



Research, Development & Engineering

Tallaght Business Park,
Dublin, Ireland

Technical Data Sheet Hysol® 3430

July 2003

PRODUCT DESCRIPTION

Loctite Hysol 3430 is a two component epoxy adhesive which cures rapidly at room temperature after mixing. It is a general purpose adhesive which develops high strength on a wide range of substrates.

TYPICAL APPLICATIONS

The gap filling properties make this adhesive system suitable for rough or poorly fitting surfaces made from metal, ceramic, rigid plastics or wood.

PROPERTIES OF UNCURED MATERIAL

Resin	Typical Value
Chemical Type	Epoxy
Appearance	Ultra clear
Specific Gravity @ 25°C	1.2
Viscosity @25°C	
Brookfield RVT, Spindle 5 @ 2.5rpm, mPas	20,000 to 30,000
Flash Point, ASTM D93/DIN 51758, °C	>150

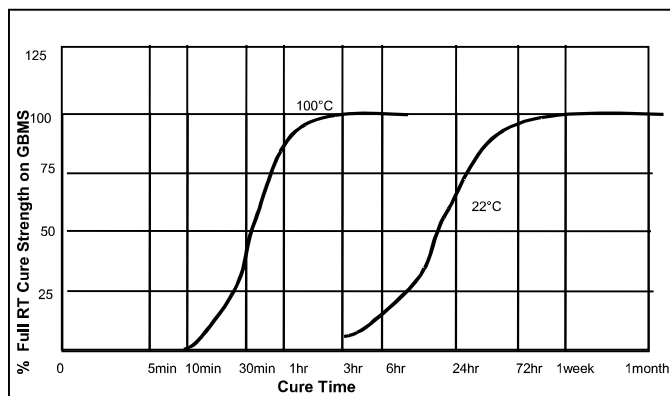
Hardener	Typical Value
Chemical Type	Epoxy
Appearance	Ultra clear
Specific Gravity @ 25°C	1.2
Viscosity @ 25°C	
Brookfield RVT, Spindle 7 @5rpm, mPas	20,000 to 30,000
Flash Point, ASTM D93/DIN 51758, °C	>100

Mixed Adhesive	Typical Value
Appearance	Ultra clear
Mix Ratio by Volume (Resin/Hardener)	1:1
Mix Ratio by Weight (Resin/Hardener)	100:100
Maximum gap fill (mm)	3
Working Life of mixed adhesive @ 22°C, 100g mix, minutes	4-7
Fixture Time (light handling, 0.1N/mm²) @ 22°C, minutes	12

TYPICAL CURING PERFORMANCE

Cure Speed vs. time/temperature

Hysol 3430 develops high strength at room temperature within 2 to 4 hours. The assembled parts will be fixtured for light handling (0.1N/mm²) after 12 minutes at @ 22°C in a 0.05mm gap. Elevated temperatures may be used to accelerate the cure. The following graph indicates development of shear strength on a steel lap shear with 0.05mm gap as a function of time and temperature, tested according to ASTM D-1002/EN 1465.



TYPICAL PROPERTIES OF CURED MATERIAL

(1.2mm thick samples cured for 7 days @ 22°C)

Physical Properties	Typical Value
Coefficient of Thermal Conductivity ASTM C177, W.m ⁻¹ K ⁻¹	0.28
Youngs Modulus, ASTM D882, N/mm²	2,500
Dielectric strength, ASTM D149, kV/mm	25

PERFORMANCE OF CURED MATERIAL

(cured 7days @ 22°C and tested @ 22°C)

Shear Strength, ASTM D1002/EN 1465 (0.05mm bond gap unless otherwise stated)	Typical Value (N/mm²)
Steel, Grit Blasted Mild Steel (GBMS)	22
Stainless Steel	11.5
Aluminium, IPA wiped	7.5
Polycarbonate	6.2
ABS	3
PVC	4.8
GRP (Polyester Resin Matrix)	3
Softwood (Deal)	7.6
Hardwood (Teak)	9.1

180° Rigid Peel Strength, ASTM D1876 steel, GBMS, N/mm	0.85
180° Rigid Peel Strength, ASTM D1876 Aluminium GB, N/mm	1.5

IZOD Impact Resistance ISO 9653/ASTM D950-98, GBMS, J/m²	5.2
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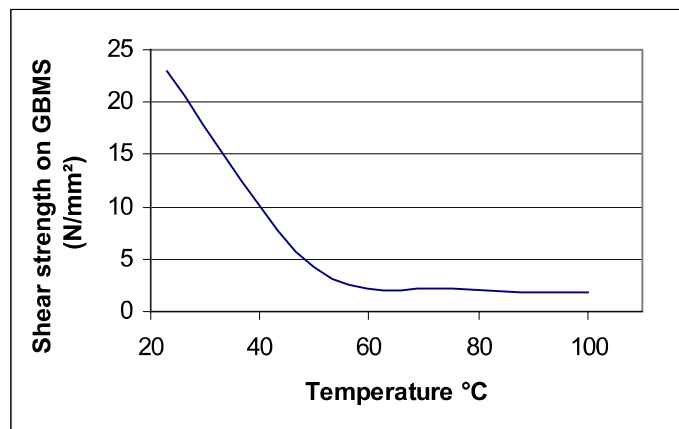
NOT FOR PRODUCT SPECIFICATIONS.
THE TECHNICAL DATA CONTAINED HEREIN ARE INTENDED AS REFERENCE ONLY.
PLEASE CONTACT LOCTITE CORPORATION QUALITY DEPARTMENT FOR ASSISTANCE AND RECOMMENDATIONS ON SPECIFICATIONS FOR THIS PRODUCT.
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Test Procedure :	ASTM D1002/ EN 1465
Substrate:	Steel, grit blasted mild steel (GBMS)
Bond line gap:	0.05mm
Cure procedure:	7days @ 22°C.

