.</p> <p>TREO (Total Rare Earth Oxide) = La₂O₃ + CeO₂ + Pr₆O₁₁ + Nd₂O₃ + Sm₂O₃ + Eu₂O₃ + Gd₂O₃ + Tb₄O₇ + Dy₂O₃ + Ho₂O₃ + Er₂O₃ + Tm₂O₃ + Yb₂O₃ + Y₂O₃ + Lu₂O₃ plus Y₂O₃ and Sc₂O₃</p> <p>MREO (Magnetic Rare Earth Oxide) = Pr₆O₁₁ + Nd₂O₃ + Tb₄O₇ + Dy₂O₃</p>	Element ppm	Conversion Factor	Oxide Form	La	1.1728	La ₂ O ₃	Ce	1.2284	CeO ₂	Pr	1.2082	Pr ₆ O ₁₁	Nd	1.1664	Nd ₂ O ₃	Eu	1.1579	Eu ₂ O ₃	Gd	1.1526	Gd ₂ O ₃	Tb	1.1762	Tb ₄ O ₇	Dy	1.1477	Dy ₂ O ₃	Ho	1.1455	Ho ₂ O ₃	Er	1.1435	Er ₂ O ₃	Tm	1.1421	Tm ₂ O ₃	Yb	1.1387	Yb ₂ O ₃	Lu	1.1371	Lu ₂ O ₃	Y	1.2699	Y ₂ O ₃	Sc	1.5337	Sc ₂ O ₃	Ga	1.3442	Ga ₂ O ₃
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Ga	1.3442	Ga ₂ O ₃																																																			

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		<p>LREO (Light Rare Earth Oxide) = $\text{La}_2\text{O}_3 + \text{CeO}_2 + \text{Pr}_6\text{O}_{11} + \text{Nd}_2\text{O}_3 + \text{Sm}_2\text{O}_3$</p> <p>HREO (Heavy Rare Earth Oxide) = $\text{Eu}_2\text{O}_3 + \text{Gd}_2\text{O}_3 + \text{Tb}_4\text{O}_7 + \text{Dy}_2\text{O}_3 + \text{Ho}_2\text{O}_3 + \text{Er}_2\text{O}_3 + \text{Tm}_2\text{O}_3 + \text{Yb}_2\text{O}_3 + \text{Lu}_2\text{O}_3$ plus Y_2O_3</p> <p>NdPr = $\text{Nd}_2\text{O}_3 + \text{Pr}_6\text{O}_{11}$</p> <p>DyTb = $\text{Dy}_2\text{O}_3 + \text{Tb}_4\text{O}_7$</p> <p>CREO (Critical Rare Earth Oxide) = $\text{Nd}_2\text{O}_3 + \text{Eu}_2\text{O}_3 + \text{Tb}_4\text{O}_7 + \text{Dy}_2\text{O}_3 + \text{Y}_2\text{O}_3$</p> <p>(From U.S. Department of Energy, Critical Material Strategy, December 2011)</p> <p>There are three commonly applied approaches to calculating extraction for leaching :</p> <p><u>Tail over Head</u>, which is calculated as $1 - \text{tail grade/head grade}$. Where notable mass loss occurs in leaching, as is common for acid leaching, the tail grade is increased due to the mass loss and would result in an underestimation extraction. In this case, the tail grade is corrected via accounting for the solids mass loss, or via a «tie-in» with a non-soluble element such as Pb.</p> <p><u>Mass Basis</u>, which is calculated as element mass in liquor/(element mass in liquor + element mass in solids) for the discharge liquor and solids. This method ignores the head assay and somewhat eliminates sampling error impacting the head assay. It also accounts for any mass loss within the test.</p> <p><u>Liquor out over solids in</u>, which is calculated as element mass in liquor/element mass in solids in. This method is the most prone to error, as it includes sampling errors on the head assay, error in the liquor assay and error in the liquor SG assay. Small errors in the liquor assay can results in large percentage differences in extraction when the extraction extends its high (>60-70%) due to the nature of the calculation.</p> <p>For the diagnostic tests, which are low solids density and with no intermediate samples taken, ANSTO uses the liquor out over solids for the REEs and Al, Fe, etc. Ansto have found that for the clays, sampling and assaying of solids is quite problematic (due to the</p>

