



**International
Standard**

ISO 7681

**Natural rubber field latex —
Determination of dry rubber content**

*Latex de plantation de caoutchouc naturel — Détermination de
la teneur en caoutchouc sec*

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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 document 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).

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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*.

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.

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Natural rubber field latex — Determination of dry rubber content

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 and to determine applicable national regulatory conditions prior to use.

1 Scope

This document specifies a method for the determination of the dry rubber content of natural rubber field latex. The method is not suitable for latices from natural sources other than *Hevea brasiliensis*, or for compounded latex, vulcanized latex or artificial dispersions of rubber.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the following terms and definitions 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/>

3.1 <https://standards.iteh.ai/catalog/standards/iso/20e5bc1e-989d-4913-8a04-bde4ef06efbe/iso-7681-2024> **field latex**

natural rubber latex with or without a preservative and prior to concentration or any other processing

Note 1 to entry: The preservative is added to maintain the original state of the latex as it came from the tree.

[SOURCE: ISO 1382:2020, 3.195]

3.2 **dry rubber content**

DRC

(rubber latex) concentration of rubber in a latex or latex compound, usually expressed as a percentage by mass

[SOURCE: ISO 1382:2020, 3.156]

4 Principle

A sample of natural rubber field latex is coagulated, the non-rubber matter is removed and the rubber is dried. The dry rubber content is obtained by expressing the mass of dried coagulum as a percentage of the mass of latex.

5 Apparatus

Ordinary laboratory apparatus and the following.

5.1 Dish, preferably made of glass, porcelain or aluminium approximately 100 mm in diameter and 50 mm deep.

NOTE Dishes made of aluminium are unsuitable for use with field latex containing potassium hydroxide.

5.2 Oven, capable of being maintained at $70\text{ °C} \pm 5\text{ °C}$.

5.3 Desiccator.

5.4 Steam-bath, or water bath.

5.5 Analytical balance, capable of being read to 1 mg.

5.6 Suitable roller, such as stainless-steel roller.

5.7 Thickness gauge.

6 Reagent

Use only reagents of recognized analytical grade and only distilled water or water of equivalent purity.

6.1 Acetic acid, with a volume fraction of 2,0 %.

6.2 Ethanol, with a volume fraction of 95 %.

7 Procedure

7.1 General

Into the dish, weigh by difference, to the nearest 1 mg, approximately 15 g of the sample. Rotate the dish slowly so that the latex covers the bottom of the dish.

Slowly add sufficient acetic acid down the inside edge of the dish, to bring about complete coagulation of the latex. While adding the acid, slowly rotate the dish and at frequent intervals, gently swirl its content.

Allow the content of the dish to stand until the coagulum becomes sufficiently firm for handling.

Place a watch-glass on the dish and heat on a water bath, heated not exceeding 70 °C for 15 min to 30 min. If the serum remains milky, add 5 cm^3 of the ethanol.

When the serum is clear, collect any small particles of coagulated rubber by rubbing with the main bulk. Then, proceed in accordance with either method A (7.2) or method B (7.3).

7.2 Method A: Sheeting by hand

Press the coagulated rubber to expel water and obtain a uniform sheet not exceeding about 2 mm in thickness by pressing with suitable roller. A suitable method is to place the coagulated rubber carefully on a glass plate and with a glass stopper about 45 mm in diameter, or any suitable roller made of an inert material, to press first around the circumference and then work towards the centre. Another suitable method is by passing the rubber between rolls.

Wash the sheet thoroughly with water and then allow it to drip for a few minutes before hanging in an oven set at $70\text{ °C} \pm 5\text{ °C}$ to dry until the sheet becomes translucent.

NOTE Thorough washing is achieved by immersing the sheet in a container of water placed under a running tap for 15 min.