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LOCTITE

Technical Data Sheet

LOCTITE® AA H3410

March 2021

PRODUCT DESCRIPTION

LOCTITE® AA H3410 provides the following product characteristics:

Technology	Acrylic
Chemical Type	Methacrylate base
Appearance, (component A)	White Amber
Appearance, (component B)	Black
Appearance (Mixed)	Gray
Components	Two components - requires mixing
Viscosity	Medium, thixotropic
Mix Ratio, by weight (component A:B)	2.81 : 1
Mix Ratio, by volume (component A:B)	4 : 1
Thixotropic	Reduced migration of liquid product after application to substrate
Cure	Room temperature cure
Application	Bonding
Specific Benefits	• Non sagging • Excellent impact and peel strength • Little or no surface preparation • Offers tolerance to off-ratio mixing • 100% reactive • Excellent environmental resistance • Compatible with metal pre-treatment and paint bake cycles

LOCTITE® AA H3410 is a two component, room temperature curing methacrylate adhesive system. The product is designed to have excellent bond strength on multiple substrates which includes a variety of metals including galvanized steel, plastics and composites. LOCTITE® AA H3410 offers superior peel and impact resistance and is compatible with metal pre¬treatment and paint bake cycles. This adhesive contains 0.25 mm (10 mil) glass beads to insure adequate bondline control.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Component A:

Viscosity, Cone & Plate, @25 °C, mPa·s (cP):
Cone PP25, Shear Rate 20 s^{-1} 60,000

Component B:

Viscosity, Cone & Plate, @25 °C, mPa·s (cP):
Cone PP25, Shear Rate 20 s^{-1} 21,000

Mixed:

Specific Gravity @ 23°C 1.05
Working Time @ 23 °C, minutes (maximum time before assembly):
Polyethylene 17
Steel 17
Aluminum 17

TYPICAL CURING PERFORMANCE

Fixture Time

Fixture time is defined as the time to develop a shear strength of 0.1 N/mm² . (Adhesive temperature is 23°C. Substrates at indicated temperature.)

Fixture Time, ISO 4587, minutes:
Galvanized Steel @ 8 °C 23
Galvanized Steel @ 23 °C 18
Galvanized Steel @ 32 °C 18

Tack Free Time

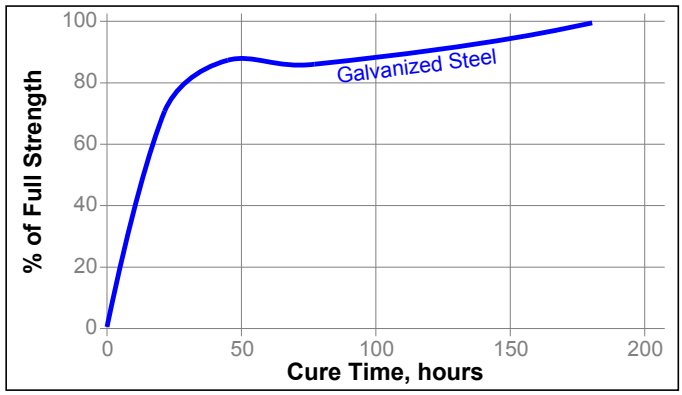
Tack Free Time is the time required to achieve a tack free surface
Tack Free Time @23°C, minutes 12

Peak Exotherm Temperature

Peak Exotherm Temperature @ 23 °C, 20 gram mass:
Peak Temperature Time, minutes 16
Peak Exotherm Temperature, °C 104

Cure Speed vs Substrate

The graph below shows the shear strength developed with time at 23°C on galvanized steel lap shears and tested according to ISO 4587.



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TYPICAL PERFORMANCE OF CURED MATERIAL

Physical Properties

Glass Transition Temperature (Tg), °C		58
Shore Hardness, ISO 868, Durometer D:		
@ 23 °C		65
Coefficient of Thermal Expansion, ISO 11359-2 K^{-1}:		
Pre Tg		61×10^{-6}
Post Tg		308×10^{-6}
Linear Shrinkage, %		4.3
Volume Shrinkage, %		12.4
Elongation, at break, ISO 527-3, %		20
Tensile Strength at break, ISO 527-3	N/mm²	13.8
	(psi)	(2,000)

Adhesive Properties

Cured for 24 hours @ 23°C, followed by 25 minutes @ 85°C

Lap Shear Strength ISO 4587:

Galvanized Steel	N/mm²	15
	(psi)	(2,210)

Cured for 72 hours @ 23°C

Lap Shear Strength ISO 4587:

Steel	N/mm²	17
	(psi)	(2,480)
Aluminum (abraded)	N/mm²	18
	(psi)	(2,610)
Stainless Steel	N/mm²	20
	(psi)	(2,920)
Galvanized Steel	N/mm²	14
	(psi)	(2,080)
Zinc Dichromate	N/mm²	12
	(psi)	(1,770)

Block Shear Strength, ISO 13445 :

PVC	N/mm²	7
	(psi)	(1,040)
ABS	N/mm²	9
	(psi)	(1,350)
Acrylic	N/mm²	10
	(psi)	(1,430)
Glass	N/mm²	11*
	(psi)	(1610*)

