



LOCTITE[®] H8700[™]

March 2009

PRODUCT DESCRIPTION

LOCTITE[®] H8700[™] provides the following product characteristics:

Technology	Acrylic
Chemical Type	Methacrylate
Appearance (Part A)	White
Appearance (Part B)	Blue
Appearance (Mixed)	Blue viscous paste ^{LMS}
Cure	Room temperature cure
Components	Two component - requires mixing
Mix Ratio, by volume - Part A: Part B	2 : 1
Product Benefits	<ul style="list-style-type: none"> • Weight & Cost reduction • Improved appearance • Improved durability • Bond dissimilar substrates
Application	Bonding

LOCTITE[®] H8700[™] is a spot weld-through capable, high toughness, two-component acrylic adhesive system designed for weld/rivet reduction. The product cures very rapidly forming tough, resilient bonds. Once statically mixed, the two component acrylic cures at room temperature. Typical applications include the agriculture, construction, and specialty vehicle markets.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Part A:

Specific Gravity @ 25 °C 0.99
 Viscosity, Cone & Plate, 25 °C, mPa·s (cP):
 Cone CP50-1 @ shear rate 50 s⁻¹ 5,700
 Viscosity, Brookfield - HBD, 25 °C, mPa·s (cP):
 Spindle 5, speed 20 rpm 35,000 to 60,000
 Flash Point - See MSDS

Part B:

Specific Gravity @ 25 °C 1.1
 Viscosity, Cone & Plate, 25 °C, mPa·s (cP):
 Cone CP50-1 @ shear rate 50 s⁻¹ 10,200
 Viscosity, Brookfield - HBD, 25 °C, mPa·s (cP):
 Spindle 4, speed 20 rpm 15,000 to 50,000
 Flash Point - See MSDS

Mixed:

Specific Gravity @ 25 °C 1.0
 Viscosity, Cone & Plate, 25 °C, mPa·s (cP):
 Cone CP50-1 @ shear rate 50 s⁻¹ 12,100

Working Time @ 25 °C, minutes
 (maximum time before assembly):
 Steel 40
 Aluminium 40
 Polyethylene 40
 Working life, minutes 25
 (Time for mixed viscosity to double)
 Flash Point - See MSDS

TYPICAL CURING PERFORMANCE

Fixture Time

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

Fixture Time, ISO 4587, minutes:
 Grit Blasted Mild Steel 35 to 40

Peak Exotherm Temperature

Peak Exotherm Temperature, 10 gram mass:
 Peak Temperature Time, minutes 47
 Peak Temperature, °C 147

TYPICAL PROPERTIES OF CURED MATERIAL

Physical Properties:

Glass Transition Temperature (T_g) 88
 , ISO 11359-2, °C
 Coefficient of Thermal Expansion, ISO 11359-2 K⁻¹:
 Pre T_g 95×10⁻⁰⁶
 Post T_g 281×10⁻⁰⁶
 Shore Hardness, ISO 868, Durometer D 71
 Linear Shrinkage, ISO 1675 % 6
 Volume Shrinkage, ISO 1675 % 17
 Elongation, at break, ISO 527-2, % 37
 Elongation, at yield, ISO 527-2, % 3
 Tensile Strength, at yield, ISO N/mm² 17
 527-2 (psi) (2,570)
 Tensile Strength, at break, ISO N/mm² 19
 527-2 (psi) (2,800)
 Tensile Modulus, ISO 527-2 N/mm² 1,250
 (psi) (181,460)

TYPICAL PERFORMANCE OF CURED MATERIAL

Adhesive Properties

Cured for 24 hours @ 22 °C

Lap Shear Strength, ISO 4587:
 Steel N/mm² ≥13.8^{LMS}
 (psi) (≥2,175)



Cured for 72 hours @ 22 °C.

Impact Strength, ISO 9653, J:

Grit Blasted Mild Steel (GBMS)	14
Aluminum (abraded)	2
Grit Blasted Mild Steel (GBMS) @ -40 °C	10

"T" Peel Strength, ISO 11339:

Steel	N/mm	6
	(lb/in)	(34)
Aluminum	N/mm	1.2
	(lb/in)	(7)

Block Shear Strength, ISO 13445:

Ferrite Magnet to Steel	N/mm ²	17
	(psi)	(2,410)
Glass	N/mm ²	6
	(psi)	(980)
Acrylic	N/mm ²	3
	(psi)	(450)
Epoxy	N/mm ²	0.5
	(psi)	(80)
ABS	N/mm ²	2
	(psi)	(270)
PVC	N/mm ²	5.5
	(psi)	(800)
Polycarbonate	N/mm ²	5
	(psi)	(780)

Lap Shear Strength, ISO 4587:

Grit Blasted Mild Steel (GBMS)	N/mm ²	26
	(psi)	(3,710)
Aluminum	N/mm ²	20
	(psi)	(2,870)
Stainless Steel	N/mm ²	23
	(psi)	(3,360)
Galvanized Steel	N/mm ²	4
	(psi)	(590)
FRP	N/mm ²	12
	(psi)	(1,720)
Gelcoat	N/mm ²	4
	(psi)	(620)

