INTERNATIONAL STANDARD

ISO 126

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Latex, rubber, natural concentrate — Determination of dry rubber content

Latex de caoutchouc naturel concentré — Détermination de la teneur en caoutchouc sec

Reference number
ISO 126:1995(E)

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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 126 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 fourth edition cancels and replaces the third edition (ISO 126:1989), of which it constitutes a minor revision.

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Latex, rubber, natural concentrate — Determination of dry rubber content

WARNING — Persons using this International Standard should be familiar with normal laboratory practice. This standard does not purport to address all of the satefy 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 a method for the determination of the dry rubber content of natural rubber latex concentrate.

The method is not necessarily suitable for latices from natural sources other than *Hevea brasiliensis*, or for compounded latex, vulcanized latex or artificial dispersions of rubber, and is not applicable to synthetic rubber latices.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreement based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 123:1985, *Rubber latex — Sampling.*

ISO 124:1990, *Rubber latices — Determination of total solids content.*

3 Definition

For the purposes of this International Standard, the following definition applies.

3.1 natural rubber latex concentrate: Natural rubber latex containing ammonia and/or other preservatives and which has been subject to some process of concentration.

4 Principle

A test portion of latex concentrate is diluted to 20 % total solids content and acidified with acetic acid. The coagulated rubber is then formed into a sheet and dried at 70 °C.

5 Reagents

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

5.1 Acetic acid, 20 g/dm^3 aqueous solution (for use with latex concentrate preserved with ammonia).

5.2 Acetic acid, 50 g/dm^3 solution (for use with latex concentrate preserved with potassium hydroxide).

Add 50 g of glacial acetic acid to 500 cm^3 of propan-2-ol and dilute with water to 1 dm^3.

6 Apparatus

Ordinary laboratory apparatus and

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

NOTE 1 Dishes made of aluminium are unsuitable for use with latex concentrate containing potassium hydroxide.

7 Sampling

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

8 Procedure

8.1 If the total solids content is not known, determine it in accordance with ISO 124.

8.2 Carry out the procedure in duplicate.

8.3 Weigh by difference from a weighing bottle, to the nearest 1 mg, 10 g ± 1 g of latex concentrate into the dish (6.1). Pour sufficient water down the inside edge of the dish to reduce the total solids content of the latex concentrate to 20 % ± 1 % (*m/m*). Carefully rotate the dish on a smooth surface to dilute the latex concentrate homogeneously. Proceed in accordance with 8.4 or 8.5 as appropriate.

8.4 In the case of latex concentrate preserved with ammonia, add, over a period of 5 min, 75 cm^3 ± 5 cm^3 of the 20 g/dm^3 acetic acid solution (5.1), pouring down the inside edge of the dish and slowly rotating the dish while the acid is being added.

Gently depress the coagulated sheet of rubber below the surface of the acid. Place a watch glass on the dish and heat on a steam bath for 15 min to 30 min. If the serum remains milky, add 5 cm^3 of 95 % (*V/V*) ethanol. Continue as described in 8.6.

8.5 In the case of latex concentrate preserved with potassium hydroxide, add 25 cm^3 ± 5 cm^3 of the 50 g/dm^3 acetic acid solution (5.2). Mix the acidified latex by means of a thin glass rod and wash any remaining latex concentrate adhering to the rod into the dish with water.

Gently depress the coagulated sheet of rubber below the surface of the acid. Place a watch glass on the dish and heat on a steam bath for 15 min to 30 min.

8.6 When the serum is clear, collect any small particles of coagulated rubber by rubbing with the main bulk. Soak the coagulated rubber in several changes of water until the water is no longer acidic to litmus.

Press the coagulated rubber to expel water and obtain a uniform sheet not exceeding 2 mm in thickness. 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 a small photographic roller, to press first around the circumference and then work towards the centre.

Rinse the sheet thoroughly in running water for at least 5 min in the case of latex concentrate preserved with ammonia, or for at least 2 h in the case of latex concentrate preserved with potassium hydroxide. Allow the rinsed sheet to drip for a few minutes before transferring it to a drying oven.

8.7 Dry the sheet at a temperature of 70 °C ± 2 °C until it has no white patches. If the sheet is dried on a large watch glass, carefully turn it over two or three times during the first few hours of drying. Allow to cool in a desiccator and weigh. Repeat the operations of drying, cooling and weighing until the loss in mass is less than 1 mg after heating for 30 min.

NOTE 2 If the sheet becomes excessively sticky and it is suspected that significant oxidation occurs at 70 °C, then a lower drying temperature, for example 55 °C, should be used.

9 Expression of resultats

9.1 Calculate the dry rubber content (DRC) of the latex concentrate as a percentage by mass to the second decimal place from the equation

$$DRC = \frac{m_1}{m_0} \times 100$$

where

m_0 is the mass, in grams, of the test portion;

m_1 is the mass, in grams, of the dry sheet.

9.2 The results of the duplicate determinations shall agree to within 0,1 % (*m/m*) of the mean value. If they do not, repeat the determination.

10 Test report

The test report shall include the following particulars:

a) all details necessary for the identification of the test sample;

b) a reference to this International Standard;

c) the dry rubber content (DRC) of the latex concentrate;

d) the drying temperature, if other than 70 °C ± 2 °C;

e) any unusual features noted during the determination;

f) details of any operation not included in this International Standard or in the Intenational Standards to which reference is made, as well as details of any operation considered optional.