*Substrate Failure

Cured for 5 days @ 23°C

Instrumented Lap Shear Side Impact, modified GM 9751P, kJ/m² :

Galvanized Steel (thickness 2.7 mm)	2.4
Aluminum (thickness 3.2 mm)	8.5

"T" Peel Strength, ISO 11339:

Aluminum	N/mm	3.8
	(lb/in)	(22)
Steel	N/mm	3.5
	(lb/in)	(20)

TYPICAL ENVIRONMENTAL RESISTANCE

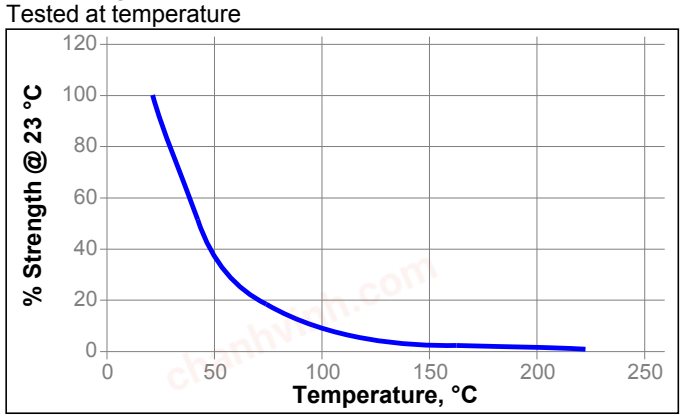
Cured for 5 days @ 23°C

Lap Shear Strength ISO 4587:

Grit Blasted Mild Steel

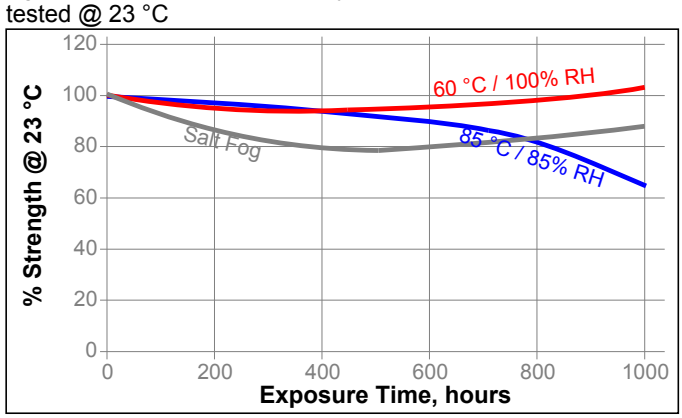
Hot Strength

Tested at temperature



Environmental Aging

Aged at temperature / humidity / condition indicated and tested @ 23 °C



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:

Mixing:

1. It is recommended that either meter mix equipment or cartridges with static mix nozzles be used to properly ratio and dispense the adhesive.
2. For hand mixing, combine Component A and Component B in the correct ratio and mix thoroughly.
3. **Dual Cartridges:** To begin using a new cartridge, remove cartridge cap and dispense a small amount of adhesive, making sure both component A&B are extruding. Attach nozzle and dispense approximately 25 to 50 mm, 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 50 mm, before applying onto part to be bonded.
   Bulk Containers: Normally material is dispensed through volumetric metered mixing equipment, attached to static mix nozzles.
4. Once mixed, LOCTITE® AA H3410 should achieve a uniform color. This is important!

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5. Heat buildup during and after mixing is normal. To reduce the likelihood of exothermic reaction or excessive heat buildup, mix less than 100 grams at a time. Mixing smaller amounts will minimize heat buildup.

Applying

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. Galvanized steel surface should be free from excessive oxidation (white flake). If oxidation is present, removal is required.
3. Extensive surface preparation is not required for LOCTITE® AA H3410 , and good bonds can be formed on most substrates after a solvent wipe.
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.

Curing

1. Cure speeds may vary based on adhesive and substrate temperatures. Reference the peak exotherm and tack free times to better understand curing time trends.
2. After the fixture time is achieved the material usually has reached handling strength. For heavy parts handling strength can take longer.
3. Parts should be fixed for a minimum period of 24 hours prior to applying a load.

Clean up

1. It is important to clean up excess adhesive from the work area and application equipment before it hardens
2. Denatured alcohol and many common industrial solvents are suitable for removing uncured adhesive

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 Henkel representative.

Product Specification

The technical data contained herein are intended as reference only and are not considered specifications for the product. Product specifications are located on the Certificate of Analysis or please contact Henkel representative.

Approval and Certificate

Please contact a Henkel representative for related approval or certificate of this product.

Data Ranges

The data contained herein may be reported as a typical value. Values are based on actual test data and are verified on a periodic basis.

Temperature/Humidity Ranges: 23 °C / 50% RH = 23±2 °C / 50±5% RH

Conversions

(°C x 1.8) + 32 = °F
kV/mm x 25.4 = V/mil
mm / 25.4 = inches
µm / 25.4 = mil
N x 0.225 = lb
N/mm x 5.71 = lb/in
N/mm² x 145 = psi
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

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