INTERNATIONAL STANDARD

ISO 17246

Second edition
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Coal — Proximate analysis

Charbon — Analyse immédiate

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Foreword

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International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 17246 was prepared by Technical Committee ISO/TC 27, *Solid mineral fuels*, Subcommittee SC 5, *Methods of analysis*.

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This second edition cancels and replaces the first edition (ISO 17246:2005), of which it constitutes a minor revision. (It also incorporates the Technical corrigendum ISO 17246:2005/Cor.1:2006.)

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Coal — Proximate analysis

1 Scope

This International Standard establishes a practice for the proximate analysis of coal and is intended for general utilization by the coal industry to provide a basis for comparison of coals.

2 Normative references

The following referenced documents are indispensable for the application 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 562, *Hard coal and coke — Determination of volatile matter*

ISO 589, *Hard coal — Determination of total moisture*

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ISO 1171, *Solid mineral fuels — Determination of ash*

ISO 1213-2, *Solid mineral fuels — Vocabulary — Part 2: Terms relating to sampling, testing and analysis*

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ISO 11722, *Solid mineral fuels — Hard coal — Determination of moisture in the general analysis test sample by drying in nitrogen*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 1213-2 apply.

4 Principle

Coal is analysed for content of moisture, ash and volatile matter. The fixed carbon is calculated and the results are reported, to the preferred basis, as a proximate analysis.

5 Preparation of sample

Prepare the sample in accordance with the requirements of the various test methods given in Table 1.

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6 Test methods

Carry out the determination in accordance with the test methods specified in Table 1.

Table 1 —Standard test methods for proximate analysis

Parameter	Test method
Total moisture (if an “as received” reporting basis is required)	ISO 589
Moisture in air-dried sample	ISO 11722
Ash	ISO 1171
Volatile matter	ISO 562

7 Expression of results

The fixed carbon, $C_{fix,ad}$, calculated to air-dried basis and expressed as a percentage mass fraction, is given by Equation (1):

$$C_{fix,ad} = 100 - (M_{ad} + A_{ad} + V_{ad}) \quad (1)$$

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where

M_{ad} is the moisture in the air-dried sample, expressed as a percentage mass fraction;

A_{ad} is the ash, calculated to an air-dried basis and expressed as a percentage mass fraction;

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V_{ad} is the volatile matter, calculated to an air-dried basis and expressed as a percentage mass fraction.

The result is reported to the nearest 0,1 % mass fraction.

The fixed carbon may also be calculated to other bases using the equations in Table 2.

Table 2 — Equations for calculating the results to different bases

Basis of value given	Basis of value wanted		
	As received[a] (ar)	Air-dried (ad)	Dry[a] (d)
Parameter, P (moisture, ash or volatiles)	$P_{ar} = P_{ad} \times \frac{100 - M_{ar}}{100 - M_{ad}}$	—	$P_{d} = P_{ad} \times \frac{100}{100 - M_{ad}}$

[a] Where M is the moisture content.

For further calculations, see ISO 1170.

See Annex A for an example of proximate data reported to different bases.

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8 Test report

The test report shall include the following information:

a) reference to this International Standard, i.e. ISO 17246;

b) identification of the sample tested;

c) method or methods used;

d) results and basis of reporting.

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Annex A
(informative)

Example of a proximate analysis

Parameter	As received (ar) % mass fraction	Air dried (ad) % mass fraction	Dry (d) % mass fraction
Total moisture, M_{ar}	8,0	—	—
Moisture in air-dried sample, M_{ad}	—	3,0	—
Ash, A	9,5	10,0	10,3
Volatile matter, V	19,0	20,0	20,6
Fixed carbon, C_{fix}	63,5	67,0	69,1
Total	100,0	100,0	100,0

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Bibliography

[1] ISO 1170, *Coal and coke — Calculation of analyses to different bases*

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