# International Standard 602

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION•МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ•ORGANISATION INTERNATIONALE DE NORMALISATION

# Coal — Determination of mineral matter

*Charbon — Détermination du taux de matières minérales*

**Second edition — 1983-02-01**

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**Descriptors :** coal, chemical analysis, determination of content, mineral matter.



Price based on 4 pages

## Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been authorized 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.

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.

International Standard ISO 602 was developed by Technical Committee ISO/TC 27, *Solid mineral fuels.*

This second edition was submitted directly to the ISO Council, in accordance with clause 6.11.2 of part 1 of the Directives for the technical work of ISO. It cancels and replaces the first edition (i.e. ISO 602-1974), which had been approved by the member bodies of the following countries:

| | | |
|---|---|---|
| Australia | Egypt, Arab Rep. of | Romania |
| Austria | France | South Africa, Rep. of |
| Belgium | Germany, F.R. | Switzerland |
| Brazil | India | Turkey |
| Canada | Italy | United Kingdom |
| Chile | Korea, Rep. of | USA |
| Colombia | Netherlands | USSR |
| Czechoslovakia | New Zealand | |
| Denmark | Poland | |

No member body had expressed disapproval of the document.





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# Coal — Determination of mineral matter



## 1 Scope and field of application

This International Standard specifies a method of determining the amount of mineral matter in all types of coal, including brown coals and lignites.

## 2 References

ISO 157, *Hard coal — Determination of forms of sulphur.*

ISO 331, *Coal — Determination of moisture in the analysis sample — Direct gravimetric method.*

ISO 348, *Hard coal — Determination of moisture in the analysis sample — Direct volumetric method.*

ISO 352, *Solid mineral fuels — Determination of chlorine — High temperature combustion method.*

ISO 587, *Solid mineral fuels — Determination of chlorine using Eschka mixture.*

ISO 1170, *Coal and coke — Calculation of analyses to different bases.*

ISO 1171, *Solid mineral fuels — Determination of ash.*

## 3 Principle

Partial demineralization of a sample of the coal by treatment with hydrochloric and hydrofluoric acids under such conditions that the coal substance remains unaffected. Recording of the loss in mass of the coal due to the acid treatment and determination of the undissolved part of the mineral matter by ashing the partially demineralized coal. Determination of the iron content of the ash so that the pyrites present in the extracted coal can be calculated. Determination of the amount of hydrochloric acid absorbed by the coal substance.

## 4 Reagents

During the analysis use only reagents of recognized analytical grade and only distilled water or water of equivalent purity.

**4.1 Hydrochloric acid,** $\varrho$ 1,18 g/ml.

**4.2 Hydrochloric acid,** solution, $c$(HCl) = 5 mol/l.

**4.3 Hydrofluoric acid,** $\varrho$ 1,13 g/ml.

**WARNING — Very toxic by inhalation, in contact with skin and if swallowed. Causes severe burns.**

**Keep container tightly closed in a well-ventilated place. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.**

**Wear suitable protective clothing and gloves. In case of accident or feeling unwell, seek medical advice immediately (show the label where possible).**

## 5 Apparatus

All the apparatus listed below shall be resistant to acids, especially hydrofluoric acid. A suitable material is polyvinyl chloride (PVC).

**5.1 Beaker,** of capacity 200 ml, with a cover slip.

**5.2 Thermometer pocket:** a tube, sealed at one end, to carry a thermometer.

**5.3 Stirrer.**

**5.4 Wash-bottle.**

**5.5 Filter,** with a sintered alumina filter plate, for example as shown in the figure.

**5.6 Filter flask.**

**5.7 Balance,** accurate to 0,1 mg.