FEATURES
- One-part
- Low viscosity dispersion in 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 -60°C (-76°F) to 200°C (392°F)
- Contains a dye, fluorescent under UV light
- Excellent dielectric properties
- Underwriters Laboratories: UL 746C

DOW CORNING® 1-2577
Conformal coating

MIL-1-46058C silicone conformal coating

APPLICATIONS
- Designed to provide long term coating against moisture and atmospheric contaminants.
- Typical applications include: coating of thick film circuitry, porous substrates and printed circuit boards.

TYPICAL PROPERTIES
Specifications 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.

<table>
<thead>
<tr>
<th>CTM ASM Property</th>
<th>Unit</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>As supplied</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0176 Color</td>
<td></td>
<td>Clear straw</td>
</tr>
<tr>
<td>0208 Non-volatile content</td>
<td>%</td>
<td>72</td>
</tr>
<tr>
<td>0001A D1298 Specific gravity at 23°C (73.4°F)</td>
<td></td>
<td>1.11</td>
</tr>
<tr>
<td>0004 D445 Viscosity</td>
<td>mPa.s</td>
<td>750</td>
</tr>
<tr>
<td>Physical properties, cured 24 hours at 23°C (73.4°F) + 30 minutes at 80°C (176°F)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0793 D2230 Durometer hardness, Shore D</td>
<td></td>
<td>24</td>
</tr>
<tr>
<td>0137A D412 Tensile strength</td>
<td>MPa</td>
<td>3.0</td>
</tr>
<tr>
<td>0137A D412 Elongation at break</td>
<td>%</td>
<td>30</td>
</tr>
<tr>
<td>Electrical properties, cured 24 hours at 23°C (73.4°F) + 30 minutes at 80°C (176°F)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0114 D149 Dielectric strength, 1.5mm film</td>
<td>kV/mm</td>
<td>18</td>
</tr>
<tr>
<td>0112 D150 Permittivity at 100Hz</td>
<td></td>
<td>2.76</td>
</tr>
<tr>
<td>0112 D150 Dissipation factor at 100Hz</td>
<td></td>
<td>0.004</td>
</tr>
<tr>
<td>0249 D257 Volume resistivity</td>
<td>Ohm·cm</td>
<td>0.5x10¹¹</td>
</tr>
</tbody>
</table>

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

HOW TO USE
Substrate preparation
For best adhesion, the surface to be coated with DOW CORNING 1-2577 Conformal Coating should be clean and dry prior to application.
DOW CORNING 1-2577 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 Conformal Coating can be applied by spraying, dipping, brushing or flow coating. For low volume spray applications using a hand held spray gun, dilution to 40% solids using dry aromatic solvents such as xylene or toluene is recommended. For automated spray equipment, dilution to 50% solids
using PMA (propylene glycol methyl ether acetate) is recommended. Mixtures of PMA and DOW CORNING 1-2577 Conformal Coating should be used within 5 days of mixing.

One dip coat of DOW CORNING 1-2577 Conformal Coating typically produces a film thickness of 0.1 to 0.2mm. Thinner coatings can be achieved by diluting. DOW CORNING 1-2577 Conformal Coating with dry xylene or toluene. Recommended withdrawal speed is approximately 30cm per minute.

**Curing**

DOW CORNING 1-2577 Conformal Coating can be cured either at room temperature or by an accelerated heat cure at 75°C (167°F) to 100°C (212°F). 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 Conformal Coating is cured at room temperature by reaction with moisture in the air. A 0.1mm thick coating will be tack free in 15 to 30 minutes, allowing handling and in-process storage. Complete cure does not take place until 72 hours after coating. Suggested cure conditions are 23°C (73.4°F) 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 (176°F). 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 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 Conformal Coating and exposed to 80°C (176°F) 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 a temperature greater than 80°C (176°F) will reduce the required holding time to prevent cracking prior to exposure to cold. Circuit boards coated with DOW CORNING 1-2577 Conformal Coating but not exposed to 80°C (176°F) 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 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 Conformal Coating which dries to a film thickness of 0.4mm is tack free in approximately 70 minutes at 23°C (73.4°F) 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 Conformal Coating and PMA for use in automated spray equipment should be kept for no longer than 5 days.

