

LORD® 3135 A/B Epoxy Adhesive

(formerly LORD 3135 A/7111 B Adhesive)

Technical Data Sheet

LORD® 3135 A/B adhesive is an epoxy-based structural adhesive used for bonding most metals, wood, glass, concrete and masonry, and various synthetic materials. LORD 3135 A/B adhesive is ideal for bonding “skins” to plastic or metal honeycomb cores, polyurethane foams, and phenolic and epoxy laminates. This adhesive system can be either room temperature cured or heat cured for faster processing.

LORD 3135 A/B adhesive meets requirements of NASA Low Outgassing Specification, Military Specification MMM-A-134 Type 1&2, and Military Specification Mil-A-8623 A Type 1&2.

Features and Benefits:

Excellent Adhesion – provides excellent adhesion to a variety of substrates.

Durable – demonstrates high strength bonds with a degree of bondline flexibility; provides good electrical resistance.

Low Stress – exhibits low shrinkage and stress on components as it cures.

Environmentally Resistant – cured system provides excellent mechanical impact and shock resistance.

Chemically Resistant – cured system provides excellent resistance to solvents.

Application:

Surface Preparation – Remove soil, grease, oil, fingerprints, dust, mold release agents, rust and other contaminants from the surfaces to be bonded by solvent degreasing or alkaline cleaning.

On metal surfaces which are free of oxidation, use an isopropyl alcohol wipe. If necessary, use an abrasive material to remove tarnish. Always follow abrasion by a second cleaning to ensure removal of loose particles.

Handle prepared surfaces carefully to avoid contamination. Assemble as soon as possible.

Mixing – Thoroughly mix equal parts of resin and hardener, by weight, until uniform in color and consistency. Be careful not to whip excessive air into the adhesive system. An induction period of 15 minutes is recommended prior to application.

Applying – Apply mixed adhesive using a stiff brush, spatula, trowel or similar tool. Suggested bondline thickness is 2-5 mil for non-porous surfaces or 6-10 mil for porous surfaces.

Join the parts in such a way as to avoid entrapped air. Apply approximately 10 psi pressure, or sufficient contact pressure, to ensure surfaces are held in intimate contact during cure period.

Curing – Cure schedule is dependent on time and temperature-pressure relationship. At room temperature [77°F (25°C)], LORD 3135 A/B adhesive will cure to full strength in approximately 24 hours.

Typical Properties*

	3135-A Resin	3135-B Hardener
Appearance	Amber Liquid	Amber Liquid
Viscosity, cP @ 77°F (25°C) Brookfield	12,000 - 14,500	25,000 - 50,000
Density lb/gal (g/cm³)	9.75 (1.17)	8.01 (0.96)
Flash Point, °F (°C) Closed Cup	≥ 201 (≥ 93)	≥ 201 (≥ 93)

*Data is typical and not to be used for specification purposes.



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Cure rate can be accelerated by subjecting bonded parts to an elevated cure cycle of 45 minutes @ 121°C; or 1 hour @ 93°C; or 3 hours @ 65°C.

Cleanup – Clean excess adhesive on the bonded assembly, as well as the equipment, prior to the adhesive cure with hot water and detergent or an organic solvent such as ketones. Once adhesive has cured, heat the adhesive to 400°F (204°C) or above to soften the cured adhesive. This allows the parts to be separated and the adhesive to be more easily removed.

Shelf Life/Storage:

Shelf life is two years when stored in a clean, dry environment at 73°F (23°C) in original, unopened container.

Cautionary Information:

Before using this or any Parker LORD product, refer to the Safety Data Sheet (SDS) and label for safe use and handling instructions.

For industrial/commercial use only. Must be applied by trained personnel only. Not to be used in household applications. Not for consumer use.

Typical Properties* of Resin Mixed with Hardener	
Mix Ratio by Weight, Resin to Hardener	1:1
Solids Content, %	100
Working Time, hours @ 77°F (25°C)	1.5 - 3
Time to Handling Strength, hours	8-12
Mixed Appearance	Straw Yellow Liquid
Cured Appearance	Amber to Clear

Typical Cured Properties*	
Volume Resistivity, ohm/cm ASTM D257-252T	1.25 x 10 ¹⁴
Coefficient of Linear Thermal Expansion, ppm/°C	57.6
Hardness Shore D	82
Dielectric Strength, V/mil ASTM D149-44 60 cycles @ room temperature	460
Dielectric Constant ASTM D159-47T 60 cycles @ room temperature	3.24
Arc Resistance, seconds ASTM D495-48T	78

