
**Rubber and rubber products —
Determination of the composition of
vulcanizates and uncured compounds by
thermogravimetry —**

Part 3:

**Hydrocarbon rubbers, halogenated
rubbers and polysiloxane rubbers after
extraction**

*Caoutchouc et produits à base de caoutchouc — Détermination de la
composition des vulcanisats et des mélanges non vulcanisés par
thermogravimétrie —*

*Partie 3: Caoutchoucs hydrocarbonés, caoutchoucs halogénés et
caoutchoucs polysiloxanes après extraction*



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Published in Switzerland

Contents

Page

Foreword.....	iv
1 Scope	1
2 Normative references	1
3 Principle.....	2
4 Reagents.....	2
5 Apparatus	2
6 Preparation of samples	2
6.1 Conditioning of samples.....	2
6.2 Extraction of samples.....	3
6.3 Test portion	3
7 Procedure	3
7.1 General.....	3
7.2 Description of the procedures.....	3
7.3 Test procedures	4
8 Expression of results	4
8.1 Recordings	4
8.2 Calculation of the mass change from curves	4
8.3 Interpretation.....	5
8.4 Expression of results	6
9 Test report	7
10 Precision.....	7
Annex A (informative) Recommended procedures.....	8
Annex B (informative) Examples of thermogram.....	9
Annex C (informative) Precision	14
Bibliography	16

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.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. 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.

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.

ISO 9924-3 was prepared by Technical Committee ISO/TC 45, *Rubber and rubber products*, Subcommittee SC 2, *Testing and analysis*.

ISO 9924 consists of the following parts, under the general title *Rubber and rubber products — Determination of the composition of vulcanizates and uncured compounds by thermogravimetry*:

- *Part 1: Butadiene, ethylene-propylene copolymer and terpolymer, isobutene-isoprene, isoprene and styrene-butadiene rubbers*
- *Part 2: Acrylonitrile-butadiene and halobutyl rubbers*
- *Part 3: Hydrocarbon rubbers, halogenated rubbers and polysiloxane rubbers after extraction*

Rubber and rubber products — Determination of the composition of vulcanizates and uncured compounds by thermogravimetry —

Part 3: Hydrocarbon rubbers, halogenated rubbers and polysiloxane rubbers after extraction

WARNING — Persons using this part of ISO 9924 should be familiar with normal laboratory practice. This part of ISO 9924 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 to ensure compliance with any regulatory conditions.

CAUTION — Certain procedures specified in this part of ISO 9924 may involve the use or generation of substances, or the generation of waste, that could constitute a local environmental hazard. Reference should be made to appropriate documentation on safe handling and disposal after use.

1 Scope

This part of ISO 9924 specifies a thermogravimetric method for the determination of the main constituents of rubber compounds such as elastomer(s), carbon black and mineral filler.

It establishes the “fingerprint” of the tested material. However, the result does not always correspond exactly to the theoretical formula of the rubber.

This method applies to raw or compounded rubbers, vulcanized and unvulcanized, after preliminary extraction.

This method applies to rubbers with hydrocarbon backbones (NR, BR, SBR, IIR, EPDM, ACM, AEM, etc.) used alone or as mixtures. For the mixtures, the polymer content corresponds to the total rubber, and it is not usually possible to identify individual polymers.

This method applies to rubbers with halogenated hydrocarbon backbones (CR, CSM, FKM, CM, CO, ECO, etc.) or containing nitrogen (NBR, HNBR, NBR/PVC, etc.), as well as to their mixtures. However, these rubbers often form carbonaceous residues which interfere with the analysis. Application of an appropriate procedure minimizes these interferences.

This method also applies to rubbers with a polysiloxane backbone (VMQ, etc.) and to rubbers not listed above.

2 Normative references

The following referenced documents are indispensable for the application 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 1407, *Rubber — Determination of solvent extract*

ISO 23529, *Rubber — General procedures for preparing and conditioning test pieces for physical test methods*