

DOW CORNING® 3540

Fast Cure IG Silicone Sealant

FEATURES

- Excellent adhesion to coated or reflective glass, aluminum or galvanized steel spacers
- Fast cure one-component, technology even at low temperature and/or low humidity in workshops
- Minimum waste and downtime by eliminating base purging and static mixer maintenance
- Packaged for both manual and robot applications
- Outstanding aging properties
- UV resistance that only silicone can afford
- Service temperature range -50°C (-58°F) to +150°C (302°F)
- Non-slumping, permitting easy both manual and automated glazing
- Non-corrosive cure
- Solvent-free
- Low water absorption
- High level of mechanical properties
- Without organic plasticizer that might cause fogging in the IG air space
- Resistant to ozone

Insulating Glass Sealant

APPLICATIONS

- Insulated glazing for residential and commercial glazing.
- Insulated glazing incorporating specialty glass (pyrolithic or soft coated, laminated, tinted, enameled) types, stepped glass or with free edges.
- Insulated glazing for applications under extreme conditions of humidity and temperatures, high or low.
- Insulated glazing used in greenhouses and skylights under high sun exposure.
- Gluing and jointing of glass elements.

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
	As supplied		
	Color		Black, light-gray
	Consistency		Non-slumping, viscous paste
	Specific gravity	kg/liter	1.28
CTM 0364	Extrusion rate (nozzle 6mm at 6.2 bar)	g/minute	140
	Application temperature	°C	5 to 40
		°F	41 to 104
	After application		
	Slump	mm	1.2
	Working time 23 °C (73°F) at 50% R.H.	minutes	
	Skin-over time 23°C (73°F) at 50% R.H.	minutes	60 max.
	TFT, tack-free time	minutes	
	Curing time 23°C (73°F) at 50% R.H.	mm	3.8mm/24 hours
	Curing time 23°C (73°F) at 50% R.H.	mm	8.0mm/72 hours
	See Figure 1 and 2 for different conditions		

TYPICAL PROPERTIES (continued)

Test method*	Property	Unit	Value
After 7 days of cure at 23°C (73°F) at 50% R.H.			
ASTM D676	Hardness (Shore A)		40
ASTM D0412	Tensile strength	MPa	2.00
ISO 8339		Mpa	0.76
ASTM D0412	Elongation at break	%	450
ISO 8339		%	78
ISO 8339	Young modulus at 12.5%	Mpa	2.3
ASTM E96	MVTR	gr/m ² /day	13
NFP 78-456	Penetration index on IGU	%	0,059

* CTM: Corporate Test Method, copies of CTMs are available on request.

ASTM: American Society for Testing and Materials.

ISO: International Standardisation Organisation.

NFP:

DESCRIPTION

DOW CORNING 3540 Silicone Sealant is formulated for making the secondary seal in a dual sealed insulating glazing unit. The primary seal is typically made of polyisobutylene. It has a high green strength making it possible to handle the unit quickly and a high cure rate (4.0mm in 24 hours) as a one-component sealant. When cured it has a high modulus for a good mechanical assembly of insulating glazing. Available in black and light gray in drums, in black in the other containers.

DOW CORNING 3540 Silicone Sealant is a neutral cure sealant, offering several advantages over acetoxysilicone formulations:

- consistent adhesion to both aluminium spacers and glass
- no corrosion of the coating on glass, the metallic spacer or the PVB foil of laminated glass
- reduced Vapor Transmission Rate (low Penetration Rate Index 'I')
- compatibility with butyl used as primary seal
- high strength of bond due to its high modulus of elasticity.

PERFORMANCE TESTING

Insulating glass unit sealed with DOW CORNING 3540 Silicone Sealant has been successfully evaluated by CEBTP following the French norm NFP 85-516 for 2000 hours UV resistance. Insulating Glass Units with DOW CORNING 3540 Silicone Sealant are also tested regularly by CEKAL (France).

The performance of the unit sealed with DOW CORNING 3540 Silicone Sealant greatly exceeds the specifications laid down in British Standard BS 5713 and the German Standard DIN 1286 I for dual sealed units.

CURE PROPERTIES

The figures 1 and 2 correlate the DOW CORNING 3540 Silicone Sealant cure in depth, expressed in mm of thickness of the joint calculated from the spacer lower part to the glass edge, with the room conditions of temperature and humidity after 12 hours (Figure 1) and 24 hours (Figure 2).

Example:

After 24 hours at 23°C (73°F) and 50% R.H. the cure in depth is 3.6mm.

Figure 1: Cure in depth after 12 hours.