Criteria	JORC Code explanation	Commentary
		<p>presence of REEs in a number of phases). When conducting leach tests at higher slurry densities, it uses both methods, 1 and 3. In these diagnostic tests reported it used pulverized samples to enhance sample representivity. Also the diagnostics are partly a screening test so it minimise assays to reduce costs for a large number of tests. It found that results for slurry leaching of IADs are very similar to the diagnostic tests results.</p> <p>Agrees that if extraction >60-70%, it is preferred to assay the residues.</p>
Location of data points	<p><i>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.</i></p> <p><i>Specification of the grid system used.</i></p> <p><i>Quality and adequacy of topographic control.</i></p>	<p>Drill hole collar locations were surveyed using a Real Time Kinematic (RTK) GPS unit, ensuring sub-metre accuracy for all recorded positions. All spatial data were captured and reported using the SIRGAS 2000 geodetic datum, projected to UTM Zone 24 South.</p>
Data spacing and distribution	<p><i>Data spacing for reporting of Exploration Results.</i></p> <p><i>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.</i></p> <p><i>Whether sample compositing has been applied.</i></p>	<p>39 individual composites were carried out on 2 diamond drillholes from 2m down to the fresh rock, samples numbered CLD-COMP-001 to 039 (table 2) from the DDH-018 and DDH-036 which are 1.94 km apart.</p> <p>Each one represents a different Style of REE mineralization in the area A.</p> <p>No resources are reported.</p> <p>The disaggregated rejects from each 1 metre interval returned from SGS over a 3 metre interval established around 2kg composites for test works at ANSTO.</p>
Orientation of data in relation to geological structure	<p><i>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</i></p> <p><i>If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this</i></p>	<p>All drill holes were drilled vertically, which is deemed the most suitable orientation for this type of supergene deposit. These deposits typically have a broad horizontal extent relative to the thickness of the mineralised body, exhibiting horizontal continuity with minimal variation in thickness.</p> <p>Given the extensive lateral spread and uniform thickness of the deposit, vertical drilling is optimal for achieving unbiased sampling. This orientation allows for consistent intersections of the horizontal</p>

Criteria	JORC Code explanation	Commentary
	<i>should be assessed and reported if material.</i>	<p>mineralised zones, providing an accurate depiction of the geological framework and mineralisation.</p> <p>No evidence suggests that the vertical orientation has introduced any sampling bias concerning the key mineralised structures. The alignment of the drilling with the deposit's known geology ensures accurate and representative sampling. Any potential bias from the drilling orientation is considered negligible.</p>
Sample security	<i>The measures taken to ensure sample security.</i>	<p>The composite samples were prepared in the AXEL's core facility in Padre Paraíso-MG, supervised by a geologist.</p> <p>The sealed plastic bags were sent directly to ANSTO by airfreight. The Company has no reason to believe that sample security poses a material risk to the integrity of the assay data.</p> <p>The transport from the Project to the airport was undertaken by a competent, independent contractor.</p>
Audits or reviews	<i>The results of any audits or reviews of sampling techniques and data.</i>	<p>Regular technical meetings were held with ANSTO personnel during the testing period. The ANSTO leaching report was reviewed by AXEL's experienced Chief Geologist and Board members.</p>

Section 2 Reporting of Exploration Results

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	<p><i>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.</i></p> <p><i>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.</i></p>	<p>In the Caladão Project, we are unaware of previous professional mineral exploration programs in the Region of Padre Paraíso MG. However, there is a history of previous artisanal gemstone mining in that region, particularly aquamarine.</p>
Exploration done by other parties	<i>Acknowledgment and appraisal of exploration by other parties.</i>	<p>In the Caladão Project, we are unaware of previous professional mineral exploration programs in the Region of Padre Paraíso MG.</p>

		<p>However, there is a history of previous artisanal gemstone mining in that region, particularly aquamarine.</p>
Geology	<i>Deposit type, geological setting and style of mineralisation.</i>	<p>The rare earth mineralization at Caladão is hosted in a pegmatitic (porphyritic) granite, the Caladão Granite, as well as in a granodiorite, charnokite and a leuco granite in area A.</p> <p>Allanite and apatite were recognized in petrography but most of the primary minerals in the fresh rocks and secondary mineral phases in its weathered portion were not yet defined.</p> <p>The Caladão Granite in the Region of Padre Paraíso is in the so-called Lithium Valley in the northeast portion of the Minas Gerais State. Axel was the first exploration company to recognize the REE potential of these Neoproterozoic granites on the eastern flank of the Sao Francisco Craton. These granites are subalkaline to alkaline and are considered late to post-tectonic relative to the Salinas Formation. Weathering over these granites develops up to 60- meter-thick profiles that often contain abundant kaolinites and high grade rare earths.</p>
Drill hole Information	<i>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:</i>	<p>Key leach test results and implications from this study are summarized in this report and tables presented in Appendix 2.</p>
Data aggregation methods	<p><i>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.</i></p> <p><i>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.</i></p> <p><i>The assumptions used for any reporting of metal equivalent values should be clearly stated.</i></p>	<p>No data aggregation methods have been applied.</p> <p>No metal equivalents are reported.</p>

<p>Relationship between mineralisation widths and intercept lengths</p>	<p><i>These relationships are particularly important in the reporting of Exploration Results.</i></p> <p><i>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</i></p> <p><i>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’).</i></p>	<p>At this stage of exploration insufficient data exists to confidently estimate true widths.</p>
<p>Diagrams</p>	<p><i>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.</i></p>	<p>Refer to figure 1 and 3, and Appendix 2 in this announcement.</p>
<p>Balanced reporting</p>	<p><i>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.</i></p>	<p>See text to this announcement with the ANSTO data presented in this report to provide a transparent and comprehensive overview of the leaching tests conducted and its implications.</p> <p>The results obtained are exclusive for the holes tested and can not be extrapolated to any specific area in the project.</p> <p>The use of diagrams, such as geological maps and tables, is intended to enhance understanding of the data.</p> <p>This report accurately reflects the ANSTO test work results and the exploration activities and findings without bias or omission.</p>
<p>Other substantive exploration data</p>	<p><i>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.</i></p>	<p>There is no additional substantive exploration data to report currently.</p>

