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SYNTHETIC RUBBER LATICES

DETERMINATION OF HIGH SPEED MECHANICAL STABILITY

1st EDITION

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BRIEF HISTORY

The ISO Recommendation R 2006, *Synthetic rubber latices – Determination of high speed mechanical stability*, was drawn up by Technical Committee ISO/TC 45, *Rubber*, the Secretariat of which is held by the British Standards Institution (BSI).

Work on this question led to the adoption of Draft ISO Recommendation No. 2006, which was circulated to all the ISO Member Bodies for enquiry in May 1970. It was approved, subject to a few modifications of an editorial nature, by the following Member Bodies :

Australia	Hungary	Sweden
Austria	India	Switzerland
Canada	Israel	Turkey
Ceylon	Italy	U.A.R.
France	New Zealand	United Kingdom
Germany	South Africa, Rep. of	U.S.A.
Greece	Spain	U.S.S.R.

No Member Body opposed the approval of the Draft.

This Draft ISO Recommendation was then submitted by correspondence to the ISO Council, which decided to accept it as an ISO RECOMMENDATION.

ISO Recommendation | R 2006 | July 1971

SYNTHETIC RUBBER LATICES

DETERMINATION OF HIGH SPEED MECHANICAL STABILITY

1. SCOPE

This ISO Recommendation describes a method for the determination of the high speed mechanical stability of synthetic rubber latices. The stirring disk which is specified has a greater diameter than that recommended for natural rubber latex in ISO Recommendation R 35, *Determination of the mechanical stability of latex.*

The test is applicable to synthetic rubber latices which have a viscosity, determined with the L instrument in accordance with ISO Recommendation R 1652, *Determination of viscosity of rubber latices*, of up to 200 $mN \cdot s/m^2$ (200 cP). Latices of higher viscosity should be tested after dilution to a viscosity of 200 $mN \cdot s/m^2$ (200 cP) or less, provided that such dilution* does not reduce the concentration of the latex by more than 10 % total solids.

The duration of stirring should be so selected that the latex does not increase in temperature to more than 60 °C and does not exceed a height of 100 mm in the latex container. The duration of stirring should be agreed between consumer and producer and should not be longer than 30 minutes nor less than 1 minute. In the case of a latex which contains ammonia, the duration of stirring should be limited, since loss of ammonia by evaporation during the test may cause additional destabilization.

The test does not necessarily indicate the stability of a synthetic rubber latex to high shear stress, for which a rubbing test may be more applicable. Methods of the latter type are under consideration.

2. PRINCIPLE OF METHOD

Latex is stirred at a high speed and the amount of coagulum formed is regarded as an inverse measure of its mechanical stability.

3. REAGENT

Soap solution, 5 % solution of potassium oleate of pH value 10, or, for use with a latex which is coagulated by potassium oleate solution, 5 % solution of a synthetic anionic surfactant.

Distilled water or water of equivalent purity should be used wherever water is specified.

4. APPARATUS

4.1 *Mechanical stability apparatus***, consisting of a latex container, a stirring apparatus and an arrangement for holding the latex container.

The latex container should be a flat-bottomed cylindrical vessel at least 100 mm high with an internal diameter of 58 ± 2 mm. The inner surface should be smooth and a glass container is preferred.

The stirring apparatus consists of a vertical stainless steel shaft of sufficient length to reach to the bottom of the latex container and tapering to 6.35 mm diameter at its lower end, where is attached a horizontal smooth stainless steel disk 36.12 ± 0.03 mm in diameter and 1.58 ± 0.05 mm thick by means of a threaded stud at the exact centre of the disk. The apparatus should maintain a stirring speed of 14 000 ± 200 rev/min throughout a test, at which speed the shaft should not run more than 0.25 mm out of true.

The arrangement for holding the latex container should ensure that the axis of the rotating shaft is concentric with that of the latex container and the bottom of the stirring disk is 13 ± 2 mm from the inner surface of the bottom of the latex container.

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* Dilution of the latex decreases its stability because the balance of free and absorbed soap is changed.

** Suitable instruments are commercially available.