International

ISO 7404-2

Coal — Methods for petrographic analysis —

Part 2: Method of preparing coal samples

Charbon — Méthodes d'analyse pétrographique —

Partie 2: Méthode de préparation des échantillons de charbon

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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 7404-2:2009), which has been technically revised.

The main changes are as follows:

— input from the International Committee for Coal and Organic Petrology (ICCP) has been added;

— clarified that ion-milling equipment is not acceptable for use in preparation of samples for reflected light microscopy.

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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 and Organic Petrology (ICCP) has made recommendations concerning nomenclature and analytical methods and has described in detail the characteristics of a wide range of coals.[1][2][3][4][5][6] This document incorporates many useful comments made by members of the ICCP and by member bodies of ISO/TC 27.

Petrographic analyses of single-seam coals 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, it can provide information about chemical and technological properties of the coal and coal blend. Various other applications, like the characterization of bulk samples, cargoes, etc., and the precise determination of different rank vitrinites in complex coal blends are in use.

The ISO 7404 series is concerned with the methods of petrographic analysis currently employed in characterizing coal in the context of its technological or geological use, or both. It establishes a system for petrographic analysis.

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 that can be applied with equal success to all types and ranks of coal. For example, a successful preparation method for use with medium- and high-rank coals might not be applicable among low-rank coals. Within these limits, therefore, this document allows the operator to apply individual skills and experience to the preparation of a satisfactory polished surface. Nevertheless, recommended procedures that have been found applicable to a variety of coals, are given in the Annex A, which is for information only.

Many processes are involved between the mining of the coal and its preparation for industrial use. Petrographic analysis can be required at any stage on samples from the coal seam *in situ,* from borehole cores, on the raw product from the colliery, on the products from the preparation plant, or on 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.