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

*Latex de caoutchouc — Détermination des matières solides totales*

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# Contents

Page

Foreword.....	iv
<b>1 Scope.....</b>	<b>1</b>
<b>2 Normative references.....</b>	<b>1</b>
<b>3 Principle.....</b>	<b>1</b>
<b>4 Apparatus.....</b>	<b>1</b>
<b>5 Sampling.....</b>	<b>1</b>
<b>6 Procedure.....</b>	<b>2</b>
6.1 General.....	2
6.2 Heating at atmospheric pressure (70 °C and 105 °C) — Natural and synthetic rubber latex.....	2
6.3 Heating at atmospheric pressure (up to 160 °C) — Synthetic rubber latex.....	2
6.4 Heating at reduced pressure — Synthetic rubber latex.....	2
<b>7 Expression of results.....</b>	<b>3</b>
<b>8 Precision.....</b>	<b>3</b>
<b>9 Test report.....</b>	<b>3</b>
<b>Annex A (informative) Drying conditions for synthetic latices at atmospheric pressure.....</b>	<b>4</b>
<b>Annex B (informative) Precision statement.....</b>	<b>5</b>
<b>Bibliography.....</b>	<b>8</b>

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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 on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: Foreword - Supplementary information

The committee responsible for this document is ISO/TC 45, *Rubber and rubber products*, Subcommittee SC 3, *Raw materials (including latex) for use in the rubber industry*.

This seventh edition cancels and replaces the sixth edition (ISO 124:2011) which has been technically revised to introduce the following modifications:

- the introduction has been deleted;
- the scope has been extended to cover field latex;
- Subclause 6.1 now states the preferred method in case of dispute;
- the precision data in [Annex B](#) have been updated to cover field latex.

# Latex, rubber — Determination of total solids content

**WARNING** — Persons using this International Standard should be familiar with normal laboratory practice. This International 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.

## 1 Scope

This International Standard specifies methods for the determination of the total solids content of natural rubber field and concentrated latices and synthetic rubber latex. These methods are not necessarily suitable for latex from natural sources other than the *Hevea brasiliensis*, for vulcanized latex, for compounded latex, or for artificial dispersions of rubber.

## 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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*

## 3 Principle

A test portion of the latex is dried to constant mass under specified conditions, either at atmospheric pressure or under vacuum. The total solids content is determined by weighing before and after drying to constant mass.

NOTE The determination of the residue after drying for a specific period of time is the subject of ISO 3251.<sup>[4]</sup>

## 4 Apparatus

Usual laboratory equipment, and in particular, the following.

**4.1 Flat-bottomed dishes**, lipless, of diameter approximately 60 mm.

**4.2 Ovens**, capable of being maintained at  $70\text{ °C} \pm 5\text{ °C}$ ,  $105\text{ °C} \pm 5\text{ °C}$ , or at another selected temperature between  $100\text{ °C}$  and  $160\text{ °C}$  accurate to  $\pm 5\text{ °C}$ .

**4.3 Vacuum oven**, capable of being maintained at  $125\text{ °C} \pm 2\text{ °C}$  and at a pressure below  $20\text{ kPa}$ <sup>1)</sup>.

**4.4 Analytical balance**, capable of being read to 0,1 mg.

## 5 Sampling

Carry out sampling in accordance with one of the methods specified in ISO 123.

1)  $1\text{ kPa} = 1\text{ kN/m}^2$ .

## 6 Procedure

### 6.1 General

For natural rubber latex, proceed in accordance with 6.2; and for synthetic rubber latex proceed in accordance with 6.2, 6.3, or 6.4. Perform the determination in duplicate.

In case of dispute, heating the latex at 70 °C is the preferred method.

### 6.2 Heating at atmospheric pressure (70 °C and 105 °C) — Natural and synthetic rubber latex

Weigh, to the nearest 0,1 mg, a dish (4.1). Pour into the dish 2,0 g ± 0,5 g of latex and determine the exact mass ( $m_0$ ) by weighing to the nearest 0,1 mg. Gently swirl the contents of the dish to ensure that the latex covers the bottom. If desired, approximately 1 cm<sup>3</sup> of distilled water or water of equivalent purity can be added and mixed with the latex by swirling.

Place the dish in the oven (4.2) so that it is horizontal, and heat it at 70 °C ± 5 °C for 16 h, or at 105 °C ± 5 °C for 2 h, or until the test portion has lost its whiteness.

NOTE 1 The disappearance of whiteness is the first indication of dryness. Dry latex film is translucent.

Remove the dish from the oven and allow it to cool to ambient temperature in a desiccator. Remove the dish and weigh.

Return the dish to the oven for 30 min at 70 °C ± 5 °C or 15 min at 105 °C ± 5 °C. Remove the dish and allow it to cool to ambient temperature in a desiccator as before and reweigh.

Repeat the drying procedure for periods of 30 min or 15 min, as appropriate until the loss in mass between two successive weightings is less than 0,5 mg.

Record the mass of the dried latex ( $m_1$ ).

If after heating at 105 °C ± 5 °C, the dried deposit becomes excessively sticky, repeat the determination at 70 °C ± 5 °C.

NOTE 2 Stickiness is symptomatic of oxidation of some rubbers when exposed to air at too high a temperature.

### 6.3 Heating at atmospheric pressure (up to 160 °C) — Synthetic rubber latex

By agreement between the interested parties, the drying process can be carried out at temperatures up to 160 °C to shorten drying times.

NOTE The maximum drying temperature for CR latex is 130 °C, while any rubber latex except CR in Table A.1 can be dried at up to 160 °C.

Proceed in accordance with 6.2, but heat the dish containing the latex at for instance 130 °C ± 5 °C for 40 min or 160 °C ± 5 °C for 20 min (see Annex A). After allowing to cool in a desiccator and weighing, repeat the drying for periods of 10 min until the loss in mass between two successive weightings is less than 0,5 mg.

### 6.4 Heating at reduced pressure — Synthetic rubber latex

Weigh, to the nearest 0,1 mg, a dish (4.1). Pour into the dish 1,0 g ± 0,2 g of latex and weigh to the nearest 0,1 mg. Add approximately 1 cm<sup>3</sup> of distilled water or water of equivalent purity and mix by swirling, ensuring that the latex covers the bottom of the dish.

Place the dish in the vacuum oven (4.3) so that it is horizontal. Reduce the pressure slowly to avoid foaming and splattering, and heat at 125 °C for 45 min to 60 min at a pressure below 20 kPa. Release the vacuum slowly, remove the dish from the oven and allow to cool in a desiccator. Remove the dish