

HIGH TENSILE STRUCTURAL ADHESIVE #307

I. PRODUCT DESCRIPTION

Loctite 307 is a single component adhesive intended for use as a structural adhesive. The material is a high tensile strength adhesive. The material performs well in gaps up to 20 mils. The adhesive is especially well suited for bonding of rigid metal structures and thermoset plastics.

II. TYPICAL PRODUCT PROPERTIES

A. Properties in uncured state (liquid)

Base	Modified Acrylic
Color	Clear/Amber
Fluorescent	No
Specific Gravity	1.1
Viscosity (cps)	3000
Toxicity	Low
Shelf Life	1 Year Minimum

B. Properties in the cured state (solid)

Operating Temperature Range	-65°F to 250°F
Flashpoint (COC)	200°F+
Toxicity	None
Dielectric Strength	250 - 300 volts/mil.
Thermal Coefficient of Expansion	8×10^{-5} in/in/°F
Refractive Index	1.52
Hardness	70 (Barcol)

C. PERFORMANCE

	Heat Cure	Room Temp Cure (2 mil.)	Room Temp Cure (20 mil.)
Tensile-Shear (psi) ASTMD D 1002-65	3500	3500	2300
Tensile (psi) ASTM D 2095 -62T	8000	6000	N/A
T-Peel (#/in) ASTM D 1876 -61T	10	7	N/A
Impact - Ft.-lbs./in ² ASTM D 950-54	8	6	N/A
Fatigue Strength (psi) MMM A - 132	1100	850	N/A
% Elongation ASTM D 638-64T	2		N/A

*Self-hardening Resins
for Assembling Metal Parts*



THREAD LOCKING
COMPOUNDS



BEARING MOUNTING
COMPOUNDS



RETAINING
COMPOUNDS



SEALANTS

D. Primer Response (all values in psi - tensile shear tests conducted on sandblasted steel lap shears.)

TIME	PRIMER NF	PRIMER T	PRIMER N	ACTIVATOR 750	
	2 mil.	2 mil.	2 mil.	20 mil.	2 mil.
Fixture	8 Sec.	3 Min.	3 Hrs.	5 Min.	1 Min.
1 Min.	2325	-0-	-0-	-0-	N/A
10 Min.	2640	1250	-0-	N/A	N/A
30 Min.	3225	2600	-0-	N/A	N/A
1 Hr.	3400	2675	-0-	N/A	N/A
24 Hrs.	3675	3700	3575	2300	3380

E. Hot Strength (all values in psi - tensile shear tests conducted on sandblasted steel lap shears - 2 mil. bondline.)

<u>Tested At</u>	<u>PSI</u>	<u>% Room Temp. Strength</u>
-65°F	3000	86
75	3500	100
150	2800	80
200	2000	57
250	1600	46
300	1000	29

F. Heat Aging (static heat aging test at indicated temperature continuous exposure.)

Temp.	% Strength Retention			
	<u>1 Wk.</u>	<u>2 Wks.</u>	<u>1 Mo.</u>	<u>4 Mo.</u>
200°F	97	96	93	96
300°F	90	76	62	59
400°F	40	10	25	Not Available.

G. Solvent Resistance - Adhesive 307 provides good solvent resistance. Immersion tests in a representative group of solvents indicates performance as shown below. Results are based on aluminum lap shear specimens heat cured at 250°F for 10 minutes. Specimens were immersed for 30 days at room temperature or indicated temperature.

	<u>Temperature</u>	<u>% Strength Retention</u>
Air Reference	200°F	100
Acetone	75	100
JP-4	200	97
Hydrocarbon Fluid III	200	81
Glycol/Water	200	85
Water	200	92

H. Humidity Resistance - Adhesive 307 has good humidity resistance. Bonded aluminum lap strips tested in a 180°F/100% R.H. chamber with water spray maintained 80% of initial strength after 720 hours.

III. USE & APPLICATION

In order to obtain good bonds, it is essential that surfaces be free of contamination; such as oil films, dirt, paint or other coatings which may interfere with bonding action.

Apply Locquic Activator to the surface by brush, dip or spray and allow solvent to evaporate. For best results, both surfaces should be coated, though single surface treatment may often suffice. (Locquic Primers T, N, NF, and 750 may be used with the adhesive.)

The adhesive can also be cured using a heat cycle of 250°F for 10-15 minutes bondline temperature. Lower temperature heat cures with longer heat soak cycles will work equally well. (Consult Loctite Sales Engineer.)

IV. SURFACE PREPARATION

Any adhesive bonds best to clean, roughened surface. Roughness can be achieved with steel wool, emery cloth, etc. Recommended cleaning methods for various materials are:

For aluminum or plated parts: Chromic acid dip*-- 5 minutes at 140-160°F. Rinse with water and dry.

For thermoset plastics: Wipe with solvent, roughen surface, and then wipe again with solvent.

For steel or brass: Degrease**, roughen surface, degrease again.

*Typical etchant - water solution with 20% (by wt.) sulfuric acids & 10% (by wt.) sodium dichromate.

**Loctite Safety Solvent or any other common degreasing solvent such as trichloroethylene.

V. TOXICITY & ALLERGENICITY

Excessive or repeated skin contact with Loctite anaerobic adhesives and sealants may cause allergic dermatitis in sensitive persons. In case of skin contact, remove promptly by washing. In case of skin reaction, discontinue contact with product. If skin reaction persists, see a physician. To avoid skin contact, use the applicator nozzle provided. Other applicators are available from Loctite Corporation.

Apply Only To Intended Application Area

Loctite adhesive and sealants will form bonds between mating surfaces. Limit application area to surfaces to be sealed or bonded.

VI. STORAGE CONDITIONS

Store material in original containers with proper fill to provide adequate air space to maintain the anaerobic liquid state. Maintain at $68^{\circ}\text{F} \pm 20^{\circ}\text{F}$ for maximum shelf life. When stored under these conditions, a minimum shelf life of one year may be expected.* Material removed from containers may become contaminated during use. Do not return remaining liquid to original containers.

*Shelf life for 100 cc tubes - 1 year minimum.

Shelf life for 1 liter containers - 3-6 months minimum.

VII. ORDERING INSTRUCTIONS

Loctite Adhesive 307 is available in 100 cc and 1000 cc containers. Please address future inquiry directly to the Loctite Corporation, Newington, Connecticut 06111. Attention: Customer Service

CLK/ncd
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