

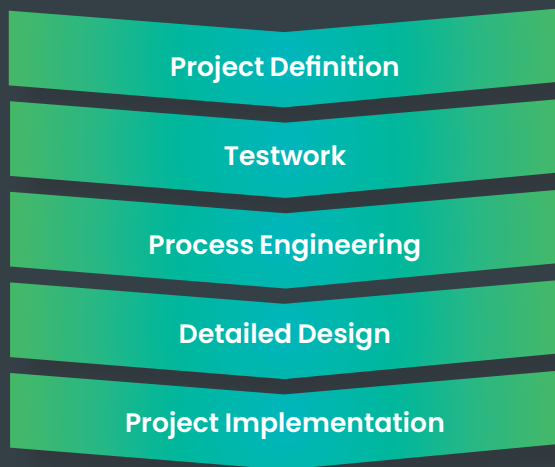


YOUR RESOURCE DEVELOPMENT PARTNER

CRITICAL MINERALS

CAPABILITY STATEMENT

Core develops innovative and sustainable solutions to complex metallurgical problems allowing our partners to realise the value of their projects. With a strong focus on finding solutions that work, Core provides expertise across the entire Critical Minerals Project Cycle:



PROJECT DEFINITION

Core has wide experience in the review of critical mineral project geology and mine planning and their influence on the metallurgy of the ores. Understanding this ore geometallurgy is critical for the design of testwork and the circuit flowsheet. Core can provide expertise for the selection of composite samples for testwork and the mineralogical analysis of the ores.

TESTWORK

Beneficiation

Core can carry out a range of testwork for the beneficiation of critical mineral ores including crushing, cycloning, primary grinding, ultrafine grinding, flotation, thickening and filtration.

For comminution, this includes Geopyöra rock breakage testing and IsaMill signature plot determination. For flotation this includes conventional lab and pilot scale tests, Jameson cell pilot tests and NovaCell™ coarse particle flotation.

Leaching

Leaching is a critical process in hydrometallurgy and Core Resources has capabilities across a number of leaching processes for critical minerals including acid and alkaline, pressure and column leaching.

For pressure leaching Core can provide detailed testwork relating to pressure oxidation and pressure leaching processes. Test programmes carried out to date have included use of pressure autoclaves for pressure acid leaching of Nickel and Scandium bearing ores. For pressure oxidation in particular, Core offers unrivalled expertise in the area of chemical analyses for sulphur species (elemental sulphur, sulphide and sulphate).

For heap leaching Core has extensive experience in heap leach amenability testwork for ore characterisation, reagent consumption, agglomeration screening, intermittent agitation bottle roll leach tests and column leach tests. For heap leaching Core can process the emerging PLS via SX to generate raffinate solution and then leach the ore in a closed-circuit configuration.

Solvent Extraction

A broad range of solvent extraction test programmes can be carried out at Core. Core's experience and capabilities include simple bench-scale studies involving 'shake out tests' through to operation of SX pilot plants of various sizes and levels of complexity.

Ion Exchange

Together with Core's ion exchange partner IPEX, Core provides IX solutions for processing battery metals, for example to produce vanadium electrolyte for Vanadium Redox Flow Batteries (VRFB).

Crystallisation

Core has extensive experience in crystallisation and chemical process development, honing expertise in refining the crystallisation process through meticulous control of variables including temperature, supersaturation, agitation speed, pH and residence time. Our laboratory has operated several crystallisation and precipitation pilot plants and conducted design testwork for numerous global companies.



PROCESS ENGINEERING AND DESIGN

Core's team of Metallurgists and Process Engineers are experts in critical minerals flowsheet development and capabilities include:

- Process modelling using METSIM, HSC and Excel based models
- Techno-economic evaluations
- Process options analyses
- Design, commissioning and execution of pilot and demonstration plants
- Conceptual or desktop studies, Scoping Studies, PFS to DFS
- Owners representative for Feasibility Studies
- Project Due Diligence

PROJECT IMPLEMENTATION

Core can offer the full range of Project Implementation services including:

- Process commissioning
- Process optimisation and plant surveys
- Plant availability analysis and optimisation
- Process debottlenecking
- Supply of Site operating staff from Process Manager to Operator

CRITICAL MINERALS PROJECT EXPERIENCE

Project Location	Core Scope
South Africa	Testwork and recommissioning of an antimony process plant, along with antimony recovery from a tailings resource
Australia	Testwork for removing antimony and bismuth from electrowinning tankhouse liquors using SX, IX and precipitation
Sweden	Testwork, flowsheet design and PFS engineering study for the beneficiation of graphite
Australia	Testwork and flowsheet design for the upgrading and extraction of platinum group metals using flotation and leaching
Australia	Project definition, testwork, flowsheet design and process engineering for a scandium project
Australia	Laboratory and pilot scale beneficiation testwork for the extraction and upgrading of vanadium
Australia	Beneficiation and leaching testwork for the extraction and upgrading of vanadium
Australia	Beneficiation and flotation testwork for the recovery of rare-earth elements
Australia	Due diligence review of a rare-earth elements project for financial investment
Australia	Review of Manganese testwork and flowsheet for PFS study providing recommendations for flowsheet improvement
Europe	Testwork, flowsheet design and engineering support for an antimony metal production plant



Interested to find out more?

Contact: info@coreresources.com.au

About Core Resources: Core Resources is an award-winning process engineering and metallurgical testing business based in Brisbane, Australia. Core Resources services a global customer base, enabling the world's mining projects with innovative metallurgical flowsheet solutions.



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