
**Raw rubber and rubber latex —
Determination of the glass transition
temperature by differential scanning
calorimetry (DSC)**

*Caoutchouc et latex de caoutchouc brut — Détermination de la
température de transition vitreuse par analyse calorimétrique
différentielle (DSC)*



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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).

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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 3, *Raw materials (including latex) for use in the rubber industry*.

This third edition cancels and replaces the second edition (ISO 22768:2017), which has been technically revised.

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

- rubber latex has been added to the scope and to [Clause 6](#) as [6.2](#);
- a new [Annex B](#) on the precision of rubber latex has been added.

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.

Raw rubber and rubber latex — Determination of the glass transition temperature by differential scanning calorimetry (DSC)

WARNING — 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.

1 Scope

This document specifies a method using a differential scanning calorimeter to determine the glass transition temperature of raw rubber and rubber latex.

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 124:2014, *Latex, rubber — Determination of total solids content*

ISO 1407, *Rubber — Determination of solvent extract*

ISO 11357-1:2016, *Plastics — Differential scanning calorimetry (DSC) — Part 1: General principles*

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

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 11357-1 and the following apply.

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

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

3.1

glass transition

reversible change in an amorphous polymer, or in amorphous regions of a partially crystalline polymer, from (or to) a rubbery or viscous condition to (or from) a glassy or hard condition

3.2

glass transition temperature

T_g
approximate midpoint of the temperature range over which *glass transition* (3.1) takes place

Note 1 to entry: For the purposes of this document, the glass transition temperature is defined as the point of inflection of the DSC curve which has been obtained at a heating rate of 20 °C/min (see A.3).