TECHNICAL DATA SHEET

EPIC RESINS
COMPOUNDS AND RESINS FOR INDUSTRY

S7302 SERIES POTTING COMPOUND

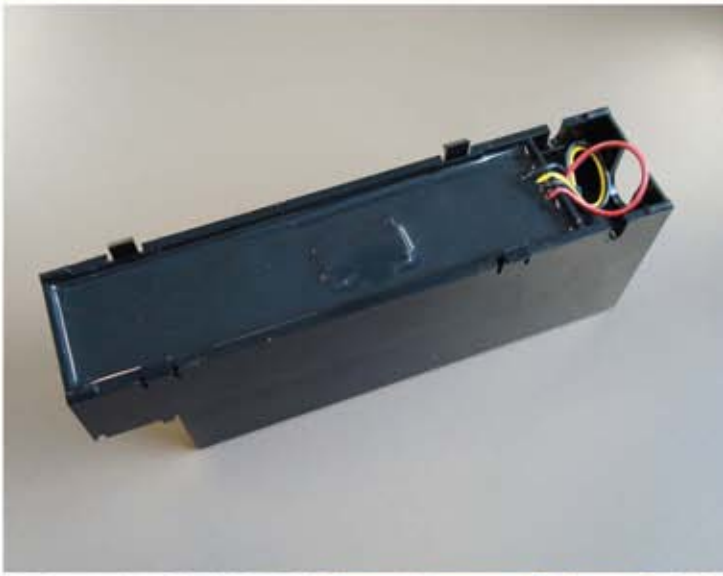
The S7302 series of products are a premium set of HTPB-based polyurethane potting compounds. These materials were designed for electronic potting applications that experience extreme environmental stresses. Featured properties of these materials include:

- Low mixed viscosity to ensure excellent flow into tight tolerance applications
- Thermal cycling between -40 ˚C and 135 ˚C with excursions up to 160 ˚C
- Convenient 4:1 mix ratio by volume
- Operating temperature between 115 ˚C – 125 ˚C
- Excellent adhesion to most plastic and metal potting cases
- Designed to pass UL94HB
- RoHS compliant
- Maximum protection against moisture and most other contaminates
- Medium Shore A durometer
- Room temperature cure system

This material is extremely adaptable and is currently being used in many different electronic potting applications such as:

- Variety of under the hood automotive switches and sensors
- Sirens and warning signals
- LED outdoor displays
- Sensitive electronics in the renewable energy market
- Potting of underwater sensors
- Control module potting
- Potting of relays

The S7302 series of materials have the same cured/typical properties but vary in color, processing time (gel time, pot life) and viscosities.



COMMON PROPERTIES FOR ALL PRODUCTS IN SERIES S7302

GENERAL PROPERTIES

Identification	Potting Compound
Component Count	2
Shelf Life @ 25 ˚C	6 Months
Filler Stability Part A	Good
Filler Stability Part B	unfilled

MATERIAL PROPERTIES

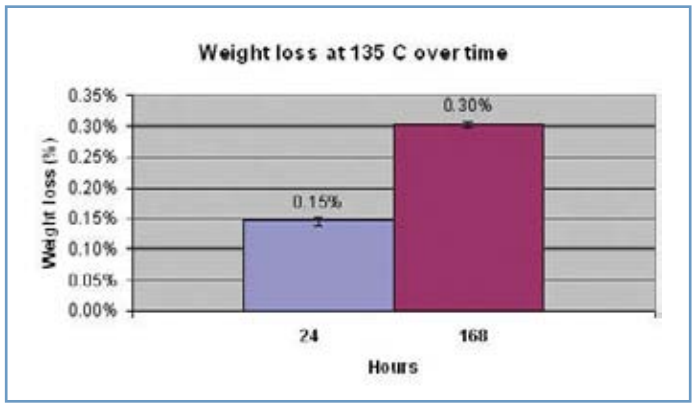
Mix Ratio by Weight	100:19.5
Mix Ratio by Volume	4:1
Viscosity @ 25 ˚C	Part A: 20 RPM : 6,400 – 7,000 CPS Part B: 400 RPM : 80 – 100 CPS Mixed: 20 RPM : 2,500 – 3,500 CPS
Weight Per Gallon	Part A: 11.85 – 12.15 Part B: 9.25 – 9.35