<i>Further work</i>	<i>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</i>	<p>Additional metallurgical tests in composites for REE and Ga at ANSTO and CETEM.</p> <p>Infill drilling to define an indicated MRE.</p> <p>Start environmental works.</p>
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APPENDIX 2. TABLES AND FIGURES

Table 1- drillhole collar location

HoleID	Easting	Northing	RL (m)	Depth (m)	Azimuth	Dip
CLD-DDH-018	231,513.87	8,112,386.14	765.55	48.15	0	-90
CLD-DDH-036	231,424.35	8,110,449.96	842.70	81.45	0	-90

Table 2 – Composites sent to ANSTO

HoleID	CompositeID	From (m)	To (m)	Regolith	Lithology	Dry wt. (g)
CLD-DDH-018	CLD-COMP-001	2.00	5.00	Lateritic soil	Soil	1,995
CLD-DDH-018	CLD-COMP-002	5.00	8.00	Lateritic soil	Soil	2,042
CLD-DDH-018	CLD-COMP-003	8.00	11.00	Upper Saprolite	Porphyritic Granite	2,081
CLD-DDH-018	CLD-COMP-004	11.00	14.00	Upper Saprolite	Porphyritic Granite	2,092
CLD-DDH-018	CLD-COMP-005	14.00	17.00	Upper Saprolite	Porphyritic Granite	2,099
CLD-DDH-018	CLD-COMP-006	17.00	20.00	Upper Saprolite	Granodiorite	2,086
CLD-DDH-018	CLD-COMP-007	20.00	23.00	Upper Saprolite	Granodiorite	2,047
CLD-DDH-018	CLD-COMP-008	23.00	26.00	Upper Saprolite	Granodiorite	2,066
CLD-DDH-018	CLD-COMP-009	26.00	29.00	Upper Saprolite	Granodiorite	2,108
CLD-DDH-018	CLD-COMP-010	29.00	32.00	Upper Saprolite	Granodiorite	2,088
CLD-DDH-018	CLD-COMP-011	32.00	35.00	Upper Saprolite	Granodiorite	2,059
CLD-DDH-018	CLD-COMP-012	35.00	38.00	Lower Saprolite	Granodiorite	2,080
CLD-DDH-018	CLD-COMP-013	38.00	41.00	Lower Saprolite	Granodiorite	2,098
CLD-DDH-018	CLD-COMP-014	41.00	44.37	Lower Saprolite	Granodiorite	2,015
CLD-DDH-036	CLD-COMP-015	2.00	5.00	Lateritic soil	Soil	2,013
CLD-DDH-036	CLD-COMP-016	5.00	8.00	Lateritic soil	Soil	2,018
CLD-DDH-036	CLD-COMP-017	8.00	11.00	Lateritic soil	Soil	2,094
CLD-DDH-036	CLD-COMP-018	11.00	14.00	Lateritic soil	Soil	1,925
CLD-DDH-036	CLD-COMP-019	14.00	17.00	Upper Saprolite	Porphyritic Granite	2,047
CLD-DDH-036	CLD-COMP-020	17.00	20.00	Upper Saprolite	Porphyritic Granite	2,107
CLD-DDH-036	CLD-COMP-021	20.00	23.00	Upper Saprolite	Porphyritic Granite	2,097
CLD-DDH-036	CLD-COMP-022	23.00	26.00	Upper Saprolite	Porphyritic Granite	1,892
CLD-DDH-036	CLD-COMP-023	26.00	29.00	Upper Saprolite	Porphyritic Granite	1,986
CLD-DDH-036	CLD-COMP-024	29.00	32.00	Upper Saprolite	Porphyritic Granite	1,889
CLD-DDH-036	CLD-COMP-025	32.00	35.00	Upper Saprolite	Porphyritic Granite	2,062
CLD-DDH-036	CLD-COMP-026	35.00	38.00	Upper Saprolite	Porphyritic Granite	2,016
CLD-DDH-036	CLD-COMP-027	38.00	41.00	Upper Saprolite	Porphyritic Granite	1,987
CLD-DDH-036	CLD-COMP-028	41.00	44.00	Upper Saprolite	Porphyritic Granite	2,090
CLD-DDH-036	CLD-COMP-029	44.00	47.00	Upper Saprolite	Porphyritic Granite	2,027
CLD-DDH-036	CLD-COMP-030	47.00	50.00	Upper Saprolite	Porphyritic Granite	2,042
CLD-DDH-036	CLD-COMP-031	50.00	53.00	Upper Saprolite	Porphyritic Granite	2,015
CLD-DDH-036	CLD-COMP-032	53.00	56.00	Upper Saprolite	Porphyritic Granite	2,030
CLD-DDH-036	CLD-COMP-033	56.00	59.00	Upper Saprolite	Porphyritic Granite	1,998
CLD-DDH-036	CLD-COMP-034	59.00	62.00	Lower Saprolite	Porphyritic Granite	2,023
CLD-DDH-036	CLD-COMP-035	62.00	65.00	Lower Saprolite	Porphyritic Granite	2,038
CLD-DDH-036	CLD-COMP-036	65.00	68.00	Lower Saprolite	Porphyritic Granite	2,043
CLD-DDH-036	CLD-COMP-037	68.00	71.00	Lower Saprolite	Porphyritic Granite	2,113
CLD-DDH-036	CLD-COMP-038	71.00	74.00	Lower Saprolite	Porphyritic Granite	2,060
CLD-DDH-036	CLD-COMP-039	74.00	76.92	Lower Saprolite	Porphyritic Granite	2,010