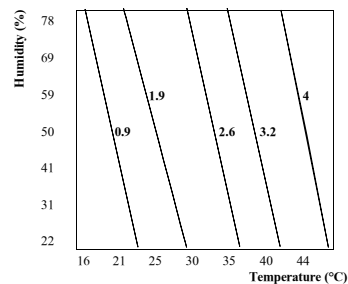
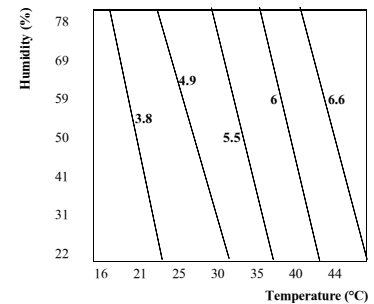


Figure 2: Cure in depth after 24 hours.



SURFACE PREPARATION

Ensure that surfaces to be sealed are clean, dry and free from frost. Clean all surfaces from release agents, water repellents, laitance, dust, dirt, old sealants and other contaminants which could impair adhesion. Non-porous surfaces should be cleaned and degreased by wiping with a suitable solvent such as DOW CORNING® R40 Universal Cleaner on an oil and lint-free cloth before application of sealant.

Note: When using any solvent, always provide adequate ventilation. Avoid heat, sparks and open flames. Observe and follow all precautions listed on the solvent container's label.

Application on coated glass

If direct adhesion of DOW CORNING 3540 Silicone Sealant is needed, an official approval of the glass manufacturer is required with regard to the long term adhesion of the coating to the glass. If there is

any doubt concerning the adhesion of the coating to the glass, the coating shall be removed from the area where the sealant will come in contact with the glass. By experience good adhesion is usually obtained on clear and tinted float glass and on hard pyrolithic coatings. On the contrary, adhesion should be checked on soft magnetron coatings, silk screen enameled coatings and on non-float colored glass (for instance stained-glass) or on glass whose composition is different from usual borosilicate glass manufactured with a float process.

INSTALLATION

Design consideration

Insulating glass units intended for residential or commercial glazing should be designed with secondary sealant dimensions in accordance with local regulation taking in account the stress that would be applied on the glazing, including but not limited to dead load, wind pressure, temperature range, snow load for sloped glass surfaces in skylights or conservatory roof. A minimum of 4mm is recommended to reach a good penetration value (low transition of moisture).

Testing

Dow Corning recommends several factory quality control tests to ensure optimum sealant performance. These test include:

- Slump test to ensure no sealant slumping
- Cure test to ensure expected sealant cure rate in the local conditions of temperature and humidity
- Peel adhesion test to ensure proper sealant adhesion to production surface

These tests should be performed every time lots are changed. Specific procedures for these tests can be supplied by Dow Corning.

Dispensing

Simple transfer ram pump can be used to dispense DOW CORNING 3540 Silicone Sealant either by hand or robot gunning. When robot gunning is used, it is recommended that all flexible hoses do not transmit vapor; ideally Teflon lined hoses should be

used. As the product requires only atmospheric moisture to cure, solvent flushing of pumping equipment is generally not necessary even when equipment has been left standing, just make sure to put a cap on the dispensing nozzle.

In case of manual gunning, apply the sealant by pushing it into the cavity to be filled instead of drawing it to have maximum contact with the surfaces where adherence is needed.

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 in cool, dry conditions below 25°C (77°F) in the original unopened containers DOW CORNING 3540 Silicone Sealant has a usable life of 9 months from the date of production.

PACKAGING

DOW CORNING 3540 Silicone Sealant is supplied in 600ml sausages packed in box of 20, in 20 liter pails and 225kg drums.

Dow Corning references of the products are:
3283917: DOW CORNING 3540 Silicone Sealant sausages 600ml (color black)
4011949: DOW CORNING 3540 Silicone Sealant sausages 400ml (color black)
3283488: DOW CORNING 3540 Silicone Sealant pails 20 liter (color black)
3283224: DOW CORNING 3540 Silicone Sealant drums 225kg (color black)
3283241: DOW CORNING 3540 Silicone Sealant drums 225kg (color

light-gray)

LIMITATIONS

DOW CORNING 3540 Silicone Sealant should not be applied:

- As a primary or single seal of an insulating glass unit
 - As Structural Glazing sealant or as second barrier seal of an insulating glazing unit
- Ask for Dow Corning specific products:
-DOW CORNING 3793 and DOW CORNING 3362 for insulating glass
-DOW CORNING 895 and DOW CORNING 993 for structural bonding (ask for advice about this application)
- To areas where food contact is likely
 - In totally confined space because the sealant requires atmospheric moisture to cure and must release by-product to cure
 - For continuous use in submerged joints or in joints where physical abuse or abrasion are likely to occur
 - In contact with bituminous substrates, substrates based on natural rubber, chloroprene or EPDM, or on building materials which might bleed oils, plasticizers or solvents, on green or partially vulcanized rubber gaskets and tapes

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.