



Technical Data Sheet

DOWSIL™ 3559 Neutral Silicone Adhesive Sealant

FEATURES & BENEFITS

- One component adhesive/sealant
- Cures at room temperature when exposed to moisture in the air
- Oxime cure system
- Non sag, paste consistency
- Easy to apply
- Excellent unprimed adhesion to many substrates
- Stable and flexible from -40°C to +180°C
- Does not react with or corrode most metals and plastics (see Limitations)
- Fast Deep Section Cure

COMPOSITION

- Silicone Adhesive/Sealant

Neutral cure silicone adhesive adhesive/sealant

APPLICATIONS

- Designed to provide flexible yet structurally strong bonding in general powertrain applications like oil pan, PTO cover, flange sealing for manual transmission, gear axle, etc., where a neutral cure and a fast built up of mechanical properties is required.
- Low modulus formulation for high movement capability

TYPICAL PROPERTIES

Specification Writers: These values are not intended for use in preparing specifications.

Test	Property	Unit	Result	
As supplied				
176*	Appearance and Color		Black Paste	
0097B*	D 147**	Specific Gravity	g/cc	1.3
0364*	8802D***	Extrusion Rate	g/min	140
0095A*	8802F***	Tack-Free-Time (23°C, 50% R.H)	minutes	25
663*	Cure Depth after 24 hours (23°C, 50% R.H)	mm		3.5
Mechanical Properties, cured 7 days in air at 23°C and 50% R.H.				
0137A*	D 412**	Tensile Strength	MPA	1.6
0137A*	D 412**	Elongation at Break	%	400
0137A*	D 412**	Modulus at 100%	MPa	0.8
0099*	D 2240**	Durometer Hardness	points	40
Heat aging, 7 days at 200°C				
0099*	D 2240**	Change in Durometer	points	-9
0137A*	D 412**	Change in Tensile Strength	%	-8
0137A*	D 412**	Change in Elongation	%	34
Fluid Immersion resistance, 7 days at 150°C in 15W40 Oil				
0099*	D 2240**	Durometer Hardness	Shore A	18
0137A*	D 412**	Tensile Strength	MPa	0.90
0137A*	D 412**	Elongation at Break	%	726
0137A*	D 412**	Volume Swell	%	3.18

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

**ASTM: American Society for Testing and Materials

***MIL: Military Specification and Standards

TYPICAL PROPERTIES (Continued)

Test	Property	Unit	Result
Adhesion properties, measured after 7 days at 23°C and 50% R.H			
0243*	Lap Shear Strength on Aluminum	MPa	1.2

DESCRIPTION

DOWSIL™ 3559 Neutral Silicone Adhesive Sealant is a black, one-component, non-flowing, silicone adhesive with fast deep section cure. It forms high strength, medium modulus flexible bonds to metal, glass, ceramic substrates and many engineering plastics with improved adhesion properties when exposed to high temperatures. It withstands temperatures up to 180°C.

HOW TO USE

Substrate preparation

Ensure that surfaces to be sealed are clean and dry. Degrease and wash off release agents, water repellents, dust, dirt and any contaminants that could impair adhesion. Suitable solvents include isopropyl alcohol, acetone or DOWSIL™ R-40 Universal Cleaner.

Unprimed adhesion may be obtained on many substrates such as glass, metals (e.g. iron, steel, aluminum) and most common engineering plastics (e.g. PVC, polyacrylate, polycarbonate). Adhesion may be less successful on some low energy plastics such as polyethylene, polypropylene and PTFE. However, for maximum adhesion, the use of DOWSIL™ 1200 OS Primer is recommended. After solvent cleaning, a thin coat of primer is applied by dipping, brushing or spraying. Allow primer to dry for 15 to 90 minutes at room temperature and a relative humidity of 50% or higher.

How to apply: DOWSIL 3559 Neutral Silicone Adhesive Sealant is ready to use. Apply a bead of DOWSIL 3559 Neutral Silicone Adhesive Sealant to one of the prepared surfaces, then quickly cover with the other substrate to be bonded.

On exposure to moisture, the freshly applied material will “skin over” in about 5–10 minutes at room temperature and 50% rel. humidity. Any tooling should be completed before this skin forms. The surface is easily tooled with a spatula. The adhesive/sealant will be tack-free in about 25 minutes.

Cure Time: After skin formation, cure continues inward from the surface. In 24 hours at room temperature and 50% relative humidity, DOWSIL 3559 Neutral Silicone Adhesive Sealant will cure to a depth of about 3.5 mm. Very deep sections, especially when access to atmospheric moisture is restricted, will take longer to cure completely. Cure time is very much depending on the humidity level. It is extended at lower humidity levels and accelerated at higher levels, respectively (see table below).

Table 1: Condition

Condition	Cure Depth After 24 hours [mm]
23°C, 50%.R.H.	3.5
15°C, 40%.R.H.	2.4
30°C, 60% R.H.	4.7
35°C, 70% R.H.	5.8

Before handling and packaging bonded components, users are advised to wait a sufficiently long time to ensure that the integrity of the seal is not affected. This will depend on many factors and should be determined by the user for each specific application.

**HANDLING
PRECAUTIONS
PRODUCT SAFETY
INFORMATION REQUIRED FOR
SAFE USE IS NOT INCLUDED IN
THIS DOCUMENT. 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 ON
THE DOW WEBSITE AT
WWW.CONSUMER.DOW.COM,
OR FROM YOUR DOW SALES
APPLICATION ENGINEER, OR
DISTRIBUTOR, OR BY CALLING
DOW CUSTOMER SERVICE.**

USABLE LIFE AND STORAGE

When stored at or below 25°C (77°F) in the original unopened containers, this product has a usable life of 9 months from the date of production.

PACKAGING INFORMATION

Available in three packs 310 mL cartridge/ 20 L pail and 250 kg drum.

LIMITATIONS

In confined cure conditions, DOWSIL 3559 Neutral Silicone Adhesive Sealant may:

- Discolor brass, copper or other sensitive metals
- Stress craze polycarbonate

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 has an extensive Product Stewardship organization and a team of product safety and regulatory compliance specialists available in each area.

For further information, please see our website, www.consumer.dow.com or consult your local representative.

**LIMITED 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 our products are safe, effective, and fully satisfactory for the intended end use. Suggestions of use shall not be taken as inducements to infringe any patent.

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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.

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