LORD® Signlok 403 Adhesive

Description

LORD® Signlok 403 adhesive is a two-component adhesive system designed for bonding a wide variety of prepared or unprepared metals and engineered plastics. LORD Signlok 403 adhesive can be used to replace welding, brazing, riveting and other mechanical fastening methods. This adhesive system is formulated to provide some of the highest impact and peel strengths available in a room temperature curing adhesive.

Features and Benefits

Versatile – bonds a wide range of unprepared metals with minimal substrate preparation, as well as engineered thermoplastics including XENOY®, polycarbonate, ABS and acrylics.

Temperature Resistant – performs at temperatures from -40°F to +300°F (-40°C to +149°C).

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

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

Precise Bondline – allows precise control of the adhesive bondline thickness due to its content of glass beads.

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 adhesive with accelerator at a ratio of 2:1, adhesive to accelerator, by volume. 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.

XENOY is a trademark of General Electric Company.

Typical Properties*

	Adhesive (Part A)	**Accelerator (Part B)**
Appearance	Tan Paste	Off-white Paste
Density		
lb/gal	9.25 - 9.55	12.35 - 13.2
(kg/m^3)	(1108 - 1144)	(1480 - 1581)
Flash Point, °F (°C)	59 (15)	≥200 (93)

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

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Applying – Apply mixed adhesive to bond surfaces using handheld cartridge or automatic meter/mix/dispense equipment. Contact your LORD representative if assistance is needed using this equipment.

Curing – Cure begins immediately once adhesive and accelerator are mixed. Complete cure requires 24 hours at room temperature. Mating surfaces must be held in contact during the entire curing process. Cure rate can be accelerated by applying modest heat [<150°F (<66°C)]. 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 400°F (204°C) or above to soften the adhesive. This allows the parts to be separated and the adhesive to be more easily removed.

Typical Cured Properties*

Lap Shear Strength, psi (MPa)	
Aluminum	2000 (13.79)
Steel	2300 (15.86)
Peel Strength, pli (N/mm) Aluminum	20-23 (3.5-4.0)

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

Typical Properties* of Adhesive Mixed with Accelerator

Mix Ratio by Volume, Adhesive to Accelerator	2:1
Solids Content, %	100
Working Time, min @ 75°F (24°C)	2-4
Time to Handling Strength, min @ 75°F (24°C) 50 psi Shear	4-6
Full Cure Time, hr @ 75°F (24°C)	24**
Mixed Appearance	Tan Paste
Cured Appearance	Tan to Green

*Data is typical and not to be used for specification purposes.
**Reaches 90% of its full strength after 2 hours.

Shelf Life/Storage

Shelf life of each component is 18 months when stored in a well ventilated area below 80°F (27°C) in original, unopened container. Storage temperatures of 40-50°F (4-10°C) are recommended. If stored cold, allow product to return to room temperature before using. Protect from exposure to ultraviolet light.

LORD Signlok 403 adhesive is flammable. Do not store or use near heat, sparks or open flame.

Cautionary Information

Before using this or any 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.

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.

Information provided herein is based upon tests believed to be reliable. In as much as LORD Corporation has no control over the manner in which others may use this information, it does not guarantee the results to be obtained. In addition, LORD Corporation does not guarantee the performance of the product or the results obtained from the use of the product or this information where the product has been repackaged by any third party, including but not limited to any product end-user. Nor does the company make any express or implied warranty of merchantability or fitness for a particular purpose concerning the effects or results of such use.

LORD provides valuable expertise in adhesives and coatings, vibration and motion control, and magnetically responsive technologies. Our people work in collaboration with our customers to help them increase the value of their products. Innovative and responsive in an ever-changing marketplace, we are focused on providing solutions for our customers worldwide ... Ask Us How.

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LORD® Signlok 406 Adhesive

Description

LORD® Signlok 406 adhesive is a two-component adhesive system designed for bonding a wide variety of prepared or unprepared metals and engineered plastics. LORD Signlok 406 adhesive can be used to replace welding, brazing, riveting and other mechanical fastening methods. This adhesive system is formulated to provide some of the highest impact and peel strengths available in a room temperature curing adhesive.

Features and Benefits

Versatile – bonds a wide range of unprepared metals with minimal substrate preparation, as well as engineered thermoplastics including XENOY®, polycarbonate, ABS and acrylics.

Temperature Resistant – performs at temperatures from -40°F to +300°F (-40°C to +149°C).

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

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

Precise Bondline – allows precise control of the adhesive bondline thickness due to its content of glass beads.

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 adhesive with accelerator at a ratio of 2:1, adhesive to accelerator, by volume. 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.

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Typical Properties*

	Adhesive (Part A)	**Accelerator (Part B)**
Appearance	Tan Paste	Off-white Paste
Density		
lb/gal	9.25 - 9.55	12.15 - 12.7
(kg/m^3)	(1108 - 1144)	(1456 - 1522)
Flash Point, °F (°C)	59 (15)	≥200 (93)

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

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Applying – Apply mixed adhesive to bond surfaces using handheld cartridge or automatic meter/mix/dispense equipment. Contact your LORD representative if assistance is needed using this equipment.

