
**Building and civil engineering
sealants — Vocabulary**

Mastics pour le bâtiment et le génie civil — Vocabulaire

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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This document was prepared by Technical Committee ISO/TC 59, *Buildings and civil engineering works*, Subcommittee SC 8, *Sealants*, in collaboration with the European Committee for Standardization (CEN) Technical Committee CEN/SS B02, *Structures*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This third edition cancels and replaces the second edition (ISO 6927:2012), which has been technically revised.

The main changes compared to the previous edition are as follows:

- modified the title;
- added important terminology for the property of the sealant to reflect the progress of the sealant technology.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

Building and civil engineering sealants — Vocabulary

1 Scope

This document defines technical terms for self-levelling and gun-grade (gunnable) sealants for above-ground exposed structures.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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.

ISO 11600, *Building construction — Jointing products — Classification and requirements for sealants*

3 Terms and definitions

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <http://www.electropedia.org/>

3.1 Sealant classification

3.1.1 seal

install the appropriate products in the *joint* (3.2.15) between components in order to prevent the penetration of water, moisture and/or air between the elements, components and assemblies made of the same or dissimilar materials

3.1.2 sealant

text material applied in an unformed state which, once *cured* (3.4.7) or dried, has the adhesive and cohesive properties to *seal* (3.1.1) a *joint* (3.2.15)

3.1.3 elastic sealant

sealant (3.1.2) in which the *stresses* (3.5.8) induced as a result of *joint* (3.2.15) movement are nearly proportional to the *strain* (3.5.7)

Note 1 to entry: The elastic behaviour of the sealant is evaluated by the *elastic recovery* (3.5.10) measurement (see ISO 7389).

3.1.4 plastic sealant

sealant (3.1.2) in which the *stresses* (3.5.8) induced as a result of *joint* (3.2.15) movement are nearly proportional to the rate of joint movement and are rapidly relieved when joint movement ceases

Note 1 to entry: The plastic behaviour of the sealant is evaluated by the *elastic recovery* (3.5.10) measurement (see ISO 7389).

3.1.5 one component sealant

sealant (3.1.2) ready for use not requiring mixing

3.1.6

multi-component sealant

sealant (3.1.2) supplied in the form of multiple separate components which become ready for use after mixing together

3.1.7

solvent-release sealant

sealant (3.1.2) supplied in the form of a suspension or solution in an organic solvent and which *cures* (3.4.7) mainly by evaporation of solvent

3.1.8

water-borne sealant

water-based sealant

sealant (3.1.2) supplied in the form of a dispersion in which water is the main carrier and which *cures* (3.4.7) mainly by evaporation of water

Note 1 to entry: Water-borne sealants are sometimes referred to as water-based sealants. The term “water-based” is deprecated.

3.1.9

low-modulus sealant

sealant (3.1.2) with a *secant tensile modulus* (3.5.9) $< 0,4 \text{ N/mm}^2$ at 23 °C and $< 0,6 \text{ N/mm}^2$ at -20 °C

Note 1 to entry: Low-modulus sealants/High-modulus sealants shall be in accordance with ISO 11600.

3.1.10

high-modulus sealant

sealant (3.1.2) with a *secant tensile modulus* (3.5.9) $> 0,4 \text{ N/mm}^2$ at +23 °C or $> 0,6 \text{ N/mm}^2$ at -20 °C

Note 1 to entry: Low-modulus sealants/High-modulus sealants shall be in accordance with ISO 11600.

3.1.11

self-levelling sealant

sealant (3.1.2) that exhibits sufficient flow to achieve gravitational levelling

3.1.12

gun-grade sealant

sealant (3.1.2) suitable to extrude through the nozzle of a hand- or power-operated device

3.1.13

non-sag sealant

sealant (3.1.2) with minimal flow when applied in vertical or inverted *joints* (3.2.15)

3.2 Ancillary materials

3.2.1

ancillary materials

substrates (3.2.9), *back-up materials* (3.2.3) and other materials necessary for preparing a *sealant* (3.1.2) *joint* (3.2.15) for installation or testing

3.2.2

primer

surface coating applied to the faces of the *joint* (3.2.15) before placing the *sealant* (3.1.2) in order to ensure its adhesion

3.2.3

back-up material

backing material

material inserted in a *joint* (3.2.15), which defines the depth of *sealant* (3.1.2) applied, prevents three-sided adhesion, and defines the back profile of the sealant

3.2.4**surface finish**

qualities of a surface determined by deliberate preparation or absence of said preparation

3.2.5**porous substrate**

substrate (3.2.9) which absorbs liquids

3.2.6**non-porous substrate**

substrate (3.2.9) that is impervious to liquids

3.2.7**anti-adherent substrate**

substrate (3.2.9) to which a *cured* (3.4.7) *sealant* (3.1.2) has no adhesion

3.2.8**casting spacer**

material that is placed to maintain a specified distance between the two *substrates* (3.2.9) of a *test specimen* (3.2.11), while the *sealant* (3.1.2) is curing

