LORD® 410 Acrylic Adhesive with LORD Accelerator 19 or 19GB

Technical Data Sheet

LORD® 410 acrylic adhesive in combination with LORD Accelerator 19 or 19GB can be used to replace welding, brazing, riveting and other mechanical fastening methods. This adhesive performs particularly well in low-temperature environments and applications that are subject to high impact loads.

LORD 410 acrylic adhesive, when mixed with LORD Accelerator 19 or 19GB, creates an adhesive system that bonds a wide variety of prepared or unprepared metals and engineered plastics. The adhesive system is specifically formulated to provide the highest impact and peel strengths available in a room temperature curing adhesive.

LORD 410 acrylic adhesive can be mixed with either LORD Accelerator 19 or LORD Accelerator 19GB. LORD Accelerator 19GB contains 0.25 mm diameter, high compression strength solid glass spheres, which enable precise control of the adhesive bondline thickness. LORD Accelerator 19GB is available in off-white or grey. LORD Accelerator 19 can be used when bondline thickness is controlled by other means, or is greater than 0.25 mm. LORD Accelerator 19 is available in off-white or black. For further detailed information, refer to applicable data sheet.

Features and Benefits:

Versatile – bonds a wide range of engineered thermoplastics including XENOY®.

Temperature Resistant – performs at temperatures from -40°C to +150°C (-40°F to +300°F).

Environmentally Resistant – resists dilute acids, alkalis, solvents, greases, oils, moisture, salt spray and weathering; provides excellent resistance to indirect UV exposure.

Non-Sag – remains in position when applied on vertical or overhead surfaces, allowing for greater process flexibility.

Application:

Surface Preparation – Remove grease, loose contamination or poorly adhering oxides from metal surfaces. Normal amounts of mill oils and drawing compounds usually do not present a problem in adhesion. Most plastics require a simple cleaning before bonding. Some may require abrading for optimum performance.

Mixing – Mix LORD 410 acrylic adhesive with the proper amount of LORD Accelerator 19 or 19GB. Handheld cartridges will automatically dispense the correct volumetric ratio of each component. Even color distribution visually indicates a thorough mix. Once mixed, the adhesive cures rapidly.

Applying – Apply adhesive using handheld cartridges or automatic meter/mix/dispense equipment.

- Handheld Cartridges
  1. Load the cartridge into the applicator gun and remove the end caps.
  2. Level the plungers by expelling a small amount of material to ensure both sides are level.
  3. Attach mixing tip and expel a mixer's length of adhesive.

Typical Properties*	
Appearance	Off-white to Tan Paste
Viscosity, cP @ 25°C (77°F) Brookfield	100,000 - 350,000
Density kg/m^3 (lb/gal)	 1096 - 1156 (9.15 - 9.65)
Flash Point, °C (°F)	15 (59)

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

4. Apply adhesive to substrate and mate the parts within the working time of the adhesive. Clamp in position until adhesive reaches handling strength.

Do not re-expose adhesive to air once parts are mated. Mated parts should be repositioned by sliding to achieve proper alignment.

- Meter/Mix/Dispense Equipment
  Contact your Parker Lord representative if assistance is needed using this equipment.

Curing – Cure begins immediately once adhesive and accelerator are mixed. Handling strength is achieved within 60-120 minutes at 24°C (75°F). Complete cure requires 24 hours at room temperature. Mating surfaces must be held in contact during the entire cure period. Cure rate can be accelerated by applying modest heat. If heat cured, do not exceed 66°C (150°F). Cured adhesive is colored to visually indicate a full cure; cure color depends on the accelerator used.

Cleanup – Clean equipment and tools prior to the adhesive cure with solvents such as isopropyl alcohol, acetone or methyl ethyl ketone (MEK). Once adhesive is cured, heat the adhesive to 204°C (400°F) or above to soften the adhesive. This allows the parts to be separated and the adhesive to be more easily removed. Some success may be achieved with commercial epoxy strippers.

Shelf Life/Storage:

Shelf life is one year from date of manufacture when stored below 27°C (80°F) in original, unopened container. Check "Use By" date on packaging prior to applying product.

For maximum shelf life, storage temperatures of 4-10°C (40-50°F) are recommended. If stored at these cooler temperatures, allow product to return to room temperature before using. Protect from exposure to direct sunlight.

LORD 410 acrylic adhesive is flammable. Do not store or use near heat, sparks or open flame.

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 Adhesive Mixed with Recommended Accelerator

	A19	A19 Black	A19GB	A19GB Grey
Mix Ratio by Weight, Adhesive to Accelerator	3:1	3:1	2.9:1	2.9:1
Mix Ratio by Volume, Adhesive to Accelerator	4:1	4:1	4:1	4:1
Solids Content, %	100	100	100	100
Working Time, minutes @ 24°C (75°F)	20-30	20-30	20-30	20-30
Time to Handling Strength, minutes @ 24°C (75°F) 50 psi Shear	60-120	60-120	60-120	60-120
Mixed Appearance	Tan Paste	Grey Paste	Tan Paste	Grey Paste
Cured Appearance	Tan to Green	Black	Tan to Green	Grey

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

Typical Cured Properties*

Tensile Strength at Break, MPa (psi) ASTM D638, modified	18.6 (2700)
Elongation, % ASTM D638, modified	30
Young's Modulus, MPa (psi) ASTM D638, modified	896.3 (130,000)
Glass Transition Temperature (Tg), °C (°F) ASTM E1640-99, by DMA	72 (162)

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Bond Performance*

Substrates	Aluminum to Aluminum	Galvanized Steel to Galvanized Steel	Powder Coated Steel to Powder Coated Steel
Lap Shear @ Room Temperature, MPa (psi)	18.3 (2650)	17.2 (2500)	13.3 (2800)
Failure Mode	C	C	C
Lap Shear @ Hot Strength [82°C (180°F)], MPa (psi)	13.7 (1980)	12.8 (1830)	7.2 (1050)
Failure Mode	TLC	TLC	CF
Lap Shear after 500 hours Salt Spray Exposure, MPa (psi) Test after 24 hours	18.3 (2650)	17.2 (2500)	10.1 (1470)
Failure Mode	TLC	TLC	CF
Lap Shear after 14 days @ 38°C (100°F), 100% RH, MPa (psi)	20.0 (2900)	16.9 (2450)	16.5 (2400)
Failure Mode	C	C	C
Lap Shear @ -34°C (-30°F), MPa (psi)	17.2 (2500)	19.3 (2800)	22.8 (3300)
Failure Mode	C	C	CF
T-Peel, N/mm (pli)	5 (24.4)	2.9 (22)	4.6 (26)
Failure Mode	C	C	C

Substrate	Surface Treatment
Aluminum, 0.032" thick 6061T6	Dry Rag Wipe
Galvanized Steel, 0.030" thick electrogalvanized	Dry Rag Wipe
Powder Coated Steel, 0.035" thick, polyester on cold rolled steel	Dry Rag Wipe

Bonded Parameters	Bond Area	Film Thickness	Cure	Mix Ratio
Metal Lap Shears (ASTM D1002)	1.0"x0.5"	0.010"	24 hr @ RT	4:1 by Volume
T-Peel (ASTM D1876 modified)	1.0"x3.0"	0.010"	72 hr @ RT	4:1 by Volume

Failure Mode Definition	Abbreviation
Cohesive Failure	C
Coating Failure	CF
Thin Layer Cohesive Failure	TLC

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