

PRODUCT INFORMATION

513

LORID[®]
Engineered Adhesives

Acrylic Adhesive for Thermoplastics and Thermoset Plastics

Description

Lord[®] 513 is a two-part, non-sagging, fast curing, impact resistant acrylic adhesive. It is useful for bonding most plastics and prepared metals. Its resiliency and sandability make it particularly useful with poor-fit joints. Lord 513 adhesive can be used as a No-Mix system using Lord Accelerator 4. It is also easily handled in meter/mix/dispense equipment.

Features and Benefits

Environmental and Chemical Resistance - provides excellent resistance to harsh environments such as water, oil and salt spray.

Versatile - allows for Mix-In and No-Mix application methods.

Temperature Resistant - performs in wide temperature ranges from -40°C to 121°C (-40°F to 250°F).

Fast Cure - cures quickly at room temperature.

Surface Preparation

Substrate should be clean and free of dirt, grease, mold release, and other contaminants such as migrated plasticizers. Generally, an alcohol or other solvent wipe can be used to clean thermoplastics. Thermoset plastics should be abraded first, then wiped with a solvent.

Table 1: Typical Properties* of Lord 513 Acrylic Adhesive

	Lord 513	Accelerator 4	Accelerator 17	Accelerator 19
Appearance	Grey paste	Clear amber to slightly hazy liquid	Off-white to yellow liquid	Off-white paste
Viscosity, cP Brookfield @ 25°C (77°F)	150,000 - 300,000	10	10,000 - 100,000	150,000 - 450,000
Density kg/m ³ lb/gal	995 - 1019 8.3 - 8.5	1222 - 1282 10.2 - 10.7	1150 - 1246 9.6 - 10.4	1426 - 1546 11.9 - 12.9
Solvents	None	Methylene Chloride/ MIBK/Trichloroethylene	None	None
Flash Point, closed cup	9°C (48°F)	None	>93°C (>200°F)	>93°C (>200°F)
Working Time - Mix-In @ 24°C (75°F)	3 - 4 Minutes	—	—	—
Handleable Bonds @ 24°C (75°F)	7 - 8 Minutes	—	—	—
Mix Ratio by volume	10 Parts	No-Mix	1 Part	5 Parts
Shelf Life from date of shipment at 24°C (75°F), unopened container	6 Months	6 Months	6 Months	6 Months

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

Metal substrates should be free of substrate oxidation and other contaminants. Acid etching or grit blasting followed by degreasing, is necessary for optimal adhesion.

No-Mix

Application can be made by spraying, rolling or brushing Lord Accelerator 4 onto the substrates to be bonded. The accelerator dries to a lacquer finish in approximately one to three minutes at room temperature. The resin can be applied immediately after the accelerator is dry, or up to several weeks thereafter.

Mix-In

Thoroughly mix the acrylic adhesive and Mix-In accelerator at the ratio specified in Table 1. Mix until uniform in color and consistency. Be careful not to

whip excessive air into the acrylic adhesive .

Heat buildup due to an exothermic reaction between the two components will shorten the working time of the acrylic adhesive. Mixing smaller quantities will minimize heat buildup. Do not attempt to use any acrylic adhesive that has begun to gel.

For Mix-In and No-Mix Systems — Acrylic adhesive cure will begin on contact with the accelerator. Although there is a working time of three to four minutes, it is suggested that parts be joined immediately after adhesive application.

Table 2: Typical Performance Data of Lord 513 Acrylic Adhesive

Material	Lap Shear, psi
Stainless Steel, 304 (Aluminum oxide blast)	3900
Stainless Steel, 304 (Solvent wiped)	573
2024-T3 Aluminum (Chromic acid etched)	2740
2024-T3 Aluminum (Aluminum oxide blast)	4000
Cold Rolled Steel (Aluminum oxide blast)	4100
Polycarbonate (IPA wipe)	900
FRP (Aluminum oxide blast)	740
ABS (IPA wipe)	710

Notes: Acrylic adhesive cured 24 hours at room temperature prior to testing. Samples prepared and tested according to ASTM D1002. Used 0.010 inch glue line thickness.

Table 3: Environmental Resistance of Lord 513 Acrylic Adhesive

Environments	Lap Shear
Control — Room Temperature	4100
30 day — 100 percent RH at 49°C (120°F)	3680
30 day — 5 percent salt spray	4020
30 day — Water immersion at room temperature	4000
30 day — ASTM Reference Fuel “B” immersion at room temperature	3800
30 day — Gasoline immersion at room temperature	3650

Notes: Substrate was cold rolled steel (grit blasted) Acrylic adhesive cured 24 hours at room temperature prior to test exposure. Samples prepared and tested according to ASTM D1002. Used 0.010 inch glue line thickness.

Table 4: Typical Temperature Resistance of Lord 513 Acrylic Adhesive

Temperature	Lap Shear, psi
-40°C (-40°F)	1500
Room Temperature 25°C (77°F)	4100
82°C (180°F)	3370
121°C (250°F)	1700

Notes: Substrate was cold-rolled steel (grit blasted). Acrylic adhesive cured 24 hours at room temperature prior to test exposure. Used 0.010 inch glue line thickness.

Clean-Up

Equipment and reusable tools should be cleaned with solvents such as methylene chloride, acetone, or MEK immediately after mixing the components.

Hand-mixed batches should be prepared in polyethylene or disposable paper containers. The working time for mixed Lord 513 adhesive is four minutes.

After adding the accelerator, any necessary cleanup operation should be completed within this time limit.

Cautionary Information

Before using this or any Lord product, refer to the Material Safety Data Sheet (MSDS) 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.

Values stated in this bulletin 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 Service Department.

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