



BSI Standards Publication

Coal preparation plant — Assessment of the liability to breakdown in water of materials associated with coal seams

National foreword

This British Standard is the UK implementation of [ISO 10753:2019](#). It supersedes [BS 7763:1994](#), which is withdrawn.

The UK participation in its preparation was entrusted to Technical Committee PTI/16, Solid mineral fuels.

A list of organizations represented on this committee can be obtained on request to its secretary.

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© The British Standards Institution 2019
Published by BSI Standards Limited 2019

ISBN 978 0 539 01103 6

ICS 73.020

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This British Standard was published under the authority of the Standards Policy and Strategy Committee on 30 June 2019.

Amendments/corrigenda issued since publication

Date	Text affected
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INTERNATIONAL STANDARD

ISO
10753

Second edition
2019-06-30

Coal preparation plant — Assessment of the liability to breakdown in water of materials associated with coal seams

*Ateliers de préparation du charbon — Évaluation de la fiabilité
de la fragmentation dans l'eau de matériaux associés aux
gisements de charbon*



Reference number
ISO 10753:2019(E)
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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

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Foreword

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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).

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This document was prepared by Technical Committee ISO/TC 27, *Solid mineral fuels*, Subcommittee SC 1, *Coal preparation. Terminology and performance*.

This second edition cancels and replaces the first edition (ISO 10753:1994), of which it constitutes a minor revision. The changes compared to the previous edition are as follows:

- editorial corrections throughout the document.

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.

Introduction

In this document, the materials associated with coal seams are collectively referred to as “shale”, although they may contain a variety of rocks and minerals. This document describes a method of assessing the liability of these materials to breakdown on agitation with water. Future activity on this subject could involve a method for simulating the breakdown that is likely to occur, in practice, in different types of coal preparation plants, to generate samples for further testing.

The liability of the shale to breakdown is measured by the proportion of the degraded material passing through a test sieve having a nominal size of openings of 500 μm .

The method described in this document also enables the liability of the shale to form slimes to be assessed, by determining the proportion that is below a nominal particle size of 10 μm , using a simplified sedimentation technique. This technique is based on the assumption that in the size range being examined, all the particles are spherical, have a relative density of 2,5, and fall freely through the suspending liquid according to Stokes's Law. These conditions are not entirely fulfilled in practice and the particle size is, therefore, referred to as a nominal value. The extent of breakdown, as measured by this method, will be affected by whether the shale exhibits any self-flocculation. In the described test, distilled water (or the equivalent) is used to avoid possible flocculation of the shale by any soluble salts in the water. The test may be adapted to assess the relative tendencies of shales to break down in a particular plant, by using the same water as is used in that plant. However, it is emphasized that the results of such tests, using plant water, have to be treated with caution because the extent of breakdown that will occur in practice is influenced by the interaction of all the components present during the washing process, including, for example, any accumulation of soluble salts in the circuit, and by other factors, such as the residence time in the plant.

The relationship between the proportion of degraded material passing a 500 μm test sieve and the proportion of slimes provides useful information on the character of the breakdown, and is therefore included in the results that are reported.

The amount of breakdown occurring in practice and in the test will be affected by the history of the sample. For this reason, the sample is placed in a sealed container as soon as is practicable after being taken.