

ANSTO TESTWORK ACHIEVES UP TO 98-99% RARE EARTH EXTRACTION FROM SANDY MITCHELL

HIGHLIGHTS

- Initial scoping metallurgical testwork by the Australian Nuclear Science and Technology Organisation (**ANSTO**) confirms the Sandy Mitchell monazite concentrate is amenable to processing via conventional acid bake and caustic conversion methods.
- Monazite concentrate assaying 48.7% total rare earth oxide (**TREO**) or 50.2% total rare earths plus yttrium was tested.
- Monazite was very well liberated, with 93% of monazite reporting to the 90% to 100% liberation band.
- Acid bake and water leach of milled concentrate achieved light rare earth extraction of 98% to 99% (95% from unmilled concentrate), with dysprosium extraction up to 99%.
- Caustic conversion achieved 97% phosphate removal, with a hydrochloric acid leach delivering approximately 98% light rare earth extraction.
- Large-scale acid bake test underway to generate leach liquor for downstream processing.
- Results are scoping-level tests on a monazite concentrate; the recovery of monazite from ore to concentrate is not part of this program.

Ark Mines Ltd (ASX: AHK) ('AHK' or the 'Company') is pleased to report initial results from a scoping metallurgical program completed by the Australian Nuclear Science and Technology Organisation on monazite concentrate from its Sandy Mitchell Rare Earth Elements and Heavy Minerals Project in North Queensland.

Sandy Mitchell hosts a basket of heavy minerals including monazite, xenotime, zircon, garnet and titanium minerals such as rutile and ilmenite, with muscovite and biotite as potential additional products.

ANSTO was engaged to assess the amenability of an Ark monazite concentrate, which also contains minor xenotime, to processing via both the conventional acid bake and caustic cracking routes, with the aim of producing a mixed rare earth carbonate (**MREC**) product. The program comprised concentrate characterisation, scoping acid bake and water leach tests and a caustic conversion and hydrochloric acid leach test.

Managing Director Ben Emery commented: "These initial ANSTO results are an important step for Sandy Mitchell as we progress the Project through key study phases. Achieving light rare earth extractions of up to 99.6% indicates our high-grade monazite concentrate responds to conventional processing. Additionally, the fact that it is amenable to both the acid bake and caustic conversion routes gives us flexibility as we move towards producing an MREC. Our focus now shifts to the larger-scale testwork already underway and to impurity removal ahead of precipitating a rare earth product."

ANSTO Testwork Program

The ANSTO scoping metallurgical testwork program confirms the Sandy Mitchell monazite concentrate is amenable to processing via either of the two rare earth cracking routes, achieving high light rare earth extractions of 98% to 99% from milled concentrate.

Four samples of monazite concentrate were combined and characterised for the program. The samples were the four rare earth products generated by IHC Mining in Brisbane from a heavy mineral concentrate produced by Currumbin Minerals. The feed was a composite bulk sample of retained one-metre resource drilling samples from within the Sandy Mitchell Mineral Resource (refer AHK ASX announcements 2 October 2024 and 10 June 2026) (see Appendix 1). The concentrate assays 48.7% TREO (50.2% TREO+Y).

Automated mineralogy (QEMSCAN) confirmed the concentrate comprises 83% monazite and 0.5% xenotime, with zircon (11.5%) the major gangue mineral and minor ilmenite, pyrite and rutile. The monazite is well liberated, with 93% reporting to the 90% to 100% liberation band, while 95% of the xenotime reports to the same band.

Acid Bake and Water Leach

Three scoping acid bake and water leach tests were completed, two on milled concentrate (P80 of 43µm) at sulphuric acid additions of 1,100kg/t and 1,500kg/t and one on unmilled concentrate (P80 of 170µm) at 1,500kg/t and 250-300°C.

In the scoping tests, light rare earth (LRE) extraction from the milled concentrate increased from 98% at 1,100kg/t acid addition to ~99.6% at 1,500kg/t, with dysprosium extraction reaching ~99% at the higher acid dose. The unmilled concentrate returned a lower LRE extraction of 95% under otherwise identical conditions, consistent with the reaction between sulphuric acid and monazite becoming kinetically limited at coarser particle sizes.

Extraction of selected rare earth elements for each test is shown in Table 2.

Caustic Conversion and Hydrochloric Acid Leach

In caustic conversion, monazite and xenotime react with sodium hydroxide (NaOH) to form rare earth hydroxides and soluble sodium phosphate, separating the phosphate from the rare earths. The scoping test was conducted on ground concentrate at ~150°C for 3h.

The conversion efficiency, measured as phosphate removal, was high at 97%. The rare earths remained in the solids.

The filter cake was leached in hydrochloric acid at 50°C. The maximum LRE extraction of approximately 98% at pH 2-3 is consistent with the 97% phosphate removal achieved in caustic conversion.

