
**Rubber, natural latex concentrate —
Determination of KOH number**

*Latex concentré de caoutchouc naturel — Détermination de l'indice
de potasse*

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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).

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.

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 fifth edition cancels and replaces the fourth edition (ISO 127:2012), which has been technically revised to add in [Clause 7](#) the calculation of water required to dilute latex.

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.

Rubber, natural latex concentrate — Determination of KOH number

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 for the determination of the KOH number of natural rubber latex concentrate which is preserved wholly or in part with ammonia.

The method is applicable to latices containing boric acid.

The method is not applicable to latices preserved with potassium hydroxide. It is not necessarily suitable for latices from natural sources other than *Hevea brasiliensis*, or for latices of synthetic rubber, compounded latex, vulcanized latex or artificial dispersions of 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 123, *Rubber latex — Sampling*

ISO 124, *Latex, rubber — Determination of total solids content*

ISO 125, *Natural rubber latex concentrate — Determination of alkalinity*

ISO 976, *Rubber and plastics — Polymer dispersions and rubber latices — Determination of pH*

ISO 1802, *Natural rubber latex concentrate — Determination of boric acid content*

3 Terms and definitions

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

KOH number

<rubber latex> number of grams of potassium hydroxide equivalent to the acid radicals combined with ammonia in latex containing 100 g of total solids

[SOURCE: ISO 1382:2012, 2.249, modified — Note 1 to entry has been deleted.]

4 Reagents

During the analysis, use only reagents of recognized analytical grade and only distilled water free of dissolved carbon dioxide, or water of equivalent purity.

- 4.1 Potassium hydroxide**, standard volumetric solution, $c(\text{KOH}) = 0,1 \text{ mol/dm}^3$, carbonate-free.
- 4.2 Potassium hydroxide**, standard volumetric solution, $c(\text{KOH}) = 0,5 \text{ mol/dm}^3$, carbonate-free.
- 4.3 Formaldehyde**, 45 g to 50 g in 1 dm³ of solution [$c(\text{HCHO}) = 1,5 \text{ mol/dm}^3$ to $1,67 \text{ mol/dm}^3$], acid-free, prepared by diluting concentrated formaldehyde with water and neutralizing with 0,1 mol/dm³ potassium hydroxide solution (4.1), using as indicator the faint pink colour of phenolphthalein.

[Annex A](#) describes the method to determine the concentration of the formaldehyde solution.

5 Apparatus

Standard laboratory glassware, plus the following.

- 5.1 pH-meter**, in accordance with ISO 976 but capable of being read to 0,01 units.
- 5.2 Glass electrode**, of a type suitable for use in solutions of pH up to 12,0.
- 5.3 Mechanical stirrer**, with earthed motor and glass paddle, or **magnetic stirrer**.

An automatic titrator may be used provided that it has been proven to give the same result as the standard method.

6 Sampling

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

7 Procedure

Calibrate the pH-meter by the method specified in ISO 976. If the total solids, w_{TS} , and alkalinity, A , of the latex are not known, determine them in accordance with ISO 124 and ISO 125, respectively. If the latex contains boric acid and the content is not known, determine it in accordance with ISO 1802.

Carry out the determination in duplicate.

Weigh, to the nearest 0,1 g, into a 400 cm³ beaker a test portion (mass m) of the test sample containing approximately 50 g of total solids. If necessary, adjust the alkalinity to $(0,5 \pm 0,1) \%$ ammonia calculated with respect to the water phase by adding, while stirring, the required quantity of formaldehyde solution (4.3).

Calculate the volume, V_f , in cubic centimetres, of formaldehyde solution to be added from [Formula \(1\)](#):

$$V_f = \frac{m(100 - w_{\text{TS}})(A - 0,5)}{113,4c(\text{HCHO})} \quad (1)$$

where

- m is the mass, in grams, of the test portion;
- w_{TS} is the total solids content, expressed as a percentage by mass, of the latex concentrate;
- A is the alkalinity (water phase);
- $c(\text{HCHO})$ is the actual concentration, expressed in moles per cubic decimetre, of the formaldehyde solution (4.3).