

LOCTITE® AA A-671™

Known as LOCTITE® A-671™
October 2014

PRODUCT DESCRIPTION

LOCTITE® AA A-671™ provides the following product characteristics:

Technology	Acrylic
Chemical Type	Acrylate
Appearance, Resin (Component A)	Yellow ^{LMS}
Appearance, Hardener (Component B)	blue ^{LMS}
Appearance (Mixture)	Dark green
Viscosity	Thixotropic
Cure	Room temperature cure
Components	Two component - requires mixing
Mix Ratio - Part A:Part B	1 : 1
Solids Content	100%
Application	Bonding
Product Benefits	<ul style="list-style-type: none"> • Suitable for external mixing • Excellent gap filling ability • Excellent durability • Minimal surface preparation required

LOCTITE® AA A-671™ is a two component toughened acrylic adhesive that combines ease of use with a high level of performance. This adhesive is nonflammable, 100% solids, and has a lower odor when compared to other acrylic adhesives. LOCTITE® AA A-671™ was designed specifically for the bonding of magnets and provides excellent adhesion to ferrite, alnico, and rare earth magnet types. Excellent bond strength is also obtained to most metal surfaces. Typical applications include permanent magnet brush in type DC motors, speaker assemblies, generators and magnetic assemblies.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Part A:

Density @ 25 °C, g/ml 0.91 to 0.98^{LMS}
 Viscosity, Brookfield - RVF, 25 °C, mPa·s (cP):
 Spindle 6, speed 20 rpm, 20,000 to 25,000^{LMS}
 Flash Point - See SDS

Part B:

Density @ 25 °C, g/ml 0.95 to 1.01^{LMS}
 Viscosity, Brookfield - RVF, 25 °C, mPa·s (cP):
 Spindle 6, speed 20 rpm, 20,000 to 25,000^{LMS}
 Flash Point - See SDS

TYPICAL CURING PERFORMANCE

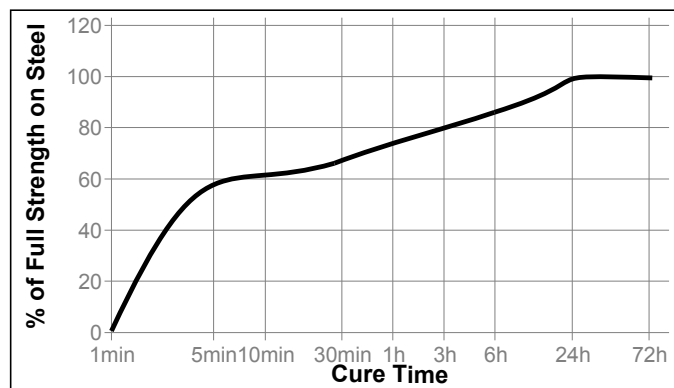
Fixture Time

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

Fixture Time, ISO 10964, seconds ≤75^{LMS}

Cure Speed vs. Time

The graph below shows the shear strength developed over time at 22 °C / 50 % RH on Mild Steel (degreased) and tested according to ISO 4587.



TYPICAL PROPERTIES OF CURED MATERIAL

Physical Properties:

Glass Transition Temperature, °C 59
 Shore Hardness, ISO 868, Durometer D:
 @ 25 °C 60

TYPICAL PERFORMANCE OF CURED MATERIAL

Adhesive Properties

Cured for 24 hours @ 25 °C

Lap Shear Strength, ISO 4587:

Steel (bars, solvent cleaned) N/mm² ≥13.8^{LMS}
 (psi) (≥2,000)

Cured for 48 hours @ 25 °C.

Impact Strength, ISO 9653, J:

Steel (grit blasted) 7

Lap Shear Strength, ISO 4587:

Steel (grit blasted)	N/mm ²	12
	(psi)	(1,800)
Aluminum (abraded)	N/mm ²	10
	(psi)	(1,440)
Anodized Aluminum	N/mm ²	10
	(psi)	(1,480)
Stainless steel	N/mm ²	11
	(psi)	(1,600)
Zinc dichromate	N/mm ²	6
	(psi)	(*840)
Nylon	N/mm ²	2
	(psi)	(340)

Block Shear Strength, ISO 13445:

Glass	N/mm ²	14
	(psi)	(*1,960)
Acrylic	N/mm ²	3
	(psi)	(420)
ABS	N/mm ²	2
	(psi)	(310)
PVC	N/mm ²	2
	(psi)	(240)
Steel (grit blasted) to Samarium Cobalt	N/mm ²	11
	(psi)	(1,630)
Steel (grit blasted) to Neodymium	N/mm ²	9
	(psi)	(1,270)
Steel (grit blasted) to AlNiCo	N/mm ²	12
	(psi)	(1,770)
Steel (grit blasted) to Ferrite	N/mm ²	12
	(psi)	(1,700)

