
**Brown coals and lignites —
Determination of true relative density
and apparent relative density**

*Charbons bruns et lignites — Détermination de la densité relative
vraie et de la densité relative apparente*



This document is a preview generated by EBS



COPYRIGHT PROTECTED DOCUMENT

© ISO 2021

All rights reserved. Unless otherwise specified, or required in the context of its implementation, 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
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

	Page
Foreword.....	iv
1 Scope.....	1
2 Normative references.....	1
3 Terms and definitions.....	1
4 Determination of the true relative density by the water method.....	1
4.1 Principle.....	1
4.2 Reagents.....	2
4.3 Apparatus.....	2
4.4 Sample.....	2
4.5 Procedure.....	3
4.5.1 Calibration of the mass of the pycnometer(s).....	3
4.5.2 Determination of true relative density.....	3
4.6 Calculation of results.....	3
4.7 Precision.....	4
4.7.1 Repeatability limit.....	4
4.7.2 Reproducibility limit.....	4
4.8 Test report.....	4
5 Determination of the apparent relative density.....	4
5.1 Principle.....	4
5.2 Reagents.....	5
5.3 Apparatus.....	5
5.4 Sample.....	5
5.5 Procedure.....	5
5.6 Calculation of results.....	7
5.7 Precision.....	7
5.7.1 Repeatability limit.....	7
5.7.2 Reproducibility limit.....	7
5.8 Test report.....	7

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 of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 27, *Coal and Coke*, Subcommittee SC 5, *Methods of analysis*.

This third edition cancels and replaces the second edition (ISO 5072:2013), of which it constitutes a minor revision. The changes compared to the previous edition are as follows:

- referenced documents have been updated;
- terms and definitions have been added;
- sample has been added;
- calculation and expression of results have been amended;
- precision has been amended;
- test report has been amended.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html

Brown coals and lignites — Determination of true relative density and apparent relative density

1 Scope

This document describes methods for the determination of true relative density and the apparent relative density of brown coals and lignites.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 5068-1, *Brown coals and lignites — Determination of moisture content — Part 1: Indirect gravimetric method for total moisture*

ISO 5068-2, *Brown coals and lignites — Determination of moisture content — Part 2: Indirect gravimetric method for moisture in the analysis sample*

ISO 13909-4, *Hard coal and coke — Mechanical sampling — Part 4: Coal — Preparation of test samples*

ISO 18283, *Coal and coke — Manual sampling*

3 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1

true relative density

ratio of the mass of a sample of dry coal ground to pass through a 212 μm sieve to the mass of an equal volume of water at a specified temperature

3.2

apparent relative density

ratio of the mass of a dry coal to the mass of a volume of water equal to the apparent volume of the coal at a specified temperature

4 Determination of the true relative density by the water method

4.1 Principle

The true relative density is determined pycnometrically by water displacement, with the inclusion of a wetting agent to ensure dispersion of the solid in the displacement medium.

NOTE The use of other displacement media such as methanol is not recommended because of possible swelling of some brown coals and lignites in such liquids.