Table 3. REE composite head grades

HoleID	CompositeID	TREO	MREO	La2O3 ppm	CeO2 ppm	Pr6O1 1 ppm	Nd2O3 ppm	Sm2O 3 ppm	Eu2O3 ppm	Gd2O3 ppm	Tb4O7 ppm	Dy2O3 ppm	Ho2O3 ppm	Er2O3 ppm	Tm2O 3 ppm	Yb2O3 ppm	Lu2O3 ppm	Y2O3 ppm
CLD-DDH-018	CLD-COMP-001	534	79	94	324	16	58	8	0	5	1	4	1	2	0	2	0	18
CLD-DDH-018	CLD-COMP-002	875	65	151	624	14	46	6	1	4	1	4	1	2	0	2	0	19
CLD-DDH-018	CLD-COMP-003	1,769	228	299	1,169	49	170	24	1	13	2	7	1	2	0	2	0	29
CLD-DDH-018	CLD-COMP-004	1,992	249	325	1,345	54	187	26	1	13	2	7	1	2	0	2	0	27
CLD-DDH-018	CLD-COMP-005	2,623	422	358	1,695	86	318	47	3	26	3	15	2	6	1	4	1	60
CLD-DDH-018	CLD-COMP-006	2,080	442	371	1,129	92	334	47	3	24	3	13	2	5	1	3	0	53
CLD-DDH-018	CLD-COMP-007	3,292	934	803	1,253	195	708	97	8	47	5	26	4	11	1	8	1	124
CLD-DDH-018	CLD-COMP-008	2,342	698	529	877	141	531	73	7	36	4	22	3	9	1	7	1	100
CLD-DDH-018	CLD-COMP-009	2,536	781	640	828	155	593	84	9	46	5	28	4	11	1	8	1	123
CLD-DDH-018	CLD-COMP-010	2,800	808	710	954	164	605	87	11	49	6	32	5	14	2	10	1	149
CLD-DDH-018	CLD-COMP-011	2,601	752	633	805	148	556	84	13	56	7	40	7	18	2	14	2	215
CLD-DDH-018	CLD-COMP-012	1,884	480	401	660	91	351	54	10	41	5	32	5	16	2	12	2	203
CLD-DDH-018	CLD-COMP-013	1,887	462	368	609	84	331	54	10	47	7	40	7	20	2	14	2	292
CLD-DDH-018	CLD-COMP-014	1,798	431	340	753	81	321	52	7	35	4	25	4	12	1	9	1	152
CLD-DDH-036	CLD-COMP-015	211	29	46	107	6	20	3	0	2	0	3	1	2	0	2	0	18
CLD-DDH-036	CLD-COMP-016	279	32	62	153	7	21	3	1	3	0	3	1	2	0	2	0	20
CLD-DDH-036	CLD-COMP-017	432	37	72	290	8	26	4	1	3	0	3	1	2	0	3	0	19
CLD-DDH-036	CLD-COMP-018	556	42	66	419	10	30	5	0	3	0	3	1	2	0	2	0	15
CLD-DDH-036	CLD-COMP-019	319	20	35	241	4	14	2	0	2	0	2	0	2	0	2	0	13
CLD-DDH-036	CLD-COMP-020	940	21	39	859	4	14	3	0	2	0	2	0	1	0	2	0	12
CLD-DDH-036	CLD-COMP-021	460	45	118	257	10	31	5	1	4	1	4	1	2	0	2	0	22
CLD-DDH-036	CLD-COMP-022	617	60	122	391	13	42	7	1	6	1	5	1	2	0	2	0	23
CLD-DDH-036	CLD-COMP-023	724	83	164	425	18	58	9	1	7	1	6	1	3	0	3	0	27
CLD-DDH-036	CLD-COMP-024	1,764	289	342	1,010	64	210	33	4	20	3	13	2	5	1	4	1	54
CLD-DDH-036	CLD-COMP-025	5,362	315	324	4,607	71	230	35	4	19	3	12	2	5	1	3	0	47
CLD-DDH-036	CLD-COMP-026	6,660	643	674	5,098	143	470	69	9	41	5	25	4	10	1	7	1	103
CLD-DDH-036	CLD-COMP-027	5,223	594	692	3,710	134	434	60	7	36	5	22	4	9	1	6	1	104
CLD-DDH-036	CLD-COMP-028	4,813	728	874	2,899	156	532	81	10	53	6	34	5	14	2	9	1	138
CLD-DDH-036	CLD-COMP-029	6,401	968	1,090	3,980	203	716	112	15	69	8	41	6	14	2	10	1	135
CLD-DDH-036	CLD-COMP-030	4,969	618	720	3,378	134	453	68	8	40	5	27	4	10	1	8	1	113
CLD-DDH-036	CLD-COMP-031	6,566	825	874	4,459	173	603	96	11	60	7	41	6	17	2	12	1	202
CLD-DDH-036	CLD-COMP-032	11,090	2,106	2,369	5,565	425	1,540	242	35	181	22	119	19	46	5	31	4	488

