SLOVENSKI STANDARD
SIST ISO 687:1998

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Koks - Določ evanje vlage v analiziranem vzorcu

Coke -- Determination of moisture in the analysis sample

Coke -- Détermination de l'humidité de l'échantillon pour analyse

Ta slovenski standard je istoveten z: **ISO 687:1974**

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75.160.10 Trda goriva Solid fuels

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INTERNATIONAL STANDARD 687

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Coke — Determination of moisture in the analysis sample

Coke — Détermination de l'humidité de l'échantillon pour analyse

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FOREWORD

ISO (the International Organization for Standardization) is a worldwide federation of national standards institutes (ISO Member Bodies). The work of developing International Standards is carried out through ISO Technical Committees. Every Member Body interested in a subject for which a Technical Committee has been set up has the right to be represented on that Committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the Technical Committees are circulated to the Member Bodies for approval before their acceptance as International Standards by the ISO Council.

Prior to 1972, the results of the work of the Technical Committees were published as ISO Recommendations; these documents are now in the process of being transformed into International Standards. As part of this process, Technical Committee ISO/TC 27 has reviewed ISO Recommendation R 687 and found it technically suitable for transformation. International Standard ISO 687 therefore replaces ISO Recommendation R 687-1968 to which it is technically identical.

ISO Recommendation R 687 was approved by the Member Bodies of the following countries :

Australia	Egypt, Arab Rep. of	Poland
Austria	France	Romania
Belgium	Germany	South Africa, Rep. of
Brazil	India	Switzerland
Canada	Italy	Turkey
Chile	Japan	United Kingdom
Colombia	Korea, Rep. of	U.S.A.
Czechoslovakia	Netherlands	U.S.S.R.
Denmark	New Zealand	

No Member Body expressed disapproval of the Recommendation.

No Member Body disapproved the transformation of ISO/R 687 into an International Standard.

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Coke — Determination of moisture in the analysis sample

0 INTRODUCTION

Since coke is hygroscopic, its moisture will vary with change of humidity of the atmosphere. The moisture in the analysis sample should, therefore, be determined whenever portions are weighed out for other analytical determinations, for example, for volatile matter, for calorific value or for carbon and hydrogen. 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 should suffice.

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies a method of determining the moisture content of the analysis sample of coke.

2 PRINCIPLE

A known mass of the coke is heated in air at a temperature between 190 and 210 °C (see 9.1) and maintained at this temperature until constant in mass. The percentage moisture content is calculated from the loss in mass of the coke.

3 REAGENT

Desiccant, fresh or freshly regenerated, preferably self-indicating. Suitable desiccants are activated alumina, silica gel, anhydrous calcium sulphate, phosphorus pentoxide, or magnesium perchlorate (see 9.2).

4 APPARATUS

4.1 Balance, accurate to 0,1 mg.

4.2 Air oven, capable of maintaining a temperature within the range 190 to 210 °C (see 9.1) and in which the atmosphere changes from 3 to 8 times per hour.

4.3 Weighing vessels, shallow, of glass with ground-on covers or of non-corrodible metal with well-fitting covers, of such a size that the concentration of the coke layer does not exceed 0,15 g/cm^2 (see 9.3). Silica or porcelain dishes, of the same size and 10 to 15 mm deep, having suitable covers, may also be used if precautions are taken to avoid the effect of absorption of moisture by the dishes.

4.4 Desiccator, containing a metal plate, preferably of aluminium, and a suitable desiccant (see clause 3).

5 PREPARATION OF SAMPLE

The coke used for the determination is the analysis sample ground to pass a sieve of 0,2 mm aperture. If the sample of coke dried in the determination of total moisture is used for the preparation of the analysis sample, air-drying after crushing is not required. If a separate analysis sample is used, it should be air-dried before or after crushing to pass a sieve of 0,2 mm aperture. If necessary, expose the ground sample in a thin layer for the minimum time required for the moisture content to reach approximate equilibrium with the laboratory atmosphere.

Before commencing the determination, mix the analysis sample of coke thoroughly for at least 1 min, preferably by mechanical means.

6 PROCEDURE

Weigh accurately the clean, dry vessel with its cover. Add 1 to 2 g of the coke sample and reweigh. Place the cover in the desiccator and heat the uncovered vessel in the oven at a temperature between 190 and 210 °C (see 9.1) until constant in mass (see 9.4). Replace the cover on the vessel, cool it on a metal plate for 10 min, transfer it to the desiccator and weigh it after a further 10 min.

7 EXPRESSION OF RESULTS

The moisture in the coke as analysed, in per cent, is given by the formula

$$\frac{m_2 - m_3}{m_2 - m_1} \times 100$$

where

m_1 is the mass, in grams, of empty vessel plus cover;

m_2 is the mass, in grams, of vessel plus cover plus coke before heating;

m_3 is the mass, in grams, of vessel plus cover plus coke after heating.

The result (preferably the mean of duplicate determinations – see clause 8) should be reported to the nearest 0,1 %.

8 PRECISION OF THE METHOD

Moisture	Maximum acceptable differences between results	
	Repeatability	Reproducibility
	0,2 % absolute	(see 8.2)

8.1 Repeatability

The results of duplicate determinations, carried out in the same laboratory by the same operator with the same apparatus on representative portions weighed out at the same time from the same analysis sample, should not differ by more than the above value.

8.2 Reproducibility

Since the humidity conditions in different laboratories will vary, it is not practical to quote a limiting value for reproducibility.

9 NOTES ON PROCEDURE

9.1 The time taken for the determination can be considerably shortened if drying is carried out at a temperature of 320 °C in an atmosphere of nitrogen, when heating for 1 h will usually suffice. The determination may also be carried out by heating at 105 to 110 °C, but times of up to 24 h may then be required and the results are likely to be systematically lower than those obtained at 200 °C.

9.2 Regeneration of magnesium perchlorate shall not be attempted, owing to the risk of explosion. When exhausted, the magnesium perchlorate shall be washed down the sink with a current of water.

9.3 It is permissible to increase the concentration of the coke layer up to 0,25 g/cm², provided that the heating time is lengthened sufficiently.

9.4 Heating for 4 h is normally sufficient for concentrations up to 0,15 g/cm², but for 0,25 g/cm², 6 h will probably be required. Constancy in mass is defined as a change not exceeding 1 mg in a further period of not less than 10 min.

10 TEST REPORT

The test report shall include the following particulars :

a) the reference of the method used;

b) the results and the method of expression used;

c) any unusual features noted during the determination;

d) any operation not included in this International Standard, or regarded as optional.