

LOCTITE[®] AA H8610™

Known as LOCTITE[®] H8610™
May 2015

PRODUCT DESCRIPTION

LOCTITE[®] AA H8610™ provides the following product characteristics:

Technology	Acrylic
Chemical Type	Methacrylate
Appearance, Resin (Component A)	Light white translucent liquid
Appearance, Hardener (Component B)	Off-white viscous liquid
Appearance (Mixture)	Off-white ^{LMS}
Components	Two component - requires mixing
Mix Ratio, by volume - Part A: Part B	2 : 1
Cure	Room temperature cure
Application	Bonding

LOCTITE[®] AA H8610™ is a thixotropic, two-component, room temperature curing methacrylate adhesive designed for structural bonding of most galvanized metals, including galvanized steel, galvaneal, and galvalum. This product also exhibits excellent shear strength on steel and aluminum. LOCTITE[®] AA H8610™ withstands long-term heat and humidity exposure of the most severe environments. This adhesive contains 0.13 mm (5 mil) glass beads to insure adequate bondline control.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Part A:

Specific Gravity @ 25 °C 1.03
Flash Point - See SDS

Viscosity, Cone & Plate, 25 °C, mPa·s (cP):
Cone CP50-1 @ shear rate 50 s⁻¹ 12,200
Viscosity, Brookfield - HBD, 25 °C, mPa·s (cP):
Spindle 5, speed 10, rpm, 75,000 to 110,000
Viscosity, Brookfield - HBD, 25 °C, mPa·s (cP):
Spindle 5, speed 20, rpm, 50,000 to 80,000

Part B:

Specific Gravity @ 25 °C 1.07
Flash Point - See SDS

Viscosity, Cone & Plate, 25 °C, mPa·s (cP):
Cone CP50-1 @ shear rate 50 s⁻¹ 11,400
Viscosity, Brookfield - HBD, 25 °C, mPa·s (cP):
Spindle 4, speed 5, rpm, 70,000 to 250,000
Viscosity, Brookfield - HBD, 25 °C, mPa·s (cP):
Spindle 4, speed 20, rpm, 15,000 to 100,000

Mixed:

Specific Gravity @ 25 °C 1.05
Flash Point - See SDS

Working Time @ 25 °C, minutes
(maximum time before assembly):
Polyethylene 9
Steel 11
Aluminum 11
Working life, minutes 5.4

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 15 to 20
Aluminum 1.75 to 2
Polycarbonate 5 to 10

Peak Exotherm Temperature

Peak Exotherm Temperature, 10 gram mass:
Peak Temperature Time, minutes 19
Peak Temperature, °C 129

TYPICAL PROPERTIES OF CURED MATERIAL

Physical Properties:

Glass Transition Temperature (T_g) 84
, ISO 11359-2, °C
Coefficient of Thermal Expansion, ISO 11359-2 K⁻¹:
Pre T_g 106×10⁻⁶
Post T_g 218×10⁻⁶
Shore Hardness, ISO 868, Durometer D 75
Linear Shrinkage, % 3.7
Volume Shrinkage, % 10.7
Elongation, at break, ISO 527-2, % 6
Elongation, at yield, ISO 527-2, % 3
Tensile Strength, at yield, ISO N/mm² 29
527-2 (psi) (4,230)
Tensile Strength, at break, ISO N/mm² 24
527-2 (psi) (3,560)
Tensile Modulus, ISO 527-2 N/mm² 1,939
(psi) (281,100)

TYPICAL PERFORMANCE OF CURED MATERIAL

Adhesive Properties

Cured for 24 hours @ 22 °C

Lap Shear Strength, ISO 4587:
Steel N/mm² ≥12.41^{LMS}
(psi) (≥1,799)

Cured for 72 hours @ 22 °C.

Impact Strength, ISO 9653, J:
Grit Blasted Mild Steel (GBMS) >14
Aluminum (abraded) 13
FRP 6
Grit Blasted Mild Steel (GBMS) @ -40 °C >14
FRP @ -40 °C 6

"T" Peel Strength, ISO 11339:

Steel N/mm 9.68
(lb/in) (55)
Aluminum N/mm 1.76
(lb/in) (10)

Block Shear Strength, ISO 13445:

Ferrite Magnet to Steel N/mm² 25
(psi) (3,690)

Lap Shear Strength, ISO 4587:

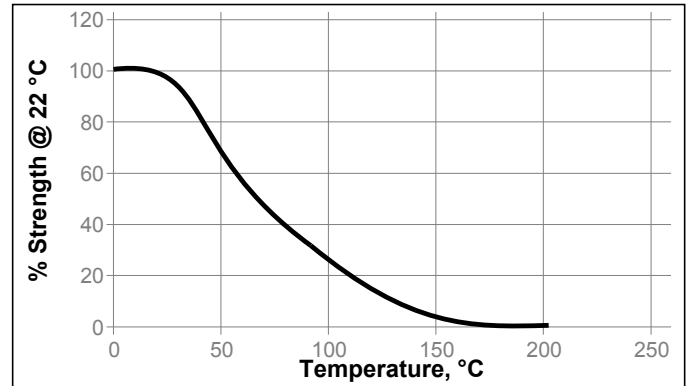
Grit Blasted Mild Steel (GBMS) N/mm² 30
(psi) (4,380)
Aluminum N/mm² 29
(psi) (4,180)
Stainless Steel N/mm² 28
(psi) (4,150)
Galvanized Steel N/mm² 24
(psi) (3,450)
FRP N/mm² 7
(psi) (1,020)
Gelcoat N/mm² 5
(psi) (790)
Polycarbonate N/mm² 4
(psi) (640)
PVC N/mm² 4
(psi) (590)
ABS N/mm² 3
(psi) (480)
Epoxy N/mm² 11
(psi) (1,660)
Acrylic N/mm² 3
(psi) (430)
Glass N/mm² 3
(psi) (400)

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

Temperature, °C	% of initial strength	
	500h	1000h
GBMS		
100	100	100
177	20	20
Aluminum		
100	100	100
177	70	25
205	50	5
Galvanized Steel		
100	99	82
177	8	6

Chemical/Solvent Resistance

Aged under conditions indicated and tested @ 22 °C.

Environment	°C	% of initial strength	
		500 h	1000 h
Air	87	110	100
Motor oil (10W30)	87	100	100
Unleaded gasoline	87	75	25
Water/glycol 50/50	87	85	80
Water	22	95	90
Acetone	22	80	70
Isopropanol	22	90	85
95% RH	40	100	100
100% RH	49	80	80
Salt fog	22	85	85
Salt Fog on Al	38	80	70
Salt Fog on Galvanized Steel	38	90	80
100%RH on Al	49	25	20
100%RH on Galvanized Steel	49	75	60

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 Safety Data Sheet (SDS).

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. To assure maximum bond strength, surfaces must be mated within the adhesive's open time.
5. Use enough material to completely fill the joint when parts are clamped.
6. Application to the substrates should be made as soon as possible. Larger quantities and/or higher temperatures will reduce the working time.
7. Join the adhesive coated surfaces and allow to cure. Higher temperatures will speed up curing.
8. Keep assembled parts from moving during cure. The bond should be allowed to develop full strength before subjecting to any service load.
9. Excessive uncured adhesive can be cleaned up with ketone type solvents.

Loctite Material Specification^{LMS}

LMS dated June 29, 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.

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:

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 0.5