Thermo Scientific™ products in the iron and steel manufacturing process

Raw materials processing
- Weight verification
- Elemental analysis using XRF and SEM/EDX
- Phase analysis using XRD
- Handheld XRF analysis
- Online elemental analysis of coal
- Density, flow, and level measurement
- Online gas and moisture analysis
- Radiation measurement and protection
- Particulate monitoring
- Laboratory informatics

Steel making
- Elemental analysis using Spark OES, XRF, and SEM/EDX
- Inclusion analysis using Spark OES and SEM/EDX
- Flow measurement
- Online gas analysis
- Radiation measurement and protection
- Particulate monitoring
- Laboratory informatics

Hot rolling
- Thickness measurement and lab XRF analysis
- Profile measurement
- Data acquisition & management
- Radiation measurement and protection
- X-ray source/flux stability

Cold rolling
- Thickness measurement and lab XRF analysis
- Elemental analysis using Spark OES
- Gas analysis
- Data acquisition & management
- Radiation measurement and protection

Processing lines and finished products
- Coating weight measurement
- Thickness measurement
- Elemental analysis using Spark OES, XRF, and SEM/EDX
- Inclusion analysis using Spark OES and SEM/EDX
- Laboratory informatics
- Gas analysis
- Radiation measurement and protection
- Data acquisition & management
- Particulate monitoring

Thermo Scientific products useful at this stage
- Thermo Scientific™ ARL 9900 X-Ray Workstation
- Thermo Scientific™ ARL (Spark OES) Metals Analyzer
- Thermo Scientific™ ARL SMS Automated Analyzers
- Thermo Scientific™ Niton® XLS Analyzer
- Thermo Scientific™ CB Omni Fusion Sinter Analyzer
- Thermo Scientific™ RM 210 CM Thickness Gauge
- Thermo Scientific™ RM 315 EC Galvanneal Coating Weight Gauge
- Thermo Scientific™ SIPRO Simultaneous Profile Gauge

Stage 1
- Raw materials processing (iron ores)

Stage 2
- Steel making and casting (continuous emissions monitoring, coke oven gas analysis, bulk weighing and monitoring, moisture analysis in coke)

Stage 3
- Hot rolling (thickness measurement, flatness measurement)

Stage 4
- Cold rolling (trace element analysis, thickness profile measurement, data acquisition & management)

Stage 5
- Strip processing (continuous casting, trace element analysis, radiation measurement & protection, flow measurement, radiation leak detection, coating weight measurement, coil coating lines)

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