



**PRODUCT DESCRIPTION**

Loctite ® 331 is toughened acrylic adhesive with medium viscosity. The product fixtures in 10-20 seconds and achieves 90% of ultimate strength in 30 minutes at room temperature. This allows for rapid processing of assemblies. The adhesive is designed for bonding metal substrates and is well suited for DC motor assembly, magnet bonding and bonding of pre-coated sheet metal. The cured product provides high shear and impact strength with excellent environmental and chemical resistance.

**LOCTITE® 331 provides the following product characteristics:**

Chemistry Type	Acrylic
Appearance (uncured)	Pale yellow paste
Components	One component- requires no mixing
Cure	Activator
Application	Bonding

**FEATURES & BENEFITS**

- Non-corrosive to sensitive metal substrates
- Rapid room temperature cure
- Full strength achieved in 30 minutes
- High shear & impact strength
- Excellent high temperature resistance

Properties of uncured material	Typical value
Specific Gravity @ 25°C	1.10
Viscosity, 25°C, mPa.s (cP)	15, 000 –
Cone and Plate, CP50-1 @ 20 s <sup>-1</sup>	25,000
Flash Point (TCC), °C (°F)	80 (177)

**TYPICAL CURING PERFORMANCE**

Loctite ® 331 is designed to be used with Activator 7387 or 7380 and cured at room temperature. Cure characteristics are measured by determine fixture time (handling time) and speed of cure.

**FIXTURE TIME**

ISO 4587, Steel, with Activator 7387 on 1 side

Induced gap	Typical value
0, seconds	10-20
0.26 mm, seconds	60-75
0.6 mm, seconds	130 - 150

**CURE SPEED**

Steel lap shear strength, with Activator 7387 on 1 side ISO 4587:

Cure Time @ RT, minutes	Typical value	
10	N/mm <sup>2</sup>	16.5
	(psi)	(2,400)
30	N/mm <sup>2</sup>	18.5
	(psi)	(2,686)
60	N/mm <sup>2</sup>	19.6
	(psi)	(2,840)

**TYPICAL PROPERTIES OF CURED MATERIAL**

After 24 hours @ 22 °C, Activator 7387 on 1 side

Properties	Typical Value
Tensile Strength @ break, ASTM D 882, Nmm <sup>2</sup> , (psi)	11.0 (1,590)
Modulus, ASTM D882 N/mm <sup>2</sup> , (psi)	900 (130,000)
Elongation at break, ASTM D 882, %	3.0
Hardness Shore D, ASTM D 2240	86
Tg, °C, (by DMA)	93
Linear shrinkage, %	2.40
Water absorption, 2 hours in boiling water, wt%	0.70

**PERFORMANCE OF CURED MATERIAL**

After 48 hours @ 22°C, Activator 7387 on one side

Properties	Typical Value
Steel, 0 induced gap: Lap shear strength, ISO 4587, Nmm <sup>2</sup> , (psi)	21.0 (3,100)
Steel, 0.25 mm gap: Lap shear strength, ISO 4587, Nmm <sup>2</sup> , (psi)	17.9 (2,600)
Steel, 0.40 mm gap: Lap shear strength, ISO 4587, Nmm <sup>2</sup> , (psi)	15.8 (2,300)
Aluminum, 0.40 mm gap: Lap shear strength, ISO 4587, Nmm <sup>2</sup> , (psi)	12.4 (1,800)
Zinc dichromate, 0 induced gap: Lap shear strength, ISO 4587, Nmm <sup>2</sup> , (psi)	9.3 (1,345)
Galvanized steel, 0 induced gap: Lap shear strength, ISO 4587, Nmm <sup>2</sup> , (psi)	5.3 (770)
Ferrite magnet block to steel 0induced gap: shear strength, Nmm <sup>2</sup> , (psi)	12.4 (1,800)
Impact strength, steel, joules	≥13

**ENVIRONMENTAL RESISTANCE**

Cured for 48 hours @ 22°C, Activator 7387 on 1 side

**Hot strength**

Assembled and cured at room temperature and tested at temperature indicated via ISO 4587

Hot strength	Typical Value
Steel, 0 induced gap: Lap shear strength at 150°C, Nmm <sup>2</sup> , (psi)	2.8 (400)

**Heat Aging**

Assembled and cured at room temperature. Aged at temperature indicated and tested at at room temperature. Lap shear strength, ASTM D-1002

Temperature, °C	% Initial strength Aged for 500 hours
90	114
120	107
150	85
175	85

**Heat / Humidity/ Chemical Resistance**

Lap shear strength, ASTM D-1002

Environment	°C	% Initial Strength Aged 500 hours
Transmission fluid	87	131
Motor oil	87	145
Air	87	130
Water/glycol	87	84
Isopropanol	22	100
Heat & humidity	85°C/85% R.H	85

**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**

- For best performance bond surfaces should be clean and free from grease.
- To ensure a fast and reliable cure, Activator 7387 should be applied to one of the bond surfaces, allowed to dry and the adhesive should be applied to the other surface.

- Parts should be assembled quickly.
- The recommended bondline gap is 0 mm. Where bond gaps are large (up to a maximum of 0.4 mm), or faster
- cure speed is required, Activator 7387 should be applied
- to both surfaces. Parts should be assembled immediately.
- Excess adhesive can be wiped away with isopropanol solvent.
- Bond should be held clamped until adhesive has fixtured.
- Product should be allowed to develop full strength before subjecting to any service loads.

**Data Ranges**

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

**Storage Conditions**

Product shall be ideally stored in a cool, dry location in unopened container at temperatures between 8-28°C (46-82°F) unless otherwise labeled. To prevent contamination of unused product, do not return any material to its original container.

**Disclaimers**

This product is not recommended for use in pure oxygen and/or oxygen rich systems and should not be selected for use with chlorine or other strong oxidizing materials unless otherwise specifically stated.

**Note**

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

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