

Rare Earth Processing

ANSTO's Minerals business unit have extensive experience in rare earth process development and piloting, all the way through to separated final products.

We provide specialised consulting on the processing of rare earth minerals including monazite, bastnasite and xenotime, as well as from less frequently exploited rare earth sources such as apatite, ionic clays and complex ores containing zirconium / niobium silicates.

Our work has included all facets of rare earth process flowsheets, including acid leaching, sulfation baking, caustic conversion, alkaline roasting, selective precipitation, impurity removal, solvent extraction, ion exchange, process water treatment (softening) and chemical concentrate production. Our staff are experts in the department and the management of radioactivity in rare earth process flowsheets.

We have produced a range of separated light rare earth oxide (La, Ce, Nd, Nd/Pr) and mixed middle and heavy rare earth concentrates using solvent extraction. Product purities ranging from 99% (2N) to 99.9% (3N) have been produced for several of our clients. This work has allowed us to develop and validate numerical models to model the behaviour of such continuous solvent circuits. This knowledge has been applied to several scoping and higher level engineering studies, including techno-economic evaluation of processing options.

Fully integrated pilot plants have been operated for the Mt Weld (Lynas), Nolans (Arafura) and Toongi / Dubbo (AZL) rare earth projects. Other rare earth clients have included Peak Resources, Northern Minerals, Tasman Minerals, Rare Element Resources and Hastings Technology Metals.



About ANSTO's minerals experience

ANSTO has a 40-year track record of providing practical solutions and innovative technology to the mining and minerals processing industries. We have a team of 60+ dedicated professionals and technicians with expertise covering chemical engineering, metallurgy, mineralogy, chemistry, geology and radiation safety working within the Minerals business unit.

We provide process development services, technical review and consulting services, as well as collaborative and contract research on uranium, rare earth and specialty metals processing, radioactivity control and management, novel flowsheet design and modelling, and scoping level engineering / cost estimates.

Contact

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