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PRELIMINARY

Technical Data Sheet Product 3423

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PRODUCT DESCRIPTION

LOCTITE® Product 3423 is a two component, high viscosity, thixotropic epoxy adhesive which cures at room temperature after mixing. It is a general purpose adhesive which develops high strength on a wide range of substrates.

TYPICAL APPLICATIONS

The thixotropic properties enable this adhesive system to bond rough surfaces made from metal, ceramic, rigid plastics or wood through gaps of up to 5mm.

PROPERTIES OF UNCURED MATERIAL

Part A (Resin)

Chemical Type	Epoxy
Appearance	Grey metallic
Specific Gravity @ 25°C	1.4
Viscosity @ 25°C	Thixotropic
Brookfield RVT Spindle 7 @ 5 rpm	72
Flash Point, ASTM D93/DIN 51758	

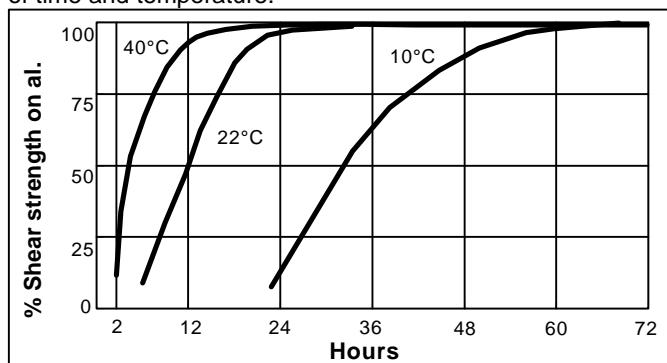
Part B (Hardener)

Chemical Type	Epoxy
Appearance	Beige
Specific Gravity @ 25°C	0.9
Viscosity @ 25°C	Thixotropic
Brookfield RVT Spindle 7 @ 5 rpm	
Flash Point, ASTM D93/DIN 51758	
Open Time of Mixed Adhesive, (small quantities)	75

TYPICAL CURING PERFORMANCE

Cure Speed vs time/temperature

When mixed in a 1:1 ratio by volume (or 1:0.6 ratio by weight) Product 3423 develops high strength at room temperature within 10 hours. 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	2500
Dielectric strength, ASTM D149, kV/mm	25

PERFORMANCE OF CURED MATERIAL

(After 16 hours at 40°C and tested at 23°C)

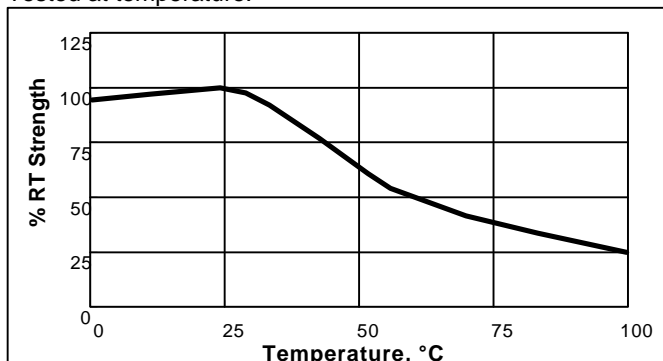
Shear Strength, ASTM D1002/DIN 53283 (0.2mm bond gap)	
Steel Grit Blasted (GB), N/mm ²	15
(psi)	(2100)
Stainless Steel GB, N/mm ²	24
(psi)	(3360)
Galvanised Steel GB, N/mm ²	14
(psi)	(1960)
Aluminium GB, L165	18
(psi)	(2520)
Copper GB, N/mm ²	18
(psi)	(2520)
Brass GB, N/mm ²	18
(psi)	(2520)
SMC, N/mm ²	3
(psi)	(420)
Polycarbonate, N/mm ²	3
(psi)	(420)
ABS, N/mm ²	3
(psi)	(420)
Peel Strength, ISO 4578, N/mm	
Aluminium GB	5
(in.lb)	(29)

TYPICAL ENVIRONMENTAL RESISTANCE

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

Hot Strength

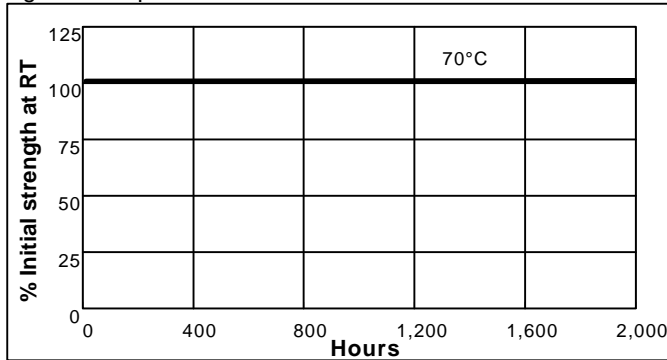
Tested at temperature.



Heat Ageing

Substrate: Grit blasted aluminium
 Cure procedure: 16 hrs @ 40°C (0.2mm bond gap)

Aged at temperature indicated and tested at 22°C.



Chemical / Solvent Resistance

Solvent	Temp.	% Initial Strength retained at		
		750 hr	1500 hr	2200 hr
Lubricating Oil	23°C	100	100	100
Acetic Acid 10%	23°C	70	25	10
Ethyl Acetate	23°C	100	100	100
Petrol	23°C	100	100	95
Ind. Meth. Spirits	23°C	85	80	70
Paraffin	23°C	100	100	100
Water	23°C	100	100	N/Av.
Water	60°C	60	60	55
Water	90°C	70	70	20
Xylene	23°C	100	100	100
Humidity 90%RH	40°C	100	95	85

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

For best performances bond surfaces should be clean and free of grease. To use, resin and hardener should be blended to form a homogeneous mix. Product can be applied directly from cartridges by dispensing (1:1) through mixer head supplied or hand mixing with spatula in ratio recommended (volume or weight). Open time (working time) of the mixed adhesive in small quantities is 60 mins at 25°C. Higher temperature will shorten working time. Pale yellow (homogeneous) is the colour of the correctly mixed product.

The recommended bondline gap is 0.05 to 1.00mm but the thixotropic properties of this product permit its use in bond gap up to 5mm. Parts should be assembled immediately after mixed adhesive has been applied. Excess adhesive can be wiped away with organic solvent (e.g. acetone). Bond should be held clamped until adhesive has fixtured. Joint should be allowed to develop full strength before subjecting to any service loads. 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 28°C (46°F to 82°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.

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 which may cover such processes or compositions. We recommend that each prospective user test his proposed applications before repetitive use, using this data as a guide. This product may be covered by one or more patents or patent applications.