

International Standard



123

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Rubber latex — Sampling

Latex de caoutchouc — Échantillonnage

Second edition — 1985-08-15

STANDARDSISO.COM : Click to view the full PDF of ISO 123:1985

UDC 678.031 : 620.1

Ref. No. ISO 123-1985 (E)

Descriptors : rubber, natural rubber, synthetic rubber, latex, sampling.

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.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 123 was prepared by Technical Committee ISO/TC 45, *Rubber and rubber products*.

ISO 123 was first published in 1974. This second edition cancels and replaces the first edition, of which it constitutes a technical revision (see the Introduction).

Rubber latex — Sampling

0 Introduction

This second edition of ISO 123 gives more precise definitions, specifies the apparatus in more detail and clarifies some ambiguity on preliminary testing. The method of homogenizing latex in drums fitted with bungs has been altered, and in order to safeguard against stratification closer agreement in total solids content is required between samples drawn from different levels.

1 Scope and field of application

This International Standard specifies procedures for the sampling of natural rubber latex concentrate containing preservative agents and also for the sampling of synthetic rubber latices. It is suitable for the sampling of rubber latex that is contained in drums, tank cars, or tanks.

2 References

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

ISO 1795, *Raw rubber in bales — Sampling*.

ISO 3310/1, *Test sieves — Technical requirements and testing — Part 1: Test sieves of metal wire cloth*.

3 Definitions

For the purpose of this International Standard, the following definitions apply.

3.1 lot: A definite quantity of latex processed or produced under conditions which are presumed uniform, from which a test sample (see 3.4) is required.

The lot may be in one or more containers or vessels, for example it may consist of several drums of the same latex.

3.2 sample: Any quantity of latex that is drawn from the lot.

3.3 laboratory sample: A quantity of latex intended for laboratory inspection and testing and that is representative of the lot.

3.4 test sample: A quantity of the latex that is suitable for testing obtained by filtering the laboratory sample.

NOTE — The laboratory sample, not the test sample, is used for the determination of coagulum content.

4 Principle

The latex is agitated thoroughly to obtain a homogeneous bulk. A representative sample (3.3) is taken from the bulk of the latex. The test sample (3.4) is prepared from the laboratory sample (3.3).

5 Apparatus

5.1 Stirrer, for homogenization of latex in drums.

For open-headed drums, use either 5.1.1 or 5.1.2. For drums fitted with a bung, use 5.1.3.

5.1.1 Perforated stainless steel disk plunger, of diameter approximately 150 mm, with holes of diameter approximately 10 mm.

5.1.2 Motor-driven stirrer, with a rotational frequency of 100 to 700 r/min.

A suitable type of stirrer consists of a collapsible two-bladed stainless steel propeller of 110 mm minimum diameter when fully opened, mounted on a stainless steel shaft sufficiently long for the propeller to be at a distance of about one-tenth the height of the latex from the bottom of the drum.

If desired, two propellers may be used on the same shaft, in which case the lower one shall meet the foregoing requirements as regards position. The shaft speed shall give a brisk turnover without creating a vortex. The part of the equipment immersed in the latex shall not contain copper.

5.1.3 Motor-driven drum roller, capable of rotating a drum at approximately 10 r/min.

5.2 Sampling tubes for latex in drums.

Use either 5.2.1 or 5.2.2.

5.2.1 Glass tube, of internal diameter 10 to 15 mm and length at least 1 m, open at both ends and having a stopper for closing the tube while withdrawing the latex.

5.2.2 Stainless steel sampling tube, of internal diameter approximately 25 mm and length at least 1 m, the bottom of which can be opened or closed by remote control. An outline drawing of a suitable design is given in the figure.

5.3 Sampling devices for latex in tank cars or tanks.

Use 5.3.1 for sampling latex the depth of which is 3 m or more. Use either 5.3.2 or 5.3.1 for sampling latex the depth of which is less than 3 m.

5.3.1 Sampling vessel, consisting of a weighted, cylindrical, stainless steel vessel of capacity approximately 1 dm³, closed by a bung that can be removed by remote control. The weight of the vessel shall be sufficient to ensure that when empty and closed it will sink freely through the latex. To the top of the cylinder there are attached, to at least two points, strong cords of material inert to the latex, of length greater than the depth of the latex that is to be sampled.

5.3.2 Stainless steel sampling tube, of internal diameter 25 mm and length 3 m, the bottom of which can be opened or closed by remote control. An outline drawing of suitable design is given in the figure.

5.4 Beakers, of capacity 2 dm³, for reception of the latex from the sampling tube or sampling vessel. The beaker(s) shall be shock-resistant and have a smooth inner surface that is chemically resistant to the latex.

