

Epic Resins
S7253-01

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Product Datasheet

Description

EPIC S7253-01 is a two component, UL 94 V-0 recognized polyurethane compound designed for electronic applications requiring encapsulation. The low weight loss of S7253-01 at elevated temperature suggests that this product is suitable for applications that can reach up to 125C. S7253-01 is currently utilized in a variety of applications, including automotive applications, that require thermal cycling between -40C and 85C. S7253-01 features good thermal conductivity along with good adhesion to various metals and plastics. S7253-01 has been tested and meets ROHS requirements.

Versions

[S7253](#) [S7253-02](#) [S7253-03](#) [S7253-04](#) [S7253-07](#) [S7253-05](#) [S7253-08](#) [S7253-06](#) [S7253-10](#)
[S7253-09](#) [S7253-15](#) [S7253-16](#) [S7253-11](#) [S7253-12](#) [S7253-13](#) [S7253-14](#)

Typical Properties

Product Identification:	Potting Compound	Product Resin:	Urethane
Component Count:	2	Color, Part A:	Black
Color, Part B:	Amber	Color, Mixed:	Black
Flammability (UL):	Recognized UL 94 V-0 @ 9.0 mm	UL File Number:	E55516 Plastics Component
Shelf Life 25C, Part A:	9 Months	Shelf Life 25C, Part B:	9 Months
Pot Life, minutes:	18 - 20 minutes @ 25C (100 grams)		

Viscosity

Viscosity, Mixed (ASTM D2393):	1,600 - 2,000 cps @ 25C, 20 rpm	Viscosity, Part A (ASTM D2393):	5,000 - 8,000 cps @ 25C, 20 rpm
Viscosity, Part B (ASTM D4287):	35 - 65 cps @ 25C, 800 rpm		

Additional Viscosity Notes

Viscosity Information: A chart and graph showing the viscosity vs. time @25C in a 60 gram mass are available.

Weight per Gallon

Weight/Gallon A (ASTM D1875):	11.50 - 12.50 lb/gal	Weight/Gallon B (ASTM D1875):	10.15 - 10.25 lb/gal
Weight/Gallon Mixed (ASTM D1875):	11.50 - 11.80 lb/gal		

Processing

Mix Ratio by Weight: 100:18.2

Mix Ratio by Volume: 100:21.4

Cure Schedule, Hours:	48 - 54 hours @ 25C	Alternate Cure, Hours:	2 - 2.5 hours @ 65C
Filler Stability, Part A:	Good	Filler Stability, Part B:	Unfilled

Gel Time

Gel Time, minutes (ASTM D3056): 20 - 40 minutes @ 25C (100 grams)

Cured Properties

Hardness, Shore A (ASTM D2240):	90 - 96 (After 2 hrs @ 65C + 7 days @ 125C)	Hardness, Shore A (ASTM D2240):	82 - 88 @ 25C
Coeff Therm Exp (ASTM D696):	79.5 - 87 (EXP-6)in/in C	Shrinkage (ASTM D2566):	0.77 - 0.85 % (Cured @ 65C for 2 hrs)
Shrinkage (ASTM D2566):	0.048 - 0.052 % (Cured @ 25C for 24 hrs)	Tensile Strength (ASTM D638 or D412):	5011 - 5953 psi @ -25C
Tensile Strength (ASTM D638 or D412):	2847 - 3762 psi @ 0C	Tensile Strength (ASTM D638 or D412):	781 - 948 psi @ 25C
Tensile Strength (ASTM D638 or D412):	370 - 442 psi @ 50C	Tensile Strength (ASTM D638 or D412):	362 - 416 psi @ 70C
Tg (Glass Transition) (ASTM E1545):	-2 - 2 C	Thermal Cond, BTU (ASTM D2214):	3.9 - 4.1 BTU in/hr ft ² F
Thermal Cond, CalCm (ASTM D2214):	13.8 - 14.2 (EXP-4) Cal Cm/ Sec Cm ² C	Thermal Cond, W/mK (ASTM D2214):	0.55 - 0.6 W/mK
Thermal Cycles Passed:	10 (Less than 55C to 105C)	Elongation (ASTM D638 or ASTM D412):	2.5 - 4.5 % @ -25C
Elongation (ASTM D638 or ASTM D412):	7 - 9 % @ 0C	Elongation (ASTM D638 or ASTM D412):	140 - 160 % @ 25C
Elongation (ASTM D638 or ASTM D412):	40 - 60 % @ 50C	Elongation (ASTM D638 or ASTM D412):	25 - 35 % @ 70C
Modulus of Elasticity (ASTM D638 or D412):	32246 - 44144 psi @ 0C	Modulus of Elasticity (ASTM D638 or D412):	1139 - 1428 psi @ 25C
Modulus of Elasticity (ASTM D638 or D412):	1495 - 2349 psi @ 50C	Modulus of Elasticity (ASTM D638 or D412):	1547 - 1910 psi @ 70C
Operating Temp:	125 C (Maximum continuous)	Specific Heat (ASTM E1269):	1.10 - 1.20 J/gK @ 100C
Weight Change:	-0.29 - -0.31 % (After 7 days @ 125C)		