Hot Strength

Tested at temperature.



Heat Ageing

Stored in air at temperature indicated and tested at 22°C.
Samples cured at 22°C for 7 days.

Storage Temperature	% Initial Strength retained after			
	100 hr	500 hr	1000 hr	3000 hr
50°C	-	116	124	141
80°C	134	135	138	148
100°C	-	110	120	156
120°C	-	153	135	123

Chemical/Solvent Resistance

Immersed in the conditions indicated and tested at 22°C.

Solvent	Temp.	% Initial Strength retained after			
		100 hr	500 hr	1000 hr	3000 hr
Water	60°C	73	24	24	23
Water	22°C				
98% Relative Humidity	40°C	125	82	73	44

UV Ageing 24hrs continuous exposure to 2.5mW/ cm ² of UV light Soda Glass to Soda Glass Soda Glass to Stainless Steel	NA	Adhesive has changed from being 'Ultra clear' to a 'yellow translucent' (NOTE: more noticeable at the fillet)
Dishwasher Ageing 20 continuous cycles Soda Glass to Soda Glass Soda Glass to Stainless Steel	65°C	ALL Bond structures intact however, water ingress detected at ALL bond-lines

GENERAL INFORMATION

This product is not recommended for use in pure oxygen and/or oxygen rich systems and should not be selected as a sealant for chlorine or other strong oxidising materials.

For safe handling information on this product, consult the Material Safety Data Sheet, (MSDS).

Where aqueous washing systems are used to clean the surfaces before bonding, it is important to check for compatibility of the washing solution with the adhesive. In some cases these aqueous washes can affect the cure and performance of the adhesive.

Directions for use

1. For best performance surfaces for bonding should be clean, dry and free of grease. For high strength structural bonds, special surface treatments can increase the bond strength and durability.
2. To use, resin and hardener must be blended. Product can be applied directly from dual cartridges by dispensing through the mixer head supplied. Discard the first 3-5 cm of bead dispensed. Using bulk containers, mix thoroughly by weight or volume in the proportions specified in Properties of Uncured Material section. For hand mixing, weigh or measure out the desired amount of resin and hardener and mix thoroughly. Mix approximately 15 seconds after uniform colour is obtained.
3. **Do not mix quantities greater than 20g as excessive heat build-up can occur. Mixing smaller quantities will minimise the heat build-up.**
4. Apply the adhesive as quickly as possible after mixing to one surface to be joined. For maximum bond strength apply adhesive evenly to both surfaces. Parts should be assembled immediately after mixed adhesive has been applied.
5. Working life of the mixed adhesive is 4-7 minutes at 22°C. Higher temperature and larger quantities will shorten this working time.
6. Keep the assembled parts from moving during cure. The joint should be allowed to develop full strength before subjecting to any service loads.
7. Excess uncured adhesive can be wiped away with organic solvent (e.g. Acetone).
8. After use and before adhesive hardens mixing and dispensing equipment should be cleaned with hot soapy water.

Storage

Product shall be ideally stored in a cool, dry location in unopened containers at a temperature between 8°C to 21°C (46°F to 70°F) unless otherwise labelled. Optimal storage is at the lower half of this temperature range. 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 Centre.

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.

Note

The data contained herein are furnished for information only and are believed to be reliable. We cannot assume responsibility for the results obtained by others over whose methods we have no control. It is the user's responsibility to determine suitability for the user's purpose of any production methods mentioned herein and to adopt such precautions as may be advisable for the protection of property and of persons against any hazards that may be involved in the handling and use thereof. In light of the foregoing, **Loctite Corporation specifically disclaims all warranties expressed or implied, including warranties of merchantability or fitness for a particular purpose, arising from sale or use of Loctite Corporation's products. Loctite Corporation specifically disclaims any liability for consequential or incidental damages of any kind, including lost profits.** The discussion herein of various processes or compositions is not to be interpreted as representation that they are free from domination of patents owned by others or as a license under any Loctite Corporation patents that may cover such processes or compositions. We recommend that each prospective user test his proposed application before repetitive use, using this data as a guide. This product may be covered by one or more United States or foreign patents or patent applications.

Bulk Numbers: Part A - 0209048
Part B - 0209052

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