HoleID	CompositelD	TREO	MREO	La2O3 ppm	CeO2 ppm	Pr6O1 1 ppm	Nd2O3 ppm	Sm2O 3 ppm	Eu2O3 ppm	Gd2O3 ppm	Tb4O7 ppm	Dy2O3 ppm	Ho2O3 ppm	Er2O3 ppm	Tm2O 3 ppm	Yb2O3 ppm	Lu2O3 ppm	Y2O3 ppm
CLD-DDH-036	CLD-COMP-033	9,034	2,178	2,416	3,587	457	1,604	247	35	166	19	98	14	34	4	21	3	330
CLD-DDH-036	CLD-COMP-034	13,699	4,968	4,656	2,924	1,085	3,744	504	69	239	24	115	14	30	3	16	2	274
CLD-DDH-036	CLD-COMP-035	7,086	2,021	2,293	1,695	408	1,476	230	35	181	21	116	19	48	5	33	4	522
CLD-DDH-036	CLD-COMP-036	2,801	721	868	819	146	527	85	12	65	8	41	7	17	2	13	2	189
CLD-DDH-036	CLD-COMP-037	4,634	1,191	1,214	1,572	224	882	136	18	100	13	72	11	30	3	22	3	333
CLD-DDH-036	CLD-COMP-038	2,642	585	616	1,071	117	422	69	10	57	7	38	6	17	2	11	2	197
CLD-DDH-036	CLD-COMP-039	1,151	234	246	526	49	169	30	3	22	3	14	2	6	1	4	1	76