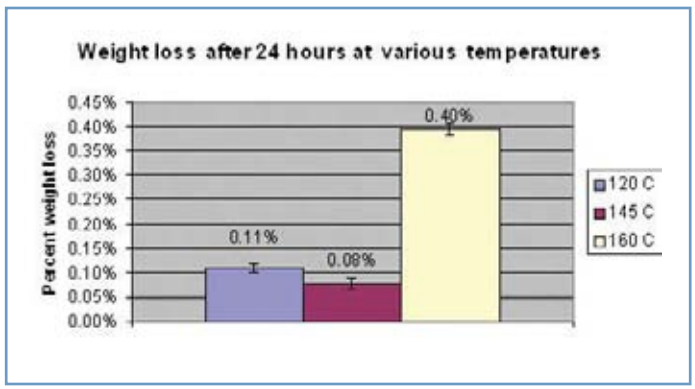
MIXED PROPERTIES

Please see the below versions for the mixed properties

CURED PROPERTIES

Operating Temp	110 – 120 ˚C
Tg (Glass Transition ASTM E1545)	-50 ˚C (maximum)
Weight Change After 168 hours at 160 ˚C	1.7 – 1.72%

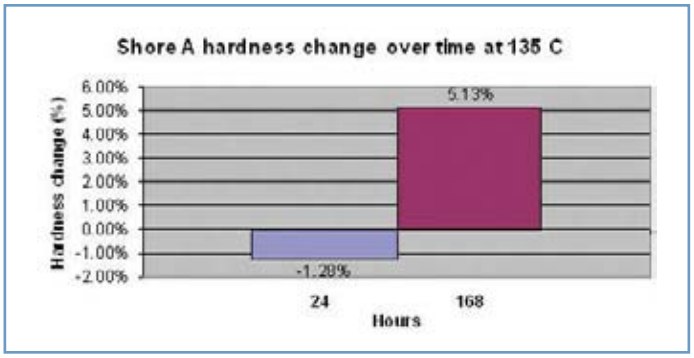


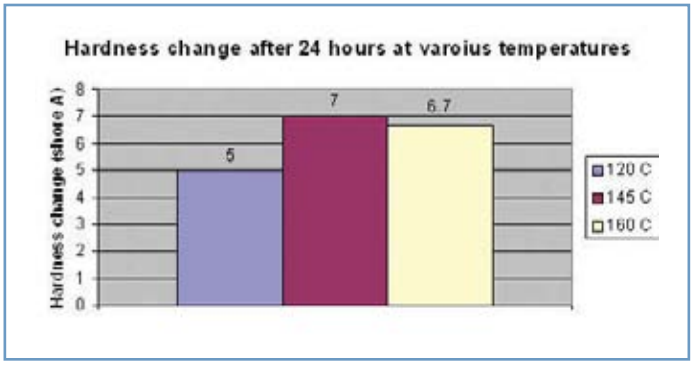


Specific Heat (ASTM E1269) 1.30 – 1.40 j/gK @ 50 ˚C
1.55 – 1.65 j/gK @ 100 ˚C

Hardness (ASTM D2240)
Shore A 68 – 72

Hardness Change 17% Shore A after 168 hours @ 160 ˚C





Tensile Strength (ASTM D638 or D412)

Temperature	PSI
-25 ˚C	1000 – 1400
25 ˚C	605 – 680
65 ˚C	280 – 320

Coeff Therm Exp. (ASTM D696) 175 – 190 (EXP-6) in/in ˚C (-25 ˚C to 25 ˚C)

Thermal Conductivity (ASTM D2214) 7 – 7.2 (EXP -4) Cal CM/Sec Cm2 ˚C

Elongation (ASTM D412)

Temperature	% Change
-25 ˚C	200 – 210%
25 ˚C	190 – 225%
65 ˚C	170 – 230%

COMMON PROPERTIES FOR ALL PRODUCTS IN SERIES S7302

Lap Shear (ASTM D3163) 395 – 465 psi (Nylon to Nylon)

Water Absorption (ASTM D570)

Temperature	% Change	Time
25 ˚C	0.29 – 0.31%	24 hours
25 ˚C	0.54 – 0.58%	7 days
85 ˚C	1.2 – 1.22%	24 hours
85 ˚C	3.12 – 3.18%	7 days

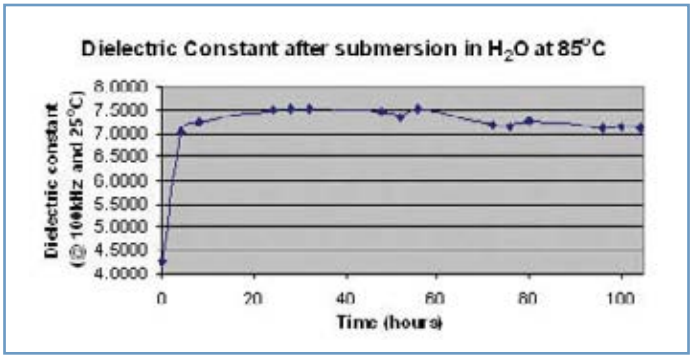
Tensile Modulus

Temperature	PSI
-25 ˚C	1,100 – 1,400 psi
25 ˚C	234 – 312 psi
65 ˚C	60 – 70 psi

ELECTRICAL PROPERTIES

Dielectric Constant (ASTM D150)

