
INTERNATIONAL STANDARD



335

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Hard coal — Determination of caking power — Roga test

Houille — Détermination du pouvoir agglutinant — Essai Roga

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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 335 and found it technically suitable for transformation. International Standard ISO 335 therefore replaces ISO Recommendation R 335-1963 to which it is technically identical.

ISO Recommendation R 335 was approved by the Member Bodies of the following countries :

Austria	India	Portugal
Belgium	Italy	Romania
Burma	Japan	Spain
Canada	Mexico	Turkey
Czechoslovakia	Netherlands	United Kingdom
Denmark	New Zealand	U.S.S.R.
Germany	Philippines	Yugoslavia
Greece	Poland	

The Member Body of the following country expressed disapproval of the Recommendation on technical grounds :

France

The Member Bodies of the following countries disapproved the transformation of ISO/R 535 into an International Standard :

Czechoslovakia
Romania
United Kingdom

Hard coal — Determination of caking power — Roga test

0 INTRODUCTION

The purpose of the Roga test, which provides one of the parameters adopted for the "International Classification of Hard Coal by Type" of the United Nations Economic Commission for Europe, is to assess the caking power of a coal under standard conditions.

Although the Roga test and the Gray-King test both assess the caking properties of a coal, they do not measure precisely the same parameters and shall not therefore be regarded as alternative methods.

1 SCOPE AND FIELD OF APPLICATION

This International Standard specifies a method of determining the caking power of hard coal by the Roga test.

2 PRINCIPLE

The caking power of a coal is defined by the mechanical strength of the crucible coke obtained by carbonization under standard conditions of an intimate mixture of 1 g of coal and 5 g of standard anthracite. The crucible coke obtained is then submitted to a drum test in a strictly prescribed manner and the Roga Index is calculated from the results.

3 REAGENT

3.1 Standard anthracite

An anthracite of E.C.E. Code No. 100 A, having an ash content of less than 4 % on the dry basis and a volatile matter number of 5 to 6,5 % on the dry, ash-free basis (see note). Carefully sieve the anthracite before use on sieves of 0,3 mm and 0,4 mm apertures (square); retain the fraction passing the 0,4 mm sieve and remaining on the 0,3 mm sieve for the test.

NOTE — An anthracite of E.C.E. Code No. 100 A but having a different ash and volatile matter content may be used, provided it has been found by experiment to give the same results, within the tolerances of the method (see clause 8), as those obtained using the standard anthracite.

4 APPARATUS

The balance shall be sensitive to 0,01 g.

4.1 Crucible, porcelain, having the following dimensions :

external diameter at the top	$40 \pm 1,5$ mm
external diameter at the base	$20 \pm 1,5$ mm
external height	$40 \pm 1,5$ mm
wall thickness	less than 2 mm

4.2 Lid : heat-resistant steel plate, 55 mm square, 1,5 to 2 mm thick, with a hole 2 mm in diameter in the centre.

4.3 Stirrer, made of wire, having an 8 mm loop at one end.

4.4 Heat-resistant steel weight, of 110 to 115 g, of the following dimensions : 31 mm in diameter and 21 mm in height, with a threaded hole in the centre 7 mm in diameter and 10 to 12 mm deep into which can be screwed a suitable rod for lifting the weight from the crucible.

4.5 Press for compressing the mixture of coal and standard anthracite under a weight of mass 6 kg (see figure 1).

4.6 Electric furnace, with a zone of uniform temperature and a temperature control device capable of maintaining that zone at 850 ± 10 °C.

4.7 Drum with a cover, driving shaft, transmission gear and electric motor for carrying out the abrasion test on coke. The drum (see figure 2) has a 200 mm internal diameter, is 70 mm deep and is made of 2 mm thick sheet iron. To the inside walls, which shall be perfectly finished, are welded two symmetrical sheet iron strips 70 mm long, 30 mm wide and 2 mm thick. To close the drum, the cover is seated on a felt or rubber gasket and is secured by four wing-nuts. The drum is fitted with a threaded stub axle which serves to couple it to the driving shaft. It is convenient to mount two drums on a single shaft to enable two tests on two different samples to be carried out simultaneously. The drum is rotated with the stub axle horizontal at 50 ± 2 rev/min.

4.8 Laboratory sieve, made of thin brass sheet, with 1 mm round holes.