

**Liimid. Püsivus külmutamisel-sulatamisel**

Adhesives - Freeze-thaw stability

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 1239:2011 sisaldab Euroopa standardi EN 1239:2011 ingliskeelset teksti.

Standard on kinnitatud Eesti Standardikeskuse 31.05.2011 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 20.04.2011.

Standard on kättesaadav Eesti standardiorganisatsioonist.

This Estonian standard EVS-EN 1239:2011 consists of the English text of the European standard EN 1239:2011.

This standard is ratified with the order of Estonian Centre for Standardisation dated 31.05.2011 and is endorsed with the notification published in the official bulletin of the Estonian national standardisation organisation.

Date of Availability of the European standard text 20.04.2011.

The standard is available from Estonian standardisation organisation.

ICS 83.180

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English Version

## Adhesives - Freeze-thaw stability

Adhésifs - Stabilité au gel-dégel

Klebstoffe - Gefrier-Auftau-Stabilität

This European Standard was approved by CEN on 10 March 2011.

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## Foreword

This document (EN 1239:2011) has been prepared by Technical Committee CEN/TC 193 “Adhesives”, the secretariat of which is held by AENOR.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by October 2011, and conflicting national standards shall be withdrawn at the latest by October 2011.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 1239:1998.

The main modifications regarding the previous version are in the Normative References and 8.1.

**SAFETY STATEMENT** — Persons using this document should be familiar with the normal laboratory practice, if applicable. 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 and to ensure compliance with any regulatory conditions.

**ENVIRONMENTAL STATEMENT** — It is understood that some of the material permitted in this standard may have negative environmental impact. As technological advantages lead to acceptable alternatives for these materials, they will be eliminated from this standard to the extent possible.

At the end of the test, the user of the standard should take care to carry out an appropriate disposal of the wastes, according to local regulation.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and the United Kingdom.

## 1 Scope

This European Standard specifies a method for the evaluation of the freeze-thaw stability of adhesives, their basic constituents and related products.

This test has no significance if the sample does not freeze under the test conditions.

## 2 Normative references

The following referenced documents are indispensable for the application 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.

EN 923:2005+A1:2008, *Adhesives — Terms and definitions*

EN 1067, *Adhesives — Examination and preparation of samples for testing*

EN 12092, *Adhesives — Determination of viscosity*

EN ISO 15605, *Adhesives— Sampling (ISO 15605:2000)*

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 923:2005+A1:2008 apply.

## 4 Principle

Measure the viscosity of a sample of the adhesive being tested by placing it in a test chamber for 16 h at a selected temperature of - 5 °C, - 10 °C, - 15 °C or - 20 °C, then holding it for 8 h at  $(23 \pm 1)$  °C and finally checking the aspect of the adhesive.

If no coagulum is formed, the cycle is repeated, i.e. the sample is stored at the selected temperature for another 16 h and then held at  $(23 \pm 1)$  °C for 8 h up to a maximum number of three cycles. The final viscosity of the adhesive is measured.

Freeze-thaw cycle stability is indicated by the selected test temperature and the number of cycles endured without visible coagulation at an increase of viscosity not exceeding the manufacturer's specification limits.

NOTE 1 The freezing temperature selected depends on the chemical nature of the adhesive to be tested and the temperature conditions to which the adhesive is exposed in service. If necessary, preliminary tests should be carried out in order to determine the appropriate test temperature.

NOTE 2 The results obtained by this method are not necessarily applicable to larger-volume vessels.

## 5 Apparatus

**5.1 Cylindrical container**, 90 mm height, 60 mm inside diameter and 2 mm wall thickness with a large opening on the top and capable of being sealed with an airtight lid.

NOTE At test temperatures of - 5 °C or - 10 °C the container can be made of polyethylene; at lower freezing temperatures cylindrical stainless steel container can be used.