

LORD® Structural Adhesives

SOLUTIONS FOR THE INDUSTRY



LORD® Corporation



▲ Factory / R&D Center

● Sales & Tech Support

PROVIDING SOLUTIONS THAT INCREASE THE VALUE OF OUR CUSTOMERS' PRODUCTS

Founded 1924, LORD® is a diversified technology leader with unique expertise in chemical material sciences and mechanical dynamics who provides innovative adhesive, coating and motion management solutions, as well as magnetically responsive technology.

Our technical expertise is built on decades of experience and knowledge in engineering and science. Customers say our technical support is one of our defining strengths.

We provide value to our customers by collaborating closely with them on product design, process engineering and product performance. Our solutions lead to reduced operating costs and increased productivity.

LORD® Corporation is a private-held company with world headquarters in Cary, North Carolina. Our company has regional headquarters in Geneva and Hong-Kong, 19 manufacturing facilities, 10 research & development centers and more than 100 strategically located sales and support centers in 26 countries.

Innovative and responsive to the ever-changing marketplace, LORD® strongly focuses on research to bring leading-edge technology and long-term value to our customers' businesses ... Ask Us How.

AUTOMOTIVE

Automotive OEM Assembly
Tier Component Assembly
Heat Protective Coatings · Aftermarket Repair



TRUCK, BUS & OFF-HIGHWAY

Agriculture
Construction & Mining Equipment
Material Handling · Bus and Truck



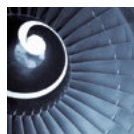
INDUSTRY

Transportation · Construction Components
Signs · Metal Working
General Industry



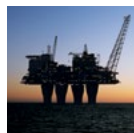
ELECTRONICS

Component Assembly · Industrial Lighting
Printed Electronics Industries · Energy · Protection &
Conductive Materials for Automotive Microelectronics



AEROSPACE & DEFENSE

Active Vibration Control & Balancing Systems
Bearings & TT Straps · Isolators & Mounts
Dampers · Lightning Strike Protection · MRO



ENERGY

Oil & Gas
Solar & Wind

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LORD® Structural Adhesives Solutions



LORD® has more than 40 years' experience in developing structural adhesives. Our extensive line of acrylic, epoxy and urethane adhesives improve appearance, strength and durability, while offering design flexibility and total cost savings.

LORD® successfully serves markets like:

- ▶ Automotive
- ▶ Public Transportation
- ▶ Signing
- ▶ Building components
- ▶ Industrial equipment

Compared to mechanical fasteners like spot welding, rivets, clips and screws, they offer important cost saving opportunities through the use of thinner, lighter materials and a wide choice of bondable substrates, which include metal, composites and plastic assemblies. Bondlines are seamless, fatigue, vibration and shock resistance are improved. Manufacturing processes are simplified.

Compared to alternative adhesive solutions like high performance tapes or bonding sealants, they offer largely superior mechanical resistance, and more robust and efficient manufacturing processes.

Cleaning and surface treatment operations can often be simplified, reducing induced cost and potential nuisances.

LORD® Structural Adhesives perform in demanding applications under severe loads. We have a long lasting experience in cladding panels, parabolic antennas, traffic or commercial sign bonding, train and tram fitting, boat deck to hull bonding, machinery panels' attachment, panel reinforcements, specialty vehicles fitting and many other applications.

For Your convenience, LORD® Structural Adhesives are available in many different cartridge formats, and offer a variety of different bulk packaging for high volume applications.

Collaborating with you, our account managers and engineers will assist you in analyzing your assembly process, determine proper fixturing and joining designs, perform a cost model analysis to help quantify your return on investment, select the most appropriate adhesive product for your application and allocate proper meter/mix dispensing equipment... Ask Us How.

Finally, being a global company, LORD® can support you in any of your worldwide locations. Find out about our product benefits in the following pages.

Selection Considerations

When selecting an adhesive, there are several important considerations that need to be taken into account at every application phase, including the choice of substrate type, surface preparation, temperature, application/cure time and other factors. Use the charts below and to the right to determine which LORD® solution is best suited for your particular application.

Please note: These are **general recommendations**. For comprehensive product selection assistance, please contact the LORD® Customer Support Center at +49 2103 252 31 60 or at info.europe@LORD.com.

	ACRYLIC	EPOXY	URETHANE
PRE-APPLICATION PHASE			
ADHESIVE COMPONENTS	2	2	1 or 2
SUBSTRATE	Metals Thermoplastics Thermosets Composites	Prepared Metals Rubber Thermosets Composites Foams	Thermoplastics Rubber Thermosets Composites Primed Metals Foams Textiles
SURFACE PREPARATION			
Metals	No	Yes	Yes
Thermosets	No	No	No
Thermoplastics	No	No	No
PHYSICAL STATE	Med. Liquid to Paste	Med. Liquid to Paste	Med. Liquid to Paste
APPLICATION PHASE			
CURE TEMPERATURE	Room temp. or heat	Room temp. or heat	Room temp. or heat
OPEN TIME	2 - 75 min*	30 - 150 min**	4 - 120 min**
HANDLING TIME	4 - 160 min	2 - 12 hr	0.5 - 24 hr
SPEED CURE WITH	Mild heat	Heat	Heat
FLASH POINT °C (°F)	> 10 - 93 (50 - 200)	>93 (200)	>93 (200)
HUMIDITY DEPENDENT	No	No	Yes, single-component
MIX REQUIRED	Yes***	Yes	Yes****
POST-APPLICATION PHASE			
SHEAR STRENGTH	Very High	Very High	High
PEEL STRENGTH	Medium	Medium	High
IMPACT STRENGTH	High	High	High
RESISTANCE TO:			
Moisture	Excellent	Very good	Very good
Chemicals	Excellent	Excellent	Very good
UV Light	Excellent	Excellent	Very good
TEMPERATURE RANGE	-40 °C to 150 °C (-40 °F to 302 °F)	-40 °C to 204 °C (-40 °F to 399 °F)	-40 °C to 100 °C (-40 °F to 212 °F)

Higher temperatures will decrease open, handling and cure times. Contact the LORD® Customer Support Center for more details.