**Repairability**

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

**Flame retardancy**

DOW CORNING 1-2577 Conformal Coating is recognised by Underwriters Laboratories for use on printed circuit boards with substrates of generic type: ANSI FR-4, FR-5, G-10, G-11, CEM-1 and CEM-3 materials.

Use 0.5 parts of DOW CORNING 176 Catalyst or DOW CORNING 9076 Catalyst to 100 parts by weight of DOW CORNING 1-2577 Conformal Coating as supplied. If catalyst is being used to improve solvent resistance, exposure to 80°C (176°F) 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.

In dip coating equipment, the tank should be covered when not in use. If it will not be used for several days, the addition to the surface of a thin layer of a dry aromatic solvent, such as xylene, will minimise moisture contact with the material. If a skin develops on the tank surface, it should be removed prior to start up.

Partially filled containers of DOW CORNING 1-2577 Conformal Coating should be kept tightly closed. If possible, head space in containers should be purged with dry air or another dry gas such as carbon dioxide or nitrogen. Dilution using reactive solvents such as alcohols, or solvents containing water, will reduce shelf life. Mixtures of DOW CORNING 1-2577 Conformal Coating and PMA for use in automated spray equipment should be kept for no longer than 5 days.
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 25°C (77°F)
in the original unopened containers,
this product has a usable life of 36
months from the date of production.

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 (73.4°F).

PACKAGING
DOW CORNING 1-2577 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
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.

LIMITED WARRANTY -
PLEASE READ
CAREFULLY
The information contained herein is
offered in good faith based on
Dow Corning's research and is
believed to be accurate. However,
because conditions and methods of
use of our products are beyond our
control, this information shall not be
used in substitution for customers' tests
to ensure that Dow Corning's products
are fully satisfactory for your
specific applications. Dow Corning's
sole warranty is that the product will
meet its current sales specifications.
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.
<table>
<thead>
<tr>
<th>Mtl Dsg</th>
<th>Col</th>
<th>Coating Mtl</th>
<th>Min Mils (Mic)</th>
<th>Elec Temp Index</th>
<th>UL94 Flame Class</th>
<th>ANSI Grade</th>
<th>Lam (In.)</th>
<th>Lam (mm)</th>
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</thead>
<tbody>
<tr>
<td>3140 NC</td>
<td>NC</td>
<td>14(35.6)</td>
<td>105</td>
<td>94V-1</td>
<td>FR-4</td>
<td></td>
<td>0.025</td>
<td>(0.64)</td>
</tr>
<tr>
<td>3140 NC</td>
<td>NC</td>
<td>14(35.6)</td>
<td>105</td>
<td>—</td>
<td>FR-2, -3, -GPO</td>
<td></td>
<td>0.055</td>
<td>(1.40)</td>
</tr>
<tr>
<td>R4-3117 NC</td>
<td>8(203)</td>
<td>105</td>
<td>—</td>
<td>FR-2, -3, -GPO</td>
<td></td>
<td></td>
<td>0.055</td>
<td>(1.40)</td>
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<tr>
<td>1-2577, 1-2577</td>
<td>NC</td>
<td>8(203)</td>
<td>105</td>
<td>94V-0</td>
<td>FR-4, CEM-1, CEM-3</td>
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<td>0.057</td>
<td>(1.45)</td>
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<tr>
<td>Low VOC</td>
<td>Q1-2620, NC</td>
<td>15(381)</td>
<td>130</td>
<td>94HB</td>
<td>G-10, G-11</td>
<td></td>
<td>0.055</td>
<td>(1.40)</td>
</tr>
<tr>
<td>Low VOC</td>
<td>1-2620 NC</td>
<td>15(381)</td>
<td>130</td>
<td>94HB</td>
<td>G-10, G-11</td>
<td></td>
<td>0.057</td>
<td>(1.45)</td>
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<tr>
<td>1-4105 NC</td>
<td>7(178)</td>
<td>105</td>
<td>94V-1</td>
<td>FR-4, CEM-1</td>
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<td>0.055</td>
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<td>Q1-4010 NC</td>
<td>9(229)</td>
<td>105</td>
<td>94V-1</td>
<td>FR-4, CEM-1</td>
<td></td>
<td>0.057</td>
<td>(1.45)</td>
<td></td>
</tr>
</tbody>
</table>

Conformal coatings, for use on Recognized printed wiring boards, furnished in the form of liquid or film.