

Glass in building - Product standard for structural and/or ultra-violet resistant sealant (for use with structural sealant glazing and/or insulating glass units with exposed seals)

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

Käesolev Eesti standard EVS-EN 15434:2006+A1:2010 sisaldab Euroopa standardi EN 15434:2006+A1:2010 ingliskeelset teksti.

Standard on kinnitatud Eesti Standardikeskuse 31.05.2010 käskkirjaga ja jõustub sellekohase teate avaldamisel EVS Teatajas.

Euroopa standardimisorganisatsioonide poolt rahvuslikele liikmetele Euroopa standardi teksti kättesaadavaks tegemise kuupäev on 24.03.2010.

Standard on kättesaadav Eesti standardiorganisatsioonist.

This Estonian standard EVS-EN 15434:2006+A1:2010 consists of the English text of the European standard EN 15434:2006+A1:2010.

This standard is ratified with the order of Estonian Centre for Standardisation dated 31.05.2010 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 24.03.2010.

The standard is available from Estonian standardisation organisation.

ICS 81.040.20

Standardite reprodutseerimis- ja levitamiseõigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonilisse süsteemi või edastamine ükskõik millises vormis või millisel teel on keelatud ilma Eesti Standardikeskuse poolt antud kirjaliku loata.

Kui Teil on küsimusi standardite autorikaitse kohta, palun võtke ühendust Eesti Standardikeskusega:
Aru 10 Tallinn 10317 Eesti; www.evs.ee; Telefon: 605 5050; E-post: info@evs.ee

Right to reproduce and distribute Estonian Standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without permission in writing from Estonian Centre for Standardisation.

If you have any questions about standards copyright, please contact Estonian Centre for Standardisation:
Aru str 10 Tallinn 10317 Estonia; www.evs.ee; Phone: +372 605 5050; E-mail: info@evs.ee

English Version

Glass in building - Product standard for structural and/or ultra-violet resistant sealant (for use with structural sealant glazing and/or insulating glass units with exposed seals)

Verre dans la construction - Norme de produits pour produit de collage et de scellement structurel et/ou résistants aux rayonnements ultraviolets (utilisé pour les vitrages extérieurs collés et/ou pour les vitrages isolants à bords exposés)

Glas im Bauwesen - Produktnorm für lastübertragende und/oder UV-beständige Dichtstoffe (für geklebte Verglasungen und/oder Isolierverglasungen mit exponierten Dichtungen)

This European Standard was approved by CEN on 3 April 2006 and includes Amendment 1 approved by CEN on 25 January 2010.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN Management Centre or to any CEN member.

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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of 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 United Kingdom.



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

Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

Foreword	4
1 Scope	5
2 Normative references	5
3 Terms and definitions	6
4 Sealant	7
4.1 General	7
4.2 The compulsory part of the product description	7
5 Requirements	8
5.1 General	8
5.1.1 Identification - performances	8
5.1.2 Application	8
5.2 Identification tests	9
5.2.1 General	9
5.2.2 Thermogravimetric analysis	9
5.2.3 Specific gravity	9
5.2.4 Shore A hardness	9
5.2.5 Change in volume or shrinkage	10
5.2.6 Infrared spectrometer analysis	10
5.3 Intrinsic properties	10
5.3.1 General	10
5.3.2 Standard substrates and test pieces	10
5.3.3 Tensile	11
5.3.4 Shear at 23 °C	12
5.3.5 Elastic recovery	12
5.3.6 Tear strength	13
5.3.7 Mechanical cyclic load	14
5.3.8 Displacement under permanent shear load (creep test)	15
5.3.9 Elastic modulus of the sealant	18
5.4 Environmental influences	18
5.4.1 General	18
5.4.2 Determination of cohesion/adhesion properties after exposure to artificial light through glass and to water	18
5.4.3 Salt spray	20
5.4.4 SO ₂ atmosphere	20
5.4.5 Façade cleaning products	21
5.4.6 High temperature	21
5.5 Water vapour transmission and gas transmission	21

5.6	Reaction to fire	21
5.7	Dangerous substances.....	22
5.8	Outer seal of insulating glass unit category differentiation	22
6	Sealing and bonding.....	22
7	Compatibility with adjacent material.....	22
8	Evaluation of conformity	27
8.1	General or scope.....	27
8.2	Requirements	27
8.2.1	Product description	27
8.2.2	Conformity with the definition of sealant	27
8.2.3	Determination of the characteristic's performances.....	27
8.2.4	Durability.....	28
8.2.5	Dangerous substances.....	29
8.3	Evaluation of conformity	29
8.3.1	General.....	29
8.3.2	Initial type testing of the product (see Clause 5).....	29
8.3.3	General.....	29
8.4	Factory production control and inspection of samples in accordance with a prescribed test plan (8.3.1.1, 1 a) and 1 b))	31
8.4.1	General.....	31
8.4.2	Initial inspection of factory and of factory production control (8.3.1.1 1 b))	31
8.4.3	Continuous surveillance and assessment of the factory production control (see 8.3.1.1 1 c)).....	32
9	Marking and/or labelling.....	33
9.1	General.....	33
9.2	Labelling	33
9.3	Product marking.....	33
9.4	Product characteristics	33
9.5	"Characteristics/performance identification paper"	33
	Annex A (normative) Evaluation of mechanical tests results	35
	Annex B (normative) Shear at 23 °C: Test method.....	42
	Annex C (normative) Factory production control.....	44
	Annex D (normative) Outer seal of insulating glass category differentiation	49
	Annex E (normative) Formation of bubbles	54
	Annex F (informative) Sealing, structural bonding and UV resistance: schematic illustrations.....	56
	Annex G (normative) Initial testing of bonding of sealant to non-glass substrates	59
	Annex V (informative) Provisions for voluntary involvement of third party(ies)	61
	Bibliography	62

Foreword

This document (EN 15434:2006+A1:2010) has been prepared by Technical Committee CEN/TC 129 "Glass in building", the secretariat of which is held by NBN.

