

A-K083

2-component fast-curing, high-strength structural adhesive

Product Description

A-K083 is a two-component structural adhesive based on methyl methacrylate and provides primerless adhesion to most metals, thermoplastics, composites and other substrates common to the commercial vehicle industry¹. Specifically formulated for improved bonding to plastic substrates. Fast-curing, high-strength and impact resistant; it is intended for use in structural bonding applications for vehicle assembly. Available in 50 and 400 mL side-by-side cartridges, 20 L [5 GAL.] pails and 200 L [50 GAL.] drums.

Technical Data

TYPICAL PROPERTIES			
		A-K083	Test Method
Physical Properties	Appearance	Tan thixotropic paste	-
	Mix Ratio	1:1 (by vol. & wt.)	-
	Working Time ²	5 - 7 min.	-
	Fixture Time ³	9 - 12 min.	-
	Viscosity (TE spindle, 2.5 rpm)	A – 120,000 - 160,000 cPs B – 150,000 - 200,000 cPs	-
	Shore D Hardness	65 - 75	-
	Mixed Density	0.97 kg/L, [8.095 lb/gal]	-
	Service Temperature ⁴	-40 to 90°C, [-40 to 194°F]	-
Mechanical Properties	Tensile Strength	24.3 MPa, [3,525 psi]	ASTM D638
	Modulus	1,670 MPa, [242,000 psi]	ASTM D638
	Strain-to-Failure	8 - 15%	ASTM D638
	Peel Strength	> 8.5 N/mm, [48.5 pli]	ASTM D1876
	Impact Strength	-	-

Lap Shear Results - ASTM D1002

Substrate	Surface Prep	Lap Shear (Mpa, [psi])		
Carbon Steel ⁵	None	20.0	[2900]	
Stainless Steel ⁵	None	24.4	[3550]	
Electrogalvanized Steel ⁵	None	16.4	[2350]	
Hot-dip Galv. Steel ⁵	None	16.3	[2350]	
Aluminium 5754 ⁵	None	15.4	[2250]	
ABS	None	7.3	[1050]	
Fibreglass	None	9.1	[1300]	
Sheet-molded Composite	None	2.0	[300]	

Chemical Resistance⁶ Good resistance to common industrial chemicals. Should be tested against specific customer conditions and exposures. Not resistant to fuels, polar solvents, strong acids & bases.

Environmental Resistance Resistant to weathering, salt spray (500h), and ultraviolet (QUV) radiation.

Shelf Life & Storage Conditions

Shelf Life	Best results within 6 months (bulk), 12 months (cartridge) – stored at < 25°C in original packaging. Long-term exposure to elevated temperature can cause the material to lose performance characteristics.
Special Handling	Material must NOT be frozen, keep away from direct sunlight and all sources of heat and ignition.

Surface Preparation

General	The following recommendations are for informational purposes only. Before attempting any bonding application, users should test the adhesion to the surface using their specific material and application. Any applications involving critical or serial production should consult L&L Products Technical Service & Support Staff.
Metals	Must be clean, dry; and free of dust, debris and any loose oxides or coatings. Heavy oils and grease must be removed. Clean surfaces thoroughly using a general purpose industrial organic solvent. It may be necessary to use an additional surface preparation product. Consult L&L Products Technical Service & Support Staff.
Thermoplastics	Must be clean, dry; and free of dust, debris and any loose oxides or coatings. Excessive oily residue must be removed. Clean surfaces thoroughly.
Composites	Must be clean, dry; and free of dust, debris and any loose coatings, including heavy layers of release agent. Abrasion may be required. Composites using small amounts or no release agent should be cleaned as described.
Other	Consult L&L Products Technical Service & Support Staff.

Application

Cartridge Application	Check each cartridge to ensure that the openings are free of obstruction or debris that would prevent flow. A-K083 is applied through a 8mm x 24-element square-type static mixer (except 50ml ctgs.). Before bonding, dispense a small amount of material through the static mixer (purge) until the product is uniformly mixed.
Bulk Application	A-K083 can be applied using several types of meter-mix equipment. The material is applied through a 8mm x 24-element square-type static mixer. Pumping equipment should be austenitic (300's grade) stainless-steel in construction. Seals and gaskets should be EPR or Teflon. Any components based on elastomers such as nitriles and Viton should be avoided. Hoses should be Teflon-lined. Consult L&L Products Technical Service & Support Staff and the equipment supplier to ensure compatibility.
Bonding Process	<p>Parts should be mated and in final position before the expiration of the working time and should remain in position, unstressed & undisturbed until the end of the fixture time has passed. Note that working and fixture times are heavily influenced by temperature. Warm temperatures shorten working times, and cooler temperatures lengthen fixture times. The application temperature for the adhesive and parts should be between 15-30°C [60-85°F].</p> <p>Use enough adhesive to completely fill the desired bond area, and avoid entrapping air within the joint. Avoid over-squeezing the joint causing insufficient material to remain in the bond area once the clamps or jig is removed.</p> <p>A-K083 cures by exothermic reaction. Large masses of material can result in overheating of the adhesive and substrate. Consult with L&L Products Technical Service & Support Staff.</p>
Clean-Up	Excess material should be removed before curing using a general purpose organic solvent or soap & water. Avoid disturbing the bond area during clean-up. After curing, the material must be removed mechanically, followed by a light solvent wipe to remove any residue.

Health & Safety

Safety Precautions	Avoid contact with skin and eyes. Consult product-specific Safety Data Sheet for all safety and environmental information concerning use and disposal of this product.
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Notes	<ol style="list-style-type: none">1. Test all applications according to anticipated production and service conditions.2. The time period after mixing the components before the materials must be mated and positioned.3. Varies with ambient conditions, bond size and substrate. Must be tested with customer parts.4. Adhesive performance changes depending on service temperature. Evaluate adhesive performance at anticipated service conditions. Consult L&L Products Technical Service & Support staff.5. Ultimate lap-shear strength on metals may require shot-blasting or special surface preparation.6. Chemical resistance heavily influenced by concentration, temperature, frequency and duration of exposure. Consult L&L Products Technical Service & Support Staff.
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