INTERNATIONAL STANDARD

**ISO 17052**

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# Rubber, raw — Determination of residual monomers and other volatile low-molecular-mass compounds by capillary gas chromatography — Thermal desorption (dynamic headspace) method

*Caoutchouc brut — Détermination des monomères résiduels et autres composés volatils de masse moléculaire faible par chromatographie en phase gazeuse sur colonne capillaire — Méthode par désorption thermique (espace de tête dynamique)*

Reference number
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ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

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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.

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 17052 was prepared by Technical Committee ISO/TC 45, *Rubber and rubber products*, Subcommittee SC 2, *Testing and analysis*.

This International Standard was produced after lengthy collaboration between ISO/TC 45/SC 2/WG 5 and the International Institute of Synthetic Rubber Producers. Experts from eight different producing companies located in five countries took part and the standard incorporates the sum of their best practices and experience.



 

## Introduction

Nowadays, with the ever-increasing amount of legislation on emissions of volatile organic chemicals to the workplace and the environment in general, there is a need to know the nature and amounts of these materials in raw rubber down to trace levels.

Therefore, this International Standard has been produced, describing an advanced method for the determination of residual monomers and other volatile organic compounds in raw rubber.

# Rubber, raw — Determination of residual monomers and other volatile low-molecular-mass compounds by capillary gas chromatography — Thermal desorption (dynamic headspace) method



**WARNING — Persons using this International Standard should be familiar with normal laboratory practice. This standard 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 ensure compliance with any national regulatory conditions.**

**CAUTION — Certain procedures specified in this International Standard 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 International Standard specifies a method for the determination of residual monomers and other volatile low-molecular-mass compounds in raw rubber by capillary column gas chromatography using a thermal desorption (also known as dynamic headspace) method. It includes a generic section that is applicable to all types of raw rubber and two annexes specific to particular rubber types.

This method has the advantages of not requiring a solvent, of concentrating the volatile compounds and of introducing them to the chromatograph in a very precise manner.

The compounds found in the raw rubber which are to be determined are defined as residual monomers, solvents and other low-molecular-mass compounds in the boiling point range of C4 to C12 hydrocarbons.

NOTE The limit of detection is 1 µg/g.

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

ISO 2393, *Rubber test mixes — Preparation, mixing and vulcanization — Equipment and procedures*

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