
**Coal — Determination of caking power
— Gray-King coke test**

Charbon — Détermination du pouvoir agglutinant — Essai Gray-King

Sample Document

get full document from standards.iteh.ai



Reference number
ISO 502:2015(E)

© ISO 2015

Sample Document

get full document from standards.iteh.ai



COPYRIGHT PROTECTED DOCUMENT

© ISO 2015, Published in Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

Page

Foreword	iv
Introduction	v
1 Scope	1
2 Normative references	1
3 Principle	1
4 Reagent	1
4.1 Standard electrode carbon (see 10.1).....	1
5 Apparatus	2
6 Preparation of sample	2
7 Procedure	3
7.1 Coals with a Gray-King coke type within the range A to G ₂ (see 10.3).....	3
7.2 Coals with a Gray-King coke type greater than G ₂ (see 10.3).....	3
8 Expression of results	3
9 Precision of the method	3
9.1 General.....	3
9.2 Repeatability.....	4
9.3 Reproducibility.....	4
10 Notes on procedure	4
11 Test report	5
Annex A (normative) Determination of the bulk density of electrode carbon	11

get full document from standards.iteh.ai

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established 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. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/TC 27, *Solid mineral fuels*, Subcommittee SC 05, *Methods of analysis*.

This third edition cancels and replaces the second edition (ISO 502:1982), which has been technically revised.

Introduction

The purpose of the Gray-King coke test, which is one of the parameters adopted for the International Classification of Hard Coal by Type by the United Nations Economic Commission for Europe, is to assess the caking properties of a type of coal or a blend of coals by carbonizing under standard conditions.

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

Sample Document

get full document from standards.iteh.ai

Sample Document

get full document from standards.iteh.ai

Coal — Determination of caking power — Gray-King coke test

1 Scope

This International Standard specifies a method of assessing the caking power of coal under standard conditions.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 1014, *Coke — Determination of true relative density, apparent relative density and porosity*

3 Principle

The sample is heated under standard conditions to a final temperature of 600 °C. The coke residue obtained is classified by reference to a series of standard residues. If the coke residue produced is so swollen that it fills the cross-section of the retort tube, the determination is repeated with the coal admixed with a suitable quantity of electrode carbon or equivalent material. For these highly swelling coals, the Gray-King coke type is defined by the minimum amount of electrode carbon required to produce a strong hard coke residue of the same volume as the original coal and electrode carbon mixture.

4 Reagent

4.1 Standard electrode carbon (see [10.1](#))

High temperature electrode carbon:

Moisture	less than 1 %
Volatile matter	less than 1,5 %
Ash	less than 5 %
Bulk density at 25 °C (see Annex A)	1,00 g/cm ³ to 1,05 g/cm ³
Relative density at 25 °C (see 10.2)	2,05 to 2,09

Size analysis:

Retained on 212 µm test sieve	nil
Through 212 µm test sieve, retained on 125 µm test sieve	less than 26 %
Through 125 µm test sieve, retained on 63 µm test sieve	10 % to 40 %
Through 63 µm test sieve	50 % to 85 %