* Open time for mix-in-only; no-mix type has a working time of 4 weeks

** Open time for two-component type only

*** Both mix and no-mix systems are available

**** Mix required for two-component systems only

	BARE ALUMINUM OR STEEL, INCLUDING STAINLESS	GALVANIZED STEEL	PREFINISHED METAL	FRP/GRP/CF	SMC	RUBBER (1)	ENGINEERING THERMO- PLASTICS (POLYCAR- BONATE, ACRYLIC, ABS, PVC) (5)	WOOD	URETHANE FOAM (2)	CERAMIC/STONE	THERMOPLASTIC, TPU, TPO, NYLON, POLYPROPYLENE (3)	GLASS (1)
BARE ALUMINUM OR STEEL, INCLUDING STAINLESS	400s 600s 800s 300s (4,6)	400s 600s 800s 300s (4,6)	400s 600s 800s 300s (4,6)	400s 600s 800s 300s (4,6)	400s 600s 800s 300s (4,6)	 300s (1,4)	400s 600s 800s 300s (4)	 300s (4)	600s 300s (4)	 300s (4)	400s 800s 300s (4)	400s (1) 800s (1)
GALVANIZED STEEL		400s 600s (2) 800s	400s 600s (2) 800s	400s 600s (2) 800s	400s 600s (2) 800s	 300s	400s 600s (2) 800s	600s (2)	600s (2)	 300s	400s 600s (2)	400s (1) 800s (1)
		PREFINISHED METAL	400s 600s (2) 800s	400s 600s 800s	400s 600s 800s	 300s (1,6)	400s (6) 600s (6) 800s (6)	 300s	600s	400s (1,6) 600s (1,6) 800s (1,6)	400s 600s 800s	400s (1) 800s (1)
			300s	300s	300s	300s (1,6)	300s (6)	300s	300s	300s (1,6)	300s	
			7000s	7000s (6)	7000s	7000s (1,6)	7000s (6)	7000s	7000s	7000s (1,6)	7000s	7000s (1)
		FRP/GRP/CF	400s 600s 800s	400s 600s 800s	400s 600s 800s	 300s (1)	400s 600s 800s	600s 300s 7000s	600s 300s 7000s	600s 300s 7000s	600s (1) 300s (1) 7000s (1)	
			300s (6)	300s (6)	300s (6)	300s (1)	300s	300s	300s	300s	300s (1)	
			7000s (6)	7000s (6)	7000s (6)	7000s (1)	7000s (6)	7000s	7000s	7000s	7000s (1)	7000s (1)
		SMC	600s 300s 7000s	600s 300s 7000s	600s 300s 7000s	 300s (1) 7000s (1)	400s 600s 800s 300s 7000s	600s 300s 7000s	600s 300s 7000s	600s 300s 7000s	600s (1) 300s (1) 7000s (1)	7000s (1)
			300s 7000s	300s 7000s	300s 7000s	300s 7000s	300s 7000s	300s 7000s	300s 7000s	300s 7000s	300s 7000s	7000s (1)
			7000s	7000s	7000s	7000s	7000s	7000s	7000s	7000s	7000s	7000s (1)
		RUBBER (1)	300s 7000s	300s 7000s	300s 7000s	300s 7000s	300s 7000s	300s 7000s	300s 7000s	300s 7000s	300s 7000s	7000s (1)
			7000s	7000s	7000s	7000s	7000s	7000s	7000s	7000s	7000s	7000s (1)
			7000s	7000s	7000s	7000s	7000s	7000s	7000s	7000s	7000s	7000s (1)
		ENGINEERING THERMOPLASTICS (POLYCARBONATE, ACRYLIC, ABS, PVC) (5)	400s 800s 300s 7000s	400s 800s 300s 7000s	400s 800s 300s 7000s	 300s 7000s	400s 800s 300s 7000s	600s 300s 7000s	600s 300s 7000s	400s 800s 300s 7000s	400s 500s 800s 300s 7000s	400s (1) 800s (1)
			7000s	7000s	7000s	7000s	7000s	7000s	7000s	7000s	7000s	7000s (1)
			7000s	7000s	7000s	7000s	7000s	7000s	7000s	7000s	7000s	7000s (1)
		WOOD	300s 7000s	300s 7000s	300s 7000s	 7000s	300s 7000s	300s 7000s	300s 7000s	300s 7000s	300s 7000s	7000s (1)
			7000s	7000s	7000s	7000s	7000s	7000s	7000s	7000s	7000s	7000s (1)
			7000s	7000s	7000s	7000s	7000s	7000s	7000s	7000s	7000s	7000s (1)
		URETHANE FOAM (2)	300s 7000s	300s 7000s	300s 7000s	 7000s	300s 7000s	300s 7000s	300s 7000s	300s 7000s	300s 7000s	7000s (1)
			7000s	7000s	7000s	7000s	7000s	7000s	7000s	7000s	7000s	7000s (1)
			7000s	7000s	7000s	7000s	7000s	7000s	7000s	7000s	7000s	7000s (1)
		CERAMIC/ STONE	300s 7000s	300s 7000s	300s 7000s	 7000s	300s 7000s	300s 7000s	300s 7000s	300s 7000s	300s 7000s	7000s (1)
			7000s	7000s	7000s	7000s	7000s	7000s	7000s	7000s	7000s	7000s (1)
			7000s	7000s	7000s	7000s	7000s	7000s	7000s	7000s	7000s	7000s (1)
		THERMOPLASTIC, TPU, TPO, NYLON, POLYPROPYLENE (3)	300s 7000s	300s 7000s	300s 7000s	 7000s	300s 7000s	300s 7000s	300s 7000s	300s 7000s	300s 7000s	NR NR NR
			7000s	7000s	7000s	7000s	7000s	7000s	7000s	7000s	7000s	NR
			7000s	7000s	7000s	7000s	7000s	7000s	7000s	7000s	7000s	NR
		GLASS (1)	400s (1) 800s (1) 7000s (1)	400s (1) 800s (1) 7000s (1)	400s (1) 800s (1) 7000s (1)	 7000s (1)	400s (1) 800s (1) 7000s (1)	400s (1) 800s (1) 7000s (1)	400s (1) 800s (1) 7000s (1)	400s (1) 800s (1) 7000s (1)	400s (1) 800s (1) 7000s (1)	400s (1) 800s (1) 7000s (1)
			7000s (1)	7000s (1)	7000s (1)	7000s (1)	7000s (1)	7000s (1)	7000s (1)	7000s (1)	7000s (1)	7000s (1)
			7000s (1)	7000s (1)	7000s (1)	7000s (1)	7000s (1)	7000s (1)	7000s (1)	7000s (1)	7000s (1)	7000s (1)
			7000s (1)	7000s (1)	7000s (1)	7000s (1)	7000s (1)	7000s (1)	7000s (1)	7000s (1)	7000s (1)	7000s (1)

