

PaGe_021_ThermalShock_MgO-C_BiomassPellets-950degC

Date: 2026-08-07

Tags: MgOC GRK2802_DFG_461482547

ThermalShock BioCokeMgOCMSTS

Category: Testing & Analysis

Status: Success

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Objective:

- Performing thermal shock tests on pressed / thermally treated MgO-C samples with 1.1 wt.-% graphite, wood pellets, or sunflower seed hull pellets to evaluate the thermal shock resistance.

Experimental setup:

- Pressed samples were obtained from [Processing - PaGe_005_Pressing_MgO-C_BiomassPellets-120MPa](#), whereas thermally treated samples were obtained from [Processing - PaGe_006_ThermalTreatment_MgO-C_BiomassPellets-1000degC](#)
- Device - 824 ILM LABOR (DryingFurnace) to dry the samples
- Device - Thermal Shock Coke-Bed Furnace F9 (ChamberFurnace) with a steel retort filled with [Material - PetroleumCoke_Grit_0.2-2.0mm_Müco](#)
- Fixture to hold the samples in place underneath a nozzle with a compressed air connection.

Procedure :

Thermal shock testing based on EN 993-11:

- Dry the samples at 110 °C for at least 24 hours before testing.
- Heat the furnace to 950 °C with a heating rate of 10 K·min⁻¹.
- After 30 minutes of dwell time, place the samples (2 for each procedure) in the coke bed inside the steel retort that is inside the heated furnace.
- Rest the samples for 45 min in the furnace at 950 °C.
- Open the furnace door, take out the samples with iron pliers, and place them on the fixture next to the furnace.
- Immediately open the compressed air (preset to 0.1 MPa) valve and cool the samples for 5 minutes with a constant compressed air pressure of 0.1 MPa ± 0.01 MPa.

Results:

- Thermally shocked MgO-C samples.

elabExperiment Metadata - Contextualize data (storage structure, formats, and how the stored data correspond to experimental activities)

Format

Format of the generated raw, (processing) meta, processed and result data

No data generated

Coverage

Fraction/part of the experiment contained in the generated raw and result data

No data generated

Description

Brief description to understand and navigate the generated raw, processed, meta and result data of the conducted experiment

No data generated

Contributors

Persons who contributed to data generation (forename name; forename name; etc.)

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Linked experiments

Processing - [PaGe_005_Pressing_MgO-C_BiomassPellets-120MPa](#)

Processing - [PaGe_006_ThermalTreatment_MgO-C_BiomassPellets-1000degC](#)

Linked resources

Device - [Thermal Shock Coke-Bed Furnace F9 \(ChamberFurnace\)](#)

Device - [824 ILM LABOR \(DryingFurnace\)](#)

Material - [PetroleumCoke_Grit_0.2-2.0mm_Müco](#)



Unique eLabID: 20260807-3243db5fe9d775bcd72b8482d4c1a669b0c9588

Link: <http://elabftw.chemie.tu-freiberg.de/experiments.php?mode=view&id=6324>