Table 1: Rare earth oxide grade of the Sandy Mitchell monazite concentrate.

Oxide	Grade (wt%)
La ₂ O ₃	11.02
CeO ₂	23.10
Pr ₆ O ₁₁	2.61
Nd ₂ O ₃	8.88
Sm ₂ O ₃	1.53
Eu ₂ O ₃	0.03
Gd ₂ O ₃	0.86
Tb ₄ O ₇	0.09
Dy ₂ O ₃	0.35
Ho ₂ O ₃	0.05
Er ₂ O ₃	0.09
Tm ₂ O ₃	0.01

Oxide	Grade (wt%)
Yb ₂ O ₃	0.05
Lu ₂ O ₃	0.01
Y ₂ O ₃	1.47
TREO (incl. Y)	50.16

Table 2: Extraction by element for each ANSTO scoping test.

Element	Acid bake, milled, 1,100kg/t (%)	Acid bake, milled, 1,500kg/t (%)	Acid bake, unmilled, 1,500kg/t (%)	Caustic + HCl leach (%)
La	98	99.6	95	n/a
Ce	98	99.6	95	n/a
Pr	98	99.7	95	n/a
Nd	98	99.6	95	n/a
Total LRE	98	99.6	95	~98
Dy	97	99	94	n/a
Y	95	97	93	n/a

Source: ANSTO Progress Note 1, 18 September 2026. LRE = La, Ce, Pr, Nd. Acid additions are rounded; actual additions were 1,074kg/t, 1,512kg/t and 1,506kg/t. Caustic + HCl leach LRE extraction is at pH 2-3,

Next Steps

A large-scale acid bake test is underway to generate sufficient leach liquor for downstream processing. Further treatment of the acid bake leach liquor is planned to remove impurities ahead of precipitation of a mixed rare earth carbonate (MREC).

About ANSTO

ANSTO is a leading Australian Government-owned research organisation with more than 50 years' experience in minerals processing and extractive metallurgy. Through its Minerals business unit, ANSTO has developed and optimised flowsheets for complex and critical-metal systems, including rare earths.

COMPETENT PERSON'S STATEMENT

The information in this announcement that relates to the source, sampling and compositing of the samples used in the testwork is based on, and fairly represents, information and supporting documentation compiled by Daemon De Chaeney, a Competent Person who is a Member of The Australasian Institute of Mining and Metallurgy and Australian Institute of Geoscientists. Daemon De Chaeney is a full-time employee of Ark Mines Ltd and holds no shares/options in the Company. Daemon De Chaeney has sufficient experience that is relevant to the style of mineralisation, type of deposit and the activity being undertaken to qualify as a Competent Person as defined in the 2012 Edition of the JORC Code. Daemon De Chaeney consents to the inclusion in this announcement of the matters based on their information in the form and context in which it appears.

The information in this announcement that relates to metallurgical test results is based on, and fairly represents, information and supporting documentation compiled by Daemon De Chaeney, a Competent Person who is a Member of The Australasian Institute of Mining and Metallurgy and Australian Institute of Geoscientists. Daemon De Chaeney is a full-time employee of Ark Mines Ltd and holds no shares/options in the Company. Daemon De Chaeney has sufficient experience that is relevant to these results to qualify as a Competent Person as defined in the 2012 Edition of the JORC Code. Daemon De Chaeney consents to the inclusion in

this announcement of the matters based on their information in the form and context in which it appears.

PREVIOUSLY REPORTED INFORMATION

The information in this announcement that relates to Sandy Mitchell-Concentrate to Product Test Result-Commercial is extracted from the Company's ASX announcement dated 10 June 2026, available at www.asx.com.au. The Company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement, and that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.

FORWARD-LOOKING STATEMENTS

This announcement contains forward-looking statements, including statements regarding the expected timing and outcome of the updated Mineral Resource Estimate, metallurgical test work, the updated Scoping Study and the Pre-Feasibility Study, the Exploration Target, and the potential markets and applications for the minerals identified at Sandy Mitchell. Forward-looking statements are based on the Company's current expectations and assumptions as at the date of this announcement and are subject to known and unknown risks, uncertainties and other factors, many of which are outside the Company's control. Actual results, performance and achievements may differ materially from those expressed or implied. References to end-use markets and applications are general market information and do not constitute a representation that the Company will produce, recover or sell any product, or achieve any particular product specification, recovery, price or revenue. The Company does not undertake to update any forward-looking statement except as required by law.

This announcement has been approved for release to the ASX by the Board of Ark Mines Ltd.