- (1) Requires a primer or adhesion promoter.
- (2) Variable results - Contact the LORD® Customer Support Center for special instructions.
- (3) Flame, corona, plasma treatment or a primer is required - Contact the LORD® Customer Support Center.
- (4) Epoxy used on bare metals requires a clean, solvent-wiped surface for best results.
- (5) Acrylic adhesive should not be used to attach large thermoplastic parts due to the differences in thermal expansion - Contact the LORD® Customer Support Center.
- (6) May require scuffing or abrading surfaces.

NR - Not Recommended

Accessories and Guns

LORD® 50ml Cartridges

A handheld, manual dispensing system for small jobs.

Volume of mixed adhesive per cartridge varies with the mix ratio:

1:1 - 50ml	4:1 - 40ml
2:1 - 50ml	10:1 - 35ml

LORD® 200/400 and 485 ml Cartridges

A larger dispensing system with both manual guns and pneumatic guns for field repair or production applications. Volume of mixed adhesive per cartridge is approximately 200ml or 400ml, but varies with mix ratio.

LORD® Coaxial

Pneumatic and manual dispensing systems utilizing a coaxial cartridge containing the two adhesive parts. Volume of mixed adhesive per cartridge is approximately 400ml, but varies with the mix ratio.






Name	MR50	VBM 400	LORD® Mixer 50ml
SAP	3019428	3025172	3024913
Description	Dispensing Gun 50ml	Universal Gun 400ml	BQ 5,3/16 Ratio 1:1/3:2 (V60)



Name	LORD® Mixer 50ml	LORD® Mixer 2xxml 4XXml	LORD® Mixer 4XXml
SAP	3004476	3001178	3019722/3024161
Description	A 6,3/21 Ratio 1:1/2:1 (V 144)	C 10/24 Ratio 1:1/2:1 (V 144)	F 8/18 Ratio 4:1/10:1 (V60/V3000)

			
Name	VBM MR 200	CBA 50	VBA400A
SAP	-	-	-
Description	Manual Gun	Pneumatic Gun	Pneumatic Gun

			
Name	VBA400B	Powerpush 7000 MP	CBE 500
SAP	-	-	-
Description	Pneumatic Gun	Accu Gun	Accu Gun

INDUSTRIES

"Designed for superior process flexibility, LORD® Structural Adhesives are formulated for use across a variety of substrates, high performance applications and demanding environments. Our process friendly solutions increase your product quality all while saving you time and money."

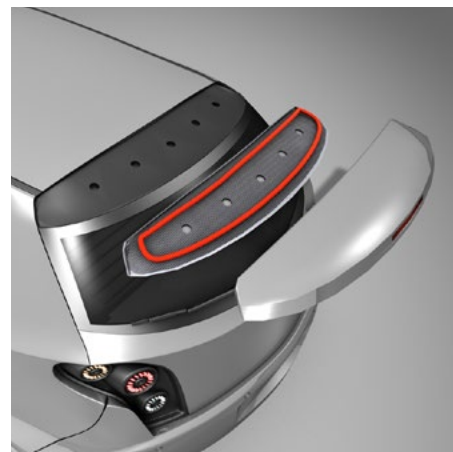
PASSENGER CARS & LIGHT COMMERCIAL VEHICLES

With applications including bonding of closure hem flanges, roofs, tailgates, step plates, spoilers and interior parts like glove boxes or dashboards, the possibilities for LORD® Structural Adhesives are endless for vehicles. They help reduce stress points, cycle times and potential leaks caused by mechanical bonding techniques. They improve aesthetics, fatigue resistance and durability, and reduce the need for rivets, welding spots and sealants. By replacing mechanical fasteners, our Structural Adhesives protect from corrosion even while exposed to extended humidity.