Table 4 – Percentage of rare Earths recovered in the Ammonium sulphate solution

HoleID	CompositeID	TREY %	MRE %	La %	Ce %	Pr %	Nd %	Sm %	Eu %	Gd %	Tb %	Dy %	Ho %	Er %	Tm %	Yb %	Lu %	Y %
CLD-DDH-018	CLD-COMP-001	6.4	6.2	5.7	6.8	6.9	6.0	6.5	-	5.2	-	6.9	-	-	-	-	-	5.0
CLD-DDH-018	CLD-COMP-002	6.8	14.3	6.1	5.5	13.6	14.8	21.7	45.3	19.9	-	13.3	-	12.7	-	11.4	-	15.3
CLD-DDH-018	CLD-COMP-003	4.7	5.5	4.5	4.6	5.6	5.6	5.5	30.0	6.2	-	3.8	-	-	-	-	-	5.1
CLD-DDH-018	CLD-COMP-004	6.9	8.9	7.0	6.3	9.3	8.8	8.4	19.9	9.9	17.2	8.1	-	11.3	-	-	-	8.8
CLD-DDH-018	CLD-COMP-005	8.1	10.3	11.9	6.8	11.3	10.2	8.6	9.9	7.2	8.8	7.1	11.9	4.7	-	6.8	--	6.8
CLD-DDH-018	CLD-COMP-006	10.7	16.3	16.7	6.1	17.7	16.2	14.2	31.5	13.1	9.3	11.8	13.8	10.6	-	7.8		10.4
CLD-DDH-018	CLD-COMP-007	25.1	39.5	29.7	10.0	41.2	39.7	34.5	57.2	29.4	24.9	25.2	26.3	23.9	21.3	22.3	21.7	20.6
CLD-DDH-018	CLD-COMP-008	30.8	48.2	42.9	6.8	51.2	48.1	42.4	66.3	41.9	39.1	35.0	39.6	31.5	25.7	24.9	24.6	31.7
CLD-DDH-018	CLD-COMP-009	28.7	43.2	39.1	2.7	46.3	42.8	38.9	57.5	39.7	35.7	34.5	37.6	36.3	41.2	32.1	21.8	34.9
CLD-DDH-018	CLD-COMP-010	21.8	33.1	29.4	1.7	34.7	32.8	30.7	42.4	36.1	30.8	31.3	36.3	30.8	33.5	27.7	35.3	33.8
CLD-DDH-018	CLD-COMP-011	31.1	42.2	42.2	1.0	43.9	41.2	39.6	52.0	51.8	51.7	48.1	55.6	49.8	46.0	46.0	40.8	55.9
CLD-DDH-018	CLD-COMP-012	27.0	33.2	37.1	1.5	33.1	31.2	34.4	47.7	53.0	54.4	51.3	57.9	51.5	65.1	47.8	47.8	61.7
CLD-DDH-018	CLD-COMP-013	2.8	2.8	0.7	0.7	2.0	2.4	3.5	5.6	5.7	3.9	6.6	7.3	8.0	11.4	7.6	12.5	8.6
CLD-DDH-018	CLD-COMP-014	7.3	4.6	10.5	5.3	4.2	4.1	5.6	7.8	8.3	12.3	10.6	12.3	13.1	20.5	12.2	21.0	16.6
CLD-DDH-036	CLD-COMP-015	4.4	4.7	4.7	4.5	4.5	5.5	9.5	-	11.7	-	-	-	-	-	-	-	1.6
CLD-DDH-036	CLD-COMP-016	2.8	2.5	1.3	3.9	3.9	2.5	-	-	-	-	-	-	-	-	-	-	1.5
CLD-DDH-036	CLD-COMP-017	2.8	6.5	4.2	1.9	6.9	7.3	7.3	-	9.6	-	-	-	-	-	-	-	3.0
CLD-DDH-036	CLD-COMP-018	7.9	15.4	10.7	6.4	14.6	16.4	17.0	-	16.7	-	9.5	-	14.6	-	-	-	11.3
CLD-DDH-036	CLD-COMP-019	6.4	14.6	6.9	5.4	12.8	15.9	22.5	-	14.1	-	11.9	-	-	-	-	-	6.8
CLD-DDH-036	CLD-COMP-020	0.9	6.5	4.8	0.5	6.3	7.9	10.2	-	-	-	-	-	-	-	-	-	2.4
CLD-DDH-036	CLD-COMP-021	2.2	2.4	1.1	3.0	2.8	2.6	-	-	-	-	-	-	-	-	-	-	1.3
CLD-DDH-036	CLD-COMP-022	2.8	3.6	1.8	3.0	4.3	3.9	3.6	-	4.4	-	-	-	-	-	-	-	1.3
CLD-DDH-036	CLD-COMP-023	3.2	5.2	2.8	3.1	4.6	5.5	6.1	-	3.6	-	4.7	-	-	-	-	-	2.2
CLD-DDH-036	CLD-COMP-024	3.1	4.4	3.6	2.4	4.8	4.5	4.1	6.8	4.0	-	2.1	-	5.3	-	-	-	3.8
CLD-DDH-036	CLD-COMP-025	1.2	4.8	4.3	0.6	4.7	4.9	3.8	6.2	4.2	-	4.4	-	5.7	-	-	-	3.7
CLD-DDH-036	CLD-COMP-026	1.1	3.2	2.4	0.6	3.1	3.3	3.1	3.1	2.6	-	3.2	-	2.7	-	3.8	-	2.8
CLD-DDH-036	CLD-COMP-027	1.7	4.2	2.8	0.9	4.0	4.3	4.0	4.1	3.7	5.9	3.6	6.8	3.0	-	4.3	-	3.4
CLD-DDH-036	CLD-COMP-028	1.5	2.9	1.8	1.0	2.9	2.9	2.7	2.6	2.0	4.2	2.4		1.9	-	2.9	-	2.1
CLD-DDH-036	CLD-COMP-029	1.6	3.2	2.2	1.0	3.2	3.2	2.6	3.6	2.7	3.4	2.6	4.5	3.8	-	2.8	-	3.1
CLD-DDH-036	CLD-COMP-030	2.8	7.1	4.8	1.2	6.8	7.3	6.3	6.9	7.3	5.5	5.9	6.6	7.6	-	6.9	-	7.2
CLD-DDH-036	CLD-COMP-031	3.4	9.7	7.5	1.1	9.8	10.0	8.0	9.5	7.1	7.3	5.1	4.2	4.5	-	4.5	-	4.4
CLD-DDH-036	CLD-COMP-032	0.8	1.3	0.9	0.6	1.3	1.3	1.1	0.8	0.7	1.2	0.7	1.4	0.6	-	0.8	-	0.8
CLD-DDH-036	CLD-COMP-033	1.3	1.6	1.1	1.1	1.6	1.7	1.5	1.5	1.3	1.4	1.3	1.9	1.6	-	2.5	-	1.9
CLD-DDH-036	CLD-COMP-034	2.0	2.4	2.3	0.9	2.3	2.4	2.2	2.3	2.1	2.2	2.1	1.8	2.6	-	1.7	-	2.2