Curing – Cure begins immediately once adhesive and accelerator are mixed. Complete cure requires 24 hours at room temperature. Mating surfaces must be held in contact during the entire curing process. Cure rate can be accelerated by applying modest heat [<150°F (<66°C)]. 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 400°F (204°C) or above to soften the adhesive. This allows the parts to be separated and the adhesive to be more easily removed.

Typical Cured Properties*

Lap Shear Strength, psi (MPa)	
Aluminum	2000 (13.79)
Steel	2300 (15.86)
Peel Strength, pli (N/mm) Aluminum	20-23 (3.5-4.0)

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

Typical Properties* of Adhesive Mixed with Accelerator

Mix Ratio by Volume, Adhesive to Accelerator	2:1
Solids Content, %	100
Working Time, min @ 75°F (24°C)	8-11
Time to Handling Strength, min @ 75°F (24°C) 50 psi Shear	12-17
Full Cure Time, hr @ 75°F (24°C)	24
Mixed Appearance	Tan Paste
Cured Appearance	Tan to Green

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

Shelf Life/Storage

Shelf life of each component is 18 months when stored in a well ventilated area below 80°F (27°C) in original, unopened container. Storage temperatures of 40-50°F (4-10°C) are recommended. If stored cold, allow product to return to room temperature before using. Protect from exposure to ultraviolet light.

LORD Signlok 406 adhesive is flammable. Do not store or use near heat, sparks or open flame.

Cautionary Information

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

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Estimating Material Coverage

The bead diameter should be predetermined based upon the desired final bondline width and thickness. Table 1 can be used as a guide for sizing the adhesive bead diameter.

Note: These bead diameters will yield an excess of 10 percent in case of irregularities in the surface.

Engagement area is critical to adhesive performance, so it is important to apply enough adhesive to fill the designed joint. Insufficient adhesive quantity, or introduction of air into the adhesive, will cause a reduction in bond strength and a characteristic pattern known as “spider webbing” (the pattern is visible when parts are disassembled). This problem can also be caused by insufficient or ineffective clamping.

Refer to Table 2 for estimated linear foot coverage based on cartridge size and bead diameter.

Table 1 – Bead Diameter Estimator – inches (cm)

Required Bead Diameter: Use the table below to determine the required bead diameter from the dimensions of the adhesive joint.

		Bondline Width - in (cm)					
		0.25 (0.6)	**0.50 (1.8)**	**1.0 (2.5)**	**2.0 (5.1)**	**4.0 (10.2)**	**8.0 (20.3)**
Bondline Thickness in (mm)	**0.01 (0.25)**	0.01 (0.25)	0.08 (0.20)	0.11 (0.29)	0.16 (0.41)	0.23 (0.57)	0.32 (0.81)
	0.02 (0.5)	0.02 (0.5)	0.11 (0.29)	0.16 (0.41)	0.23 (0.57)	0.32 (0.81)	0.45 (1.15)
	0.04 (1.0)	0.04 (1.0)	0.16 (0.41)	0.23 (0.57)	0.32 (0.81)	0.45 (1.15)	0.64 (1.62)
	0.08 (2.0)	0.08 (2.0)	0.23 (0.57)	0.32 (0.81)	0.45 (1.15)	0.64 (1.62)	0.90 (2.29)

Table 2 – Bead Length Estimator – feet (m)

Linear Coverage: Use the table below to determine the length of adhesive bead that can be obtained from a cartridge of adhesives.

		Bead Diameter - in (cm)					
		0.125 (0.30)	**0.188 (0.48)**	**0.250 (0.60)**	**0.313 (0.80)**	**0.375 (0.95)**	**0.500 (1.30)**
Cartridge Volume mL	**40**	17 (5.00)	7.4 (2.20)	4.1 (1.30)	2.7 (0.80)	1.8 (0.60)	1.0 (0.30)
	50	21 (6.30)	9.2 (2.80)	5.2 (1.60)	3.3 (1.00)	2.3 (0.70)	1.3 (0.40)
	200	83 (25.20)	37 (11.20)	21 (6.30)	13 (4.00)	9 (2.80)	5.2 (1.60)
	375	155 (47.20)	69 (21.00)	39 (11.80)	25 (7.60)	17 (5.20)	10 (3.10)
	400	166 (50.40)	74 (22.40)	41 (12.60)	27 (8.10)	18 (5.60)	10 (3.10)
	485	201 (61.10)	89 (27.20)	50 (15.30)	32 (9.80)	22 (6.80)	13 (3.80)
	600	249 (75.60)	111 (33.60)	62 (18.70)	40 (12.10)	28 (8.40)	16 (4.70)

https://www.lord.com/products-and-solutions/adhesives/industrial-structural-adhesives-basics-best-practices