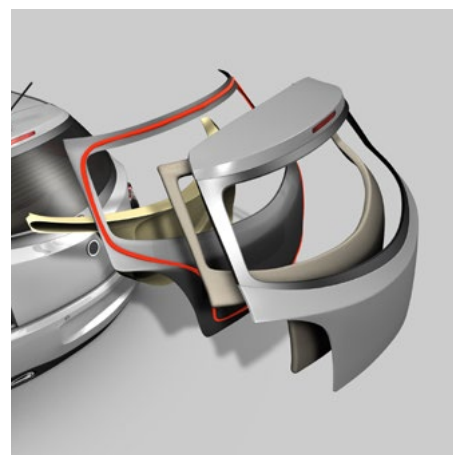
Furthermore, LORD® Structural Adhesives contribute to weight reduction as they can bond materials which are lighter than traditional materials but cannot be joined by mechanical methods. The possibility to bond dissimilar substrates allows design freedom to further improve your final product. The use of very thin or aesthetically sensitive substrates is now a possibility, as LORD® Structural Adhesive's portfolio includes low bond line read-through adhesives.

POTENTIAL APPLICATIONS

- **Aluminum, Steel or Galvanized Floor Bonding**
400 Series Acrylic Adhesives
- **Composite Tailgate Bonding**
800 Series Acrylic Adhesives, 400 Series Acrylic Adhesives
- **Thermoplastic Spoiler Bonding**
800 Series Acrylic Adhesives, 400 Series Acrylic Adhesives
- **SMC Lift Gate Bonding**
300 Series Epoxy Adhesives, 7000 Series Polyurethane Adhesives, 600 Series Acrylic Adhesives and 400 Series Acrylic Adhesives
- **Carbon Fiber Central Console & Speedometer Bonding**
400 Series Acrylic Adhesives, 800 Series Acrylic Adhesives
- **Metal Stiffeners to Composite Hood Bonding**
600 Series Acrylic Adhesives, 400 Series Acrylic Adhesives



Thermoplastic Spoiler Bonding



SMC Lift Gate Bonding

Other Transportation

TRAINS, BUSES, TRUCKS, METRO, MARINE

LORD® Structural Adhesives provide Train, Bus, Truck, Metro and Marine manufacturers with improved aesthetics and increased throughput all while allowing for overall cost savings. They have the ability to bond dissimilar substrates and contribute to weight reduction. Unlike rivets or other assembly technologies, our engineered solutions deliver enhanced interior and exterior aesthetics, tailored to meet your demanding manufacturing needs.

Our Structural Adhesives can be used on engine compartment doors, air conditioning and air intake components, dashboards, front bumpers, grills and other interior parts like ceiling panels, internal partition, seats reinforcements or carriage and frame components.

CERTIFICATES AND STANDARDS OBTAINED IN THE TRAIN INDUSTRY:

Our two-component acrylics have received a significant number of approvals in the train industry:

- SNCF
- DIN 5510-2
- EN 45545
- NFX 70-100

These standards essentially apply to Fire, Smoke and Toxicity tests.

POTENTIAL APPLICATIONS

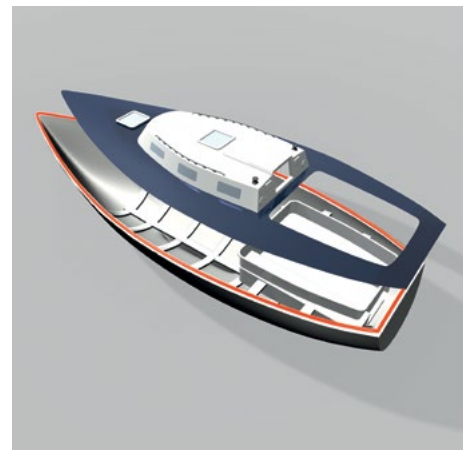
- **Fiberglass Reinforced Plastic Roof Bonding**
7000 Series Polyurethane Adhesives
- **Fiberglass Reinforced Plastic Front Shell Bonding**
7000 Series Polyurethane Adhesives
- **Aluminum Interior Panels and Frames, Door Panel Bonding**
400 Series Acrylic Adhesives
- **Aluminum Interior Panel Luggage Compartment Door**
400 Series Acrylic Adhesives
- **Fiberglass Reinforced Plastic Back Shell Bonding**
7000 Series Polyurethane Adhesives
- **Aluminum, Steel or Galvanized Floor and Sidewall Bonding**
400 Series Acrylic Adhesives, 800 Series Acrylic Adhesives



Truck Door Skin Bonding



Ceiling Panel Bonding



Marine Deck Bonding

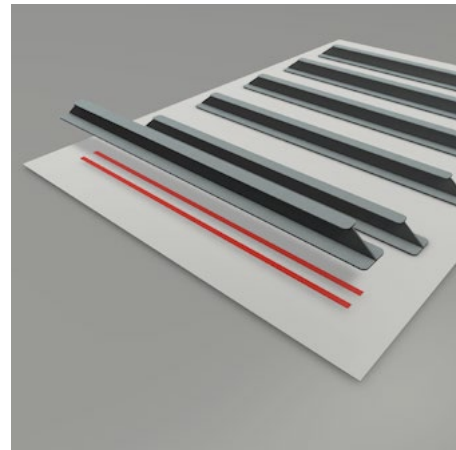
ARCHITECTURAL CLADDING, MODULAR BUILDINGS, WINDOWS & DOORS

Creative and sustainable designs are possible with LORD® Structural Adhesives. Thanks to their high performance and durability, they help improve the aesthetics of metal cladding facades while increasing long-term wind resistance. Our structural adhesives present a stronger and faster-curing alternative to other commonly used adhesives in the construction industry.

