International Standard

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Hard coal — Determination of plastic properties — Constant-torque Gieseler plastometer method

Houille — Détermination des propriétés plastiques — Méthode du plastomètre Gieseler à couple constant

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Foreword

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This document was prepared by Technical Committee ISO/TC 27, *Coal and coke*, Subcommittee SC 5, *Methods of analysis*.

This third edition cancels and replaces the second edition (ISO 10329:2017), which has been technically revised.

The main changes are as follows:

— updated the scope of this document, it is only applicable to hard coal;

— clarified reporting requirements for the various ranges of dd/min.

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Hard coal — Determination of plastic properties — Constant-torque Gieseler plastometer method

1 Scope

This document specifies a method for obtaining a relative measure of the plastic behaviour of hard coal when heated under prescribed conditions. The method is used to obtain values of the plastic properties of coals and blends used in carbonization and in other situations where determination of plastic behaviour of coals is of practical importance.

NOTE The empirical nature of this test requires proper equipment calibration to produce fluidity readings which are a true indication of the relative plastic behaviour of the coal.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 13909-1, *Coal and coke — Mechanical sampling — Part 1: General introduction*

ISO 13909-2, *Coal and coke — Mechanical sampling — Part 2: Sampling of coal from moving streams*

ISO 13909-3, *Coal and coke — Mechanical sampling — Part 3: Sampling of coal from stationary lots*

ISO 13909-4:2016, *Hard coal and coke — Mechanical sampling — Part 4: Coal — Preparation of test samples*

ISO 18283, *Coal and coke — Manual sampling*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

— ISO Online browsing platform: available at https://www.iso.org/obp

— IEC Electropedia: available at https://www.electropedia.org/

3.1
dial division per minute
dd/min
measure of stirrer rotation rate, as used in the constant-torque Gieseler plastometer method

Note 1 to entry: There are 100 dial divisions for each full 360° rotation of the stirrer. The fluidity result is expressed as total dial divisions turned by the stirrer in a 1 min time period, i.e. dd/min.

3.2
initial softening temperature
temperature at which dial movement or electronic readout indicates a stirring shaft movement of one *dial division per minute* (3.1), with continued indication of movement of at least 1 dd/min thereafter

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