Electrical Properties

Dielectric Constant (ASTM D150):	3.71 - 4.1 @ 100 kHz	Dielectric Strength (ASTM D149):	335 - 365 Volts/mil @0.25 inches
Dissipation Factor (ASTM D150):	0.0314 - 0.0346 @ 100 kHz	Volume Resistivity (ASTM D257):	4.40e+13 - 4.80e+13 ohm cm

Mixing Instructions

Polyurethane Mixing Instructions: When mixing two component polyurethanes, the ideal method is to mix by weight using a balance or digital scale. The mixing container should be placed on the scale and set to read zero, the appropriate amount of resin should be weighed followed by the appropriate amount of hardener. The material should then be stirred, ideally with a metal spatula, ensuring that the material is thoroughly mixed to a homogenous state by scraping the sides, bottom and the area where the sides meet the bottom of the container. Failure to do so can result in uncured sections of material or altered properties of the cured material. When mixing polyurethanes, precautions should be taken to prevent any moisture from contaminating the material. The use of wood stir sticks and paper cups should be avoided due to their porosity and ability to hold moisture. When reclosing partial containers, an inert gas purge should again be introduced to prevent moisture contamination.

Handling and Storage

Please refer to the Material Safety Data Sheet when determining the proper precautions to be used when storing or handling Epic S7253-01. Epic Resins recommends that engineering controls be used to minimize employee exposure to this or any other industrial chemical. The Isocyanate containing S7253-01 Part-B is a polymeric form of Methylene Diphenyl Diisocyanate (MDI). MDI is a respiratory sensitizer. Other health problems may be aggravated by exposure to this material. Great care should be taken to ensure employees are not exposed to this material above the ACGIH TLV. MDI can crystallize and dimerize. These processes progress with age and certain storage conditions. Care should be taken to maintain storage temperatures and conditions that will reduce crystallization and reduce the inevitable dimerization. Keep storage temperatures in the range of 65F to 90F. Crystallization can be removed by warming material at 100F to 120F under agitation; however dimerization is the homopolymerization of the MDI and appears as cloudiness. Dimerization is progressive and can not be reversed. The polyol or S7253-01 Part-A is a blend of polyols and fillers. There is a natural propensity for fillers to separate and settle over longer storage times. Before using product that has been stored for extended periods S7253-01B should be mixed thoroughly until of uniform consistency.

LIMITATION OF WARRANTY: Epic warrants its Product to be free of defects in materials and workmanship and to conform with all product specifications. Epic's liability is limited to replacement product only. Epic shall not be liable to Customer or any other party for any incidental, consequential or special damages, or any lost profits which may be incurred by Customer or any other party. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO WARRANTIES OF MERCHANTABILITY AND FITNESS FOR ANY PARTICULAR PURPOSE. NO EMPLOYEE, AGENT OR REPRESENTATIVE OF EPIC IS AUTHORIZED TO CHANGE THIS WARRANTY IN ANY WAY.