– ENDS –

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APPENDIX 1 – JORC CODE, 2012 EDITION – TABLE 1

Sandy Mitchell Project – ANSTO scoping metallurgical testwork on monazite concentrate

Section 1: Sampling Techniques and Data

Criteria	Commentary
Sampling techniques	The results reported relate to metallurgical testwork on a monazite concentrate, not to drill-hole assays. - Source material: retained one-metre bulk drill samples from Ark Mines' Stage 1 drilling (May to June 2023 and November to December 2023 programmes) within the Sandy Mitchell Mineral Resource (refer AHK ASX announcement 2 October 2024, Appendix C: Sandy Mitchell Stage 1 complete assay return). - Drill samples were rock chips and accompanying bulk fines collected on 1m intervals using a 100mm bit. Each metre was passed through an 87.5:12.5 riffle splitter to yield a representative aliquot of approximately 1.5kg for assay, collected in a pre-numbered calico bag, with the remainder retained in a numbered plastic bag. Recoveries were estimated volumetrically with periodic checks by mass using a digital scale. - Historic work by SGS (SGS Oretest Job No: S0580, 2010 for JOGMEC) shows the mineralisation to have a grainsize of $\leq 125\mu\text{m}$ (very fine sand); the sample mass is therefore considered adequate for representivity. - The metallurgical sample was composited from representative drill hole material. The composite was deslimed, wet gravity concentrated over shaker table and electrostatically separated by Currambin Minerals to produce a heavy mineral concentrate (HMC). - The HMC was processed by IHC Mining (Phase 2 Variation 1, IHC Project 2734) to produce four rare earth product/concentrate streams totalling approximately 570g (0.67% of head feed), which ANSTO combined into a single composite for this program. - The sample volume is considered appropriate for the current stage of project development (proof-of-concept and flowsheet development). The composite is a single sample and is not intended to represent grade or mineralogical variability across the Mineral Resource.
Drilling techniques	- May to June 2023 programme: Comacchio track-mounted air core rig using a 100mm air core bit. All holes were vertical and drilled to refusal or 17.5m, whichever came first. - November to December 2023 programme: AusRoc 4000 multi-purpose rig using a 102mm air core bit, changing to a slim-line 102mm RC face hammer at depth. All holes were vertical and drilled to complete the final metre in bedrock. Refer to the AHK ASX announcement 2 October 2024 for full drilling details.
Drill sample recovery	- Recoveries were assessed by volumetric estimation by the metre based on total sample weights using a digital scale, compared against laboratory loose bulk density measurements. - Sample was passed through a cyclone with a gated chute. The chute was kept closed until the end of each metre had been drilled, then opened to collect the sample, and closed prior to recommencement of drilling, to allow fines to fall out of the air stream into the sample. - No relationship between recovery and grade has been identified. Recovery is not considered material to the metallurgical results reported, which are based on a concentrate composite.
Logging	- Sample was logged by the metre for all drilling by the site geology team for both qualitative and quantitative criteria. - Drill logs are available for 100% of the 2023 drilling, with an overall length of 3,914.2m.

Criteria	Commentary
	Logging is sufficient to support Mineral Resource estimation, mining and metallurgical studies.
Sub-sampling techniques and sample preparation	- All drill sample passed through the drill cyclone dry. Sub-sampling for laboratory assay was by 87.5:12.5 riffle splitter: the bulk sample was passed evenly through the riffles, with the assay aliquot collected in a pre-numbered calico bag and the reject collected in a numbered plastic bag and retained. - Field duplicates were taken at 1 in 40. - The metallurgical composite was prepared from the retained bulk drill samples before beneficiation by Currumbin Minerals and IHC Mining. - At ANSTO the four concentrate samples were blended into one composite and sub-sampled by riffing for characterisation and testing. Samples were pulverised for analysis - Ground samples were riffled into representative portions for test work.
Quality of assay data and laboratory tests	- Head assays by ANSTO using XRF and lithium borate fusion digest with ICP-MS finish. - Mineralogy by automated mineralogy (QEMSCAN) at ANSTO - Leach liquors assayed by ICP-MS/ICP-OES and leach residues assayed by XRF. Extractions were calculated from solid and liquor assays. - Mass balance closure across the tests (typically 90-120%) was reviewed by ANSTO and considered acceptable for the purposes of the metallurgical test work programme. - ANSTO's standard analytical QA/QC procedures were applied.
Verification of sampling and assaying	The results were reviewed by the Company technical manager against ANSTO's September 26report. The TREO head grade of 50.2% is consistent with the sum of the individual oxides (Table 1'). No adjustments were made to assay data. TREO+Y was calculated from the oxide grades using standard stoichiometric factors. Source drill data: data was entered into MS Excel, verified against hard copy data and imported into Datamine Studio RM for validation. Primary data is stored as hard copy and as electronic tables in CSV and Datamine format. Eleven twin holes were drilled in the 2023 programmes for a total of 104.85 twin metres.
Location of data points	- An initial collar survey was conducted by handheld GPS as a failsafe. A full survey was subsequently carried out by Twine Surveys using RTK DGPS, with an accuracy of $\pm 20\text{mm}$ in x and y and $\pm 200\text{mm}$ in z. - The RTK survey was also used to generate a digital terrain model for high-quality topographic control. - All survey data is recorded in MGA2020 Zone 54 and AHD.
Data spacing and distribution	Not applicable to the metallurgical results. The composite is not used for Mineral Resource estimation. The source drilling within the Mineral Resource was on a 60m x 120m spacing for 3 lines and 120m x 120m for the remaining 13 lines. One-metre samples were not composited for assay; the metallurgical composite was prepared as described under Sampling techniques.
Orientation of data in relation to geological structure	Vertical holes in flat-lying heavy mineral sands; no orientation bias is expected. Not material to the metallurgical results. The deposit is unconsolidated restate sand derived by in-situ weathering (saprolite sand), with minor perturbation by small-scale fluvial channels; vertical sampling is the optimal orientation for this deposit type.
Sample security	Drill samples were collected after logging and transported at the end of each day to the Company's locked storage in Chillagoe. Bagged reject was stored on site in Ark's fenced secure

