

# Iron Ore Analysis using XRF



X-Ray fluorescence (XRF) is the preferred method of analysis for iron ore samples. Accuracy, long term reproducibility and high throughput means XRF is unparalleled in the modern geochemical laboratory for the analysis of the major components of iron ores.

Pulped samples are mixed with a borate based flux and made into fusion disks using semi or fully automated technology. The use of fusion disks eliminates physical effects (such as particle size) which can compromise the accuracy of pressed powder XRF analyses. High quality data are produced using either simultaneous or sequential wavelength-dispersive instrumentation.



Loss on ignition (LOI) is determined by the use of Thermo Gravimetric Analysis (TGA). Single point LOI is determined at 1000°C, while the three point LOI values are determined at 371°C, 650°C and 1000°C, unless otherwise requested.



## Iron Ore Packages

Intertek Genalysis offers three packages for Iron Ore analysis - a **Basic Suite** and two **Extended Suites**. All results are reported on a dry weight basis.

### Basic Iron Ore Package

Element	Range %	Element	Range %	Element	Range %
Fe	0.01 - 70	MgO	0.01 - 100	SiO <sub>2</sub>	0.01 - 100
Al <sub>2</sub> O <sub>3</sub>	0.01 - 100	MnO	0.01 - 100	TiO <sub>2</sub>	0.01 - 100
CaO	0.01 - 100	Na <sub>2</sub> O	0.01 - 100	V <sub>2</sub> O <sub>5</sub>	0.005 - 10
Cr <sub>2</sub> O <sub>3</sub>	0.005 - 10	P	0.001 - 45	LOI 1000°C	0.01 - 100
K <sub>2</sub> O	0.01 - 100	S	0.001 - 40		

Fe ore basic package

Li borate fusion / XRF

FB1/XRF10

Multiple point LOI per additional temperature point



This basic XRF iron ore suite is intended to quantify the essential major and minor oxide components of an iron ore sample. It includes the most important deleterious elements such as S, P and Ti. The V content can be used to infer the mineralogy of the ore. A single LOI value at 1000°C is determined thermo gravimetrically. Three point LOI and divalent iron (FeO) by titration are optional extra analyses.

Data from the basic suite are suitable for exploration and resource modeling purposes.



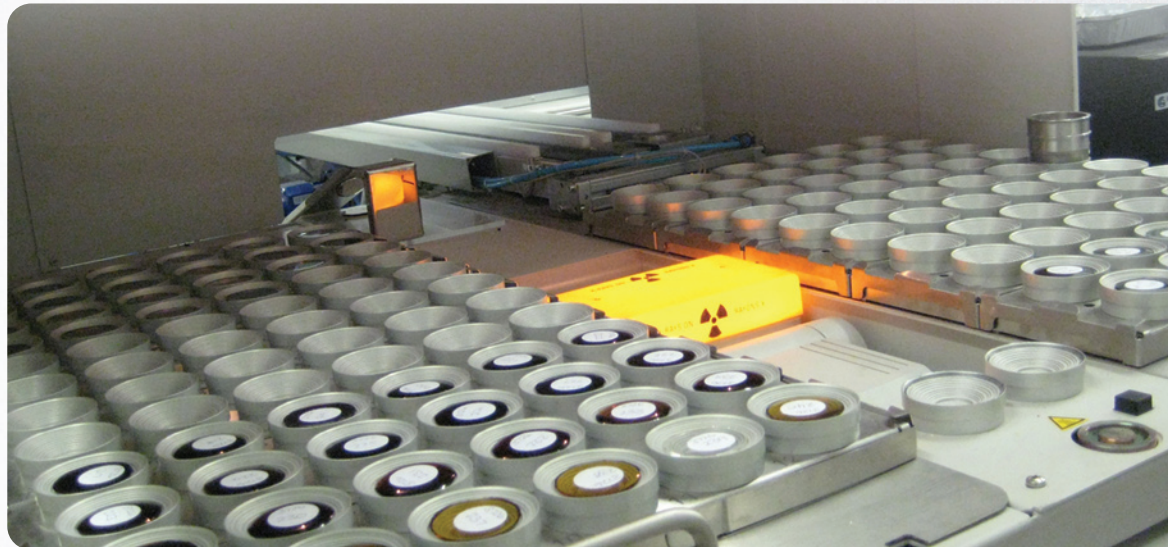
**Iron Ore Extended Suite – Standard Detection Limits**

Element	Range %	Element	Range %	Element	Range %
Fe	0.01 - 70	K <sub>2</sub> O	0.01 - 100	Sn	0.005 - 5
Al <sub>2</sub> O <sub>3</sub>	0.01 - 100	MgO	0.01 - 100	Sr	0.005 - 5
As	0.005 - 5	MnO	0.01 - 100	TiO <sub>2</sub>	0.01 - 100
BaO	0.005 - 5	Na <sub>2</sub> O	0.01 - 100	V <sub>2</sub> O <sub>5</sub>	0.005 - 10
CaO	0.01 - 100	Ni	0.005 - 20	Zn	0.005 - 5
Cl	0.005 - 5	P	0.001 - 45	Zr	0.005 - 5
Co	0.005 - 5	Pb	0.005 - 5	LOI 1000°C	0.01 - 100
Cr <sub>2</sub> O <sub>3</sub>	0.005 - 10	S	0.001 - 40		
Cu	0.005 - 5	SiO <sub>2</sub>	0.01 - 100		
Fe ore extended package			Li borate fusion / XRF		FB1/XRF11
Multiple point LOI per additional temperature point					

The extended iron ore suite offers a number of additional trace elements which may also be deleterious, including As, Ba, Cl, Co, Cu, Ni, Pb, Sn, Sr, Zn and Zr. A single LOI value at 1000°C is determined thermo gravimetrically. Three point LOI and divalent iron (FeO) by titration are optional extra analyses.

Data from the extended suite are suitable for exploration and resource modeling as well as quantification of additional accessory and deleterious elements. While such elements are less abundant in most iron ores, they may affect the quality of the ore if present in significant quantities.

**Lower detection limits option available at additional cost**



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