International Standard 706

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Rubber latex — Determination of coagulum content (sieve residue)

Latex de caoutchouc — Détermination de la teneur en coagulum (refus sur tamis)

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Foreword

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

This third edition of ISO 706 cancels and replaces the second edition (ISO 706-1976) of which it constitutes a technical revision (see the Introduction).

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Rubber latex — Determination of coagulum content (sieve residue)

0 Introduction

This third edition of ISO 706 expands the scope to include synthetic rubber latices.

1 Scope and field of application

This International Standard specifies a method for the determination of the coagulum content (sieve residue) of natural rubber latex concentrate containing preservative agents and also for the determination of the coagulum content (sieve residue) of synthetic rubber latices.

2 References

ISO 123, *Rubber latex — Sampling.* [1]

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

3 Definition

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

coagulum; sieve residue: The material, comprising pieces of coagulated rubber, latex skin and coarse foreign matter, retained under the conditions of the test on a stainless steel wire cloth with an average aperture width of 180 ± 10 µm.

4 Reagents

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

4.1 Potassium oleate or **ammonium laurate,** surfactant solution, 5 % (m/m), of pH 10 (for use with natural rubber latices).

4.2 Water-soluble ethoxylated alkyl phenol, surfactant solution 5 % (m/m) (for use with synthetic rubber latices).

4.3 Litmus paper.

5 Apparatus [2]

Ordinary laboratory apparatus, and

5.1 Test filter, consisting of a disk of stainless steel wire cloth with an average aperture width of 180 ± 10 µm.

5.2 Two stainless steel rings, of equal internal diameter between 25 and 50 mm.

5.3 Oven, capable of being controlled at 100 ± 5 °C.

5.4 Desiccator.

5.5 Beaker, of capacity 600 cm^3 which has a lip.

6 Sampling

Sampling shall be carried out in accordance with one of the methods specified in ISO 123 for taking the laboratory sample.

7 Procedure

Weigh 200 ± 1 g of the laboratory sample (clause 6) into the beaker (5.5). Add 200 cm^3 of the appropriate surfactant solution (4.1 or 4.2) and mix thoroughly. Dry the test filter (5.1) to constant mass in the oven (5.3), controlled at 100 ± 5 °C, and weigh to the nearest milligram. Record the mass (m_1). Firmly clamp the test filter between the stainless steel rings (5.2).

NOTE — If the wire cloth is not clean, immerse it for 2 min in boiling nitric acid (ϱ 1,42 g/cm^3) and wash it with water before drying it to constant mass and weighing.

1) At present at the stage of draft. (Revision of ISO 123-1974.)

2) The term millilitre (ml) is accepted as a commonly used special name for the cubic centimetre (cm^3), in accordance with a decision of the 12th Conférence Générale des Poids et Mesures. Apparatus with either type of marking is satisfactory for use with this International Standard.

Wet the test filter (5.1) with the same surfactant solution and pour the latex/surfactant mixture into the test filter. Wash the residue on the wire cloth with the same surfactant solution until it is free from latex. With natural rubber latex concentrate, wash with water until the washings are neutral to litmus. With synthetic rubber latex, wash with 200 cm^3 of water. Carefully remove the wire cloth containing the wet coagulum from the clamp and swab the underside with filter paper.

Heat the wire cloth and coagulum for 30 min in the oven, controlled at 100 ± 5 °C, allow to cool in the desiccator (5.4) and weigh. Return to the oven at 100 ± 5 °C for a further period of 15 min, allow to cool and re-weigh. Repeat the drying for 15 min periods until the loss in mass between successive weighings is less than 1 mg.

8 Expression of results

The coagulum content, expressed as a percentage by mass of the latex, is given by the formula

$$\frac{m_2 - m_1}{m_0} \times 100$$

where

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

m_1 is the mass, in grams, of the wire cloth;

m_2 is the mass, in grams, of the wire cloth plus the dried coagulum.

If the results of duplicate determination do not agree to within 0,01 % (m/m), carry out two further determinations.

9 Test report

The test report shall include the following information:

a) reference to this International Standard;

b) identification of the sample;

c) the results and the method of expression used;

d) any unusual features noted during the determinations;

e) any operation not included in this International Standard or in the International Standards to which reference is made, or regarded as optional.