Hydrometallurgy Process Development
Metallurgical Testing Capabilities

RIGHT SOLUTIONS | RIGHT PARTNER
Introduction

ALS Metallurgy is part of the ALS Group, a diversified and global analytical laboratory and testing services company.

ALS Metallurgy is the global leader in metallurgical testing and consulting services for mineral process flowsheet development and optimisation.

Extensive bench scale laboratory, large scale pilot plant facilities and expert metallurgists, provide mineral processing, hydrometallurgical, mineralogical and in-plant services to the global resources community.

Our metallurgical solutions are internationally recognised by the mining, engineering and financial sectors for all major commodities:

• Precious metals – gold, silver, platinum group metals
• Base metals – copper, cobalt, lead, zinc, molybdenum, manganese
• Iron ore – hematite, magnetite, goethite, itabirite
• Nickel – laterite & sulphide ores
• Uranium & thorium
• Rare earth minerals & other exotics
• Mineral sands
• Industrial minerals
• Tungsten & tin.

ALS Metallurgy has an enviable reputation for delivering the highest quality extractive metallurgical testing service with accurate and timely data, expert support and a culture of safety and innovation.

Quality

ALS understands the value of data quality and integrity to exploration and mining companies. Our processes are designed to ensure clients receive the best quality assay data to assist informed decision making. The ALS quality program consists of a series of checks and balances with monitoring at senior management levels.

Health, Safety and Environment

Being an employee of ALS is about putting safety first. Globally, ALS is committed to a safe work culture.

SAFETY MANAGEMENT

As part of this global approach, ALS has developed an industry leading standard for managing health, safety and environmental issues.

PROTECTION OF THE ENVIRONMENT

ALS has Extensive procedures and policies to ensure Protection of the Environment. Specific procedures and policies address the following issues:

• Waste Management, Monitoring and Maintenance;
• Disaster Management plans for spills;
• Management of Solid waste, with recycling where possible.
Hydrometallurgy

ALS Metallurgy introduces the purpose built world class Hydrometallurgy Centre at our Perth, Western Australia facilities. This brand new facility includes state-of-the-art equipment and unprecedented piloting capacity to meet the growing needs of the hydrometallurgy industry.

ALS Metallurgy has a pilot plant facility in Australia that is licensed to handle and process radioactive ore and products. Our special sample preparation facility is designed for specifically handling dangerous materials such as asbestiform minerals and radionuclides. The facility is fully enclosed with extensive ventilation and dust collecting systems to comply with all safety and environmental regulatory requirements. This facility is employed for all uranium sample preparation work.

Supported by Australia’s most comprehensive metallurgical testing facility, our hydrometallurgy equipment list includes:

- Uranium
- Nickel
- Copper
- Zinc
- Cobalt
- Gold
- Rare earths

With industry leading expertise in geochemistry, mineralogy and metallurgy, the ALS Group can provide you with a wide range of services including:

**EXPLORATION SERVICES**
- Geochemical exploration services
- Geometallurgy
- Advanced mineralogy
- Scoping stage metallurgical testing

**PROCESS OPTIMISATION, PRE-FEASIBILITY & FEASIBILITY SERVICES**
- Geometallurgy
- Ore variability studies
- Advanced mineralogy
- Metallurgical flowsheet development & optimisation
- Continuous pilot plant testing

**PRODUCTION SUPPORT**
- Mine site laboratories
- Grade control & daily mill control analytical services
- Advanced mineralogy

Extensive Services

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Supported by Australia’s most comprehensive metallurgical testing facility, our hydrometallurgy equipment list includes:

- Large-scale atmospheric leaching circuit
- Leach columns – up to 10 metres high
- Mobile solvent extraction rigs
- Electrowinning circuits
- Continuous ion exchange carousel unit
- Continuous pilot & mini pilot scale leaching circuits
- Parr pressure reactors (one & five gallon units)

ALS Metallurgy can fabricate new equipment and/ or modify existing equipment to suit your specific testwork needs. In conjunction with the new hydrometallurgy test facilities, our experienced hydrometallurgists offer a comprehensive range of testing services.

Commonly performed testwork programmes from laboratory bench scale to large scale, continuous pilot plant circuits include:

- Comminution – crushing, grinding, large scale piloting, AG/SAG, ball/rod mills, HPGR
- Resin-in-pulp, resin-in-solution, resin-ion-exchange
- Precipitation
- Solvent extraction
- Solution purification
- Agglomeration & percolation
- In-situ leaching
- Leaching – bacterial, heap/column, pressure, agitation, acid, alkaline & more
- On-site process support

Testwork programmes are supported by an extensive in-house analytical facility and personnel experienced in the accurate measurement of metallurgical products including radionuclide concentrations in metallurgical samples.

Our leading edge mineralogy services including QEMSCAN®, X-ray diffraction (XRD), HyLogger™ and optical microscopy techniques provide quantitative data on the mineralogical characteristics and assist in optimising the response of the ore to hydrometallurgical processing.

Contact us today to discuss your project’s needs with our specialised hydrometallurgists.
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