
International Standard



7404/2

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Methods for the petrographic analysis of bituminous coal and anthracite — Part 2: Method of preparing coal samples

Méthodes d'analyse pétrographique des charbons bitumineux et de l'anthracite — Partie 2: Préparation d'échantillons de charbon

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Foreword

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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. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 7404/2 was prepared by Technical Committee ISO/TC 27, *Solid mineral fuels*.

Methods for the petrographic analysis of bituminous coal and anthracite —

Part 2: Method of preparing coal samples

0 Introduction

0.1 Petrographic analyses have been recognized internationally as important in the context of the genesis, vertical and lateral variation, continuity, metamorphism and usage of coal. The International Committee for Coal Petrology (ICCP) has made recommendations concerning nomenclature and analytical methods and has published an extensive handbook describing in detail the characteristics of a wide range of coals. The text of this International Standard agrees substantially with the text of the handbook and incorporates many useful comments made by members of the ICCP and by member bodies of ISO/TC 27, *Solid mineral fuels*.

Petrographic analyses of a single coal provide information about the rank, the maceral and microlithotype compositions and the distribution of mineral matter in the coal. The reflectance of vitrinite is a useful measure of coal rank and the distribution of the reflectance of vitrinite in a coal blend, together with a maceral group analysis, can provide information about some important chemical and technological properties of the blend.

This International Standard is concerned with the methods of petrographic analysis currently employed in characterizing bituminous coal and anthracite in the context of their technological use. It establishes a system for petrographic analysis and comprises five parts, as follows:

Part 1: Glossary of terms.

Part 2: Method of preparing coal samples.

Part 3: Method of determining maceral group composition.

Part 4: Method of determining microlithotype composition.¹⁾

Part 5: Method of determining microscopically the reflectance of vitrinite.

For information on the nomenclature and analysis of brown coals and lignites, reference should be made to the *International Handbook of Coal Petrography* published by the ICCP.²⁾

0.2 The varied petrographic composition and hardness of coal and the type and amount of included mineral matter does not permit the formulation of a precise procedure which can be applied with equal success to all types and ranks of coal. Within these limits, therefore, this part of ISO 7404 allows the operator to apply his individual skill and experience to the preparation of a satisfactory polished surface. At the same time a recommended procedure, which has been found applicable to a wide variety of coals, is given in the annex.

Many processes are involved between the mining of the coal and its preparation for industrial use. Petrographic analysis may be required at any stage on samples from the coal seam *in situ* or from borehole cores, the raw product from the colliery, the products from the preparation plant or the final product. The amount and size distribution of the coal being investigated thus varies widely and it is important to ensure that the sample obtained for petrographic analysis is fully representative.

1 Scope and field of application

This part of ISO 7404 specifies a method for preparing a polished particulate block from a sample of crushed coal, for analysis by reflectance microscopy using white light. It does not apply to the preparation of polished particulate blocks for analysis using fluorescence microscopy techniques nor to the preparation of polished orientated lumps of coal.

2 References

ISO 1988, *Hard coal — Sampling*.

ISO 3310/1, *Test sieves — Technical requirements and testing — Part 1: Test sieves of metal wire cloth*.

ISO 7404/1, *Methods for the petrographic analysis of bituminous coal and anthracite — Part 1: Glossary of terms*.

1) At present at the stage of draft.

2) The second edition (1963), together with the supplement issued in 1971, may be obtained from Professor D.G. Murchison, Organic Geochemistry Unit, Department of Geology, University of Newcastle, Newcastle-upon-Tyne, NE1 7RU, United Kingdom. The supplement issued in 1973 may be obtained from Centre national de la recherche scientifique, 15, quai Anatole-France, F-75007 Paris, France.