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Product Description Sheet

LOCTITE® PE 3140 / PE 3163

Known as
Hysol® Product 3140/3163
August 2015

PRODUCT DESCRIPTION

LOCTITE® PE 3140 Epoxy Resin is a low viscosity, resin that is designed to be mixed with LOCTITE® PE 3163 Hardener. This mixture forms a room temperature cure, resilient general purpose potting compound.

PROPERTIES OF UNCURED MATERIAL (Resin)

	Typical Value
Chemical Type	Epoxy resin
Appearance	Black
Viscosity, Spindle #5 @ 20 RPM, 25°C, cP	11,000
Specific Gravity	1.64

PROPERTIES OF UNCURED MATERIAL (Hardener)

	Typical Value
Chemical Type	Epoxy hardener
Appearance	Clear
Viscosity, Spindle #2 @ 20 RPM, 25°C, cP	450
Specific Gravity	0.96

PROPERTIES OF CURED MATERIAL

	Typical Value
Vol. Mix Ratio, Resin:Hardener	2 to 1
Weight Mix Ratio, Resin:Hardener	100 to 29
Mixed Specifiic Gravity	1.41
Mixed Viscosity, Spindle 4 @ 20 rpm 25°C, cP	1,500
Regular Cure Schedule (25ºC)	24 hours
Alternate Cure Schedule (150ºF)	2 hours
Work Time, 200g (25ºC)	80 to 100 min
Gel Time, 200g (25ºC)	2.5 to 3 hours
CTE below Tg, ASTM E831 (mm/mmºC)	44.9E-06
Tg, ASTM D3418-82, ºC	20
CTE above Tg, ASTM E831 (mm/mmºC)	133E-06
Hardness, ASTM D2240, Shore D	80

Electrical Properties

Dielectric Constant, ASTM D150	
0.1 kHz	4.61
1.0 kHz	4.37
10 kHz	4.20
100 kHz	4.05
Dissipation Factor, ASTM D150	
0.1 kHz	0.040
1.0 kHz	0.027
10 kHz	0.026
100 kHz	0.023
Insulation, ASTM D257, ohms	1.61E12
Volume Resistivity, ASTM D257, Ω.cm	1.02E14
Dielectric Strength, ASTM D149, V/mil	365

GENERAL INFORMATION

This product is not recommended for use in pure oxygen and/or oxygen rich systems and should not be selected for use with chlorine or other strong oxidizing materials.
For safe handling information on this product, consult the Material Safety Data Sheet, (MSDS).

Storage

Product shall be ideally stored in a cool, dry location in unopened containers at a temperature between 8°C to 28°C (46°F to 82°F) unless otherwise labeled. Optimal storage is at 0°C (32°F) or less. To prevent contamination of unused product, do not return any material to its original container. For further specific shelf life information, contact your local Technical Service Center.

Data Ranges

The data contained herein may be reported as a typical value and/or range. Values are based on actual test data and are verified on a periodic basis.

Properties of Uncured Material

	Specifiic Gravity	Viscosity cP@ 25°C	Color	Mixed Color
LOCTITE PE 3140 Epoxy Resin	1.64	11,000	Black	
LOCTITE PE 3160 Epoxy Hardener	1.00	180	Clear	Black
LOCTITE PE 3162 Epoxy Hardener	0.99	120	Clear	Black
LOCTITE PE 3163 Epoxy Hardener	0.96	450	Clear	Black
LOCTITE PE 3164 Epoxy Hardener	0.97	105	Clear	Black
LOCTITE PE 3165 Epoxy Hardener	0.96	55	Clear	Black

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Curing Properties of the Systems
(All Properties in Conjunction with LOCTITE PE 3140 Resin)

Hardener	Vol. Mix Ratio *Resin: Hardener*	Weight Mix Ratio *Resin: Hardener*	Mixed Specifiic Gravity	Mixed Viscosity, cP	Work Time 200g (25°C, 77°F) unless otherwise noted	Gel Time 200g (25°C,77°F) unless otherwise noted	Regular Cure Schedule (25°C, 77°F)	Alternate Cure Schedule (66°C, 150°F)
LOCTITE PE 3160 Epoxy Hardener	3.1 to 1	100 to 20	1.48	1,700	80-100min	2.5-3 hours	24 hr	2 hours
LOCTITE PE 3162 Epoxy Hardener	3.6 to 1	100 to 18.1	1.48	2,000	5-10min/100g	10-15 min/100g	16 hr	1 hour
LOCTITE PE 3163 Epoxy Hardener	2 to 1	100 to 29	1.41	1,500	80-100min	2.5-3 hours	24 hr	2 hours
LOCTITE PE 3164 Epoxy Hardener	2 to 1	100 to 29.5	1.42	1,500	10-15min/400g	25-35 min/400g	16 hr	2 hours
LOCTITE PE 3165 Epoxy Hardener	6.5 to 1	100 to 9	1.55	2,000	60-90min/400g	2-3 hours/400g	24 hr (25°C) & 4 hr (93°C)	---------

Cured Properties of the System

Hardener	CTE below Tg (mm/mm°C)	Tg °C	CTE above Tg (mm/mm°C)	Hardness Shore D
LOCTITE PE 3160 Epoxy Hardener	44.0 E-06	27	130E-06	80
LOCTITE PE 3162 Epoxy Hardener	37.5 E-06	35	125E-06	80
LOCTITE PE 3163 Epoxy Hardener	44.9 E-06	20	133E-06	80
LOCTITE PE 3164 Epoxy Hardener	82.6 E-06	27	150E-06	70
LOCTITE PE 3165 Epoxy Hardener	36.0 E-06	67	119E-06	85

Dielectric Constant

	Frequency			
Hardener	**0.1 KHz**	**1.0 KHz**	**10 KHz**	**100 KHz**
LOCTITE PE 3160 Epoxy Hardener	4.43	4.37	4.31	4.24
LOCTITE PE 3162 Epoxy Hardener	4.25	4.20	4.16	4.10
LOCTITE PE 3163 Epoxy Hardener	4.61	4.37	4.20	4.05
LOCTITE PE 3164 Epoxy Hardener	4.20	4.00	3.80	3.70
LOCTITE PE 3165 Epoxy Hardener	4.87	4.83	4.75	4.64

Dissipation Factor

	Frequency			
Hardener	**0.1 KHz**	**1.0 KHz**	**10 KHz**	**100 KHz**
LOCTITE PE 3160 Epoxy Hardener	0.008	0.008	0.010	0.014
LOCTITE PE 3162 Epoxy Hardener	0.010	0.011	0.012	0.013
LOCTITE PE 3163 Epoxy Hardener	0.040	0.027	0.026	0.023
LOCTITE PE 3164 Epoxy Hardener	0.08	0.04	0.03	0.03
LOCTITE PE 3165 Epoxy Hardener	0.003	0.007	0.011	0.014

Hardener	Insulation Resistance, ohms	Volume Resistivity, Ω.cm	Dielectric Strength, Volts/mil
LOCTITE PE 3160 Epoxy Hardener	1.14 E13	6.03 E14	365
LOCTITE PE 3162 Epoxy Hardener	2.67 E13	2.53 E15	385
LOCTITE PE 3163 Epoxy Hardener	1.61 E12	1.02 E14	365
LOCTITE PE 3164 Epoxy Hardener	7.5 E11	1.50 E14	410
LOCTITE PE 3165 Epoxy Hardener	5.19 E13	2.69 E15	350

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Note
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