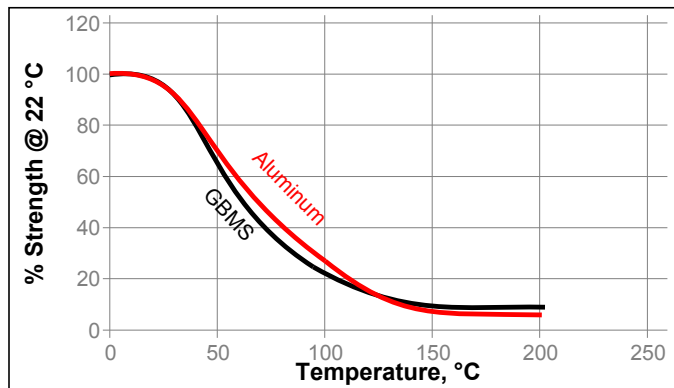
TYPICAL ENVIRONMENTAL RESISTANCE

Cured for 72 hours @ 22 °C

Lap Shear Strength, ISO 4587:

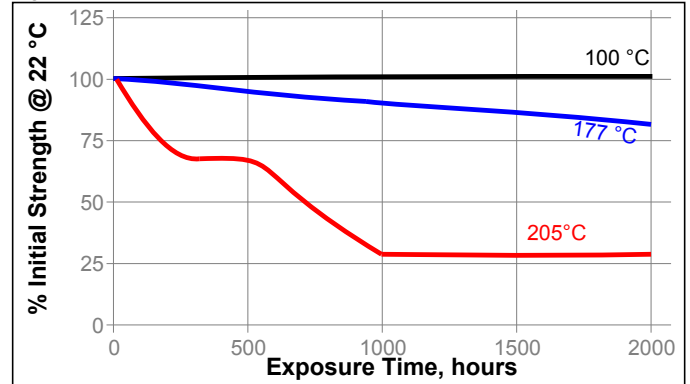
Grit Blasted Mild Steel (GBMS)

Hot Strength



Heat Aging

Aged at temperature indicated and tested @ 22 °C



Chemical/Solvent Resistance

Aged under conditions indicated and tested @ 22 °C.

Environment	°C	% of initial strength	
		500 h	1000 h
Air	87	110	110
Motor oil (10W30)	87	80	80
Unleaded gasoline	87	25	25
Water/glycol 50/50	87	55	65
Water	22	100	100
Acetone	22	15	15
Isopropanol	22	90	90
Salt fog	35	80	80
Condensing Humidity	49	100	100
95% RH	40	100	100

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).

Directions for use:

1. For high strength structural bonds, remove surface contaminants such as paint, oxide films, oils, dust, mold release agents and all other surface contaminants.
2. Use gloves to minimize skin contact. DO NOT use solvents for cleaning hands.
3. **Dual Cartridges:** To begin using a new cartridge, remove cartridge cap and dispense a small amount of adhesive, making sure both parts A&B are extruding. Attach nozzle and dispense approximately 25 to 50mm, before applying onto part to be bonded. Partially used cartridges can be stored with the mixing nozzle attached. To reuse, remove and discard old nozzle, attach the new nozzle, dispense approximately 25 to 50mm, before applying onto part to be bonded.
Bulk Containers: Normally material is dispensed through volumetric metered mixing equipment, attached to static mix nozzles.
4. For maximum bond strength apply adhesive evenly to both surfaces to be joined.
5. Application to the substrates should be made as soon as possible. Larger quantities and/or higher temperatures will reduce the working time.

6. Join the adhesive coated surfaces and allow to cure. Higher temperatures will speed up curing.
7. Keep assembled parts from moving during cure. The bond should be allowed to develop full strength before subjecting to any service load.
8. Excessive uncured adhesive can be cleaned up with ketone type solvents.

Loctite Material Specification^{LMS}

LMS dated April 03, 2008. 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.

Storage

The product is classified as flammable and must be stored in an appropriate manner in compliance with relevant regulations. Do not store near oxidizing agents or combustible materials. Store product in the unopened container in a dry location. Storage information may also be indicated on the product container labelling.

Optimal Storage: 2 °C to 8 °C. Storage below 2 °C or greater than 8 °C can adversely affect product properties.

Material removed from containers may be contaminated during use. Do not return product to the original container. Henkel 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.

Conversions

$(^{\circ}\text{C} \times 1.8) + 32 = ^{\circ}\text{F}$
 $\text{kV/mm} \times 25.4 = \text{V/mil}$
 $\text{mm} / 25.4 = \text{inches}$
 $\mu\text{m} / 25.4 = \text{mil}$
 $\text{N} \times 0.225 = \text{lb}$
 $\text{N/mm} \times 5.71 = \text{lb/in}$
 $\text{N/mm}^2 \times 145 = \text{psi}$
 $\text{MPa} \times 145 = \text{psi}$
 $\text{N}\cdot\text{m} \times 8.851 = \text{lb}\cdot\text{in}$
 $\text{N}\cdot\text{m} \times 0.738 = \text{lb}\cdot\text{ft}$
 $\text{N}\cdot\text{mm} \times 0.142 = \text{oz}\cdot\text{in}$
 $\text{mPa}\cdot\text{s} = \text{cP}$

Note

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Reference 0.1