SLOVENSKI STANDARD
SIST EN 13999-1:2014

01-april-2014

Nadomešča:
SIST EN 13999-1:2006
SIST EN 13999-1:2006/AC:2007

Lepila - Hitra metoda za merjenje emisijskih lastnosti lepil z malo topila ali brez njega po uporabi - 1. del: Splošni postopek

Adhesives - Short term method for measuring the emission properties of low-solvent or solvent-free adhesives after application - Part 1: General procedure

Klebstoffe - Kurzzeit-Verfahren zum Messen der Emissionseigenschaften von lösemittelarmen oder lösemittelfreien Klebstoffen nach der Applikation - Teil 1: Allgemeines Verfahren

Adhésifs - Méthode de mesurage rapide des caractéristiques émissives des adhésifs à teneur faible ou nulle en solvant après application - Partie 1 : Mode opératoire général

Ta slovenski standard je istoveten z: **EN 13999-1:2013**

ICS:

83.180	Lepila	Adhesives

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EUROPEAN STANDARD

NORME EUROPÉENNE

EUROPÄISCHE NORM

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English Version

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This European Standard was approved by CEN on 19 October 2013.

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This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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Foreword

This document (EN 13999-1:2013) 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of an identical text or by endorsement, at the latest by June 2014, and conflicting national standards shall be withdrawn at the latest by June 2014.

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 13999-1:2006.

EN 13999-1:2013 includes the following significant technical changes with respect to EN 13999-1:2006:

a) In general, the text is adapted to the new CLP Regulation No 1272/2008 [11].

b) In 6.3, a new Note 2 is added, emphasizing the need that materials be tested under same conditions using the spreading techniques and the coat weights specific for each application.

c) In 7.5, the sampling time is changed (the sampling time at 24 h is eliminated, a sampling time at 72 h is added), and a note is added concerning the possibility of other sampling times, e.g. after 28 days.

d) “Specific cumulative emission” (previous 8.3.3) is eliminated.

e) The examples from Note to Annex A are eliminated.

EN 13999, under the general title *Adhesives — Short-term method for measuring the emission properties of low-solvent or solvent-free adhesives after application*, consists of the following parts:

— *Part 1: General procedure*

— *Part 2: Determination of volatile organic compounds*

— *Part 3: Determination of volatile aldehydes*

— *Part 4: Determination of volatile diisocyanates*

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 European Standard may have negative environmental impact. As technological advantages lead to acceptable alternatives for these materials, they will be eliminated from this European Standard to the extent possible.

At the end of the test, the user of this European 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, Former Yugoslav Republic of Macedonia, France, Germany, Greece,

Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

Introduction

Solvent-free and low-solvent adhesives may release considerable long-term emissions of volatile chemical compounds. Any documentation of emission characteristics requires a test method that includes all relevant and potentially hazardous substances.

It is essential that the test

— be reliable and reproducible,

— give results in a short time to be useful for decisions for development projects,

— verify that carcinogenic or sensitizing volatile substances are substantially absent,

— characterize the emission properties of the adhesive.

This can be achieved by sampling the atmosphere around the applied adhesive kept in an environmental test chamber at controlled ambient conditions.

1 Scope

This European Standard describes a conventional standard method for assessing potential emissions from adhesives after their application.

This European Standard applies only to “solvent-free” and “low-solvent” adhesives as they are defined in EN 923:2005+A1:2008. The adhesives shall be applicable at room temperature.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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 13999-2, *Adhesives — Short term method for measuring the emission properties of low-solvent or solvent-free adhesives after application — Part 2: Determination of volatile organic compounds*

EN 13999-3, *Adhesives — Short term method for measuring the emission properties of low-solvent or solvent-free adhesives after application — Part 3: Determination of volatile aldehydes*

EN 13999-4, *Adhesives — Short term method for measuring the emission properties of low-solvent or solvent-free adhesives after application — Part 4: Determination of volatile diisocyanates*

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

EN ISO 16000-9:2006, *Indoor air — Part 9: Determination of the emission of volatile organic compounds from building products and furnishing — Emission test chamber method (ISO 16000-9:2006)*

ISO 554, *Standard atmospheres for conditioning and/or testing — Specifications*

ISO 16000-6:2011, *Indoor air — Part 6: Determination of volatile organic compounds in indoor and test chamber air by active sampling on Tenax TA® sorbent, thermal desorption and gas chromatography using MS or MS-FID*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 923:2005+A1:2008, EN ISO 16000-9:2006 and ISO 16000-6:2011 and the following apply.

3.1
volatile organic compounds
VOC
all volatile organic compounds eluting between and including n-hexane and n-hexadecane on a gas chromatographic column

Note 1 to entry: The measurement is carried out using a capillary column coated with 5 % phenyl / 95 % methyl-poly-siloxane.

4 Principle

The test determines the emissions of volatile organic substances from adhesive coatings. Very volatile and mainly particle bound compounds are not detected with the described procedures. The test is performed in an

emission test chamber (Figure 1) at specified constant temperature, relative humidity, air mixing and air exchange.

A measurement of the concentrations of the compounds of interest in the air of the exhaust pipe is considered representative of the air in the whole test chamber.

Sampling and analysis of the non-polar and slightly polar volatile organic compounds, as defined in ISO 16000-6, shall be carried out as described in EN 13999-2.

Sampling and analysis of the volatile aldehydes shall be carried out as described in EN 13999-3. Sampling and analysis of the volatile isocyanates shall be carried out as described in EN 13999-4. The test includes:

— qualitative and quantitative determination of carcinogenic and sensitizing substances in an early stage after the application of the adhesive sample,

— determination of the VOC specific emission rate at two points of time.

NOTE There are specific applications for which an emission test cell (as described in EN ISO 16000-10 [9]) can be easier to handle than the emission test chamber, for instance when a sample is too small to be properly applied into the test chamber. In these cases, it is possible to apply the procedures as given in this European Standard with the exception that a test cell is used instead of the test chamber. However, as the air flow rate across the sample is higher than with the chamber method, the results can only be used with supporting correlation data.

5 Apparatus

5.1 General

The test apparatus shall be comprised of the following main components: support, air supply and mixing facilities, emission test chamber with monitoring and control systems, air sampling devices and devices for desorption and analysis.

5.2 Support

A clean stainless steel plate or a glass plate shall be used as a substrate for the adhesive to be applied.

5.3 Adhesive coating device

A device able to ensure a uniform coating of the adhesive to the support (5.2) shall be used.

5.4 Emission test chamber

All the components of the chamber (see Figure 1) and connected pipes and tubes that will be in contact with the vapours shall be low emitting and low adsorbing and shall not contribute to the emission test chamber background concentration. Polished stainless steel or glass shall be used to build the chamber structure. The internal volume of the chamber shall not be less than 0,004 m^3, preferably from 0,1 m^3 to 1 m^3.

The emission test chamber shall be airtight in order to avoid uncontrolled air exchange with external air. The emission test chamber shall be operated slightly above atmospheric pressure to avoid any influence from the laboratory atmosphere. The emission test chamber is considered sufficiently airtight if at least one of the following requirements is fulfilled:

— air leakage is less than 0,5 % of the chamber volume per minute at an overpressure of 1 000 Pa;

— air leakage is less than 5 % of the supply air flow rate.