

DOW CORNING® 993 Structural Glazing Sealant

FEATURES

- Meets European standard for structural glazing as developed by EOTA working groups
- Excellent adhesion to a wide range of substrates including coated, enamelled and reflective glasses, anodised and polyester paint coated aluminium and stainless steel
- High level of mechanical properties
- Odorless and non-corrosive cure
- Excellent stability through wide temperature range: -50°C (-58°F) to 150°C (302°F)
- Resistant to ozone

BENEFITS

- Structural capability
- The cured product exhibits excellent weathering characteristics, and a high resistance to ultra-violet radiation, heat and humidity
- Lot matching of base and curing agent not necessary
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Two-part silicone rubber

APPLICATIONS

- Two-part silicone sealant for structural glazing.

TYPICAL PROPERTIES

Specification writers: These values are not intended for use in preparing specifications. Please contact your local Dow Corning sales representative prior to writing specifications on this product.

Test method*	Property	Unit	Value
Base: as supplied			
	Color and consistency		Viscous white paste
	Specific gravity		1.36
	Viscosity (100s ⁻¹)	mPa.s	150,000
Curing agent: as supplied			
	Color and consistency		Viscous black paste
	Specific gravity		1.08
	Viscosity (100s ⁻¹)	mPa.s	15,000
ASTM D93	Flash point - closed cup	°C	28
		°F	82.4
ASTM D92 DIN 51376	Flash point - open cup	°C	84
		°F	183.2
As mixed			
	Color and consistency		Black non-slump paste
	Specific gravity		1.33
	Viscosity (100s ⁻¹)	mPa.s	40,000
	Working time (25°C/77°F, 50% R.H.)	minutes	10 to 30
	Tack-free time (25°C/77°F, 50% R.H.)	minutes	80 to 100
	Corrosiveness		Non-corrosive
As cured - after 7 days at 25°C (77°F) and 50% RH			
ISO 8339	Tensile strength	MPa	0.95
ASTM D624	Tear strength	kN/m	6.0
ISO 8339	Elongation at break	%	130
ASTM D2240	Durometer hardness, Shore A		40
	Sealant dynamic design load	Pa	140,000
	Sealant static design load	Pa	15,000
	Service temperature range	°C	-50 to +150
		°F	-58 to +302

* ASTM: American Society for Testing and Materials.

ISO: International Standardisation Organisation.

DIN: Deutsche Industrie Norm.

DESCRIPTION

DOW CORNING 993 Structural Glazing Sealant is a two-component, neutral curing silicone formulation specifically developed for the structural bonding of glass, metal and other building components.

Neutral alkoxy; cures at room temperature giving off a small amount of alcohol.

TECHNICAL SPECIFICATIONS AND STANDARDS

DOW CORNING 993 Sealant combines excellent unprimed adhesion to a wide range of building substrates with high levels of physical properties over a wide range of temperature. It exhibits excellent retention of adhesive and mechanical properties after ageing as detailed by the EOTA Technical guide:

- 1000 hours exposure to ultra-violet radiation in hot water immersion (ISO DIS 11431)*
 - 5000 load cycles in shear and tension*
 - Resistance to salt spray (ISO 9227 NSS)*
 - Resistance to SO₂ (ISO 3231)*
 - Resistance to cleaning agent (ISO/DIS 10591)*
 - Resistance to extreme temperature (ISO 8339)*
 - Resistance to micro-organism (ISO 846)*
- *Document ATG 98/H680 (UBAtc)

HOW TO USE

DOW CORNING 993 Sealant offers unprimed adhesion to most coated and uncoated glasses as well as most metal spacers. The sealant is compatible with DOW CORNING® Neutral Curing Construction Sealants, such as DOW CORNING® 897, DOW CORNING® 797 and DOW CORNING Neutral Curing Insulating Glass Sealants such as DOW CORNING® Q3-3362, as well as most commonly used glazing components. It is important when selecting components for a project that adhesion and compatibility tests are carried out, and found to be successful, before the project starts.

Mixing and dispensing

To obtain the ultimate physical properties from DOW CORNING 993 Silicone Sealant it is recommended that the base and curing agent are thoroughly mixed using an airless mixing system found on most existing commercially available two-part silicone dispensing machines. Neither hand mixing nor the use of hand-held power mixers are satisfactory due to their incorporation of air into the material during mixing that would result in altered physical properties of the cured sealant.

