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LOCTITE

Laboratory Data Sheet

LOCTITE® UK 3173 / UK 3184

Known as
Hysol® Product 3173/3184
August 2015

PRODUCT DESCRIPTION

LOCTITE® UK 3173 Polyurethane Resin is a resin that is designed to be mixed with LOCTITE® UK 3184 Polyurethane Hardener. This mixture forms a low viscosity, flame retardant potting compound.

PROPERTIES OF UNCURED MATERIAL (Resin)

	Typical Value
Chemical Type	Polyurethane resin
Appearance	Clear brown
Viscosity, Spindle 1 @ 20 RPM, cP (25ºC)	75
Specific Gravity	1.23

PROPERTIES OF UNCURED MATERIAL (Hardener)

	Typical Value
Chemical Type	Polyurethane hardener
Appearance (mixed)	Opaque white (opaque tan)
Viscosity, Spindle 5 @ 20 RPM, cP (25ºC)	14,000
Specific Gravity	1.45

PROPERTIES OF CURED MATERIAL

	Typical Value
Vol. Mix Ratio, Resin:Hardener	1 to 4.8
Weight Mix Ratio, Resin:Hardener	15 to 85
Mixed Specifiic Gravity	1.40
Mixed Viscosity, Spindle 4 @ 20 RPM (25ºC) cP	2,250
Work Time, 300g (25ºC)	45 min
Gel Time, 300g (25ºC)	150 min
Regular Cure Schedule (25ºC)	24 hr
Alternate Cure Schedule (85ºC)	1-3 hours, 185ºF
Tg, ºC, ASTM E1545-95a	-15
CTE, above Tg, (mm/mmºC) ASTM E831	151 E-06
Hardness, Shore A, ASTM D2240	80

Electrical Properties

Dielectric Constant, ASTM D150	
0.1 kHz	4.51
1.0 kHz	4.29
10.0 kHz	3.94
100 kHz	3.56
Dissipation Factor, ASTM D150	
0.1 kHz	0.02
1.0 kHz	0.04
10.0 kHz	0.06
100 kHz	0.07
Insulation Resistance, ASTM D257	1.1 E12
Volume Resistivity, Ω.cm, ASTM D257	6.61 E12
Dielectric Strength, Volts/mil, ASTM D149	370

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).

Approvals

UL94 V-0 0.37” thick
UL94 V-2 0.25” thick

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

	Specific Gravity	Viscosity (25ºC)	Color	Mixed Color
Loctite UK 3173 Polyurethane Resin	1.24	75	Dark brown	
Loctite UK 3182 Polyurethane Hardener	1.59	30,000	Black	Black
Loctite UK 3183 Polyurethane Hardener	0.96	800	Opaque Black	Opaque Black
Loctite UK 3184 Polyurethane Hardener	1.46	14,000	Opaque White	Opaque tan

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Curing Properties of the Systems
(All Properties in Conjunction with LOCTITE UK 3173 Polyurethane Resin)

Hardener	Vol. Mix Ratio *Resin:Hardener*	Weight Mix Ratio *Resin:Hardener*	Mixed Specific Gravity	Mixed Viscosity, cP (25°C)	Work Time (25°C, 77°F) sample size noted	Gel Time (25°C, 77°F) sample size noted	Regular Cure Schedule (25°C, 77°F)	Alternate Cure Schedule (66°C, 150°F)
Loctite UK 3182 Polyurethane Hardener	1 to 5.2	13 to 87	1.56	5,500	< 7 min/300g	14 min/ 300 gm	90 min	30 min 185 F
Loctite UK 3183 Polyurethane Hardener	1 to 3.01	30 to 70	1.06	450	20 to 40min/105g	40-70 min/ 105 gm	24 hr	1 – 3 hours 185°F
Loctite UK 3184 Polyurethane Hardener	1 to 4.81	15 to 85	1.40	2,250	45 min/300g	150 min/ 300 gm	24 hr	1 – 3 hours 185°F

Cured Properties of the System
(All Properties in Conjunction with LOCTITE UK 3173 Polyurethane Resin)

Hardener	Tg, °C	CTE above Tg (mm/mm °C)	Hardness Shore A
Loctite UK 3182 Polyurethane Hardener	-10	128 E-06	75
Loctite UK 3183 Polyurethane Hardener	-16	190 E-06	70
Loctite UK 3184 Polyurethane Hardener	-15	151 E-06	80

Electrical Properties of the System

Dielectric Constant

	Frequency			
Hardener	**0.1 KHz**	**1.0 KHz**	**10 KHz**	**100 KHz**
Loctite UK 3182	4.68	4.02	3.76	3.63
Loctite UK 3183	5.92	4.36	3.65	3.31
Loctite UK 3184	4.51	4.29	3.94	3.56

Dissipation Factor

	Frequency			
Hardener	**0.1 KHz**	**1.0 KHz**	**10 KHz**	**100 KHz**
Loctite UK 3182	0.13	0.07	0.04	0.02
Loctite UK 3183	0.22	0.17	0.10	0.05
Loctite UK 3184	0.02	0.04	0.06	0.07

Hardener	Insulation Resistance, ohms	Volume Resistivity, Ω.cm	Dielectric Strength, Volts/mil
Loctite UK 3182	2.5 E13	1.5 E15	370
Loctite UK 3183	1.1 E11	6.83 E12	375
Loctite UK 3184	1.1 E12	6.61 E12	370

Note
The information provided in this Technical Data Sheet (TDS) including the recommendations for use and application of the product are based on our knowledge and experience of the product as at the date of this TDS. The product can have a variety of different applications as well as differing application and working conditions in your environment that are

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