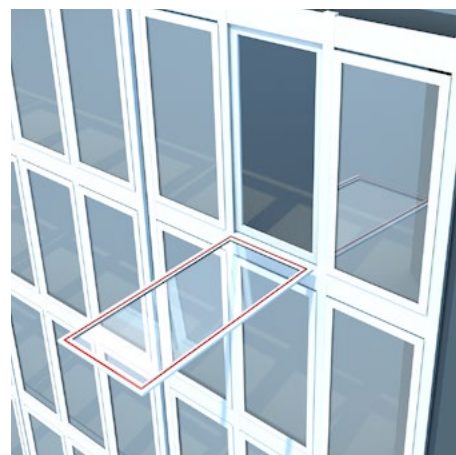
Typical bonding applications include reinforcement of cladding panels, corner key joints, perimeter bond frames and astragals. Aesthetically sensitive substrates like metal composite panels can be used with no limitations as LORD® Flexible Structural Adhesives reduce massively the read-through effect. Honeycomb based composite panels can be bonded in combination with rivets, leading to a significant improvement of the wind resistance of the assembly.

POTENTIAL APPLICATIONS

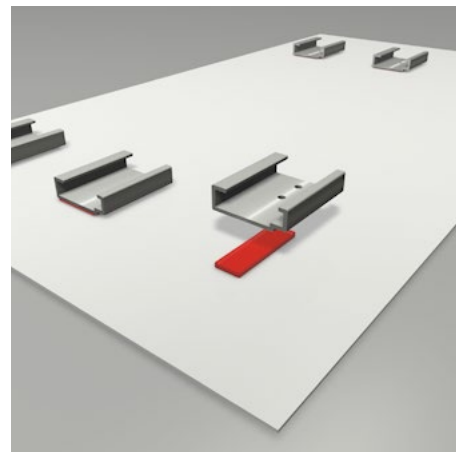
- **Panel to Frame Bonding**
400 Series Acrylic Adhesives, 300 Series Epoxy Adhesive, 800 Series Acrylic Adhesives
- **Stiffeners to Panel Bonding**
400 Series Acrylic Adhesives, 800 Series Acrylic Adhesives
- **Fixing Plate to Panel Bonding**
400 Series Acrylic Adhesives, 800 Series Acrylic Adhesives
- **Window Mount Bonding and Sealant Applications**
400 Series Acrylic Adhesives



Metal Stiffener Bonding



Window Frame Bonding



Fixing Plate Bonding

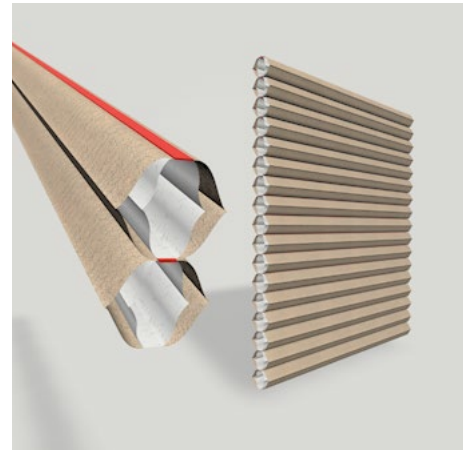
Industrial Equipment

MACHINERY, FURNITURE, CASING, ELECTRIC CABINETS, ELECTRONICS, PARABOLIC ANTENNAS, HOSES

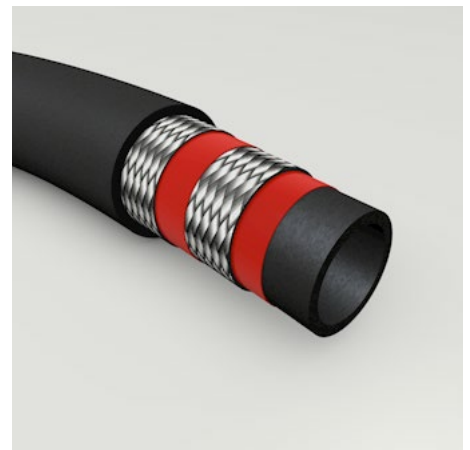
LORD® Structural Adhesives provide increased quality and an overall improvement in strength and durability, while reducing costs and cycle times in various industries. Compared to other traditional fastening methods, they offer design flexibility, a simplified manufacturing process, superior performance and cost savings. Our adhesives help reduce stress points, allow weight reduction and offer an excellent resistance to low temperatures and aggressive agents.

POTENTIAL APPLICATIONS

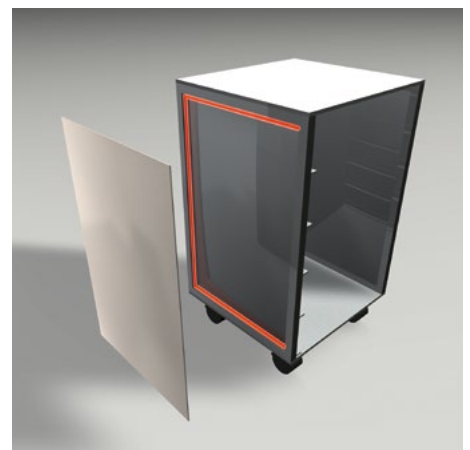
- **Laundry Appliance Components**
7000 Series Polyurethane Adhesives
- **Drain Aluminum Pipe**
400 Series Acrylic Adhesives
- **Textile Blinds**
7000 Series Polyurethane Adhesives
- **High, Medium and Low Pressure Thermoplastic Hoses for all Industries**
7000 Series Polyurethane Adhesives
- **Agriculture Cabin Roof Assembly Bonding ABS and Steel**
400 Series Acrylic Adhesives
- **Luggage, Polycarbonate (PC) to Carbon Fiber (CF)**
400 Series Acrylic Adhesives



