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**Reclaimed isobutene-isoprene (IIR)  
rubber — Evaluation procedure**

*Caoutchouc isobutène-isoprène (IIR) régénéré — Méthode  
d'évaluation*

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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](http://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](http://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](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/TC 45, *Rubber and rubber products*, Subcommittee SC 3, *Raw materials (including latex) for use in the rubber industry*.

This second edition cancels and replaces the first edition (ISO/TS 16096:2014), which has been technically revised.

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

- update of the normative references;
- addition of the CAS numbers in [Table 1](#);
- addition of a Bibliography.

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](http://www.iso.org/members.html).

# Reclaimed isobutene-isoprene (IIR) rubber — Evaluation procedure

## 1 Scope

This document defines

- physical and chemical tests on raw reclaimed isobutene-isoprene (IIR) rubber, and
- standard materials, standard test formulations, equipment, and processing methods for evaluating the vulcanization characteristics and the mechanical properties of reclaimed isobutene-isoprene rubber.

## 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 37, *Rubber, vulcanized or thermoplastic — Determination of tensile stress-strain properties*

ISO 48-4, *Rubber, vulcanized or thermoplastic — Determination of hardness — Part 4: Indentation hardness by durometer method (Shore hardness)*

ISO 247-1:2018, *Rubber — Determination of ash — Part 1: Combustion method*

ISO 289-1, *Rubber, unvulcanized — Determinations using a shearing-disc viscometer — Part 1: Determination of Mooney viscosity*

<https://www.iso.org/standards/iso/23ea0b7e-d219-4839-b146-6021fba562cc/iso-ts-16096-2021>

ISO 1407:2011, *Rubber — Determination of solvent extract*

ISO 1408:1995, *Rubber — Determination of carbon black content — Pyrolytic and chemical degradation methods*

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

ISO 6502-2, *Rubber — Measurement of vulcanization characteristics using curemeters — Part 2: Oscillating disc curemeter*

ISO 6502-3, *Rubber — Measurement of vulcanization characteristics using curemeters — Part 3: Rotorless curemeter*

ASTM D297-15(2019), *Standard Test Methods for Rubber Products — Chemical Analysis*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 1382 apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

## 4 Sampling and sample preparation

4.1 Take a laboratory sample of approximately 1,5 kg by the method described in ISO 1795.

4.2 Prepare the test sample in accordance with ISO 1795.

## 5 Physical and chemical tests on raw rubber

### 5.1 Mooney viscosity

Determine the Mooney viscosity in accordance with ISO 289-1 on a test sample prepared as indicated in 4.2.

Record the result as ML(1 + 4) at 100 °C.

### 5.2 Acetone extract

Determine the acetone extract in accordance with method A or method B of ISO 1407:2011.

### 5.3 Ash

Determine the ash content in accordance with method A of ISO 247-1:2018.

### 5.4 Carbon black

Determine the carbon black content in accordance with ISO 1408:1995, Method A.

### 5.5 Rubber content

Determine the rubber content,  $R$  (in %), in accordance with ASTM D297-15(2019), Clauses 11, 12, and 13.

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$$R = 100 - (a + b + c) \quad (1)$$

where

$a$  is the carbon black content, in percent (%);

$b$  is the ash content, in percent (%);

$c$  is the acetone extract, in percent (%).

## 6 Preparation of test mix for evaluation

### 6.1 Standard test formulation

The standard test formulation for evaluation of reclaimed isobutene-isoprene rubber is given in [Table 1](#).

The materials used shall be national or International standard reference materials. If no standard reference material is available, the materials to be used shall be agreed between the interested parties.