LOCTITE® 392™

June 2005

PRODUCT DESCRIPTION

LOCTITE® 392™ provides the following product characteristics:

Technology	Acrylic
Chemical Type	Modified acrylic
Appearance (uncured)	Translucent beige to dark amber[LMS]
Components	One component - requires no mixing
Viscosity	Medium
Cure	Activator
Secondary Cure	Heat
Application	Bonding

LOCTITE® 392™ may be used for applications which require very fast assembly. This adhesive is particularly suited to DC motor assembly, magnet bonding and bonding of pre-coated sheet metal. Automated assembly lines with short cycle times will benefit from the rapid cure charecteristics of LOCTITE® 392™. The product has the capability to produce tough, durable bonds with outstanding impact and peel resistance.

TYPICAL PROPERTIES OF UNCURED MATERIAL

Specific Gravity @ 25 °C	1.16
Flash Point - See MSDS	
Viscosity, Brookfield - HBT, 25 °C, mPa·s (cP):	
Spindle TA, speed 2.5 rpm, Helipath	20,000 to 80,000[LMS]
Spindle TA, speed 20 rpm, Helipath	6,500 to 17,500[LMS]

TYPICAL CURING PERFORMANCE

LOCTITE® 392™ is designed to be used with Activator 7380™ or 7387™ and cured at room temperature. Cure charecteristics are measured by determining fixture time (handling time) and speed of cure.

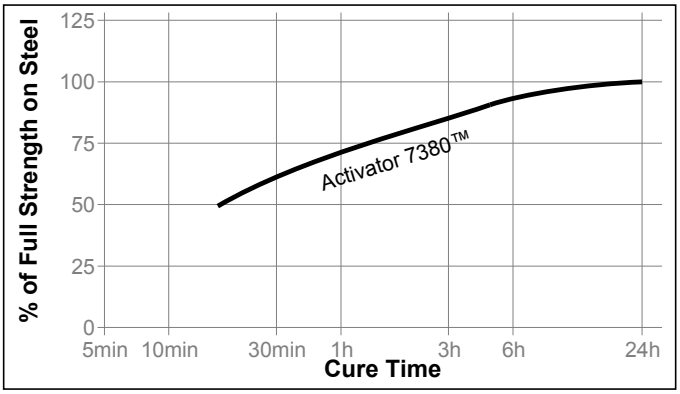
Fixture Time

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

Fixture Time, ISO 4587, seconds:	
Steel, with Activator 7380™ on 1 side:	
0 gap	≤25
0.25 mm gap	≤330

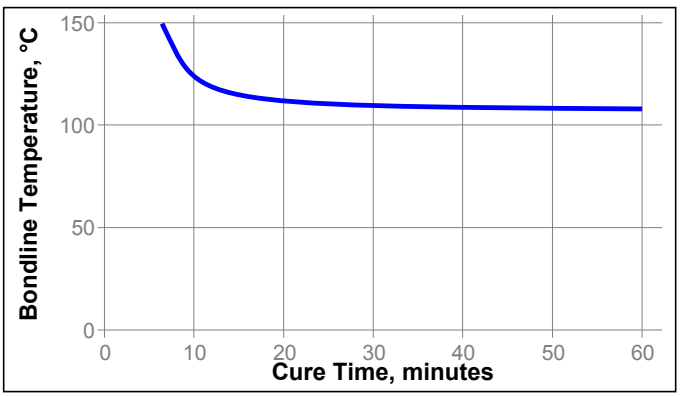
Cure Speed vs. Activator

The graph below shows shear strength developed with time using Activator 7380™ on steel lap shears and tested according to ISO 4587.



Cure Speed vs. Temperature

Heat can be used to effect or accelerate cure when surface priming operations are undesireable. Typical heat cure conditions consist of heating and maintaining bondline at a temperature shown in the graph below for the corresponding time specified. Optimum conditions for heat cure should be determined on the actual assemblies.



TYPICAL PROPERTIES OF CURED MATERIAL

Physical Properties:

Shore Hardness, ISO 868, Durometer D		65
Elongation, ISO 527, %		130
Tensile Strength, ISO 527	N/mm²	18.6
	(psi)	(2,700)
Tensile Modulus, ISO 527	N/mm²	144.8
	(psi)	(21,000)

TYPICAL PERFORMANCE OF CURED MATERIAL

Adhesive Properties

After 24 hours @ 22 °C, Activator 7380™ on 1 side

Lap Shear Strength, ISO 4587:		
Steel	N/mm²	≥11.7[LMS]
	(psi)	(≥1,696)

After 48 hours @ 22 °C, Activator 7380™ on 1 side

Lap Shear Strength, ISO 4587:

Steel :		
0 gap	N/mm²	17.2
	(psi)	(2,500)
0.25 mm gap	N/mm²	15.8
	(psi)	(2,300)
0.5 mm gap	N/mm²	14.5
	(psi)	(2,100)
Aluminum :		
0 gap	N/mm²	11
	(psi)	(1,600)
Zinc dichromate :		
0 gap	N/mm²	11
	(psi)	(1,600)

TYPICAL ENVIRONMENTAL RESISTANCE

After 48 hours @ 22 °C, Activator 7380™ on 1 side

Heat Aging

Heat aged for 2000 hours

Lap Shear Strength, ISO 4587:

Steel:		
@ 93°C	N/mm²	13.1
	(psi)	(1,900)
@ 121°C	N/mm²	9
	(psi)	(1,300)
@ 150°C	N/mm²	3.4
	(psi)	(500)

Humidity Resistance

Conditioned in 50°C condensing humidity

Lap Shear Strength, ISO 4587:

Steel:		
1 week	N/mm²	13
	(psi)	(1,900)
2 weeks	N/mm²	9.3
	(psi)	(1,350)
4 weeks	N/mm²	3.4
	(psi)	(500)

Chemical/Solvent Resistance

Aged under conditions indicated and tested @ 22 °C.

		% of initial strength
Environment	**°C**	**720 h**
Air reference	87	100
Water/glycol 50/50	87	30
Gasoline	87	10
Motor oil (MIL-L-46152)	87	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 Material Safety Data Sheet (MSDS).

Directions for use

1. For best performance bond surfaces should be clean and free from grease.
2. To ensure a fast and reliable cure, Activator 7380™ or 7387™ should be applied to one of the bond surfaces and the adhesive to the other surface. Parts should be assembled within 15 minutes.
3. The recommended bondline gap is 0.1mm. Where bond gaps are large (up to a maximum of 0.5 mm), or faster cure speed is required, Activator 7380™ or 7387™ should be applied to both surfaces. Parts should be assembled immediately (within 1 minute).
4. Excess adhesive can be wiped away with organic solvent.
5. Bond should be held clamped until adhesive has fixtured.
6. Product should be allowed to develop full strength before subjecting to any service loads (typically 24 to 72 hours after assembly, depending on bond gap, materials and ambient conditions).

Loctite Material Specification[LMS]

LMS dated January 3, 2003. 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

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 Technical Service Center or Customer Service Representative.

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

Note

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Reference 0.4