INTERNATIONAL STANDARD

ISO 6101-3

Fourth edition
2022-04

Rubber — Determination of metal content by atomic absorption spectrometry —

Part 3: Determination of copper content

Caoutchouc — Détermination de la teneur en métal par spectrométrie d'absorption atomique —

Partie 3: Dosage du cuivre

Reference number
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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.

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).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 45, *Rubber and rubber products*, Subcommittee SC 2, *Testing and analysis*.

This fourth edition cancels and replaces the third edition (ISO 6101-3:2014), which has been technically revised.

The main changes compared to the previous edition are as follows:

— in Clause 2, Clause 4 and 8.2.1, ISO 247 has been updated to ISO 247-1;

— in Clause 4, 6.3 and 8.2.1, the ashing temperature for rubber products (950 °C) has been added;

— in 5.2, the concentration of dilute hydrochloric acid has been reduced to 2 %;

— in 5.8, the amount of nitric acid to prepare 1,6 % dilute nitric acid has been changed from 11,5 cm^3 to 16 cm^3 to correct a calculation error;

— in 5.10, 8.2.2, 8.3.1.1, 8.4.2 and 8.5, the concentration of hydrochloric acid in the standard solution, the sample solution and the calibration solutions has been changed to about 2 % to prevent the burner from getting dirty or damage (in the alternative method given in 8.2.3, the concentration of nitric acid in these solutions is 1,6 %);

— in 8.2.1, 8.2.2 and 8.2.3, the sentence “moisten the ash with some drops of water, then add HCl/HNO_3 acid” has been added and the sentence “stir carefully with the platinum or borosilicate-glass rod” has been deleted to avoid ash losses;

— in 8.2.2, the dissolution of inorganic residue process has been aligned with 8.2.3 to account for the reduced concentration of the dilute hydrochloric.

A list of all parts in the ISO 6101 series can be found on the ISO website.

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.

Rubber — Determination of metal content by atomic absorption spectrometry —

Part 3: Determination of copper content

WARNING 1 — Persons using this document should be familiar with normal laboratory practice. This document does not purport to address all of the safety problems, if any, associated with its use. It is the responsibility of the user to establish appropriate safety and health practices and to determine applicability of any national regulatory conditions.

WARNING 2 — Certain procedures specified in this document can involve the use or generation of substances, or the generation of waste, that can constitute a local environmental hazard. Reference should be made to appropriate documentation on safe handling and disposal after use.

1 Scope

This document specifies an atomic absorption spectrometric method for the determination of the copper content of rubbers.

The method is applicable to raw rubber and rubber products having copper contents above 1 ppm. Copper contents below this limit can be determined, provided that suitable adjustments are made to either the mass of the test portion or to the concentrations of the solutions used, or both. The use of the standard additions method can lower the bottom limit of detection.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO 123, *Rubber latex — Sampling*

ISO 124, *Latex, rubber — Determination of total solids content*

ISO 247-1, *Rubber — Determination of ash — Part 1: Combustion method*

ISO 648, *Laboratory glassware — Single-volume pipettes*

ISO 835, *Laboratory glassware — Graduated pipettes*

ISO 1042, *Laboratory glassware — One-mark volumetric flasks*

ISO 1772, *Laboratory crucibles in porcelain and silica*

ISO 1795, *Rubber, raw natural and raw synthetic — Sampling and further preparative procedures*

3 Terms and definitions

No terms and definitions are listed in this document.