L-0010

Aircraft Structural Adhesives

L&L Products epoxy-based, L-0010 structural adhesive has been developed to bond various substrates (metal and composites) that are common to the aerospace industry. These one component adhesives provide a structural bond once activated by heat.

This adhesive is intended for applications that require high-strength, high toughness, stable physical properties over a broad application temperature range and demanding aging conditions.

Key Product Attributes

- *Heat activated, epoxy-based material*
- *High toughness*
- *Applicable without primer*
- *Manual or robotic application*
- *Vertical burn test (60 sec.) compliant*

Typical Application Areas

- *Coated and uncoated steel*
- *Aluminum alloy*
- *Composites*

	PROPERTY	L-0010
Physical Properties	Appearance	Off white to light gray
	Density	1.3 g/cc
	Viscosity	360 Pas
	Glass Transition Temperature	133°C [271°F]
	Shelf Life at 23°C [75°F]	3 months
	Processing	Manual / mechanical gun
	E-Module	1.96 Gpa [284 ksi]
	Strain-to-Failure	17%

L&L Bond

Technical Data

The following information and data should be considered typical and should not be used for specification.

TENSILE LAPSHEAR STRENGTH	ON ALUMINUM 2024	ON STEEL EZ	TEST METHOD
At -30°C [-22°F]	30 MPa [4,350 psi]	37.6 MPa [5,455 psi]	EN2243-1
At 0°C [32°F]	28.7 MPa [4,191 psi]	35.7 Mpa [5,185psi]	
At 23°C [73°F]	27.8 MPa [4,040 psi]	30.7 Mpa [4,449psi]	
At 70°C [158°F]	27.2 MPa [3,946 psi]	22 Mpa [3,191psi]	
At 90°C [194°F]	20.6 MPa [2,993 psi]	37.6 MPa [5,455 psi]	

WEDGE IMPACT	DYNAMIC RESISTANCE TO CLEAVAGE	CLEAVAGE ENERGY	TEST METHOD
Al / -40°C [-40°F]	19 N/mm [108 lbs/in]	5.36J [3.95 ft/lbs]	ISO 11343
Al / 23°C [73°F]	33 N/mm [188 lbs/in]	10.55J [7.79 ft/lbs]	
Al / 90°C [194°F]	28 N/mm [160 lbs/in]	9.68J [7.35 ft/lbs]	
Steel EQ / -40°C [-40°F]	17 N/mm [97 lbs/in]	4.50J [3.32 ft/lbs]	
Steel EZ / 23°C [73°F]	28 N/mm [160 lbs/in]	8.69J [6.41 ft/lbs]	
Steel EZ / -40°C [-40°F]	28 N/mm [160 lbs/in]	10.11J [7.46 ft/lbs]	

Bonding Process

- *Parts should be mated in final position and remain in position unstressed & undisturbed until the material is sufficiently current to support the bonded parts without movement.*
- *Uncured material is also soluble in the following solvents: Ethyl lactate, Xylene, Methyl ethyl ketone, Methyl amyl ketone, Cyclohexanone.*

Recommended Application Temperature

- *23°C to 50°C [73°F to 122°F] for manual application*
- *40°C to 50°C [105°F to 122°F for robotic application*

Shelf life & Storage Conditions

- *Best results within 3 months if stored below 30°C (14°F and 85°F) in original packaging. Anticipated to be higher than one year if stored in a freezer.*
- *Keep away from direct sunlight and all sources of heat and ignition.*

Surface Preparation

- *The substrate must be clean, dry, and free of dust. Clean surfaces using a general purpose industrial organic solvent. It may be necessary to use an additional surface preparation product or mechanical process.*
- *Consult L&L Products Technical Service & Support Staff.*

Health & Safety

- *Consult product specific Safety Data Sheet.*
- *All of our products are developed with REACH compliance.*