



Research, Development & Engineering

Tallaght Business Park,
Dublin, Ireland

Product Description Sheet Hysol® 3450

July 2003

PRODUCT DESCRIPTION

Loctite Hysol 3450 is a two component epoxy adhesive which cures rapidly at room temperature after mixing. It is a metal bonding adhesive which develops high strength.

TYPICAL APPLICATIONS

The gap filling properties make this adhesive system suitable for rough or poorly fitting surfaces made from metal, ceramic, wood or rigid plastics. Applications include bonding aluminium window frames and GRP panels.

PROPERTIES OF UNCURED MATERIAL

Part A (Resin)

Chemical Type	Epoxy
Appearance	Black
Specific Gravity @ 25°C	1.9
Viscosity @ 25°C mPas	40
Brookfield, Spindle 6 @ 10 rpm	
Flash Point, ASTM D93/DIN 51758	>100°C
Working Life of Mixed adhesive 25°C, minutes	4-6

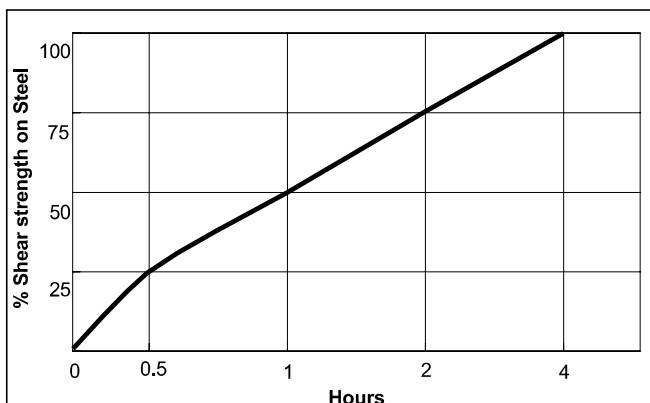
Part B (Hardener)

Chemical Type	Epoxy
Appearance	Creamy, White Paste
Specific Gravity @ 25°C	1.8
Viscosity @ 25°C Pas	30
Brookfield, Spindle 6 @ 10 rpm	
Flash Point, ASTM D93/DIN 51758	>100°C
Working Life of Mixed adhesive 25°C, minutes	4-6

TYPICAL CURING PERFORMANCE

Cure Speed vs. time/temperature

When mixed in a 1:1 ratio by volume Hysol 3450 develops high strength at room temperature within 1 hour. Elevated temperatures may be used to accelerate the cure. The following graph indicates development of shear strength on steel lap shear as a function of time and temperature.



TYPICAL PROPERTIES OF CURED MATERIAL

Physical Properties

Coefficient of thermal conductivity, ASTM C177, W.m ⁻¹ K ⁻¹	0.28
Youngs Modulus, MPa	1750
Dielectric strength, ASTM D149, kV/mm	25

PERFORMANCE OF CURED MATERIAL

(16 hours at 40°C, tested at 23°C)

Shear Strength, ASTM D1002/DIN 53283 (0.2mm bond gap)

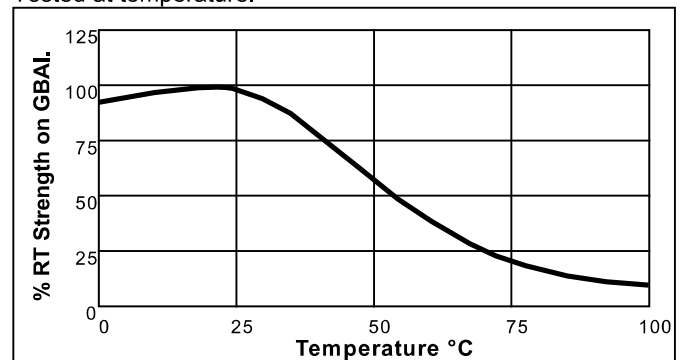
Steel Grit Blasted (GB), N/mm ²	25
Degreased Steel, N/mm ²	19
Aluminium GB, N/mm ²	15
Degreased Aluminium, N/mm ²	6
Wood, N/mm ²	5
Polycarbonate, N/mm ²	2
PVC, N/mm ²	1

TYPICAL ENVIRONMENTAL RESISTANCE

Test Procedure :	DIN 53283
Substrate:	Grit Blasted Aluminium (0.2mm bond gap)
Cure procedure:	24 hours @ 23°C + 30 mins @ 80°C

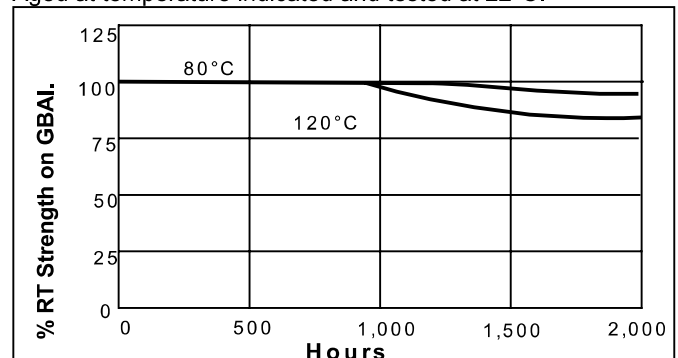
Hot Strength

Tested at temperature.



Heat Ageing

Aged at temperature indicated and tested at 22°C.



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.
ROCKY HILL, CT FAX: +1 (860)-571-5473 DUBLIN, IRELAND FAX: +353-(1)-451-9959

A **Henkel** Company

Chemical / Solvent Resistance

Solvent	Temp.	% Initial Strength retained at		
		750 hr	1500 hr	2000 hr
Lubricating Oil	23°C	80	80	80
Acetic Acid 10%	23°C	0	0	0
Ethyl Acetate	23°C	80	80	80
Petrol	23°C	80	80	80
Ind. Meth. Spirits	23°C	70	70	70
Paraffin	23°C	100	100	100
Water	23°C	70	40	5
Water	60°C	50	50	35
Water	90°C	40	30	10
Humidity 92% RH	40°C	65	55	20

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 4kg 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 4-6 minutes at 25°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 - 0158338
Part B - 0158813**