Iron Ore
Mineralogy Services

Know more about your iron ore!
Production of a high grade iron product requires a thorough knowledge of the mineralogical parameters that might impact on the ultimate beneficiation of the ore.

This is particularly important for low grade iron ores that may require upgrading by comminution, gravity, flotation and/or other beneficiation processes since their mineralogical parameters (for example, particle density and shape) will significantly influence the efficiency of the upgrading process

Optimise the economic and technical evaluation of your project
Mineralogical studies form an integral part of the economic and technical evaluation of iron ore deposits and are a key input into exploration and geometallurgical programmes. When used as an input into block models, mineralogical data can assist with domain definition, development of exploration models, and selection of samples for metallurgical testwork programmes.

Process mineralogical studies, using a variety of advanced analytical systems, provide critical information for planning, auditing and maintaining productive and profitable iron ore beneficiation processes for lump, sinter and pellet production.

When done on a routine basis throughout the life cycle of the mine, process mineralogy will continue to assist the identification of process improvement opportunities.

Benefit from the integration of our services
ALS Metallurgy’s experts integrate quantitative process mineralogy with bankable metallurgy to provide critical information for the iron ore process flowsheet development and optimisation.

Working together, our team of highly experienced mineralogists and iron ore metallurgists provide you with a complete understanding of how your iron ore will respond to extractive processes and predict the final product grade.

Our leading mineralogical team
Our highly experienced team of mineralogists and technicians work closely with our dedicated iron or metallurgists and pride themselves on providing the highest quality results and fast turnaround times.

ALS Metallurgy’s integrated mineralogical approach to using QEMSCAN®, X-ray diffraction, HyLogger™ and optical microscopy clients with an accurate, quantitative understanding of the mineralogical variability within a deposit.

Automated mineralogical analysis using the QEMSCAN® provides accurate, fast, repeatable, quantitative mineralogical analysis of iron ore samples and related materials in order to maximise productivity and efficiency of exploration, process design and optimisation, mining, production, marketing and rehabilitation processes.

X-ray diffraction analyses and spectral analyses using the HyLogger™ provide information on the bulk mineralogy of large numbers of samples and are becoming increasingly valuable as an input in geometallurgical programmes. The rapidly generated HyLogger™ data has several benefits including improved objectivity and consistency of core logging and an improved understanding of the 3D models generated during exploration programmes.
We can add value throughout the life cycle of your iron ore project...

- Exploration
- Prefeasibility studies and feasibility studies
- Resource and reserve determination
- Ore variability and geometallurgical programmes
- Mine planning and production scheduling
- Comminution and beneficiation process design and optimisation
- Pilot testwork support
- Plant control and troubleshooting
- Plant audits and monthly surveys
- Smelter management
- Pellet manufacture quality control
- Transportation of final products
- Environmental assessment programmes and mine rehabilitation

... by providing you with the following information

- Mineralogical analysis of exploration samples (for example: drill core, RC chips), lumps, fines, pellets, sinters, fluxes, binding agents and other materials related to iron ore production
- More detailed identification of iron ore minerals and minerals containing penalty elements (such as Si, Al, P and S) using systems such as the QEMSCAN®.
- Elemental deportment of valuable, deleterious and penalty elements between minerals.
- Mineral liberation and locking analysis per size fraction.
- Grain size and particle size data (down to less than 1μm).
- Particle shape determination.
- Minerals associations and other textual information especially to characterise complex relationships between minerals that might influence potential upgrading of the ore.
- Theoretical particle density determinations.
- Prediction of final production grades.
- Determination of pellet structure and mineralogy.
- When presented in tables and as digital particle maps, the data is a powerful communication tool during team discussions.
Metallurgical Solutions
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.

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