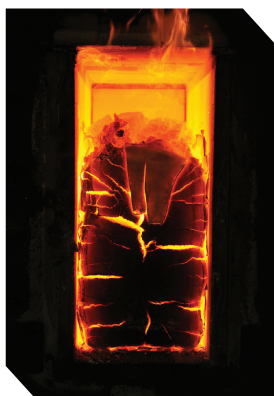




Coal Carbonisation Comparison Research Improves Coking Blend



THE PROJECT

An international steel producer wanted to re-evaluate the coals used in their coking blend to reduce costs and simplify logistics.

To support this, the Materials Processing Institute carried out a carbonisation series to evaluate the performance of increasing levels of a semi-soft coal in a “simplified” blend, i.e., with fewer components than currently in use. This research was managed by the Institute’s Energy, Environment & Minerals Research Group.

THE RESEARCH

Carbonisation runs were carried out in the Institute’s 350kg Movable Wall Oven to compare blends in which a lower quality coal replaced a prime coking coal.

This research could not have been carried out without access to a Movable Wall Oven.

The Materials Processing Institute has the only Movable Wall Oven in the U.K. and is one of only three facilities in Europe with a Movable Wall Oven.

The research looked at coking behaviour, especially pressure development, and resultant coke quality in terms of strength and reactivity.

During carbonisation the process parameters measured were:

- Internal gas pressure within the carbonising coal cake
- Internal temperatures associated with pressure development
- Vertical expansion / contraction of the carbonising coal cake
- Coking pressure transferred to the oven wall

Coke properties including mean size, strength, abrasion resistance and reactivity were also analysed to determine coke quality.

THE OUTCOME

The results showed that there was little difference in the carbonisation behaviour of the blends and coking pressure development was within acceptable limits.

Coke quality in terms of strength and abrasion resistance remained uniform and reactivity was largely unaffected by substitution of the prime coking coal with the semi-soft coal.

A switch to incorporating more semi-soft coal in the coking blend has led to significant savings.

Address:

Materials Processing Institute
Eston Road
Middlesbrough
TS6 6US
United Kingdom

Contact Details:

t: +44 (0)1642 382000
enquiries@mpiuk.com
www.mpiuk.com