Blade Bonding



Hose Reinforcement Bonding



Furniture Side Panel Bonding

TRAFFIC SIGNS, COMMERCIAL SIGNS

LORD® Structural Adhesives can be used to replace welding, brazing, riveting and other mechanical fastening methods, outperforming these fasteners in harsh environments. Our Structural Adhesives allow design freedom and help reducing costs as they allow the use of thinner gauge metals, pre-painted substrates and engineered plastics in various combinations. For optically clear bonding and gap filling, LORD® Structural Adhesives offer tough, flexible adhesives in a variety of speeds. They also provide excellent aesthetics on translucent substrates.

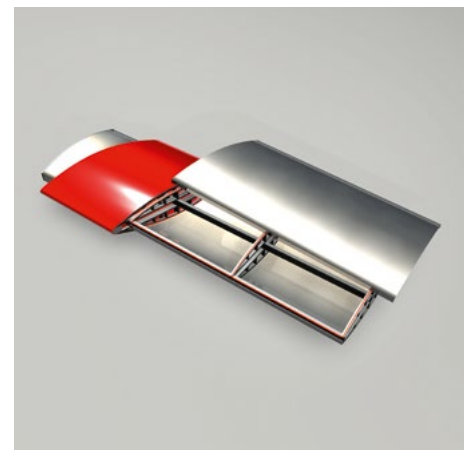
LORD® Structural Adhesives help to control costs, reduce waste, and enhance productivity and product performance.

POTENTIAL APPLICATIONS

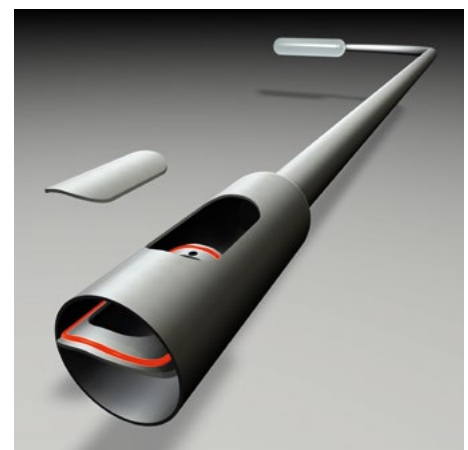
- **Structural Reinforcement of parts inside the Sign Box**
400 Series Acrylic Adhesives
- **Channel Letters**
800 Series Acrylic Adhesives
- **Trim Cap Materials to Polycarbonate Faces**
7000 Series Polyurethane Adhesives
- **Commercial / Advertisement Pylons**
400 Series Acrylic Adhesives and 7000 Series Polyurethane Adhesives
- **Traffic Signs**
400 Series Acrylic Adhesives and 800 Series Acrylic Adhesives