HoleID	CompositeID	TREY %	MRE %	La %	Ce %	Pr %	Nd %	Sm %	Eu %	Gd %	Tb %	Dy %	Ho %	Er %	Tm %	Yb %	Lu %	Y %
CLD-DDH-036	CLD-COMP-035	8.1	12.9	9.7	0.9	12.9	13.6	10.9	10.6	7.5	6.5	5.0	5.7	4.9	5.0	4.0	6.5	4.1
CLD-DDH-036	CLD-COMP-036	16.9	27.7	20.7	0.9	26.4	28.7	24.0	31.2	22.4	20.6	19.6	19.7	19.8	13.0	16.2	16.5	17.8
CLD-DDH-036	CLD-COMP-037	4.6	6.2	6.4	0.4	6.1	6.1	6.5	10.1	8.5	8.1	7.7	9.4	7.9	7.8	5.9	8.6	7.7
CLD-DDH-036	CLD-COMP-038	3.1	4.2	3.5	1.3	3.6	4.2	4.2	5.2	5.6	8.0	5.5	8.5	6.3	-	7.1	-	5.8
CLD-DDH-036	CLD-COMP-039	0.8	0.8	0.5	0.5	0.6	0.8	0.9	-	1.2	-	1.9	-	4.4	-	-	-	2.7

Table 5 – Percentage of REE recovery under acid condition

HoleID	CompositeID	pH Acidity	TRE Y %	MRE %	La %	Ce %	Pr %	Nd %	Sm %	Eu %	Gd %	Tb %	Dy %	Ho %	Er %	Tm %	Yb %	Lu %	Y %
CLD-DDH-018	CLD-COMP-007	4	25.1	39.5	29.7	10.0	41.2	39.7	34.5	57.2	29.4	24.9	25.2	26.3	23.9	21.3	22.3	21.7	20.6
CLD-DDH-018	CLD-COMP-007	4 (0.5h)	26.4	40.6	32.3	10.5	44.4	40.3	35.4	56.6	30.4	26.2	25.4	27.6	22.6	22.4	20.1	22.9	23.6
CLD-DDH-018	CLD-COMP-007	1.5 (1h)	28.0	42.3	31.6	13.5	45.1	42.1	38.0	63.7	32.7	31.5	28.6	27.6	25.1	22.4	26.8	22.9	25.9
CLD-DDH-018	CLD-COMP-007	1(1h)	29.0	41.9	31.1	16.8	45.3	41.5	37.7	63.7	32.1	31.5	28.6	27.6	25.1	22.4	26.8	22.9	26.1
CLD-DDH-018	CLD-COMP-007	1(24h)	31.8	43.5	32.1	22.0	46.8	43.1	39.8	63.7	34.5	31.5	31.7	34.5	27.6	22.4	26.8	22.9	27.4
CLD-DDH-018	CLD-COMP-007	1 (48h)	31.6	42.9	32.1	22.0	45.8	42.7	39.8	63.7	33.3	31.5	31.7	34.5	27.6	22.4	30.2	22.9	27.4
CLD-DDH-018	CLD-COMP-007	1 (120h)	32.9	45.0	32.8	23.0	48.2	44.7	41.2	70.7	35.7	31.5	32.8	34.5	30.1	44.9	30.2	22.9	28.9
CLD-DDH-018	CLD-COMP-010	4	21.8	33.1	29.4	1.7	34.7	32.8	30.7	42.4	36.1	30.8	31.3	36.3	30.8	33.5	27.7	35.3	33.8
CLD-DDH-018	CLD-COMP-010	4 (0.5h)	21.1	31.9	29.1	1.1	32.8	31.8	29.3	41.4	34.6	32.0	29.0	32.3	30.0	34.8	26.1	18.3	35.3
CLD-DDH-018	CLD-COMP-010	1.5 (1h)	26.0	37.6	32.3	5.7	39.2	37.1	36.0	51.7	42.0	41.1	37.6	43.0	38.0	52.2	36.6	36.6	43.3
CLD-DDH-018	CLD-COMP-010	1(1h)	28.3	39.5	34.0	8.7	40.8	39.1	37.6	54.3	43.7	41.1	39.3	43.0	40.0	52.2	39.2	36.6	45.7
CLD-DDH-018	CLD-COMP-010	1(24h)	29.8	40.6	34.3	11.8	42.5	40.0	38.9	54.3	44.8	41.1	41.0	43.0	42.0	52.2	41.8	36.6	46.6
CLD-DDH-018	CLD-COMP-010	1 (48h)	30.5	41.3	34.5	12.8	42.9	40.9	40.2	54.3	44.8	41.1	41.0	48.4	42.0	52.2	41.8	36.6	47.4
CLD-DDH-018	CLD-COMP-010	1 (120h)	32.2	43.4	35.9	14.4	45.7	42.8	41.7	56.9	47.7	45.7	43.6	48.4	44.0	52.2	41.8	36.6	48.2
CLD-DDH-036	CLD-COMP-032	4	0.8	1.3	0.9	0.6	1.3	1.3	1.1	0.8	0.7	1.2	0.7	1.4	0.6		0.8		0.8
CLD-DDH-036	CLD-COMP-032	4 (0.5h)	1.4	2.3	1.7	0.8	2.4	2.3	2.0	1.6	1.7	1.3	1.6	1.5	1.8		1.8		2.0
CLD-DDH-036	CLD-COMP-032	1.5 (1h)	4.1	3.1	2.1	5.6	3.3	3.2	2.8	2.4	2.5	2.6	2.6	3.0	2.4	5.4	2.7		2.9
CLD-DDH-036	CLD-COMP-032	1(1h)	7.3	3.6	2.3	11.8	3.7	3.6	3.4	3.2	2.6	2.6	2.8	3.0	3.0	5.4	3.6		3.2
CLD-DDH-036	CLD-COMP-032	1(24h)	10.6	4.7	3.0	17.5	4.9	4.7	4.5	4.0	3.7	3.9	4.0	4.5	4.3	5.4	4.5	7.7	4.4
CLD-DDH-036	CLD-COMP-032	1 (48h)	13.1	5.5	3.7	21.9	5.7	5.5	5.2	5.6	4.7	5.3	4.9	6.0	5.5	5.4	6.3	7.7	5.7
CLD-DDH-036	CLD-COMP-032	1 (120h)	18.3	7.0	4.6	31.0	7.1	7.0	7.0	7.3	6.4	7.9	7.0	7.5	7.3	10.9	9.0	7.7	8.0
CLD-DDH-036	CLD-COMP-035	4	8.1	12.9	9.7	0.9	12.9	13.6	10.9	10.6	7.5	6.5	5.0	5.7	4.9	5.0	4.0	6.5	4.1
CLD-DDH-036	CLD-COMP-035	4 (0.5h)	8.5	13.1	10.5	0.9	13.5	13.7	10.9	11.4	7.4	7.0	5.4	4.6	4.1	5.3	4.3	7.0	4.6
CLD-DDH-036	CLD-COMP-035	1.5 (1h)	11.5	15.1	11.5	9.4	15.5	15.8	13.1	13.8	8.7	8.4	6.8	6.1	5.9	5.3	5.2	7.0	5.6
CLD-DDH-036	CLD-COMP-035	1(1h)	13.8	15.1	11.4	18.9	15.7	15.8	13.1	13.8	8.8	8.4	6.8	6.1	5.9	5.3	6.0	7.0	5.8
CLD-DDH-036	CLD-COMP-035	1(24h)	21.1	18.7	13.6	41.7	19.8	19.3	16.3	17.1	11.1	11.1	9.0	9.2	7.7	10.7	7.7	7.0	7.2