5.5 Sample bottles, of capacity 1 dm³, with screw caps. The bottles shall have a smooth inner surface and be composed of an impermeable material that is chemically resistant to the latex. Glass or some types of plastics are suitable materials. Thin or flexible plastics containers shall not be used.

5.6 Stainless steel wire cloth, with an average aperture width of $180 \pm 10 \mu\text{m}$, complying with ISO 3310/1.

6 Sampling

At all stages of sampling, prevent the introduction of air into the latex and keep exposure of the latex to air to a minimum.

6.1 Preliminary examination

Examine the latex visually for the presence of gross coagulum, skin, and foreign matter.

6.2 Sampling from drums

6.2.1 Homogenization

Homogenize the latex manually as specified in 6.2.1.1 or 6.2.1.2, whichever is appropriate, or mechanically as specified in 6.2.1.3.

6.2.1.1 If the drum is fitted with a bung and manual or mechanical homogenization of the latex cannot be achieved, place the drum on a drum roller (5.1.3) and roll for 24 h at about 10 r/min.

6.2.1.2 If the drum is of the open-head type, remove the end head and stir the contents thoroughly for at least 10 min, preferably by means of the perforated stainless steel disk plunger (5.1.1).

6.2.1.3 Agitate the contents of the drum by means of the motor-driven stirrer (5.1.2) for 10 min to homogenize the latex. Avoid excessive stirring.

6.2.2 Taking of laboratory sample

After homogenization of the latex (6.2.1), take the laboratory sample without delay using the glass tube (5.2.1) or the stainless steel sampling tube (5.2.2).

In the case of the glass tube, ensure that it is clean and dry and slowly insert it in the drum until it reaches the bottom. Then close the upper end of the tube with the stopper, withdraw it and transfer its contents to a clean, dry sample bottle (5.5). Repeat the operation until sufficient latex has been obtained to fill the sample bottle, leaving an air space of 2 to 5 % (to allow for thermal expansion). Screw the cap firmly on the bottle.

In the case of the stainless steel sampling tube, slowly insert it in the drum, holding the bottom of the tube open, until it reaches the bottom. Then release the handle to close the bottom of the tube and withdraw the tube. Transfer the contents of the tube into a beaker (5.4) by depressing the handle. Repeat the operation until sufficient latex has been obtained. Transfer the latex from the beaker to a clean, dry sample bottle (5.5), leaving an air space of 2 to 5 % and screw the cap firmly on the bottle.

6.2.3 Sampling from several drums

Where sampling of the same latex from several drums is required, for example 10 % sampling of a latex, the amount of latex drawn from each drum may be reduced proportionately. Combine and stir the individual samples and bottle the resultant laboratory sample.

6.3 Sampling from tank cars and tanks

6.3.1 Sampling operation

Use the sampling vessel (5.3.1) or sampling tube (5.3.2), whichever is appropriate.

Operate the sampling vessel (5.3.1) by lowering it, with the bung in place, into the latex to the required depth and then pulling out the bung. Allow a few seconds for the vessel to fill with latex and then pull it up and transfer its contents to a beaker (5.4). Transfer the latex to the sample bottle (5.5), leaving an air space of 2 to 5 % (to allow for thermal expansion) and screw the cap firmly on the bottle.

Operate the sampling tube (5.3.2) by inserting it, with the bottom closed, into the latex to the required depth and then, by depressing the handle, opening the bottom of the tube. After the tube has filled with latex, release the handle to close the bottom and withdraw the tube. Transfer the contents of the tube into a beaker (5.4) and transfer the latex to the sample bottle (5.5), leaving an air space of 2 to 5 %. Screw the cap firmly on the bottle.

6.3.2 Testing for homogeneity

Take separate samples 100 mm from the top surface and 100 mm from the bottom of the latex. Determine the total solids content by the method specified in ISO 124. If the results from the top and bottom samples do not agree within 0,5 % (*m/m*) total solids, thoroughly rehomogenize the complete lot until samples obtained do agree within this tolerance.

NOTE — Thorough agitation can be achieved with an efficient mechanical stirrer or by pumping the latex around or into another container.

6.3.3 Taking of laboratory sample

After the degree of homogeneity specified in 6.3.2 has been achieved, take three samples of similar volume, the first half-way between the top and the centre of the latex, the second at the centre of the latex and the third half-way between the centre and the bottom of the latex. Combine and stir the three samples and transfer the resultant laboratory sample to a sample bottle (5.5).

NOTES

1 If the sampling tube (5.3.2) is used, a single sample may be taken by inserting the tube, with the bottom held open, to the bottom of the latex and then closing the bottom of the tube before withdrawing it from the latex.

2 Coagulum content is determined on the laboratory sample, not the test sample.

6.4 Preparation of test sample

Stir the laboratory sample carefully and filter it through the stainless steel wire cloth (5.6). Transfer the filtered latex to another sample bottle (5.5), leaving an air space of 2 to 5 %, and screw the cap firmly on the bottle.

