

# BAUXITE SERVICES

Comprehensive chemical and mineralogical characterisation of bauxite

**Alumina producers face a multitude of challenges positioning themselves in a competitive global market with strong growth fundamentals. The exploration, resource definition and extraction of alumina from diverse bauxite types with complex varying mineralogy requires a laboratory partner with focus, dedication and proven track record in this commodity.**



## Our Expertise

Intertek's global expertise, dedicated bauxite laboratory and technical excellence constitute a key enabler in reaching your goals. Our Perth facility is ISO 17025 accredited for the bauxite methods.

Our experienced team of professionals can offer independent reliable advice on the full mineralogical and chemical characterisation of diverse bauxite materials.

## Bauxite Testing

Bauxite is a residual weathering product consisting primarily of gibbsite ( $\text{Al}(\text{OH})_3$ ), boehmite ( $\gamma\text{AlO}-\text{OH}$ ) and diaspor ( $\alpha\text{AlO}-\text{OH}$ ) as well as various iron oxides, titanium oxides and clays. Bauxite is the principal global resource for the production of aluminium. These important deposits form under intense, usually tropical, weathering conditions from carbonate or various silicate rocks. Good drainage is a prerequisite for the dissolution and removal of silica from clays and the precipitation of hydrated aluminium oxides. Owing to the proximity to the earth's surface, bauxite deposits are normally strip mined

and the alumina recovered using the Bayer process.

Intertek maintains and operates all the requisite sample preparation equipment for processing bauxite ores. These processes include drying, crushing, splitting and pulverising.

XRF analysis is the preferred method to accurately characterise the major element chemistry of bauxite samples. A simple loss on ignition (LOI) value at  $1000^\circ\text{C}$  is reported along with the major and minor oxide bauxite suite. Owing to the hygroscopic nature of bauxites, all data are reported moisture free.

Of more fundamental importance to the industry is the available alumina and reactive silica components of the ores i.e. that which would dissolve in a caustic leach (Bayer process). Analysis is performed on the leach solution using inductively coupled plasma optical emission spectrometry (ICP OES). Different leach conditions (temperature, caustic concentration) are offered to accommodate varying ore mineralogy in different bauxite deposits.

Determination of oxalates and sulphates are determined using ion chromatography. Magnetic susceptibility measurements can also be performed using a magnetic susceptibility meter.

## Additional Capability

Intertek Minerals has XRD and FTIR capabilities which can be used to quantitatively characterise the mineralogy of bauxite deposits.

Trace element suite determinations on bauxite can be made using both fusion and four acid digests with ICP OES and ICP MS finishes to provide high quality fit-for-purpose data.

Additional analyses such as chloride, fluoride and carbon analyses can be done on bauxite samples using single element analytical techniques.

A range of packages and procedures are available to suit your specific requirements. Please contact your regional business development manager to discuss your options.



## FOR MORE INFORMATION

 +61 8 9263 0100

 [min.aus.sales@intertek.com](mailto:min.aus.sales@intertek.com)

 [intertek.com/minerals](http://intertek.com/minerals)