HoleID	CompositelD	pH Acidity	TRE Y %	MRE %	La %	Ce %	Pr %	Nd %	Sm %	Eu %	Gd %	Tb %	Dy %	Ho %	Er %	Tm %	Yb %	Lu %	Y %
CLD-DDH-036	CLD-COMP-035	1 (48h)	24.6	22.1	16.2	47.6	23.5	22.8	19.3	20.3	12.6	12.5	10.5	10.7	8.9	10.7	9.5	7.0	8.6
CLD-DDH-036	CLD-COMP-035	1 (120h)	28.4	27.8	20.0	49.4	29.0	28.8	24.0	24.4	15.6	15.3	13.4	12.3	10.6	10.7	12.1	14.0	10.7

Table 6 – Percentage of gallium recovery under acid solution

HoleID	CompositelD	Reagent (Start)	pH/Acidity	Temp. (°C)	Time (h)	Head Grade Ga ppm	Extraction Ga %
CLD-DDH-036	CLD-COMP-0015	0.5 M (NH ₄) ₂ SO ₄ (pH 4)	4	22	0.5 h	57	-
CLD-DDH-036	CLD-COMP-0015	Acid Water (SO ₄ , pH 1)	1	50	2	57	6.1
CLD-DDH-036	CLD-COMP-0015	Acid Water (SO ₄ , pH 1)	50g/L	50	2	57	10.5
CLD-DDH-036	CLD-COMP-0015	Acid Water (SO ₄ , pH 1)	50g/L	50	24	57	25.3
CLD-DDH-036	CLD-COMP-0016	0.5 M (NH ₄) ₂ SO ₄ (pH 4)	4	22	0.5 h	61	-
CLD-DDH-036	CLD-COMP-0016	Acid Water (SO ₄ , pH 1)	1	50	2	61	2.0
CLD-DDH-036	CLD-COMP-0016	Acid Water (SO ₄ , pH 1)	50g/L	50	2	61	4.4
CLD-DDH-036	CLD-COMP-0016	Acid Water (SO ₄ , pH 1)	50g/L	50	24	61	12.5
CLD-DDH-036	CLD-COMP-0017	0.5 M (NH ₄) ₂ SO ₄ (pH 4)	4	22	0.5 h	51	-
CLD-DDH-036	CLD-COMP-0017	Acid Water (SO ₄ , pH 1)	1	50	2	51	1.0
CLD-DDH-036	CLD-COMP-0017	Acid Water (SO ₄ , pH 1)	50g/L	50	2	51	1.9
CLD-DDH-036	CLD-COMP-0017	Acid Water (SO ₄ , pH 1)	50g/L	50	24	51	6.3