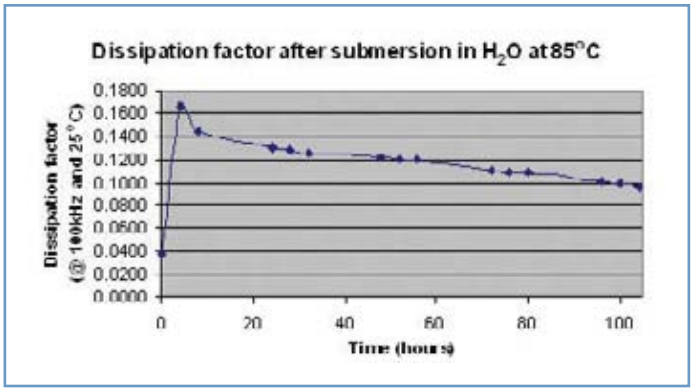
5.1 – 5.3 @ 100 kHz
3.82 @ 500 MHz
3.76 @ 1GHz
3.06 @ 3 GHz



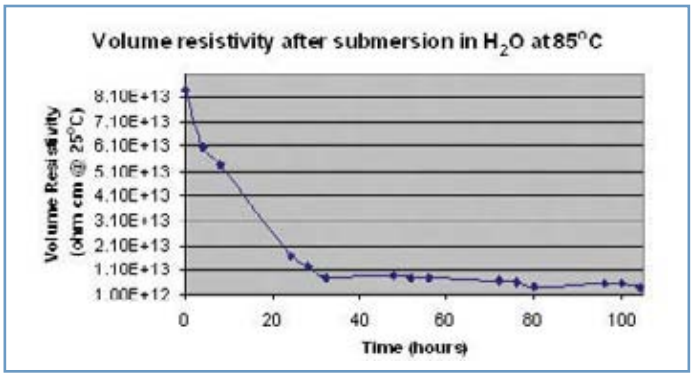
Dielectric Strength (ASTM D149) 360 – 370 Volts/mil @ 0.125 inches

Dissipation Factor (ASTM D150)

0.02 – 0.03 @ 100 kHz
0.015 @ 500 MHz
0.014 @ 1 GHz
0.076 @ 3 GHz



Volume Resistivity (ASTM D257) 2.56e + 12 ohm cm



TABLES AND CHARTS

Properties After Condition Soaking (Complete Immersion For 6 Days)

	Hardness (Shore A)	Tensile Strength (PSI)	% Elongation
No Soak (Control)	72	605 – 680	190 – 225
5W 30 Engine Oil	78	800 – 850	180 – 200
Power Steering Fluid	73	660 – 700	160 – 200
Brake Fluid	42	130 – 150	115 – 145
Water	73	715 – 745	270 – 310
85 ˚C Oven Aging	80	900 – 940	195 – 205

S7302 ORIGINAL

Flammability (UL): Designed to Pass UL94HB

GENERAL PROPERTIES

Color Part A	Black
Color Part B	Amber
Color Mixed	Black

MIXED PROPERTIES

Gel Time ASTM D3056 (100 Grams)	45 – 55 minutes @ 25 ˚C
Pot Life (100 grams)	35 – 50 minutes @ 25 ˚C
Cure Schedule, Hours	10 – 12 hours @ 25 ˚C
Alternate Cure, Hours	3 hours @ 65 ˚C

S7302-01

Flammability (UL): Designed to Pass UL94HB

GENERAL PROPERTIES

Color Part A	Black
Color Part B	Amber
Color Mixed	Black

MIXED PROPERTIES

Gel Time ASTM D3056 (100 Grams)	15 – 25 minutes @ 25 ˚C
Pot Life (100 grams)	10 – 20 minutes @ 25 ˚C
Cure Schedule, Hours	10 – 12 hours @ 25 ˚C
Alternate Cure, Hours	3 hours @ 65 ˚C

S7302-02

Flammability (UL): Designed to Pass UL94HB

GENERAL PROPERTIES

Color Part A	Black
Color Part B	Amber
Color Mixed	Black

MIXED PROPERTIES

Gel Time ASTM D3056 (100 Grams)	10 – 15minutes @ 25 ˚C
Pot Life (100 grams)	7 – 10 minutes @ 25 ˚C
Cure Schedule, Hours	10 – 12 hours @ 25 ˚C
Alternate Cure, Hours	3 hours @ 65 ˚C

