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## International Ferro Metals Smelter Project

## BACKGROUND AND PROJECT DESCRIPTION

In 2002 Pyromet were commissioned to perform the Bankable Feasibility Study for the International Ferro Metals project. In October 2005 International Ferro Metals listed on the London Stock Exchange and the project started immediately. Pyromet were appointed to design, construct, commission and guarantee the smelter on a turnkey fixed price basis.

The Pyromet scope included the Ore Beneficiation Plant and the Smelter. The Ore Beneficiation Plant processes the run-of-mine ore, received direct from the mining operations, into metallurgical concentrate, foundry grade concentrate and lumpy ore. The Smelter includes the submerged arc closed furnaces, raw material handling, screening, dust extraction, storage and batching, furnace off-gas scrubbing, electrical, automation and tapping equipment.

## TECHNOLOGY

The smelter incorporates the following technology:

- Pyromet submerged arc closed furnace technology
- Pyromet patented electrode columns, which are installed on all six of the ferrochrome furnaces constructed in South Africa during the last two years
- Complete plant automation system designed by Pyromet
- Pyromet designed furnace off-gas scrubbers, two per furnace with each scrubber rated at 130% of furnace capacity
- Fully integrated and automated raw material handling system from the mine through the Pyromet ore beneficiation plant to the Pyromet furnaces
- Provision to allow for the retrofitting of Pyromet multiple preheaters

## EARLY START-UP

The first of the two furnaces was started-up five weeks ahead of schedule on the 8th January 2007 and the second furnace seven weeks ahead of schedule on the 30th January 2007. The project duration from the date that Pyromet received the green light to proceed was 15 months for the first furnace and 16 months for the second furnace. This project duration is an exceptional feat by Pyromet bearing in mind that this was a greenfield project with a very large and complex scope of work implemented to a high standard of quality, technology and attention to detail.

The early start-up is a testimony to Pyromet's extensive experience in large greenfield turnkey projects and the good working relationship between Pyromet and International Ferro Metals.



## PROJECT INFORMATION

**Project Name:** International Ferro Metals Smelter  
**Client:** International Ferro Metals (SA) (PTY) Limited  
**Produces:** Charge Chrome (ferrochrome)  
**Plant Location:** Mooi-nooi, South Africa  
**Disciplines included:** Process Technology, civil, structural, mechanical, electrical, instrumentation and automation  
**Plant start-up:** January 2007  
**Scope of Work:** Greenfield turnkey design, supply, erection, commissioning and equipment and process guarantees of furnaces, furnace building, off-gas scrubbing, slurry handling, raw material storage and batching systems, electrical HVA, MV, LV, control and instrumentation.

**Produces:** Charge Chrome (Ferro Chrome)  
**Furnace capacity:** 2 x 66 MVA (54 MW)  
**Furnace type:** Submerged arc closed furnaces  
**Production capacity:** 235,000 ton/m per year

## PROJECT STATISTICS

**Concrete:** 20 000 m<sup>3</sup>  
**Steel Structure:** 5 000 tons  
**Construction Man Hours:** - >1 million  
**Pyromet Project Team:** 40 persons

