

ISO

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION

ISO RECOMMENDATION R 331

DETERMINATION OF MOISTURE
IN THE ANALYSIS SAMPLE OF COAL
BY THE DIRECT GRAVIMETRIC METHOD

1st EDITION

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BRIEF HISTORY

The ISO Recommendation R 331, *Determination of Moisture in the Analysis Sample of Coal by the Direct Gravimetric Method*, was drawn up by Technical Committee ISO/TC 27, *Solid Mineral Fuels*, the Secretariat of which is held by the British Standards Institution (B.S.I.),

Work on this question by the Technical Committee began in 1950 and led, in 1957, to the adoption of a Draft ISO Recommendation.

In February 1958, this Draft ISO Recommendation (No. 211) 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:

Austria	Israel	Romania
Bulgaria	Italy	Spain
Burma	Japan	Turkey
Canada	Netherlands	United Kingdom
Chile	New Zealand	U.S.A.
Czechoslovakia	Poland	U.S.S.R.
Denmark	Portugal	Yugoslavia
France	Republic	
Germany	of South Africa	
India		

One Member Body opposed the approval of the Draft:

Belgium.

The Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided, in August 1963, to accept it as an ISO RECOMMENDATION.

DETERMINATION OF MOISTURE IN THE ANALYSIS SAMPLE OF COAL BY THE DIRECT GRAVIMETRIC METHOD

1. INTRODUCTION

Two direct methods are available for the determination of moisture in the analysis sample of coal:

- (1) a gravimetric method, in which the moisture is determined in an atmosphere of nitrogen, and
- (2) a volumetric method,* in which the moisture is determined by distillation.

This ISO Recommendation describes the direct gravimetric method.

Since coal is hygroscopic, its moisture will vary with change of humidity of the atmosphere, and the moisture in the analysis sample, therefore, should be determined whenever portions are weighed out for other analytical determinations, e.g. volatile matter, calorific value, carbon and hydrogen etc. If all the portions taken for analysis are weighed out on the same day and at about the same time, and if the analyses are proceeded with without delay, one determination of moisture will suffice.

2. PRINCIPLE

Coal is heated at 105 to 110 °C in a stream of oxygen-free, dry nitrogen and the moisture driven off is collected in an absorption tube containing a desiccant. The increase in weight of the absorption tube (after deducting the result of a separate blank determination) is due to moisture in the coal (see Note below).

NOTE. - If suitable precautions are taken against re-absorption of moisture by the dried coal, the loss in weight of the sample may be measured and compared with the gain in weight of the absorption tube. This procedure is of advantage in discriminating between coals which are rich in absorbed gases and those which are not.

* See ISO Recommendation R 348, *Determination of Moisture in the Analysis Sample of Coal by the Direct Volumetric Method*.