



# STYCAST® U 2500 FC

## Flexible, Filled Polyurethane Casting Resin

Key Feature:	Benefit:
<ul style="list-style-type: none"> <li>Low viscosity</li> </ul>	<ul style="list-style-type: none"> <li>Flows in and around tight gaps in electronic assemblies</li> </ul>
<ul style="list-style-type: none"> <li>Flexible</li> </ul>	<ul style="list-style-type: none"> <li>Low stress on embedded components</li> </ul>

### Product Description:

STYCAST U 2500 FC is a two component, low viscosity, flexible polyurethane encapsulant.

### Applications:

STYCAST U 2500 FC is an encapsulant offering low viscosity and excellent wetting properties. These characteristics allow for complete impregnation of either small tightly wound coils or large castings. With good adhesion to many plastics and alloys, this polyurethane encapsulant is also recommended for in-cabin automotive electronic applications including air bag sensors, instrument panel switches, and occupant detection and position sensors.

### Instructions For Use:

Thoroughly read the instructions for use in this Technical Data Sheet before using. Observe all precautionary statements that appear on the product label and/or are contained in individual Material Safety Data Sheets (MSDS).

To ensure the long-term performance of the potted or encapsulated electrical / electronic assembly, complete cleaning of components and substrates should be performed to remove contamination such as dust, moisture, salt, and oils which can cause electrical failure, poor adhesion or corrosion in an embedded part. Some filler settling is common during shipping and storage. For this reason, it is recommended that the contents of the

shipping container be thoroughly mixed prior to use. Power mixing is preferred to ensure a homogeneous product.

Accurately weigh resin and hardener into a clean container in the recommended ratio. Weighing apparatus having an accuracy in proportion to the amounts being weighed should be used.

Blend components by hand, using a kneading motion, for 2-3 minutes. Scrape the bottom and sides of the mixing container frequently to produce a uniform mixture. If possible, power mix for an additional 2-3 minutes. Avoid high mixing speeds that could entrap excessive amounts of air or cause overheating of the mixture resulting in reduced working life.

To ensure a void-free embedment, vacuum de-airing or degassing should be performed to remove any entrapped air introduced during the mixing operation. Pump-down or pull vacuum on the mixture to achieve an ultimate vacuum or absolute pressure of 1- 5 torr or mm Hg. The foam will rise several times the liquid height and then subside. Continue vacuum de-airing until most of the bubbling has ceased. This usually requires 3-10 minutes.

Pour mixture into cavity or mold. Gentle warming of the mold or assembly reduces the viscosity. This improves the flow of the material into the unit having intricate shapes or tightly packed coils or components. Further vacuum de-airing in the mold may be required for critical applications. U2500 FC is an accelerated version of Stycast U 2500. Stycast U2500 FC has a pot life of about 10 minutes (100g). Cures @ RT within 1 hour. Extra Cure at RT or 65°C is necessary to obtain optimum final end-properties.

### Properties of Material As Supplied:

Property	Test Method	Unit	Value - Part A	Value - Part B
Chemical Type			Polyurethane	
Appearance	Visual		Black liquid	Amber liquid
Density	TP-13	g/cm <sup>3</sup>	1.47	1.23
Brookfield Viscosity	TP-10 or TP-11	Pa.s cP	9 9,000	0.05 50

### Properties of Material As Mixed:

Property	Test Method	Unit	Value
Mix Ratio - Amount of Part B per 100 parts of Part A		By Weight By Volume	7.0 8.5
Density	TP-13	g/cm <sup>3</sup>	1.45
Brookfield Viscosity	TP-10 or TP-11	Pa.s cP	6 6,000

TPs are internal test procedures typically derived from ASTM or other norms. Copies of these procedures can be obtained upon request.

**Cure Schedule:**

Cure at any one of the recommended cure schedules. For optimum performance, follow the initial cure with a post cure of 2 - 4 hours at 100 to 120°C.

Temperature (°C)	Cure Time (hours)
25	24
60	4

**Properties of Material After Application (cured 4 hours @ 60°C and 2 hours @ 120°C) :**

Property	Test Method	Unit	Value
Hardness			
@ 25°C	TP-311	A	53
@ -20°C	TP-311	A	54
E- Modulus @ 25°C	TP-526W	MPa	12
Tensile Lap Shear Strength	TP-21W	MPa	4.3
Aluminum to Aluminum @ 25°C		psi	620
Moisture Absorption (24 hours @ 25°C)	ASTM-D-570	%	+0.01
Coefficient of Thermal Expansion			
α 1	TP-525W	10 <sup>-6</sup> /°C	37
α 2	TP-525W	10 <sup>-6</sup> /°C	177
Glass Transition Temperature	TP-525W	° C	-37
Temperature Range of Use		°C	-40 to +125
Dielectric Constant @ 1 MHz @ 25°C	TP-184	-	5.4
Dissipation Factor @ 1 MHz @ 25°C	TP-184	-	0.07
Volume Resistivity @ 25°C	TP-183	Ohm-cm	1.4 X 10 <sup>13</sup>

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**Storage and Handling:**

The shelf life of STYCAST U 2500 FC is 6 months at 18 - 25°C. For best results, store in original, tightly covered containers. Storage in cool, clean and dry areas is recommended.

Moisture sensitive before mixing. Must be stored in tightly closed containers and protected from contamination with moisture and foreign substances that can adversely affect processing and cause sealed containers to develop pressure. Partially used containers should be blanketed with dry nitrogen before resealing.

**Health and Safety:**

The Stycast U 2500 FC Part A may irritate the skin and eyes. The Stycast U 2500 FC Part B may cause allergic skin or respiratory reactions. Prior to using these materials, consult the product MSDS for additional health hazards, protective measures, first aid, and other health and safety information.

**Attention Specification Writers:**

The values contained herein are considered typical properties only and are not intended to be used as specification limits.

**Medical Implantable Disclaimer**

"In the event this product is intended by you for use in implantation in the human body, you are hereby advised that Henkel has not performed clinical testing of these materials for implantation in the human body nor has Henkel sought, nor received, approval from the FDA for the use of these material in implantation in the human body. It is YOUR responsibility, as a manufacturer of any such device, to ensure that all materials and processes relating to the manufacture of any medical device fully comply with all applicable federal, state and local laws, rules, regulations and requirements as well as any such laws, rules, regulations, directives or other orders of any foreign country where such product is sold. If you have not undertaken the necessary investigations to ensure compliance you are advised NOT TO USE this product in the manufacture of any device which is to be implanted in the human body. No representative of ours has any authority to change the foregoing provisions."

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