

ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION R 589

DETERMINATION OF TOTAL MOISTURE IN HARD COAL

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BRIEF HISTORY

The ISO Recommendation R 589, *Determination of Total Moisture in Hard Coal*, was drawn up by Technical Committee ISO/TC 27, *Solid Mineral Fuels*, the Secretariat of which is held by the British Standards Institution (BSI).

Work on this question by the Technical Committee began in 1950 and led, in 1961, to the adoption of a Draft ISO Recommendation.

In October 1962, this Draft ISO Recommendation (No. 553) was circulated to all the ISO Member Bodies for enquiry. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies:

Australia	Greece	Republic of South Africa
Austria	India	Romania
Belgium	Iran	Spain
Brazil	Italy	Sweden (for Method A)
Chile	Japan	Switzerland
Czechoslovakia	Netherlands	Turkey
Denmark	New Zealand	United Kingdom
France	Poland	U.S.S.R.
Germany	Portugal	Yugoslavia

Two Member Bodies opposed the approval of the Draft:

Sweden (for Methods B and C)
U.S.A.

The Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided, in July 1967, to accept it as an ISO RECOMMENDATION.

DETERMINATION OF TOTAL MOISTURE IN HARD COAL

1. SCOPE

This ISO Recommendation describes three methods of determining the total moisture content of hard coal. Two of the methods are applicable in all cases, but the third should be used only for coals which are not susceptible to oxidation.

The moisture content of coal is not an absolute value and conditions for its determination have to be standardized. Results given by the different methods recommended should be comparable within the limits of tolerance quoted.

2. PRINCIPLE

2.1 Method A (for all hard coals)

The coal is heated in a flask under reflux conditions with toluene or xylene (see Note 1, page 10). The moisture from the coal is entrained by the toluene or xylene vapour and carried to a condenser fitted with a graduated receiver. The water then separates in the receiver, to form the lower layer, whilst the excess toluene or xylene is returned to the distillation flask by means of an overflow. The moisture in the coal is calculated from the mass of the sample and the volume of water collected.

2.2 Method B (for all hard coals)

The sample is dried in an oven at a temperature of 105 to 110 °C in a current of nitrogen and the moisture calculated from the loss in mass.

2.3 Method C (only for hard coals not susceptible to oxidation, see Note 2, page 10)

The sample is dried at a temperature of 105 to 110 °C in air and the moisture calculated from the loss in mass.

3. SAMPLE

3.1 Samples for the determination of moisture will be received in sealed air-tight containers.

3.2 The sample mass will not be less than 300 g; for methods A and B the maximum particle size will not exceed 3 mm; for method C, which is normally applicable to samples with a maximum particle size of about 20 mm, the sample mass in kilogrammes will not be less than 0.06 times the maximum particle size in millimetres.

3.3 During the course of its preparation the sample may have been air-dried, in which case a formula is used to calculate the total moisture content (see Note 3, page 10).

3.4 Before commencing a determination, either by method A or method B, or in accordance with Note 8, page 10, of method C, mix the sample thoroughly in a closed container for at least one minute, preferably by mechanical means.