



LOCTITE[®] A-671[™]

November 2009

PRODUCT DESCRIPTION

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

| | |
|----------------------------------|---|
| Technology | Acrylic |
| Chemical Type | Acrylate |
| Appearance (Part A) | Yellow ^{LMS} |
| Appearance (Part B) | Blue ^{LMS} |
| Appearance (Mixed) | 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[®] 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[®] 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 40,000^{LMS}

Flash Point - See MSDS

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 40,000^{LMS}

Flash Point - See MSDS

Mixed:

Viscosity, Brookfield - RVT, 25 °C, mPa·s (cP):

Spindle 6, speed 20 rpm 30,000

Working life, seconds 30

TYPICAL CURING PERFORMANCE

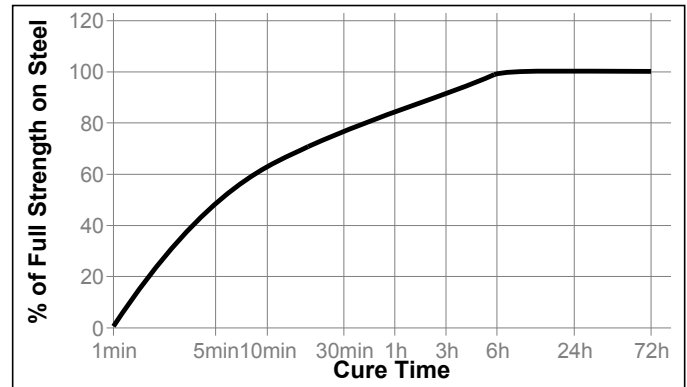
Fixture Time

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

"T" Peel Strength, ISO 11339:

Steel N/mm 1.1 to 2.2
(lb/in) (10 to 20)

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) 4.0

Lap Shear Strength, ISO 4587:

Steel (grit blasted) N/mm² 13
(psi) (1,860)

Aluminum (abraded) N/mm² 14
(psi) (2,090)



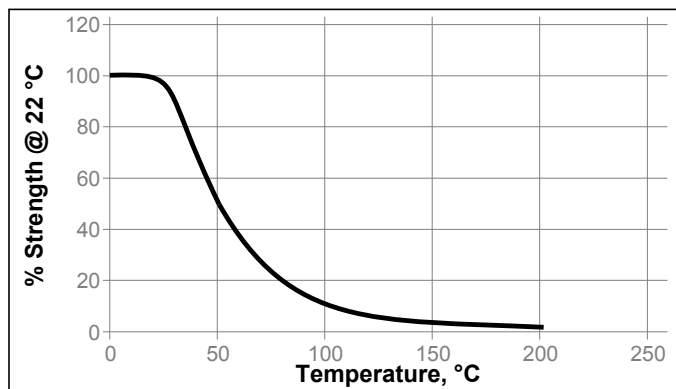
| | | |
|---|-------------------|---------|
| Anodized Aluminum | N/mm ² | 13 |
| | (psi) | (1,840) |
| Stainless steel | N/mm ² | 15.5 |
| | (psi) | (2,250) |
| Zinc dichromate | N/mm ² | 13 |
| | (psi) | (1,930) |
| Nylon | N/mm ² | 2 |
| | (psi) | (350) |
| Block Shear Strength, ISO 13445: | | |
| Glass | N/mm ² | 8 |
| | (psi) | (1,160) |
| Acrylic | N/mm ² | 1.6 |
| | (psi) | (240) |
| Epoxy | N/mm ² | 3 |
| | (psi) | (490) |
| ABS | N/mm ² | 0.9 |
| | (psi) | (130) |
| PVC | N/mm ² | 2 |
| | (psi) | (290) |
| Steel (grit blasted) to Samarium Cobalt | N/mm ² | 27 |
| | (psi) | (3,970) |
| Steel (grit blasted) to Neodymium | N/mm ² | 10 |
| | (psi) | (1,400) |
| Steel (grit blasted) to AlNiCo | N/mm ² | 13 |
| | (psi) | (1,840) |
| Steel (grit blasted) to Ferrite | N/mm ² | 12 |
| | (psi) | (1,710) |

TYPICAL ENVIRONMENTAL RESISTANCE

Cured for 48 hours @ 22 °C
Lap Shear Strength, ISO 4587:
Mild Steel

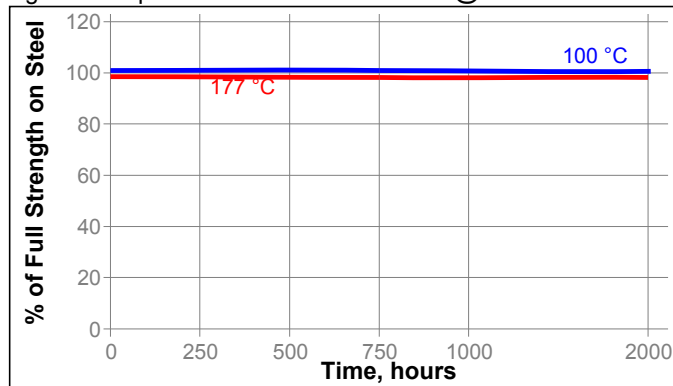
Hot Strength

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 |
| Motor oil | 87 | 55 | 30 |
| Unleaded gasoline | 87 | 5 | 0 |
| Water/glycol | 87 | 80 | 70 |
| Water | 22 | 100 | 100 |
| Acetone | 22 | 15 | 10 |
| Diesel fuel | 22 | 60 | 45 |
| Isopropanol | 22 | 70 | 60 |
| Salt fog | 35 | 80 | 70 |
| 95% RH | 40 | 100 | 100 |
| Condensing Humidity | 49 | 100 | 100 |

Thermal Cycling

-30°C to 150 °C, and tested @ 25°C in accordance with ISO 4587

| Substrate | Shear Strength after 0 cycles | Shear Strength after 10 cycles |
|--|-------------------------------|--------------------------------|
| Steel/Steel, N/mm ² (psi) | 18 (2600) | 19 (2700) |
| Ferrite/Steel, N/mm ² (psi) | 14 (2000) | 14 (2000) |

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. Surface Preparation:

- LOCTITE® A-671™ bonds well to many unprepared metal surfaces. For optimum bond strength on metal parts the surface should be washed with a solvent or cleansing solution, abraded with an abrasive pad, and then rinsed with a solvent or cleansing solution. Glass surfaces should be cleaned with a residue free glass cleaner before bonding. Painted surfaces should be abraded lightly and then wiped clean.

2. Application Method:

1. 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: Equipment is available to dispense the adhesive through HENKEL's unique External Mix dispensing process. The External Mix Dispensing System is a technology that results in high performance without the use of a static mixer. This allows the use of the adhesive in high-speed production without having to change static mixers frequently.

2. LOCTITE® A-671™ is best applied using a dual cartridge with a static mix tip of 18 elements.

3. The adhesive should be applied as a mixed bead onto the part.

4. Parts should be assembled within 60 seconds of adhesive application.

5. Parts should be clamped for 15 minutes or until handling strength is obtained.

Loctite Material Specification^{LMS}

LMS dated October 22, 2008 (Part A) and LMS dated October 22, 2008 (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

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Reference **N/A**