

155-457

PRODUCT
INFORMATION

DOW CORNING

DOW CORNING® 1-2577 LOW VOC CONFORMAL COATING

Low volatile organic compound, MIL-I-46058C silicone coating

FEATURES

- ◆ One-part
- ◆ Low viscosity dispersion in ozone-safe, VOC-exempt solvent
- ◆ Ease of application by spraying, dipping, brushing or flow coating
- ◆ Room temperature cure or rapid heat cure with additional catalyst
- ◆ Good adhesion
- ◆ Clear
- ◆ Stable and flexible from -50°C to +200°C
- ◆ Contains a dye, fluorescent under UV light
- ◆ Excellent dielectric properties
- ◆ MIL-I-46058C

APPLICATIONS

- ◆ Designed to provide long term coating against moisture and atmospheric contaminants especially where a low organic volatile product is preferred.
- ◆ Typical applications include: coating for ceramic and hybrid circuits, connectors, electronic components and printed circuit boards.

TYPICAL PROPERTIES

Specifications writers: These values are not intended for use in preparing specifications. Please contact Dow Corning Europe, La Hulpe, Belgium before writing specifications on this product.

CTM- ASTM	Property	Units	Value
	As supplied		
0176	Colour		Transparent straw
0208	Non-volatile content	%	30
0001A D1298	Specific gravity at 23°C		0.88
0004 D445	Viscosity at 25°C ¹	cSt	850
	Physical properties, cured 24 hours at 23°C + 30 minutes at 80°C		
0793 D2240	Durometer hardness, Shore D		25
0137A D412	Tensile strength	MPa	4.1
0137A D412	Elongation at break	%	60
	Electrical properties, cured 24 hours at 23°C + 30 minutes at 80°C		
0114 D149	Dielectric strength, 0.05mm film	kV/mm	55
0112 D150	Permittivity at 100Hz		2.24
0112 D150	Dissipation factor at 100Hz		0.0011
0249 D257	Volume resistivity	Ohm.cm	0.2x10 ¹⁵

1. Glass capillary viscosimeter

* CTM: Corporate Test Method, copies of CTMs are available on request.
ASTM: American Society for Testing and Materials.

HOW TO USE:

Substrate preparation

For best adhesion, the surface to be coated with DOW CORNING 1-2577 LOW VOC Conformal Coating should be clean and dry prior to application. DOW CORNING 1-2577 LOW VOC Conformal Coating has excellent adhesion on clean boards under most conditions. If increased adhesion is required, the use of DOW CORNING® 1200 OS Primer

or DOW CORNING® 1205 Primer is recommended.

How to apply

DOW CORNING 1-2577 LOW VOC Conformal Coating can be applied by spraying, dipping, brushing or flow coating.

VOC exempt DOW CORNING® OS-20 Fluid is recommended for dilution to meet specific viscosity

requirements. For example, adding 10 parts of diluent to 100 parts of DOW CORNING 1-2577 LOW VOC Conformal Coating will reduce the viscosity to approximately 150cSt.

Curing

DOW CORNING 1-2577 LOW VOC Conformal Coating can be cured either at room temperature or by an accelerated heat cure at 75°C to 100°C. In either case, DOW CORNING® 176 Catalyst or DOW CORNING® 9076 Catalyst can be added to improve the cure speed.

Room temperature cure - without catalyst

DOW CORNING 1-2577 LOW VOC Conformal Coating is cured at room temperature by reaction with moisture in the air. A 0.2mm thick coating will be tack free in less than 20 minutes, allowing handling and in-process storage after 1 hour. Complete cure does not take place until 72 hours after coating. Suggested cure conditions are 23°C in air with at least 50% relative humidity. Higher temperatures and relative humidities will accelerate rate of cure.

Heat cure - without catalyst

The time required to reach a tack-free state can be reduced with heat acceleration. When using heat for this purpose, allow adequate time for the solvent to evaporate prior to exposure to elevated temperatures in an air circulating oven. A typical cure schedule for a 0.1mm thick coating is 10 minutes at room temperature followed by 10 minutes at 80°C. If the coating blisters or contains bubbles allow additional time at room temperature for the solvent to flash off prior to oven cure.

