



Pyrometallurgical Laboratory

At XPS a typical pyrometallurgical project is carried out in several steps. Process and thermodynamic calculations come first, then preliminary laboratory tests are combined with literature searches of international databases. Subsequently, preliminary profitability calculations and the process engineering design can be revisited to support further bench-scale or piloting test work. State of the art equipment combined with highly-skilled personnel allows for a high quality product/result.



Key Capabilities...

Process Development and some research on:

- High temperature phase equilibria in complex slags
- Developing/verifying chemical thermodynamic databases
- Integrating experimental work with modeling tools such as FactSage and Metsim

Exploratory investigation of pyrometallurgical processing routes for new and existing ore bodies/types. Previous work includes base metal oxide smelting in controlled gas atmospheres at 1800 °C, slag-liquidus determinations and pay-metal or impurity slag/matte distribution optimization. Available furnaces are:

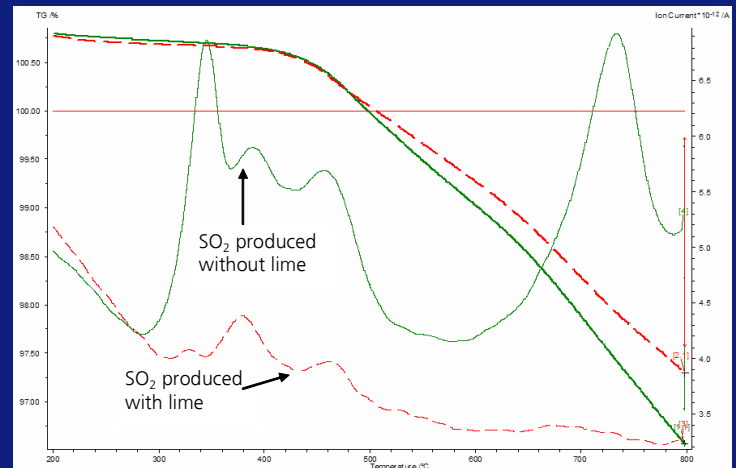
- Bottom loading CM furnace -1700 C
- Vertical tube CM furnace -1800 C
- Hazen rotary kiln -1200 C
- Carbolite tube furnace -1200 C
- Induction furnace >1600 C, 30 kg charges

Thermo Gravimetric Analysis combined with Differential Scanning Calorimetry and coupled to a Mass Spectrometer is available for thermal analysis yielding measured weight loss coupled to evolved gas analyses.

- TGA**
- * High accuracy in the sub- μg range
 - * Controllable gas environment
 - * Measurements between -120 and 1650 °C
 - * Excellent reproducibility



Example of TGA output displaying the influence of lime addition to roasted nickel concentrate upon the SO_2 evolution as function of increasing temperature



Contact Us...

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