Technical Data Sheet

LOCTITE® EA 3430

Known as Hysol 3430
October 2014

PRODUCT DESCRIPTION

LOCTITE® EA 3430 provides the following product characteristics:

Technology	Epoxy
Chemical Type	Epoxy
Appearance (Resin)	Ultra clear
Appearance (Hardener)	Ultra clear
Appearance (Mixture)	Ultra clear, Transparent[LMS]
Components	Two part - Resin & Hardener
Mix Ratio, by volume - Resin : Hardener	1 : 1
Mix Ratio, by weight - Resin : Hardener	100 : 100
Cure	Room temperature cure after mixing
Application	Bonding

LOCTITE® EA 3430 is a two component, clear 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. The gap filling properties make this adhesive system suitable for rough and poorly fitting surfaces made from metal, ceramic, rigid plastics or wood.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Resin Properties

Specific Gravity @ 25 °C	1.14 to 1.2
Viscosity @ 25 °C, Cone & Plate Rheometer, mPa·s (cP):	
Shear Rate: 10 s^{-1}	18,000 to 28,000
Flash Point - See SDS	

Hardener Properties

Specific Gravity @ 25 °C	1.14 to 1.2
Viscosity @ 25 °C, Cone & Plate Rheometer, mPa·s (cP):	
Shear Rate: 10 s^{-1}	18,000 to 28,000
Flash Point - See SDS	

Mixed Properties

Specific Gravity @ 25 °C	1.14 to 1.2[LMS]
Viscosity @ 25 °C, Cone & Plate Rheometer, mPa·s (cP):	
Shear Rate: 10 s^{-1}	18,000 to 28,000[LMS]
Gel Time @ 25 °C, minutes:	
5 g resin / 5 g hardener	5 to 10[LMS]

TYPICAL CURING PERFORMANCE

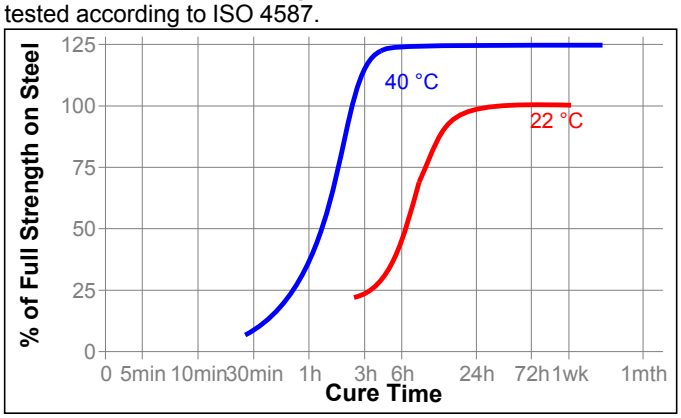
Fixture Time

Fixture time is defined as the time to develop a shear strength of 0.1 N/mm² .

Fixture Time, mixed, minutes	15

Cure Speed vs. Time, Temperature

The rate of cure will depend on the ambient temperature, elevated temperatures may be used to accelerate the cure. The graph below shows shear strength developed with time at various temperatures on grit blasted steel lap shears and tested according to ISO 4587.



TYPICAL PROPERTIES OF CURED MATERIAL

Cured for 7 days @ 22 °C, 4 mm thick samples.

Physical Properties :

Coefficient of Thermal Expansion ISO 11359-2, K^{-1}:		
Temperature Range: 10 °C to 40 °C		53×10^{-6}

Cured for 7 days @ 22 °C, 1.2 mm thick samples

Physical Properties :

Coefficient of Thermal Conductivity, ISO 8302, W/(m-K)		0.3
Tensile Strength, ISO 527-3	N/mm² (psi)	36 (5,220)
Tensile Modulus , ISO 527-3	N/mm² (psi)	3,210 (465,500)
Compressive Strength, ISO 604	N/mm² (psi)	65 (9,420)
Elongation , ISO 527-3,%		2
Shore Hardness, ISO 868, Durometer D		70
Glass Transition Temperature, ASTM E 1640, °C		58

Electrical Properties:

Dielectric Breakdown Strength IEC 60243-1, kV/mm	25
Volume Resistivity, IEC 60093, Ω·cm	3×10^{15}
Surface Resistivity, IEC 60093, Ω	0.2×10^{18}
Dielectric Constant / Dissipation Factor, IEC 60250:	
1 kHz	3.07 / 0.04
1 MHz	3.26 / 0.04
10 MHz	3.57 / 0.01

TYPICAL PERFORMANCE OF CURED MATERIAL

Adhesive Properties

Cured for 7 days @ 22 °C

Lap Shear Strength , ISO 4587:

Mild steel (grit blasted)	N/mm²	22
	(psi)	(3,200)
Stainless steel	N/mm²	15
	(psi)	(2,175)
Aluminum (Isopropanol wiped)	N/mm²	7
	(psi)	(1,010)
Aluminum (abraded)	N/mm²	14
	(psi)	(2,030)
Zinc dichromate	N/mm²	16
	(psi)	(2,320)
Polycarbonate	N/mm²	4
	(psi)	(580)
ABS	N/mm²	5
	(psi)	(725)
PVC	N/mm²	5
	(psi)	(725)
GRP (polyester resin matrix)	N/mm²	3
	(psi)	(435)
Softwood (Deal)	N/mm²	8
	(psi)	(1,160)
Hardwood (Teak)	N/mm²	11
	(psi)	(1,600)

