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Calculation of analyses to different bases for coal

(ISO 1170:2013, Coal and coke - Calculation of analyses to different bases, MOD)

煤炭分析结果基的换算

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Calculation of analyses to different bases for coal

1 Scope

This Standard specifies the method summary, symbols and calculations for the calculation of analyses to different bases for coal.

This Standard applies to coal and coke.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies to this document. For undated references, the latest edition (including any amendment) applies to this document.

GB/T 212, Proximate analysis of coal (GB/T 212-2008, ISO 11722:1999, ISO 1171:1997, ISO 562:1998, NEQ)

GB/T 213, Determination of calorific value of coal (GB/T 213-2008, ISO 1928:1995, MOD)

GB/T 214, Determination of total sulfur in coal (GB/T 214-2007, ISO 334:1992, MOD)

GB/T 215, Determination of forms of sulfur in coal (GB/T 215-2003, ISO 157:1996, MOD)

GB/T 218, Determination of the carbonate carbon dioxide content in coal (GB/T 218-1996, ISO 925:1997, MOD)

GB/T 476, Determination of carbon and hydrogen in coal (GB/T 476-2008, ISO 625:1996, MOD)

GB/T 483, General rules for analytical and testing methods of coal (GB/T 483-2007, ISO 1213-2:1992, NEQ)

GB/T 3558, Determination of chlorine in coal (GB/T 3558-2014, ISO 587:1997, NEQ)

GB/T 7560, Determination of mineral matter in coal (GB/T 7560-2001, ISO 602:1983, IDT)

GB/T 19227, Determination of nitrogen in coal (GB/T 19227-2008, ISO 333:1996, ISO/TS 11725:2002, MOD)

GB/T 25214, Determination of total sulfur in coal by IR spectrometry (GB/T 25214-2010, ISO 19579:2006, MOD)

GB/T 30732, Proximate analysis of coal - Instrumental method

GB/T 30733, Determination of total carbon, hydrogen and nitrogen content in coal - Instrumental method (GB/T 30733-2014, ISO 29541:2010, MOD)

3 Method summary

Substitute the relevant value into the corresponding formula, then, multiply the item value represented by the basis of value given, so as to obtain the item value represented by the basis of value wanted.

4 Symbols

4.1 Symbols of bases

Coal analyses – expressed by different bases – are represented by the abbreviations of the English names of the bases, marked in the lower right corner of the bullets, behind the fine bullets, and separated by a comma. The symbols of common bases for coal analysis tests are:

ad: air dried basis;

ar: as received basis;

d: dry basis;

daf: dry ash-free basis;

dmmf: dry mineral matter-free basis.

4.2 Item symbols

The symbols defined in GB/T 483 and the following symbols apply to this document:

A: ash;

C: carbon;

Cl: chlorine;

Cl_{inorg}: inorganic chlorine;

CO_2: carbonate carbon dioxide;

F_{Cl}: correction factor for the calculation of inorganic chlorine;

F_h: correction factor for the calculation of water of hydration;

F_{MM}: correction factor for the calculation of mineral matter;

H: hydrogen;

M_{ad}: general analysis test coal sample moisture;

M_h: water of hydration in the mineral matter;

MM: mineral matter (see Appendix C);

N: nitrogen;

O: oxygen;

$Q_{gr,\,v}$: constant-volume gross calorific value;

$Q_{net,\,v}$: constant-volume net calorific value;

S_o: organic sulfur;

S_p: pyritic sulfur;

S_s: sulfate sulfur;

S_t: total sulfur;

V: volatile matter.

5 Calculation of analyses to different bases for coal

5.1 General

The analysis result of air dried basis obtained in the analysis of coal can be expressed in terms of the results of “as received basis”, “dry basis”, “dry ash-free basis” and “dry mineral matter-free basis” through conversion.

5.2 Calculation of analyses to different bases

5.2.1 Substitute the relevant value into the corresponding formula at the intersection of the corresponding basis of value given (row) and the basis of value wanted

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