DOW CORNING 993 Sealant should be mixed in a ratio of 10:1 base to curing agent by weight, or equivalent 7.9:1 by volume for optimal properties. At this mix ratio, the sealant typically exhibits a working time of 10-30 minutes and allows units to be handled within two hours. Small variations in mixing ratio can be tolerated, but these should not exceed 11:1 to 9:1 by weight to ensure minimum properties are obtained.

Lot matching of DOW CORNING 993 Base and Curing Agent is not required. Before use it is recommended that the curing agent be stirred to ensure homogeneity of all components.

DOW CORNING 993 Curing Agent will react with atmospheric moisture and therefore should not be exposed to air for prolonged periods of time.

Preparatory work

Clean all joints and glazing pockets, removing all foreign matter and contaminants such as grease, oil, dust, water, frost, surface dirt, old sealants, or glazing compounds and protective coatings.

Metal, glass and plastic surfaces should be cleaned by mechanical or solvent procedures. Where used, solvent should be wiped on and off with clean, oil- and lint-free cloths.

Priming

Priming is not usually required when using DOW CORNING 993 Sealant. However, it is essential that adhesion

be tested prior to use. Specific primer recommendations will be made by Dow Corning Technical Services Department on a project basis. Please contact Dow Corning for further advice.

Masking and tooling

Areas adjacent to joints may be masked to ensure a neat sealant line. Do not allow masking tape to touch clean surfaces to which the silicone sealant is to adhere. Tooling should be completed in one continuous stroke within 5 minutes after sealant application. Masking tape should be removed immediately after tooling.

Equipment cleaning

When not being used it is recommended that the dispensing equipment be purged either with the base component, or flushed with a suitable solvent such as DOW CORNING® 3522 Concentrated Cleaning Solvent. If cured sealant has built up inside the equipment, flush the equipment for the appropriate time with DOW CORNING 3522 Concentrated Cleaning Solvent, using a solvent recirculation system. This solvent dissolves cured silicone sealant and provides optimum cleaning performance.

MAINTENANCE

No maintenance is needed. If sealant becomes damaged, replace damaged portion. DOW CORNING 993 Sealant will adhere to cured silicone sealant which exhibits a clean knife-cut or abraded surface.

TECHNICAL SERVICES

Consult Dow Corning's Technical Services departments for further advice on specific applications: Dow Corning S.A. Construction Technical Service Parc Industriel B-7180 Seneffe - Belgium Tel : INT + 32 (0)64 88 80 00 Fax : INT + 32 (0)64 88 84 01

Dow Corning GmbH Rheingaustraße 34, Postfach 130332 D-65091 Wiesbaden, Germany Tel : INT + 49 (0)611 - 23 71

Fax : INT + 49 (0)611 - 237 610

Dow Corning Ltd.
Meriden Business Park
Copse Drive, Allesley, Coventry,
CV5 9RG - United Kingdom
Tel : INT + 44 (0)1676 52 80 00
Fax : INT + 44 (0)1676 52 81 00

HANDLING PRECAUTIONS

PRODUCT SAFETY INFORMATION REQUIRED FOR SAFE USE IS NOT INCLUDED. BEFORE HANDLING, READ PRODUCT AND SAFETY DATA SHEETS AND CONTAINER LABELS FOR SAFE USE, PHYSICAL AND HEALTH HAZARD INFORMATION. THE SAFETY DATA SHEET IS AVAILABLE FROM YOUR LOCAL DOW CORNING SALES REPRESENTATIVE.

USABLE LIFE AND STORAGE

When stored at or below 30°C (86°F), DOW CORNING 993 Curing Agent has a usable life of 12 months from the date of production.

When stored at or below 30°C (86°F), DOW CORNING 993 Base has a usable life of 12 months from the date of production.

PACKAGING

DOW CORNING 993 Base is available in 250kg drums and 20 liter pails.

DOW CORNING 993 Curing Agent is available in 25kg pails.

LIMITATIONS

DOW CORNING 993 Sealant should not be used for structural applications without the prior written approval of Dow Corning Construction Industry Technical Service. Each project shall be specifically and separately approved by Dow Corning.

Project approval involves the following prerequisites:

- Joint dimensioning and print reviews.
- Successful laboratory adhesion and compatibility testing to all project building components.

