**Your Need:** Managing slag flow behavior and minimizing refractory wear.

**Our Solution:** MTI’s new high-temperature Deltech furnace significantly enhances our abilities to examine slag-melting behavior and slag refractory interactions. For example, this system will enable us to assist in the development of synthetic formulations as well as refractory corrosion. The interaction of slag with refractory materials is determined using cup tests at temperatures up to 1700°C in reducing or oxidizing atmospheres. The cup and slag materials are analyzed using SEM techniques to determine penetration and reaction of slag with refractory materials.

**More about our slag refractory testing equipment:**
- Temperatures up to 1700°C
- Reducing and oxidizing atmospheres
- Slag refractory reactions
- Refractory corrosion
- Slag properties
- SEM mapping and linescans
Ash Fusion and Slag Flow Behavior:

MTI's new LECO ash-fusion furnace system is used to measure ash fusion temperatures and slag flow behavior under controlled atmospheres.

High-Temperature Ash Fusion Temperatures

The fusion temperatures measured are the four conventional ash fusion temperatures (AFTs) determined under oxidizing or reducing conditions (ASTM standard D1857). The AFTs measured include the initial deformation temperature, softening temperature, hemispherical temperature, and fluid temperature.

Viscosity Measurement - T<sub>250</sub>

Viscosity is the most important physical property of slag and ash, as it influences their ability to flow or develop strength. Viscosity of slags are measured in either oxidizing or reducing environments. T<sub>250</sub> is the temperature at a viscosity of 250 poise, at which slag begins to flow (and develop strength). The sample is placed in a furnace and heated at a steady rate. The test is monitored through the stages of melting; most tests are captured on video to better determine the T<sub>250</sub>.

The T<sub>250</sub> method was tested using a National Institute for Standards and Testing (NIST) glass standard. The results are within 5% of the certified value.