3.2.9**substrate**

material to which a *sealant* (3.1.2) is applied in a test, specified both by composition, *surface finish* (3.2.4), and physical dimensions

3.2.10**separator**

material that is placed to maintain a specified *strain* (3.5.7) level between the two *substrates* (3.2.9) of a *test specimen* (3.2.11) while the specimen is being subjected to a test

3.2.11**test specimen**

piece or assembly with defined configuration subjected to a test

3.2.12**cleaning agent**

material used to clean *substrates* (3.2.9)

3.2.13**masking tape**

peelable material applied to the surface of the *substrate* (3.2.9) to prevent contamination or adhesion of the *sealant* (3.1.2)

3.2.14**glazing**

installation of glass or other materials in framed prepared openings

3.2.15**joint**

space or opening between two or more adjoining surfaces

3.3 Rheology**3.3.1****extrusion rate**

amount of a *sealant* (3.1.2) which exits a container per unit of time under defined conditions

3.3.2**extrudability**

property of a *sealant* (3.1.2) determined by *extrusion rate* (3.3.1)

3.3.3
resistance to flow
non-sag

property of a *sealant* (3.1.2) exhibiting little or no flow during *cure* (3.4.7) when applied in *joints* (3.2.15)

3.3.4
self-levelling

property of a *sealant* (3.1.2) in an uncured state that allows it to be poured into horizontal *joints* (3.2.15), forming a level surface without *tooling* (3.4.5)

3.4 Application

3.4.1
conditioning

storage of a *sealant* (3.1.2) and/or *ancillary materials* (3.2.1) under specified parameters prior to and/or during testing

3.4.2
pot life
working life

time after mixing a *multi-component sealant* (3.1.6) in which the material (still remains workable) and allows for *tooling* (3.4.5) into application

3.4.3
surface cure time
surface dry time

time after application when the *sealant* (3.1.2) has sufficiently *cured* (3.4.7) so that there is no transfer of materials when lightly touching the surface

3.4.4
depth of the sealant

smallest distance between the exposed surface of the *sealant* (3.1.2) and its back profile

3.4.5
tooling
smoothing

act of forcing the *sealant* (3.1.2), following application, into a *joint* (3.2.15) in order to ensure contact between the sealant and the *substrate* (3.2.9) surface, in order to improve the surface appearance and adhesion

3.4.6
tack-free time

time after which a *sealant* (3.1.2) surface loses its tackiness

3.4.7
cure

irreversible transformation of a *sealant* (3.1.2) from a liquid or paste-like state into a plastic or rubber-like solid state

Note 1 to entry: This transformation may be due to loss of solvent or water and/or to a chemical reaction, e.g. *crosslinking* (3.4.12).

3.4.8
cure time

time after application when the *sealant* (3.1.2) attains its serviceability properties

3.4.9
cure degree

relative state or level to which the *sealant* (3.1.2) has *cured* (3.4.7) at a given point in time

3.4.10**cure rate**

rate at which the *sealant* (3.1.2) cures (3.4.7)

3.4.11**cure depth**

measured thickness to which a *sealant* (3.1.2) has cured (3.4.7) after a given period of time

3.4.12**crosslinking**

formation of a three-dimensional polymer network by means of inter-chain reactions resulting in physical property changes

3.4.13**tooled surface**

aesthetic profile of the *sealant* (3.1.2) surface in a *joint* (3.2.15) after *tooling* (3.4.5) the sealant

3.4.14**skinning time****skin over time**

time it takes to form a thin layer at the surface of an applied *sealant* (3.1.2) that differs in physical properties from the material beneath it

3.5 Physical properties**3.5.1****compatibility**

property of a *sealant* (3.1.2) to remain in direct contact with, or in close proximity to, another material without unfavourable physical or chemical interactions

3.5.2**movement capability**

quantitative statement of the ability of a *sealant* (3.1.2) to accommodate movement while maintaining an effective seal

3.5.3**compression**

C

reduction of a *joint* (3.2.15) width due to an applied force

Note 1 to entry: $C = (B_1 - B_0)/B_0 \times 100$.

where

B_0 is the initial width of the joint;

B_1 is the joint width at the applied force.

Note 2 to entry: Compression is expressed as a percentage.

3.5.4**shrinkage**

decrease in length, area or volume

3.5.5**extension**

Y

increase of a *joint* (3.2.15) width due to an applied force

Note 1 to entry: $Y = (B_1 - B_0)/B_0 \times 100$.

where

B_0 is the initial width of the joint;

B_1 is the joint width at the applied force.

Note 2 to entry: Extension is expressed as a percentage.

3.5.6 maintained extension

constant increase of *joint* (3.2.15) width maintained for a period of time, as in a constant *strain* (3.5.7) test or *creep* (3.5.18) measurement

3.5.7 elongation strain

E
amount by which a *sealant* (3.1.2) is stretched beyond its initial length due to an applied force

Note 1 to entry: $E = (L_1 - L_0)/L_0 \times 100$.

where

L_0 is the initial length;

L_1 is the length at the applied force.

