

INTERNATIONAL STANDARD

ISO
6528-2

Second edition
1992-08-01

Rubber — Determination of total sulfur content —

Part 2: Sodium peroxide fusion method

Caoutchouc — Dosage du soufre total —

Partie 2: Méthode par fusion au peroxyde de sodium



Reference number
ISO 6528-2:1992(E)

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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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 6528-2 was prepared by Technical Committee ISO/TC 45, *Rubber and rubber products*.

This second edition cancels and replaces the first edition (ISO 6528-2:1983), of which it constitutes a minor revision.

ISO 6528 consists of the following parts, under the general title *Rubber — Determination of total sulfur content*:

- *Part 1: Oxygen combustion flask method*
- *Part 2: Sodium peroxide fusion method*
- *Part 3: Furnace combustion method*

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Case Postale 56 • CH-1211 Genève 20 • Switzerland

Printed in Switzerland

Rubber — Determination of total sulfur content —

Part 2:

Sodium peroxide fusion method

1 Scope

This part of ISO 6528 specifies a sodium peroxide fusion method for the determination of the total sulfur content of rubber.

The method is applicable for the determination of all the sulfur present in a rubber or rubber product, including that contained in barium sulfate which may be used as a filler.

It is applicable to NR, CR, SBR, BR, IR, IIR, EPDM, NBR and ebonite. (The meanings of these designations are given in ISO 1629:1987, *Rubber and latices — Nomenclature*.)

2 Principle

A test portion of rubber is oxidized with sodium peroxide, with a few drops of ethylene glycol added, in a suitable bomb reaction vessel. The sulfur is converted to sulfate ions. The sulfate is determined by gravimetric analysis as barium sulfate.

WARNING — All recognized health and safety precautions shall be observed when carrying out this method of analysis.

Failure to heed the instructions given in this International Standard, or those of the manufacturer of the device used, may result in explosions.

3 Reagents and materials

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

3.1 Ethylene glycol.

3.2 Sodium peroxide, granulated.

3.3 Sodium carbonate, anhydrous.

3.4 Calcium carbonate, anhydrous.

3.5 Hydrochloric acid, solution.

Add 1 volume of concentrated hydrochloric acid ($\rho = 1,18 \text{ Mg/m}^3$) to 4 volumes of water.

3.6 Barium chloride, 50 g/dm³ solution.

Dissolve 50 g of barium chloride dihydrate ($\text{BaCl}_2 \cdot 2\text{H}_2\text{O}$) in water, add 0,5 cm³ of concentrated hydrochloric acid ($\rho = 1,18 \text{ Mg/m}^3$) and dilute to 1 dm³.

3.7 Acetic acid, 4 mol/dm³ solution.

3.8 Cupferron (*N*-nitroso-*N*-phenylhydroxylamine, ammonium salt), 60 g/dm³ solution.

Dissolve 6 g of cupferron in 100 cm³ of water.

3.9 Silica gel or calcium chloride, for use in the desiccator (4.9).

3.10 pH indicator paper.

3.11 Ashless filter paper, high density.

4 Apparatus

Usual laboratory equipment, and

4.1 Balance, capable of weighing to 0,1 mg.