Traffic Sign Bonding



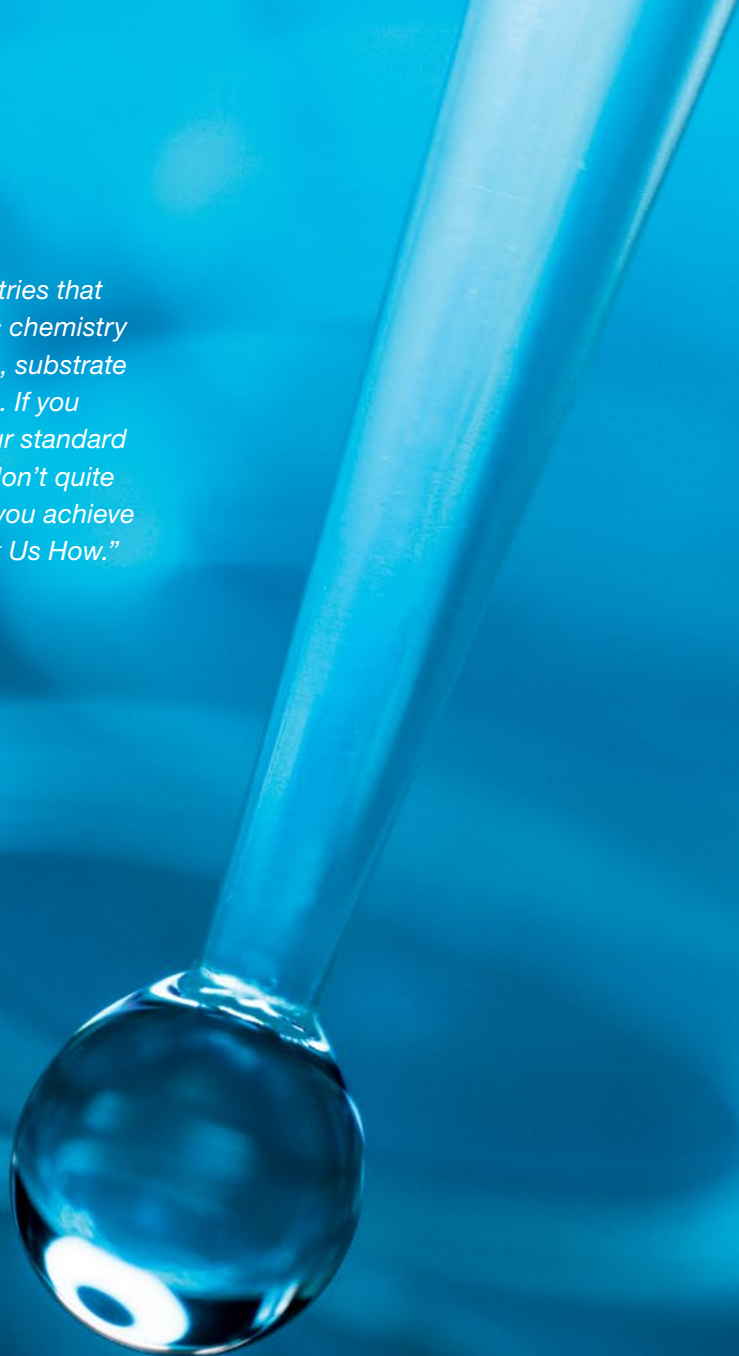
Commercial Sign Bonding



Urban Furniture Bonding

CHEMISTRIES

"We offer three major chemistries that allow us to match the specific chemistry to the appropriate application, substrate or performance requirements. If you need help choosing one of our standard adhesive products or if they don't quite meet your needs, let us help you achieve an appropriate solution... Ask Us How."



Adhesion Enhancers / Surface Modifiers

LORD® facilitates substrate preparation and increases bonding process robustness through the addition of complementary products to its adhesive range.

LORD® CLEANER NP

Correct surface cleaning is necessary for achieving optimum bonding properties. The complete removal of oil, grease, dust and other residual dirt from the bond surface is required for the best, strongest adhesive joint. LORD® helps you improving process robustness with the new LORD® Cleaner NP.

LORD® PRIMERS

To better meet your needs LORD® Primers are now available in more convenient, smaller packaging. Depending on the substrate used one of three following products can be selected:

► **LORD® 7701 adhesion enhancer/surface modifier**

A solvent-based surface treatment for use on various vulcanized and thermoplastic polymeric materials including natural rubber, synthetic polyisoprene, SBR, butyl, polybutadiene, neoprene, EPDM, nitrile, polyurethane, styrene-butadiene block copolymers, styrene isoprene rubbers and polyvinyl chloride.

► **LORD® AP-134 adhesion enhancer/surface modifier**

A one-coat, moisture-cure primer used to promote adhesion to a variety of polar substrates, including architectural and automotive glass, steel, aluminum, brass, e-coated metal, glass fabric, ceramic tile, vitrified clay pipe, concrete and some plastics.

► **LORD® 459X adhesion enhancer/surface modifier**

Is designed for promoting adhesion to thermoplastic elastomers (TPE), thermoplastic polyolefins (TPO) and EPDM. LORD® 459X primer is in xylene solvent, diluted for direct application.

HOW SHOULD LORD® ADHESION ENHANCERS/SURFACE MODIFIERS BE STORED?

In order to allow full product performance, please store all products in their original container. When transferring adhesion enhancers/surface modifiers to another container, transfer only what is necessary for the application. Do not return unused material to the original container. Do not use metal containers to store LORD® 7701. Keep all LORD® adhesion enhancers/surface modifiers, except LORD® 459T and LORD® 459X, in a cool, dark and dry area. LORD® 459T and 459X should be stored between 21 °C - 27 °C.

LORD® Acrylic Adhesives

LORD® Acrylic based adhesives deliver world-class performance in bonding to bare metals, composites, and a large number of thermoplastic materials. The combination of excellent cure kinetics at room temperature and minimal need for surface preparation make Acrylic Adhesives the ideal choice for both automated and manual assembly processes. LORD® Acrylic Adhesives offer outstanding toughness that delivers impact resistance, excellent low- and high-temperature performance, and desirable in-service fatigue life on top of high structural strength in bonded assemblies.

FEATURES

- Excellent on bare metal, composites and thermoplastics
- Wide range of open times
- Fast strength build-up, short handling times
- Anti-corrosion properties
- Bond dissimilar substrates
- Allow use of thinner and lighter materials
- Resistant to diluted acids, alkalis, solvents, greases
- Excellent resistance to UV exposure
- High lap shear strength
- High temperature resistance
- Resistant to powder coating process
- Non-sagging
- Available with glass beads for bond line thickness control

PRODUCT LINE

- Automotive OEM metal bonding adhesives and sealants
- Automotive aftermarket metal and plastic bonding adhesives
- Industrial metal, composite and plastic bonding adhesives
- Two-component systems

SUBSTRATES

- Bare metals
- Plastics
- Composites

LORD® NEXT GENERATION ACRYLIC TECHNOLOGY

As an innovation focused company, LORD® puts continuous effort into development of technologies to meet our customers needs.

LORD® Next Generation Acrylic Technology focuses on increased elongation without loss of tensile strength in LORD® Next Generation Acrylic Technology, which contributes to improved performance. LORD® Next Generation Acrylic Technology is characterized by better fatigue resistance and shows excellent high and low temperature lap shear bonding performance. Enhanced humidity and salt spray resistance results in improved anti-corrosion performance.

FEATURES

- High lap shear strength
- Improved peel strength
- Improved failure mode across a wider variety of metal substrates
- Enhanced impact resistance
- Improved fatigue resistance
- Excellent low temperature performance
- Resistance to E-coat and paint bake

LORD® 400 SERIES ACRYLIC STRUCTURAL ADHESIVE DISPENSED IS STILL TAN AND SOFT AFTER 24 HOURS. WHY DIDN'T IT CURE?