Note 2 to entry: Elongation is expressed as a percentage.

3.5.8 stress

force per unit area

3.5.9 secant tensile modulus

σ
stress (3.5.8) at a given *strain* (3.5.7)

Note 1 to entry: $\sigma = F/S$.

where

σ is the secant tensile modulus at the chosen elongation rounded to 0,01 N/mm²;

F is the force at the chosen *elongation* (3.5.7), expressed in newtons;

S is the initial cross-section area of *test specimen* (3.2.11), expressed in square millimetres.

3.5.10 elastic recovery

property of a *sealant* (3.1.2) whereby the initial shape and dimensions are wholly or partially restored on removal of forces causing deformation

3.5.11 storage life shelf-life

period following manufacture, during which a *sealant* (3.1.2) stored under defined conditions may be used, will maintain its functional characteristics and retain properties necessary for satisfactory performance

3.5.12 stringiness

property of a *sealant* (3.1.2) that causes the formation of threads or filaments during application and *tooling* (3.4.5)

3.5.13.1**elongation at break**

<*elastic sealant* (3.1.3)> *strain* (3.5.7) at the onset of break

Note 1 to entry: It occurs typically at or shortly after maximum *stress* (3.5.8).

3.5.13.2**elongation at break**

<*plastic sealant* (3.1.4)> *strain* (3.5.7) when loss of adhesion or cohesion extends through the whole *depth of the sealant* (3.4.4) as noted visually

3.5.14**indentation hardness****A scale**

value of the resistance to indentation as measured under specified conditions by a Durometer on the "A" scale

3.5.15**elongation at maximum stress**

increase in gauge length at the highest *stress* (3.5.8) on a stress–*strain* (3.5.7) curve

3.5.16**crack depth**

distance from the *sealant* (3.1.2) surface to the bottom of the crack at a given point

3.5.17**crack density**

concentration per unit area of the network of random surface cracks in a *sealant* (3.1.2)

3.5.18**creep**

time-dependent part of a *strain* (3.5.7) resulting from *stress* (3.5.8)

3.5.19**stain width**

depth of *migration* (3.7.12) and/or *discoloration* (3.5.20) into a *substrate* (3.2.9) caused by exudation of materials from the *sealant* (3.1.2)

3.5.20**discoloration**

unintended change from the original colour caused by something other than microbial growth or soiling on the *sealant* (3.1.2) surface during service

3.6 Failure**3.6.1****adhesive failure**

rupture at the interface between the *sealant* (3.1.2) and the *substrate* (3.2.9)

3.6.2**cohesive failure**

rupture in the body of the *sealant* (3.1.2)

3.6.3**thin-film cohesive failure****boundary failure**

rupture of *sealant* (3.1.2) in a portion of a *joint* (3.2.15) very close to the interface between sealant and *substrate* (3.2.9) while a very thin layer of sealant remains on the substrate

**3.6.4
failure**

state when a *sealant* (3.1.2) in a *joint* (3.2.15) no longer performs its intended function

3.7 Durability/aesthetics

**3.7.1
durability**

indication of degree of permanence

Note 1 to entry: It may be applied to the individual decorative or functional properties of the *sealant* (3.1.2) required for the continued service of the installed sealant in a join.

**3.7.2
sealant durability**

probable *service life* (3.7.3) of a *sealant* (3.1.2) during the given conditions of use

**3.7.3
service life**

period of time during which an installed *sealant* (3.1.2) fulfils its functions

Note 1 to entry: In practice, the period between the date of the first application of a sealant to a *joint* (3.2.15) and the date when the product ceases to fulfil its functions.

**3.7.4
UV resistance**

ability of a *sealant* (3.1.2) to resist damage by ultraviolet light

**3.7.5
artificial light source**

lamp intended to simulate exposure of a *sealant* (3.1.2) to actinic radiation

**3.7.6
black standard thermometer
black panel thermometer**

instrument for measuring temperature in an accelerated weathering apparatus consisting of a metal panel with a black coating which absorbs all wavelengths uniformly and with a thermocouple attached to the centre of the exposed surface

**3.7.7
artificial weathering cycle**

combination of periodic variations of light intensity, light and darkness, temperature, exposure to water vapour or water spray, and other relevant conditions relating to an accelerated weathering test

**3.7.8
colour change**

measured difference between a *sealant's* (3.1.2) colour after subjection of the sealant to natural or accelerated weathering or other influences

**3.7.9
chalking**

phenomenon caused by external influences resulting in a surface appearing as though covered with a white powder

Note 1 to entry: External influences can be ultraviolet light, oxidation, or other chemical influences.

**3.7.10
cracking**

phenomenon caused by external influences resulting in a surface containing a network of cracks

Note 1 to entry: External influences can be ultraviolet light, oxidation, or other chemical influences.