Lap Shear Performance*				
Condition	-319°F (-195°C)	-148°F (-100°C)	75°F (24°C)	158°F (70°C)
Lap Shear Strength, psi (MPa)	2400 (16.5)	2800 (19.3)	3800 (26.2)	550 (3.8)
Lap Shear Strength after 30 days Humidity Exposure, psi (MPa)	2500 (17.2)	2600 (17.9)	3900 (26.9)	400 (2.8)
Lap Shear Strength after 20 days Salt Spray Exposure, psi (MPa)	2500 (17.2)	3000 (20.7)	3200 (22.1)	600 (4.1)

Lap Shear Specimens	
Test Specimen	Fabricated from 2024T3 clad aluminum
Humidity Exposure	Specimens conditioned in a counter-flow humidity cabinet for 720 hours at a relative humidity of 100%, and temperature of 161°F (72°C)
Salt Spray Exposure	Specimens conditioned in a salt spray cabinet with saturated salt spray vapor for 30 days, in accordance with MIL-A-005090C and Federal Test Method Standard 152

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Bond Performance*

Substrate**	Cure	Tensile Shear Strength, psi (MPa)		T-Peel Strength, pli (N/mm)	
		@ 75°F (24°C)	@ 383°F (195°C)	@ 75°F (24°C)	@ 383°F (195°C)
Teflon - TFE	48 hours @ 75°F (24°C)	2300 (15.9)	1800 (12.4)	10 (1.75)	5 (0.88)
Teflon - TFE	1 hour @ 250°F (121°C)	2800 (19.3)	3200 (22.1)	10 (1.75)	5 (0.88)
Teflon - FEP	48 hours @ 75°F (24°C)	—	—	12 (2.10)	4 (0.70)
Teflon - FEP	1 hour @ 250°F (121°C)	3000 (20.7)	5300 (36.5)	15 (2.63)	15 (2.63)
Kel -F	1 hour @ 250°F (121°C)	2600 (17.9)	5000 (34.5)	10 (1.75)	17 (2.98)
Tedlar (PUFL)**	16 days @ 75°F (24°C)	2300 (15.9)	1600 (11.0)	5 (0.88)	2 (0.35)
Nylon FM63**	48 hours @ 75°F (24°C)	1000 (6.9)	700 (4.8)	—	—
Zytel 61**	48 hours @ 75°F (24°C)	1500 (10.3)	700 (4.8)	—	—
Zytel 61	48 hours @ 75°F (24°C)	1200 (8.3)	800 (5.5)	1 (0.18)	—
MD-551 (Chlorobutyl Rubber)**	1 hour @ 250°F (121°C)	320 (2.2)	2300 (15.9)	5 (0.88)	5 (0.88)
Viton A-HV**	1 hour @ 250°F (121°C)	1400 (9.7)	4800 (33.1)	19 (3.33)	7 (1.23)
Adiprene C**	1 hour @ 250°F (121°C)	2600 (17.9)	3800 (26.2)	15 (2.63)	10 (1.75)
Thiokol FA**	1 hour @ 250°F (121°C)	130 (0.89)	1300 (8.96)	7 (1.23)	2 (0.35)
Hypalon 40**	1 hour @ 250°F (121°C)	2800 (19.3)	4400 (30.3)	15 (2.63)	4 (0.70)
Copper Foil (2 mil)	7 days @ 75°F (24°C)	1400 (9.7)	1000 (6.9)	2 (0.35)	5 (0.88)
Lead Foil (4 mil)	7 days @ 75°F (24°C)	1700 (11.7)	700 (4.8)	5 (0.88)	1 (0.18)
Tin Foil (4 mil)**	2 days @ 75°F (24°C)	2400 (16.5)	2200 (15.2)	4 (0.70)	3 (0.53)
Cadmium Foil**	2 days @ 75°F (24°C)	1500 (10.3)	900 (6.2)	1 (0.18)	1 (0.18)

Substrate	Surface Treatment
Teflon - TFE	NA-Naphthalene
Teflon - FEP	NA-Naphthalene
Kel- F	NA-Naphthalene
Zytel 61	TDI
Copper Foil	Dilute Nitric Acid
Lead Foil	Dilute Nitric Acid

*Data is typical and not to be used for specification purposes.

**No surface treatment.

Values stated in this technical data sheet represent typical values as not all tests are run on each lot of material produced. For formalized product specifications for specific product end uses, contact the Customer Support Center.

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