S7302-03

Flammability (UL): Designed to Pass UL94HB

GENERAL PROPERTIES

Color Part A	Black
Color Part B	Amber
Color Mixed	Black

MIXED PROPERTIES

Gel Time ASTM D3056 (100 Grams)	10 – 15 minutes @ 25 ˚C
Pot Life (100 grams)	7 – 9 minutes @ 25 ˚C
Cure Schedule, Hours	10 – 12 hours @ 25 ˚C
Alternate Cure, Hours	3 hours @ 65 ˚C

S7302-04

Flammability (UL): Designed to Pass UL94HB

GENERAL PROPERTIES

Color Part A	Blue
Color Part B	Amber
Color Mixed	Blue

MIXED PROPERTIES

Gel Time ASTM D3056 (100 Grams)	45 – 55 minutes @ 25 ˚C
Pot Life (100 grams)	35 – 50 minutes @ 25 ˚C
Cure Schedule, Hours	10 – 12 hours @ 25 ˚C
Alternate Cure, Hours	3 hours @ 65 ˚C

S7302-05

Flammability (UL): Designed to Pass UL94HB

GENERAL PROPERTIES

Color Part A	Blue
Color Part B	Amber
Color Mixed	Blue

MIXED PROPERTIES

Gel Time ASTM D3056 (100 Grams)	10 – 20 minutes @ 25 ˚C
Pot Life (100 grams)	10 – 15 minutes @ 25 ˚C
Cure Schedule, Hours	10 – 12 hours @ 25 ˚C
Alternate Cure, Hours	3 hours @ 65 ˚C

S7302-06

Flammability (UL): Designed to Pass UL94HB

GENERAL PROPERTIES

Color Part A	Blue
Color Part B	Amber
Color Mixed	Blue

MIXED PROPERTIES

Gel Time ASTM D3056 (100 Grams)	3 – 7 minutes @ 25 ˚C
Pot Life (100 grams)	2 – 5 minutes @ 25 ˚C
Cure Schedule, Hours	10 – 12 hours @ 25 ˚C
Alternate Cure, Hours	3 hours @ 65 ˚C

S7302-07

Flammability (UL): Designed to Pass UL94HB

GENERAL PROPERTIES

Color Part A	Black
Color Part B	Amber
Color Mixed	Black

MIXED PROPERTIES

Gel Time ASTM D3056 (100 Grams)	2 – 5 minutes @ 25 ˚C
Pot Life (100 grams)	2 – 5 minutes @ 25 ˚C
Cure Schedule, Hours	10 – 12 hours @ 25 ˚C
Alternate Cure, Hours	3 hours @ 65 ˚C

S7302-08

Flammability (UL): Designed to Pass UL94HB

GENERAL PROPERTIES

Color Part A	White
Color Part B	Amber
Color Mixed	Off-White

MIXED PROPERTIES

Gel Time ASTM D3056 (100 Grams)	45 – 55 minutes @ 25 ˚C
Pot Life (100 grams)	35 – 50 minutes @ 25 ˚C
Cure Schedule, Hours	10 – 12 hours @ 25 ˚C
Alternate Cure, Hours	3 hours @ 65 ˚C

MIXING INSTRUCTIONS

Before mixing Part A with Part B ensure that the Part A is completely homogenous and does NOT display any separation or settling. When hand 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. It is important to note that polyurethane materials must be weighed as close to exact as possible with a +/- 2% margin of error. The material should then be stirred, ideally with a metal spatula, ensuring that the material is thoroughly mixed to a homogenous state (approximately 45 – 60 seconds) 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. It may be necessary to remove/or evacuate any excess air in the material that was caused by mixing. This can be done by pulling a vacuum on the material. The material should be in a container 3 – 5 times larger than the height of the liquid. 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 (argon or nitrogen) of the container should be used to prevent moisture contamination.

STORAGE AND HANDLING

Please refer to the Material Safety Data Sheet when determining the proper precautions to be used when storing or handling Epic S7302. This product contains 4,4' Diphenylmethane Diisocyanate (MDI), which 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. Epic Resins recommends that engineering controls be used to minimize employee exposure to this or any other industrial chemical.

EPIC RESINS

600 Industrial Blvd | Palmyra, WI 53156 | Toll Free: (800) 242-6649 | Phone: (262) 495-3400
Website: www.epicresins.com | E-mail: sales@epicresins.com