



## Silane Terminated Polyurethane (STPU)

### Product Description

FS0354 is STPU for plastics, metals and glass bonding. This product is cured by the moisture in the air. The curing system of this product is alkoxy. It is not stinky and has fast curing properties. This resin is different from the traditional PU which contains isocyanate. This product has better adhesion strength than silicone type products. It is well suited for electronic devices casting and bonding.

### Features

1. This product is used for various substrates bonding.
2. This resin has flexible properties and fracture energy.
3. This product has stable properties in a wide range of temperature.
4. This product does not volatilize low molecular weight siloxane compounds. It will not pollute the electronic devices.
5. This resin is one component product without mixing. It is easy to use.
6. This product has stable properties and is able to storage in the room temperature.
7. This resin will fast cure in the air. It can have surface dryness in a short time.
8. This product complies to the 2011/65/EU RoHS regulations.

3. If this product is for double-sided coating. Use spatula to apply the adhesive on both sides with a thin layer. Place the substrate for more than seven minutes (23°C, 50% RH). It will be tacky like tapes. It doesn't need any pre-fixed. The strong adhesion strength maintains seven to twenty minutes after applying the adhesive. If place the substrate more than twenty minutes, there will be no strong adhesion strength. It needs to apply the adhesive again.
4. If this product is for single-sided coating. Use spatula to apply the adhesive on both sides with a thin layer. Bond the substrates in five minutes. It doesn't have any pre-fixed application. It is recommended to use jig to fix.
5. After bonding, do not move the substrate for one to two hours. It can be fixed after twelve to twenty-four hours. If the layer is thick, the initial curing time will be longer. If it does not need any adhesion strength, it can be bond right after applying the adhesive when the small area bonding.
6. Use this product as soon as possible after opening the original packages. When not using, please replace the lid tightly and store in a cool and dry place.
7. Cure time on the really part will depend upon factors such as part geometry, materials to be bonded, bondline thickness and humidity. Cure schedule should be confirmed with actual production parts and equipment.

### Typical Uncured Properties

	FS034
Composition	Polyether resin
Appearance	Viscous liquid
Color	Beige
Viscosity*25°C, S14 20rpm, cps	18,000-28,000
Specific Gravity	1
Solvent Content, %	0

\*This value is for reference. Please refer to COA for the actual value.

### Typical Curing Properties

Surface Dry Time, 25°C, min	15
Initial Curing Time, 25°C, min	30
Full Curing Time, 25°C, 1mm, hr	12
Full Curing Time, 25°C, 2mm, hr	24

### Direction of Use

1. It should be applied to a clean surface which is free of dirt, grease or mold release. In many cases, a simple solvent wipe is sufficient.
2. Pour or brush this product onto the substrates, it does not recommend to stir to avoid interfusing the air. This product will be cured with the air. The curing properties depend on its thickness, curing temperature and relative humidity.

### Typical Cured Properties

Glass Transition Temp., °C	-55
CTE*, ppm	194
Hardness (Durometer) ASTM D2240-03, Shore A	23±3
Water Absorption Ratio(25 °C /24hr), %	1.84
Elongation, %	270
Volume Shrinkage, %	2.74
Shear Strength, PC vs. PC, kg/cm <sup>2</sup>	20
Shear Strength, ABS vs. ABS, kg/cm <sup>2</sup>	18
Shear Strength, ANK vs. ANK, kg/cm <sup>2</sup>	5
Shear Strength, AS vs. AS, kg/cm <sup>2</sup>	7
Shear Strength, MS vs. MS, kg/cm <sup>2</sup>	6
Shear Strength, PET vs. PET, kg/cm <sup>2</sup>	15
Shear Strength, PS vs. PS, kg/cm <sup>2</sup>	6
Shear Strength, Acrylic vs. Acrylic, kg/cm <sup>2</sup>	16
Shear Strength, Al vs. Al, kg/cm <sup>2</sup>	13
Shear Strength, SUS vs. SUS, kg/cm <sup>2</sup>	13
Shear Strength, Copper vs. Copper, kg/cm <sup>2</sup>	10
Shear Strength, PVC vs. PVC, kg/cm <sup>2</sup>	20
Peel Strength, NBR, kg/25.4mm	1.5
Peel Strength, SBR, kg/25.4mm	1.1
Peel Strength, EPDM, kg/25.4mm	0.4
Peel Strength, Silicone Rubber, kg/25.4mm	0.2
Thermal Conductivity W/mK	0.23
Surface Resistivity, ohm	1.7* 10 <sup>12</sup>
Volume Resistivity, ohm-cm	2.0* 10 <sup>11</sup>
Dielectric Constant 100Hz	3.7 (0.02)
Dielectric Constant 1KHz	3.4 (0.04)
Dielectric Constant 1MHz	3.0 (0.05)
Dielectric Strength, KV/mm	13
Temperature Range, °C	-40-80

The data contained in this bulletin is provided only as a guide for evaluation/consideration. These material characteristics are typical properties that are based on a limited number of samples tested in the laboratory. We cannot assume responsibility for results obtained by others or whose methods we have no control. It is the user's responsibility to determine suitability for the user's purpose of any product or method. We recommend that each prospective user test his proposed application before repetitive use, using this data as a guide.

\* CTE: Coefficient of Thermal Expansion

### **Thermal Strength/Thermal Aging**

Thermak Strength, Al vs. Al after curing, 25°C\*50%RH\*7 days

Temperature	Shear Strength, kgf/cm <sup>2</sup>
25°C	13
50°C	11
80°C	8
100°C	4
150°C	2

Thermal Aging, -40°C /1hr ~ 100°C / 1hr

Cycles	Shear Strength, kgf/cm <sup>2</sup>
0	6
100	7
200	8
300	6
400	5
500	3

High Temperature and Humidity, 80°C, 90%RH

Time, hr	Shear Strength, kgf/cm <sup>2</sup>
0	6
24	6.5
72	7
168	7
500	8
1000	8

### **Storage and Shelf Life**

This product should be kept without any possibility of moisture exposure. Replace the lid immediately after use. Shelf life of this product is six months when stored in dark place below 14-34°C in original, unopened containers.

### **Caution**

Some findings indicate a lack of potential for carcinogenicity with the compositions of this product by long term recurrent application to the skin. However, contact with skin is likely to produce mild transient reddening. It is important to remove adhesive from skin with soap and water thoroughly. DO NOT use solvents for cleaning hands. This product is of moderate acute toxicity by swallowing. If swallowed, call a physician. Avoid contact with eyes. In case of contact, flush with water for at least 15 minutes and get medical attention immediately. For specific information on this product, consult the Material Safety Data Sheet.

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