7 Labelling of laboratory sample and the test sample

These samples should be labelled and contain on the label

- a) a description of the material;
- b) the size and particulars of consignment (tank-wagon, tank, ship, barrel, drum);
- c) the designation and reference number of the sample;
- d) the consigner;
- e) the place of sampling;
- f) the date of sampling;
- g) the name of the sampler.

8 Test report

The test report shall include the following information:

- a) a reference to this International Standard;
- b) all details necessary for the identification of the test sample;
- c) frequency of sampling;
- d) a record of creaming, visible gross coagulum, skin and foreign matter (if any) present in the original container;
- e) any unusual features noted during the sampling;
- f) any operation not included in this International Standard or regarded as optional.

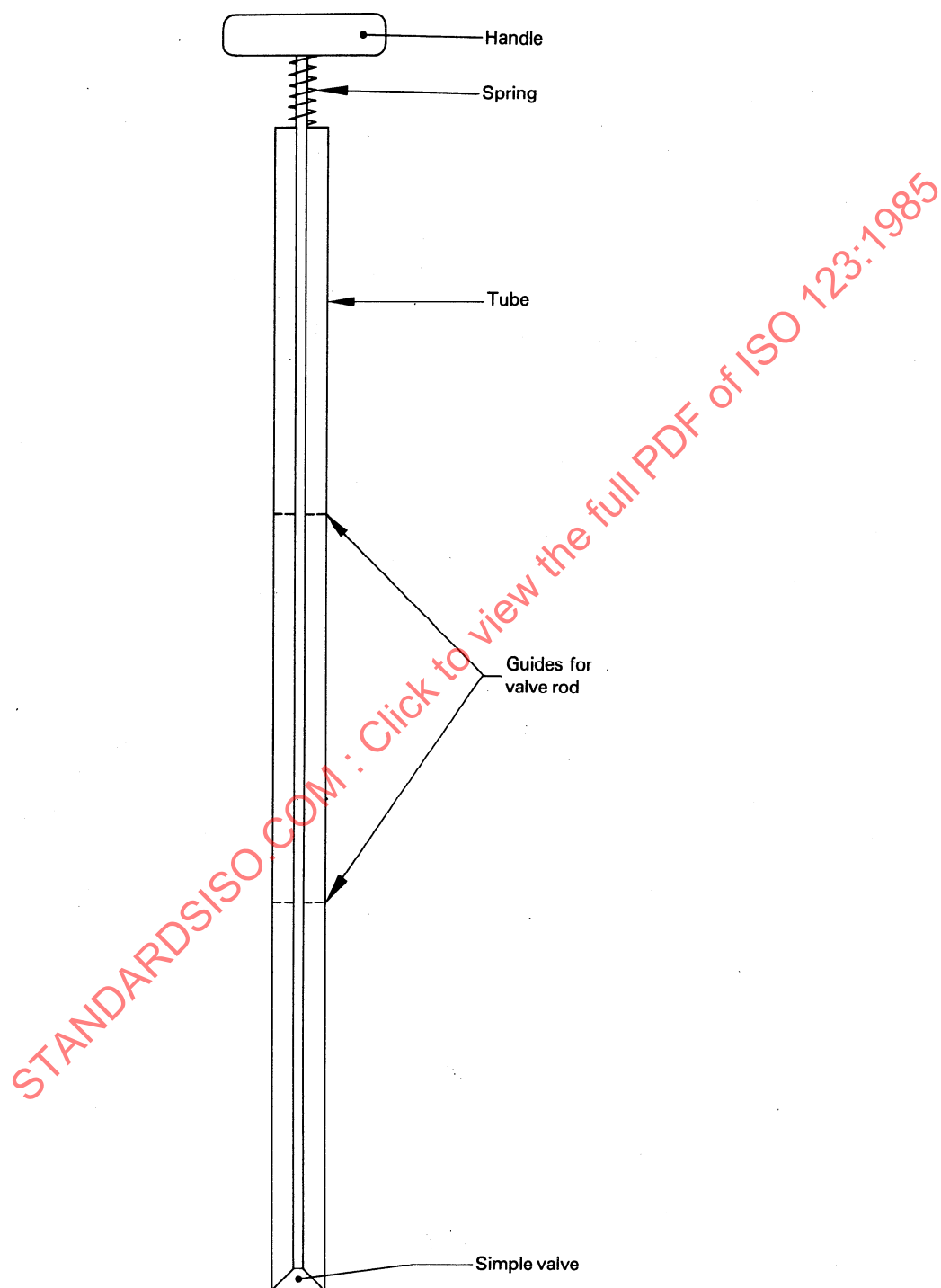


Figure — Sampling tube for drums, tank cars and smaller tanks (not to scale)