

Ore, Sinter and Pellet Testing and Assessment



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Corus's Teesside Technology Centre (TTC) offers a wide range of facilities which test burden materials for their chemical, mechanical and metallurgical properties. The extensive facilities allow industry standard tests and those tests developed specifically for Corus, by TTC, to be carried out. The facilities are used to test all burden materials including sinter, pellets, lump, briquettes etc. Specific sinters can be produced to a client's requirements using sinter box and a sinter simulator, (see separate handout).

Standard tests available include:

- Size analysis
- Moisture content to ISO 3087:1998
- Bulk density to ISO 3852:1988 (BS6147:1989)
- Low temperature reduction disintegration (RDI) to ISO 4696-1:1996 (the JIS version is also available)
- Reducibility to ISO 4695:1995
- Relative reducibility to ISO 7215:1995
- Decrepitation to ISO 8371:1994
- Tumble strength to ISO 3271:1995
- Pellet free swelling to ISO 4698:1994
- Pellet compressive strength to ISO 4698

Benefits of carrying out ore, pellet and sinter assessments:-

- improvements to the efficiency of the blast furnace operation
- improved furnace stability
- increased productivity
- assessment of burden materials without putting live furnace at risk
- can assess the use of cheaper available iron units in the burden materials (ie cost effective burdening)

Other tests include:

- Burden softening and melting properties using:-
 - Advanced Softening and Melting (ASAM) test
 - High Temperature Softening and Melting (HTSM) tests (see separate handout for more details)
- Differential Thermal Analysis (DTA)
 - differential scanning calorimetry (0-600°C)
 - thermogravimetry (0-1000°C)
- Porosity
- True powder density
- Petrographic examination, including optical microscopy and hot stage microscopy to 1500°C
- Magnetite content by Satmagan