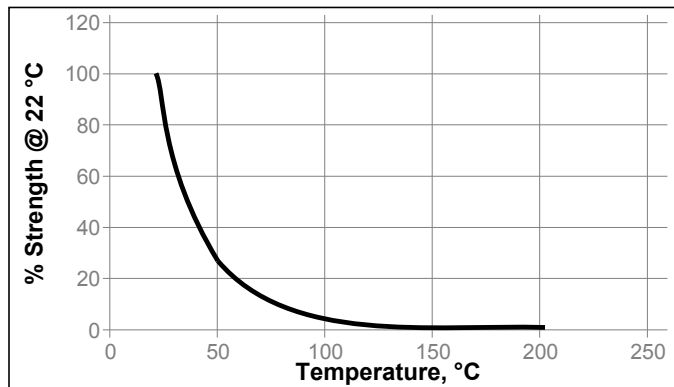
* substrate failure

TYPICAL ENVIRONMENTAL RESISTANCE

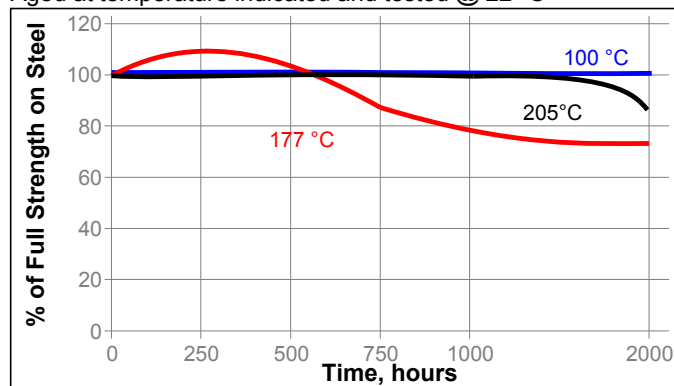
Cured for 48 hours @ 22 °C

Lap Shear Strength, ISO 4587:
Mild Steel**Hot Strength**

Tested at temperature

**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	100	100
Water	22	100	90
Salt fog	35	60	50
95% RH	40	90	70
Condensing Humidity	49	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 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. **Bulk Containers:** Normally material is dispensed through an external mix dispensing system. This system consists of two dispense tips that are closely positioned approximately 1.6 mm apart such that when product is dispensed, the two components mix in the air as the adhesive falls on the part. Minimum height of the dispense tips above the part is 15 cm, with best results achieved when a height of 30 cm is used. Optimal dispense angle (from horizontal) of dispense value is 60°. The product will cure when the mix ratio is between 1:2 and 2:1 parts A:B. However, the varying the mix ratio from 1:1 may affect cure speed and ultimate strength and should be verified
4. Static mix tips are not needed to adequately mix this class of material
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 August 31, 2010 (Part A) and LMS dated August 31, 2010 (Part B). 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 Loctite 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.

Any liability in respect of the information in the Technical Data Sheet or any other written or oral recommendation(s) regarding the concerned product is excluded, except if otherwise explicitly agreed and except in relation to death or personal injury caused by our negligence and any liability under any applicable mandatory product liability law.

In case products are delivered by Henkel Belgium NV, Henkel Electronic Materials NV, Henkel Nederland BV, Henkel Technologies France SAS and Henkel France SA please additionally note the following:

In case Henkel would be nevertheless held liable, on whatever legal ground, Henkel's liability will in no event exceed the amount of the concerned delivery.

In case products are delivered by Henkel Colombiana, S.A.S. the following disclaimer is applicable:

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. 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.

Any liability in respect of the information in the Technical Data Sheet or any other written or oral recommendation(s) regarding the concerned product is excluded, except if otherwise explicitly agreed and except in relation to death or personal injury caused by our negligence and any liability under any applicable mandatory product liability law.

In case products are delivered by Henkel Corporation, Resin Technology Group, Inc., or Henkel Canada Corporation, the following disclaimer is applicable:

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, **Henkel Corporation specifically disclaims all warranties expressed or implied, including warranties of merchantability or fitness for a particular purpose, arising from sale or use of Henkel Corporation's products. Henkel 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 Henkel Corporation patents that may cover such processes or compositions. We recommend that each prospective user test his proposed application before repetitive use, using this data as a guide. This product may be covered by one or more United States or foreign patents or patent applications.

Trademark usage

Except as otherwise noted, all trademarks in this document are trademarks of Henkel Corporation in the U.S. and elsewhere. ® denotes a trademark registered in the U.S. Patent and Trademark Office.

Reference 0.3