- Observance of professional sealant application and workmanship standards.

Dow Corning should not be held liable for any possible claims arising from structural use of DOW CORNING 993 Sealant for projects which have not been specifically approved by Dow Corning.

For projects which have been approved, Dow Corning will issue a structural adhesion warranty on a case by case basis at the user's request. It is the user's exclusive responsibility to ensure project compliance with local building regulations. Because of the risk of incompatibility, DOW CORNING 993 Sealant should not come into contact with, or be exposed to, sealants that liberate acetic acid.

This product is neither tested nor represented as suitable for medical or pharmaceutical uses.

HEALTH AND ENVIRONMENTAL INFORMATION

To support customers in their product safety needs, Dow Corning has an extensive Product Stewardship organization and a team of Health, Environment and Regulatory Affairs specialists available in each area.

For further information, please consult your local Dow Corning representative.

WARRANTY INFORMATION - PLEASE READ CAREFULLY

The information contained herein is offered in good faith and is believed to be accurate. However, because conditions and methods of use of our products are beyond our control, this information should not be used in substitution for customer's tests to ensure that Dow Corning's products are safe, effective, and fully satisfactory for the intended end use. Dow Corning's sole warranty is that the product will meet the Dow Corning sales specifications in effect at the time of shipment. Your

exclusive remedy for breach of such warranty is limited to refund of purchase price or replacement of any product shown to be other than as warranted. Dow Corning specifically disclaims any other express or implied warranty of fitness for a particular purpose or merchantability. Unless Dow Corning provides you with a specific, duly signed endorsement of fitness for use, Dow Corning disclaims liability for any incidental or consequential damages. Suggestions of use shall not be taken as inducements to infringe any patent.

Application Examples

Figure 1: System for 4-sided structural glazing.

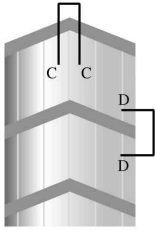


Figure 1A: Section CC: 4-sided design

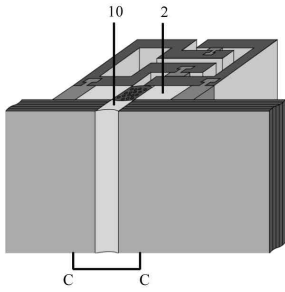


Figure 1B: Section DD: 4-sided design - unsupported glass

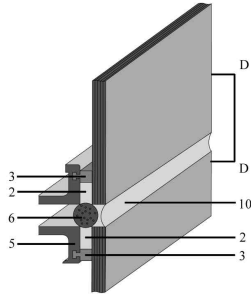
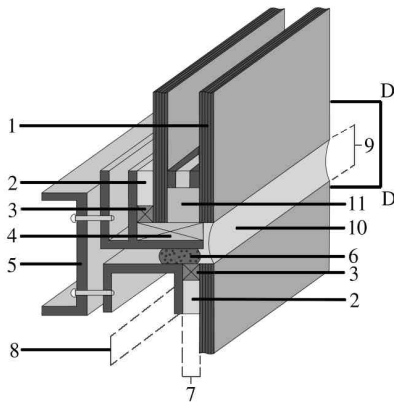


Figure 2: Section DD: 4-sided design - supported insulating glass unit



Legend

1. Insulating glass unit
2. Silicone structural seal (DOW CORNING 993 Structural Glazing Sealant)
3. Silicone rubber spacer block
4. Silicone setting block
5. Aluminium profile
6. Backer rod
7. Structural sealant width dimension
8. Structural sealant bite dimension
9. Weatherseal dimension
10. Silicone weatherseal (DOW CORNING 897 Natural Stone and Facade Sealant)
11. Silicone insulated glass seal (DOW CORNING 3362 Insulating Glass Sealant)

Figure 3: DOW CORNING 993 Sealant - Tack-free time range

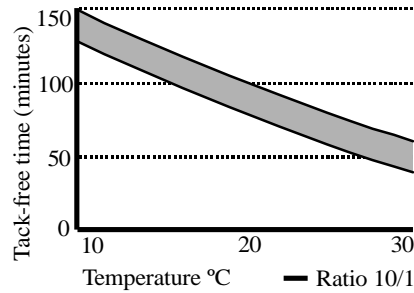


Figure 4: DOW CORNING 993 Sealant - Snaptime range