DOW CORNING 1-2577 LOW VOC Conformal Coating cures upon contact with moisture in the air. The thicker the coating, the longer the cure time. Cracks may occur in the coating if it is exposed to cold temperatures before adequate cure has developed. Boards coated with DOW CORNING 1-2577 LOW VOC Conformal Coating and exposed to 80°C for 10 minutes should be held a minimum of 6 hours at room temperature prior to cold testing or shipment during cold weather. Longer exposure to heat and/or exposure to temperature greater than 80°C will reduce the required holding time necessary to prevent cracking prior to exposure to

cold. Circuit boards coated with DOW CORNING 1-2577 LOW VOC Conformal Coating but not exposed to 80°C for 10 minutes, as described previously, should be held a minimum of 48 hours at room temperature prior to exposure to cold.

Cure - with catalyst

When applying thick films (greater than 0.25mm dry) of DOW CORNING 1-2577 LOW VOC Conformal Coating, using DOW CORNING 176 Catalyst or DOW CORNING 9076 Catalyst will reduce the time required to reach a tack-free state. For example, a coating of DOW CORNING 1-2577 LOW VOC Conformal Coating which dries to a film thickness of 0.4mm is tack free in approximately 70 minutes at 23°C and 60% relative humidity when no catalyst is used. Use of DOW CORNING 176 Catalyst or DOW CORNING 9076 Catalyst at the same temperature and relative humidity reduces the tack-free time to approximately 45 minutes.

The use of DOW CORNING 176 Catalyst or DOW CORNING 9076 Catalyst improves solvent resistance and should be considered if the coating will be subjected to solvent vapours. The use of DOW CORNING 176 Catalyst or DOW CORNING 9076 Catalyst shortens the pot life of the material and is not recommended for use in dip equipment. Mixtures of DOW CORNING 1-2577 LOW VOC Conformal Coating and DOW CORNING 176 Catalyst or DOW CORNING 9076 Catalyst are usable for 7 days when stored at room temperature in a sealed container.

Use 0.5 parts of DOW CORNING 176 Catalyst or DOW CORNING 9076 Catalyst to 100 parts by weight of DOW CORNING 1-2577 LOW VOC Conformal Coating as supplied. If catalyst is being used to improve solvent resistance, exposure to 80°C for 30 minutes is required. Allow sufficient time for solvent evaporation prior to exposure to elevated temperatures.

Pot life

For maximum pot life, exposure to humidity must be minimised. Proper handling can extend pot life appreciably.

Repairability

Parts coated with DOW CORNING 1-2577 LOW VOC Conformal Coating can be repaired. Refer to the application note "Removal of Silicone Polymers", reference number 10-1148B-01.

HANDLING PRECAUTIONS

Product Safety Data Sheets should be obtained from your nearest Dow Corning sales office prior to use.

ATTENTION: Before handling, read product information, Product Safety Data Sheets and container labels for safe use, and any physical and/or health hazard information.

USABLE LIFE AND STORAGE

When stored at or below 32°C in the original unopened containers this product has a usable life of 36 months from the date of production.

Dow Corning will guarantee the usable life of this product until the date indicated on the packaging. This date is shown by the letters "EXP" (meaning Expiry) followed by 4 digits, which stand for the month (last day) and year. Example: "EXP 03/99" means use by 31 March 1999.

Special precautions must be taken to prevent moisture from contacting this material. Containers should be kept tightly closed and "head" or air space minimised. Partially filled containers should be purged with DRY air or other gases (Carbon Dioxide, Nitrogen).

After addition of DOW CORNING 176 Catalyst or DOW CORNING 9076 Catalyst for heat cure, the pot life is 7 to 10 days at 23°C.

PACKAGING INFORMATION

DOW CORNING 1-2577 LOW VOC Conformal Coating is available in standard industrial container sizes. For details please refer to your Dow Corning sales office.

LIMITATIONS

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

HEALTH AND ENVIRONMENTAL INFORMATION

Dow Corning's Health, Environment and Regulatory Affairs (HERA)

Department is available to support customers for their product safety needs. For further information, you can contact this group at:

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