Criteria	Commentary
	bag farm and covered in UV-resistant tarping. Samples for metallurgical testing were boxed, wrapped and couriered to the laboratories. Concentrates were dispatched from IHC to ANSTO, Lucas Heights, using an international freight-forwarder that allowed consignment tracking.
Audits or reviews	A full audit of the sampling techniques and data for the 2023 drilling programmes was carried out by geological consultants Empirical Earth Science (EES), who found the QAQC to be of good quality without significant bias and the data fit for use in Mineral Resource estimation. No external audits or reviews of the metallurgical testwork have been undertaken.

Section 2: Reporting of Exploration Results

Criteria	Commentary
Mineral tenement and land tenure status	- The Sandy Mitchell Project is located on EPM 28013 (formerly EPM 18308) in far north Queensland. EPM 28013 is 100% owned by Ark Mines Ltd and was purchased on 23 February 2023. - A subsection of EPM 28013 was converted to Mining Lease ML 100409 on 15 October 2025, with an area of 405.57ha encompassing the whole maiden Mineral Resource. ML 100409 is subject to a landholder compensation agreement under Section 279 of the Mineral Resources Act 1989. - There are no third-party agreements. There are no known issues impeding the security of tenure or Ark Mines' ability to operate in the area.
Exploration done by other parties	Previous explorers in the area targeted gold, base metals and heavy minerals, including Laskan Minerals (ATP 597M, 1969), Altarama Search (ATP 833M, 1970), Tacam (ATP 2580M, to 1981), Barron, O'Toole and Metcalfe Holdings (EPMs 4400–4403, 1986–1989), Palmer Gold (EPM 10185, 1994–2001), BHP Billiton (2005–2007), MTY Resources (bulk and panned concentrate sampling, 2007–2009) and Waverley Nominees (auger sampling, 2012). Work after 2012 was carried out by Ark Mines. None of the previous work by other parties relates to the samples used in this testwork.
Geology	Sandy Mitchell is a heavy mineral sands deposit hosting monazite, xenotime, zircon, garnet, rutile and ilmenite, with muscovite and biotite as potential additional products. The project covers part of the southern extent of the Proterozoic Yambo Inlier, west of the Palmerville Fault System. Mineralisation is hosted in a 3m to 33m (average 10.0m to 12.3m) cover of disaggregated fine to very fine sand with sparse pebble or cobble horizons, extending from surface to bedrock. The sands are believed to derive from weathering of the Chelmsford Gneiss, with minimal fluvial transport largely constrained to the upper 2m.
Drill hole information	No new drill-hole results are reported. The source holes and intervals for the metallurgical sample were reported in the AHK ASX announcement 2 October 2024 (Appendix C: Sandy Mitchell Stage 1 complete assay return).
Data aggregation methods	No top-cuts applied. No metal equivalents are reported.
Relationship between mineralisation widths and intercept lengths	Not applicable; no intercepts are reported.
Diagrams	Not applicable
Balanced reporting	The results obtained are specific to the particular concentrate sample produced. The results are specific to the holes tested and cannot be extrapolated to any specific area in the project. The Company considers the information presented to be balanced and representative of the completed test work.

Criteria	Commentary
	The results are from a monazite concentrate; the recovery of monazite from ore to concentrate is not part of this program and is not reported here. Results are scoping-level and have not been optimised.
Other substantive exploration data	Thorium and uranium are present at levels that require management under radiation safety regulations. There is no other substantive exploration data to report currently.
Further work	A large-scale acid bake test is underway to generate leach liquor for impurity removal and precipitation of a mixed rare earth carbonate (MREC).