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 September 2010, and conflicting national standards shall be withdrawn at the latest by September 2010.

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 includes Amendment 1, approved by CEN on 2010-01-25.

This document supersedes EN 15434:2006.

The start and finish of text introduced or altered by amendment is indicated in the text by tags **A1** **A1**.

This European Standard is one of a series of interrelated standard parts dealing with:

- glass products for structural sealant glazing systems;
- installation of glass products in a structural manner on building façades;
- UV-resistant and structural sealant for use in structural sealant glazing

The interrelated parts are:

- EN 13022-1: Glass in building — Structural sealant glazing — Part 1: Glass products for structural sealant glazing systems for supported and unsupported monolithic and multiple glazing
- EN 13022-2: Glass in building — Structural sealant glazing — Assembly rules
- EN 15434: Glass in building — Product standard for structural and/or ultra-violet resistant sealant (for use with structural sealant glazing and/or insulating glass units with exposed seals)

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 United Kingdom.

1 Scope

A1 This European Standard covers the requirements for and testing of sealants for use in one or more of the following applications:

- a) Manufacturing of insulating glass units where ultra-violet resistance and/or mechanical resistance (structural use) of the insulating glass edge seal is required.
- b) Manufacturing of factory made structural sealant glazing elements when referred to by the relevant European Standards and/or European Technical Approval Guidelines.
- c) Assembling of glass products into or onto supports, where also ultra-violet resistance and/or mechanical resistance (structural use) of the seal is required, under controlled environmental conditions as described in Clause 5 of EN 13022-2: 2006.

NOTE 1 The required level of resistance to ultra-violet exposure will be dependent upon the degree of exposure to ultra-violet radiation.

NOTE 2 Only silicone based sealants are permitted for the applications a, b and c above.

d) Manufacturing of insulating glass units where the outer seal of the insulating glass has no structural function and exposure to ultra-violet radiation is reduced for example either by:

- i) Use of glass components that decrease the ultra-violet radiation transmission, e.g. laminated glass with ultra-violet absorbing interlayer(s), screen enamelled printing, etc., or
- ii) Use of durable applied opaque surface coverings, e.g. metal components, etc.

NOTE 3 Dependent upon the amount of ultra-violet radiation exposure both organic and silicone based sealants are permitted.

This European Standard covers the evaluation of conformity and the factory production control with respect to the production of sealants in conformity with this standard.

This European Standard describes the role of sealants that are in conformity with this European Standard, with respect to sealing and bonding.

This European Standard does not apply to sealants for the manufacture of insulating glass units where the seal is fully protected, i.e. by a frame, from ultra-violet radiation.

NOTE 4 Sealants for this application should comply with EN 1279-4.

This European Standard contains other aspects of importance for trade. **A1**

2 Normative references

The following referenced documents are indispensable for the application of this European Standard. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 572-1, *Glass in building — Basic soda lime silicate glass products — Part 1: Definitions and general physical and mechanical properties*

EN 572-2, *Glass in building — Basic soda lime silicate glass products — Part 2: Float glass*

EN 1279-4:2002, *Glass in building — Insulating glass units — Part 4: Methods of test for the physical attributes of edge seals*

EN 13022-1:2006, *Glass in building — Structural sealant glazing — Part 1: Glass products for structural sealant glazing systems for supported and unsupported monolithic and multiple glazing*

EN 13022-2:2006, *Glass in building — Structural sealant glazing — Part 2: Assembly rules*

EN 13501-1, *Fire classification of construction products and building elements — Part 1: Classification using data from reaction to fire tests*

EN ISO 527-3, *Plastics — Determination of tensile properties — Part 3: Test conditions for films and sheets (ISO 527-3:1995)*

EN ISO 868, *Plastics and ebonite — Determination of indentation hardness by means of a durometer (Shore hardness) (ISO 868:2003)*

EN ISO 1183-1:2004, *Plastics — Methods for determining the density of non-cellular plastics — Part 1: Immersion method, liquid pycnometer method and titration method (ISO 1183-1:2004)*

EN ISO 3231, *Paints and varnishes — Determination of resistance to humid atmospheres containing sulfur dioxide (ISO 3231:1993)*

EN ISO 4892-2, *Plastics — Methods of exposure to laboratory light sources — Part 2: Xenon-arc lamps (ISO 4892-2:2006) (A1)*

EN ISO 7389, *Building construction — Jointing products — Determination of elastic recovery of sealants (ISO 7389:2002)*

EN ISO 8339, *Building construction — Sealants — Determination of tensile properties (Extension to break) (ISO 8339:2005)*

(A1) EN ISO 9227, *Corrosion tests in artificial atmospheres — Salt spray tests (ISO 9227:2006) (A1)*

EN ISO 10563, *Building construction — Sealants — Determination of change in mass and volume (ISO 10563:2005)*

EN ISO 11358:1997, *Plastics — Thermogravimetry (TG) of polymers — General principles (ISO 11358:1997)*

ISO 16269-6, *Statistical interpretation of data — Part 6: Determination of statistical tolerance intervals*

3 Terms and definitions

For the purposes of this European Standard, the terms and definitions given in EN 13022-1:2006, EN 13022-2:2006, EN 1279-4:2002 and the following apply.

3.1

initial cure

stage in the curing where sealant has appropriate cohesive strength to resist to different levels of action

3.2

creep factor

shear design stress under dynamic load