



DOW CORNING® 2106 Resin

FEATURES

- Good physical and electrical stability over a wide range of temperatures, frequencies and humidities
- UV light, radiation and corona resistance
- AIEE Class 220 C insulating material
- Outstanding thermal stability

Silicone laminating resin in toluene

APPLICATIONS

- Used in combination with an inorganic reinforcing material such as glass roving or asbestos, and quartz fibres for the manufacture of parts by low and high pressure forming techniques. Included in such methods are filament winding, vacuum bag moulding, matched metal moulds or mandrel wrapping combined with cellophane lagging techniques.
- Used to make parts such as laminated radomes, filament wound nose cones and pressure bottles, aircraft ductwork, thermal and arc barriers, covers and cases for high frequency equipment.
- Suggested thinners - Alcohols, chlorinated solvents, ketones, toluene, xylene and other aromatic hydrocarbons.

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.

Property	Unit	Value
Solids content	%	50
Color		Pale to straw
Viscosity at 25°C	cSt	25
Relative density at 25°C		1.08
Gel time at 249°C (uncatalysed)	minutes	8
Flash point - closed cup	°C	7
Electrical properties		
Dielectric strength ¹	kV/mm	4.0
Permittivity at 100Hz		4.0
Dissipation factor at 25°C 100Hz		0.0040
Dissipation factor at 25°C 100kHz		0.0020
Volume resistivity	ohm.cm	1 x 10 ¹²
Physical properties		
Flexural strength at 25°C	MPa	308
Compressive strength at 25°C ¹	MPa	150
Weight loss after 3 hours at 250°C	%	6.0

1. Determined on 12.5mm laminates.

HOW TO USE

Catalysing

DOW CORNING 2106 Resin is supplied with Catalyst® 15. The suggested amount of catalyst to use with each lot of resin, based on

Dow Corning quality control test, is marked on each container. Since catalyst concentrations are dependent upon a variety of conditions - such as pre-curing equipment, type of reinforcement and anticipated laminating conditions - this figure can only be regarded as a guide which

indicates the relative activity of that particular batch of resin. The catalyst recommendations are given as millilitres of Catalyst 15 (supplied with each shipment of resin) per pound of resin solution as supplied.

Suggested catalyst concentrations for DOW CORNING 2106 Resin range for 1.5 to 3.5 millilitres per pound of resin solution. For those wishing to add catalyst by weight rather than by volume measurement the suggested concentration in millilitres should be multiplied by the factor 0.858 (the specific gravity of Catalyst 15); this value will indicate the grams per pound of resin solution.

Suggested catalyst concentrations given on the containers are determined by control tests which indicate a resin gel time for the prepreg of about 2.5 minutes at 177°C following a precure of 10 minutes at 110°C

Preparing the prepreg

To prepare prepreg of inorganic materials - whether in the form of woven cloth, thread, yarn, mat, or simple roving - the material is impregnated with the catalysed resin and pre-cured in conventional coating equipment, usually in curing towers.

Though coating tower conditions may vary widely, depending upon such influences as tower construction, air velocity in the tower and the type of diluent used with the resin, pre-cure schedules will normally range from about 10 minutes at 90°C to 4 minutes at 120°C.

Note: Though circulating air in the tower is necessary to achieve effective solvent removal, excessive air velocity may cause entrapment and the retention of volatiles within the prepreg. The area surrounding the coating and curing equipment should be adequately vented to avoid build up of flammable solvent vapour concentrations.

Properly coated and cured prepreg material may be used immediately or stored for future use. Storage for several months at temperatures not over 25°C and at relative humidities

of 50% or less, does not affect the properties of the prepreg.

Making parts

The prepreg which consists of DOW CORNING 2106 Resin and inorganic reinforcement, may be fabricated into laminated parts by conventional high pressure or low pressure techniques. High pressure laminating in matched metal moulds is normally at 3.45 to 6.9MPa using a press temperature of 150°C to 175°C for about 30 minutes for sections up to 6mm and proportionately longer for thicker sections. Moulded parts should be cooled in the press (to below 100°C) before pressure is released. Low pressure laminates can be pressmoulded, mandrel wrapped, or vacuum bag moulded. Pressures as low as 0.069MPa produce well consolidated parts. Moulding temperatures should be in the range of 150 to 175°C for at least 30 minutes. Moulded laminated parts must be given an afterbake or oven cure to achieve optimum properties. A suggested schedule for sections 6mm thick or less is as follows:

- 16 hours at 90°C.
- 2 hours at each of the following temperatures 127°C, 149°C, 177°C, 199°C and 224°C.
- 12 hours at 249°C.

Thicker parts should be given longer times at each temperature.

Typical properties of resin glass cloth laminates

Typical laminate properties were obtained by testing specimens cut from laminates prepared with Style 181 heat cleaned glass cloth bonded with DOW CORNING 2106 Resin. The impregnated material contained from 32 to 35 percent resin, by weight. Test laminates were prepared by laying up 14 plies, each 20cm square, and rotating alternate plies 90°. Layups were pressmoulded for 90 minutes at 30 psi, 175°C. Finished panels ranged in thickness from 3mm to 3.5mm, and contained between 29 and 32 percent resin, by weight.

The panels were then cured for 16 hours at 90°C and successively, 2 hours at each of the following temperature: 127°C, 149°C, 177°C,

199°C and 224°C concluding with a cure of 12 hours at 249°C, unless otherwise specified. Testing was conducted in accordance with procedures listed in Federal Specification L-P-406b.

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 in the original unopened containers, this product has a usable life of 11 months from the date of production.

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

