

DOW CORNING® 93-076 Aerospace Sealant

FEATURES

- Good tensile strength
- High bond strength
- Good char characteristics under low to medium heat fluxes
- Low thermal conductivity
- High temperature stability from -65°C to +260°C
- Good resistance to weathering, moisture and ozone
- Two part room temperature cure

Two part, thixotropic silicone elastomer

APPLICATIONS

- It is a high temperature sealant/adhesive with high bond strength. It can be used as an effective high temperature pressurisation sealant, thermal barrier or insulative coating and as an adhesive for ablative coatings.
- Can be used for protecting cable breakouts and terminations and for fabricating formed-in-place seals.

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.

CTM*	ASTM*	Property	Unit	Value
As supplied				
		Colour (base)		Grey
		Colour: catalyst 1/2 hour work time		Beige
		Colour: catalyst 2 hour work time		Blue
0050	D1084	Viscosity (base)	mPa.s	360,000
		Mixing ratio (base/catalyst) by weight		10/1
Physical properties, after catalyst addition				
0092A		Work time: 1/2; 2 hour catalyst ¹	hours	1/2; 2
0095		Tack free time: 1/2 hour catalyst	hours	4
0095		Tack free time: 2 hour catalyst	hours	14
0022	D792	Relative density at 25°C		1.11
0293		Lap shear strength ²	MPa	2.3
0099	D2240	Durometer hardness, Shore A		46
0137A	D412	Tensile strength	MPa	5.2
0137A	D412	Elongation at break	%	400
0159A	D624	Tear strength - die B	kN/m	25
0293		Peel strength, 1.5mm glue, 6mm cold rolled steel	kN/m	12
		Brittle point	°C	-68
		Cure time at 25°C	hours	24
		Deep section cure - 25mm thickness		Yes
Electrical properties, after catalyst addition				
		Volume resistivity	ohm.cm	1x10 ¹³
0112	D150	Permittivity at 100Hz		3.2
0112	D150	Permittivity at 100kHz		3.2
0112	D150	Dissipation factor at 100Hz		0.01
0112	D150	Dissipation factor at 100kHz		0.01
0114	D149	Dielectric strength	kV/mm	16

TYPICAL PROPERTIES (continued)

CTM*	ASTM*	Property	Unit	Value
		Ablation		
		45 Watts/cm ² , oxy-acetylene torch:		
		- Char retention		Poor
		- Penetration rate	mm/s	0.02
		850 Watts/cm ² , oxy-acetylene torch		
		- Char retention		Good
		- Penetration rate	mm/s	1.39

1. Length of time that at least 15 grams per minute of sealant can be extruded through a 3mm orifice of a standard 6 oz sealant cartridge under 6.3 MPa pressure.

2. For good adhesion, all substrates except silicone rubber, should be primed with DOW CORNING® 1204 primer. All bond strengths measured on ASTM-D-2024-T3 aluminium.

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

ASTM: American Society for Testing and Materials.

HOW TO USE

Surface preparation

DOW CORNING 93-076 Aerospace Sealant adheres well to primed surfaces of most materials used in the aerospace and aircraft industries. Typical materials include glass, cured silicone rubber, cork, phenolic, polyester, epoxy, silicone resin laminates and most metals including stainless steel, titanium and aluminium. It may not adhere well to polyethylene or certain plastics and organic materials (including rubber), which bleed or exude plasticisers.

Stronger and more uniform bonds are obtained by preparing metal and plastic surfaces with DOW CORNING® 1204 Primer. For best results:

1. Clean the surface with a chlorinated solvent (see Handling Precautions) and a slightly abrasive pad or a coarse lint-free cloth.
2. Rinse cleaned surface with acetone or methyl ethyl ketone.
3. Apply a thin coat of primer by dipping, brushing or spraying.
4. Allow the primer to dry for at least 1 hour, according to relative humidity.
5. Silicone rubber surfaces should not normally be primed, but only roughened slightly with abrasive paper and rinsed with acetone.

Mixing

The catalyst is added in a ratio of 10 parts of base to 1 part catalyst by weight. For best results the base should be thoroughly de-aired in

standard vacuum equipment for 2 hours at greater than 650mm of mercury vacuum. The catalyst may then be added to the base in an air free mixer, such as a Semco® Pressure Mixer, model S-1350 or S-1378. Hand mixing may also be used if, after mixing, the product is de-aired in vacuum for about 30 minutes.

Working and curing time

With either catalyst, the cure rate may be accelerated by the application of heat.

4 hours at 85°C, or
2 hours at 95°C.

Although full physical properties will not be obtained after this elevated temperature cure, the material will be tack-free and can be released from a mould. With either catalyst, the sealant will set up in 24 hours and achieve optimum physical properties in 5 days.

Curing

DOW CORNING 93-076 Aerospace Sealant is specially compounded to assure deep section curing.

Like all tin-catalysed silicone rubbers, DOW CORNING 93-076 Aerospace Sealant may depolymerise in thick section when overheated in total confinement. To minimise this effect, encapsulations which must operate for extended periods in total confinement at elevated temperatures must be given a graduated post cure to allow volatiles to escape. During the

graduated post cure, the temperature should be increased approximately 25°C per hour, depending upon the thickness of the potted sections. A final bake of 4 hours at 50°C above the maximum operating temperature of the device is recommended. To eliminate all the possibilities of depolymerisation, contact Dow Corning for alternate product recommendations.

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 32°C in the original unopened containers, DOW CORNING 93-076 Aerospace Sealant has a usable life of 9 months from the date of production.

After catalyst addition, the sealant will remain useable for about 2 weeks if stored immediately at -40°C or below. Since the catalyst is extremely sensitive to moisture, the container should be covered at all times. Also, frequent opening of the catalyst

container should be avoided. If catalyst becomes grainy or crystalline, it should not be used.

Suggestions of use shall not be taken as inducements to infringe any patent.

PACKAGING

DOW CORNING 93-076 Aerospace Sealant is supplied with its catalyst in 0.45kg, 4.5kg and 22.5kg kits, net weight.

LIMITATIONS

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.