180° Peel Strength, ISO 8510-2:

Steel (grit blasted)	N/mm	3
	(lb/in)	(17)

Impact Strength , ISO 9653, J/m² 3

TYPICAL ENVIRONMENTAL RESISTANCE

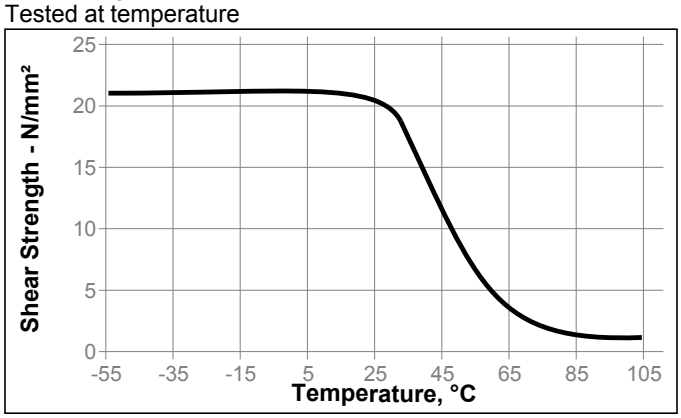
Cured for 7 days @ 22 °C (0.05 mm bond gap).

Lap Shear Strength , ISO 4587:

Mild steel (grit blasted)

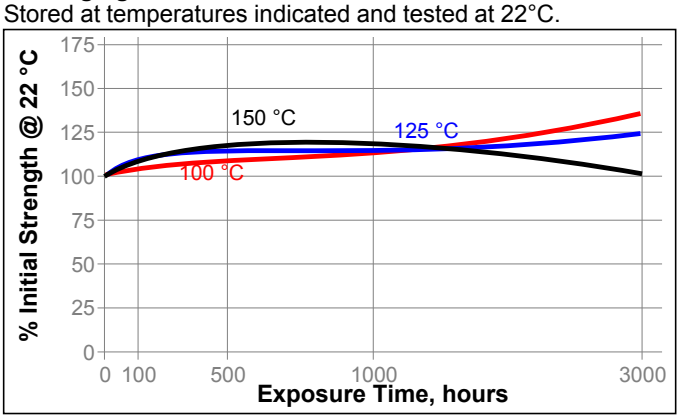
Hot Strength

Tested at temperature



Heat Aging

Stored at temperatures indicated and tested at 22°C.



Chemical/Solvent Resistance

Aged under conditions indicated and tested at 22 °C.

		% of initial strength		
Environment	**°C**	**500 h**	**1000 h**	**3000 h**
Water	60	55	50	45
Water	90	50	40	20
Motor oil	22	85	75	75
Unleaded gasoline	22	95	90	75
Water/glycol 50/50	87	25	20	20
98% RH	40	95	85	85
Sodium Chloride, 7.5%	22	95	95	80
Acetone	22	85	75	75
Acetic Acid, 10%	22	85	75	50
Sodium hydroxide, 4%	22	90	85	80

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 oxidizing 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 to 8 cm of bead dispensed. Using twin cartridges or bulk containers, mix thoroughly by weight or volume in the proportions specified in the Product Description Matrix. For hand mixing, weigh or measure out the desired amount of resin and hardener and mix thoroughly. Mix approximately 15 seconds after uniform color is obtained.
3. Do not mix quantities greater than 20 g in mass as excessive heat build-up can occur. Mixing smaller quantities will minimize 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 minutes @ 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 application equipment should be cleaned with hot soapy water.

Storage

Store product in the unopened container in a dry location. Storage information may be indicated on the product container labeling.

Optimal Storage: 8 °C to 21 °C. Storage below 8 °C or greater than 28 °C can adversely affect product properties.

Material removed from containers may be contaminated during use. Do not return product to the original container. Henkel Corporation cannot assume responsibility for product which has been contaminated or stored under conditions other than those previously indicated. If additional information is required, please contact your local Technical Service Center or Customer Service Representative.

Loctite Material Specification[LMS]

LMS dated August 03, 2007. Test reports for each batch are available for the indicated properties. LMS test reports include selected QC test parameters considered appropriate to specifications for customer use. Additionally, comprehensive controls are in place to assure product quality and consistency. Special customer specification requirements may be coordinated through Henkel Quality.

Conversions

(°C x 1.8) + 32 = °F
kV/mm x 25.4 = V/mil
mm / 25.4 = inches
N x 0.225 = lb
N/mm x 5.71 = lb/in
N/mm² x 145 = psi
MPa = N/mm²
MPa x 145 = psi
N·m x 8.851 = lb·in
N·m x 0.738 = lb·ft
N·mm x 0.142 = oz·in
mPa·s = cP

Disclaimer

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 beyond our control. Henkel is, therefore, not liable for the suitability of our product for the production processes and conditions in respect of which you use them, as well as the intended applications and results. We strongly recommend that you carry out your own prior trials to confirm such suitability of our product.
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Reference 2.2