Check storage condition of the adhesive. Long exposures to elevated temperatures may degrade the hardener over time. Check the "Use by date" to ensure the adhesive is within its shelf life. Check to see if both the resin and the hardener are flowing and mixing properly in the mixers. Nozzle blockage or backflow around the pistons when using adhesives in cartridges will cause improper mix. If the adhesive is within shelf life, has been stored properly and no mixing issues are observed please call your sales representative for assistance.

LORD® 400 SERIES ACRYLIC STRUCTURAL ADHESIVE WAS DISPENSED YESTERDAY AND IS STILL SLIGHTLY TACKY ON AIR EXPOSED ADHESIVE. IS IT CURED?

Yes. Surface tack is normal for LORD® 400 series Acrylic Adhesives. Wipe the surface with alcohol or organic solvent after full cure to remove tacky layer. Surface tack is only on surface; bonded joints are fully cured.

Since LORD® 400 series cures from core to skin, the air will compete with the cure process causing surface tack.

HOW SHOULD LORD® ACRYLIC STRUCTURAL ADHESIVES BE STORED?

LORD® Acrylic Adhesives should be stored at temperatures under 27 °C. For maximum shelf life, LORD® Acrylic Adhesives can be refrigerated at temperatures of +4 °C to +10 °C. **Do not freeze.** Do not store on top shelves or mezzanines. Protect from exposure to ultraviolet light. If stored at these cooler temperatures, return the product to room temperature before using. To ensure maximum shelf life, stage only enough adhesive needed for a day's production.

I HAVE A PART BONDED WITH LORD® ACRYLIC STRUCTURAL ADHESIVES, CAN I POWDER COAT THIS PART?

LORD® Acrylic Adhesives have been successfully used for bonding prior to powder coating numerous times. However some precautions are necessary to ensure success. Heat softens adhesives and the parts may debond if exposed to important mechanical stress during the powder coating process. High heat (over 204 °C) and long oven cycle times can lead adhesive degradation. Care should be exercised when racking the part prior to powder coating. Hanging large parts from a small bonded section can lead to failure. Hanging parts from the solid structure and not from bonded subassemblies is preferable. Low-temperature powder coats are the most favorable systems to employ. Please call your sales representative for assistance.

LORD® Polyurethane Adhesives

LORD® Urethane based adhesives are an excellent choice for bonding to a wide variety of thermoplastics and composites, plus difficult to bond substrates such as fabric, foam, and wood. They can also be used for metal bonding applications where the metal is primed or coated. LORD® Urethane Adhesives have low odor, can deliver fast or slow cure times, and have the combination of high toughness, strength, and flexibility, that makes these adhesives an ideal choice for joining both lightweight and structural assemblies.

FEATURES

- Bonding composite and thermoplastic
- Excellent adhesion on numerous composites without pre-abrasion (eg.: SMC)
- Wide range of curing and open times
- Broad range of handling times
- Special versions: resist sunlight (non-yellowing)
- Excellent temperature resistance within their category
- High elasticity
- Formulated for large beads
- No odor
- Crystal clear and bright white version

PRODUCT LINE

- One and Two-component systems

SUBSTRATES

- Composites
- Plastics
- Coated metals
- Foams
- Textiles
- Reinforced Thermoplastics

HOW SHOULD LORD® TWO-COMPONENT URETHANE STRUCTURAL ADHESIVES BE STORED?

LORD® two-component Urethane Adhesives are moisture sensitive. Cartridges should be left in their Mylar® bag with desiccant until ready for use. Protect partially used cartridges from moisture exposure by leaving the nozzle in place to act as a seal after each use. Urethane Adhesives should be stored between 18 °C - 30 °C.

HOW SHOULD LORD® ONE-COMPONENT URETHANE STRUCTURAL ADHESIVES BE STORED?

Store single-component Urethane Adhesives between +16 °C to +27 °C. The single-component urethane adhesive will react when exposed to moisture. For maximum shelf life after opening bulk containers, replace cap or lid as quickly as possible and purge with dry nitrogen, if available.

* Mylar® is a trademark of DuPont Teijin Films.

LORD® Epoxy Adhesives

LORD® Epoxy based adhesives adhere to the widest variety of materials, including bare metals, plastics, composites, concrete, wood, rubber, and foam. LORD® Epoxy Adhesives are best known for their high tensile strength and excellent chemical resistance, and they are the right choice when long-term exposure to high heat is required. LORD® Epoxy Adhesives generally have long open times, and the curing process can be easily accelerated with heat to shorten handling times. Novel properties such as reduced bond line read-through can make LORD® Epoxy Adhesives the ideal choice for some of the toughest structural bonding applications.

FEATURES

- High strength and high temperature performance
- Chemically resistant
- Bond a wide variety of substrates including bare and coated metals
- Low odor
- Cure can be accelerate with heat
- Choice of mixing ratio in order to adapt flexibility and modulus
- Cryogenic version available
- From very fluid to non-sagging to adapt to all process needs

PRODUCT LINE

- Two-component systems
- Low viscosity, liquid formulations
- High viscosity, paste formulations

SUBSTRATES

- Composites
- Plastics TPU/TPE
- Coated metals
- Prepared metals
- Rubber/EPDM
- Foams

HOW SHOULD LORD® EPOXY STRUCTURAL ADHESIVES BE STORED?

Store Epoxy Adhesives in the original container between +4 °C to +27 °C. Protect Epoxy Adhesives from exposure to direct ultraviolet light. If stored at cooler temperatures, return the product to room temperature before using. Full physical properties of epoxy adhesives only develop if the product is dispensed at +18 °C or above. Epoxy Adhesives may be heated in order to ease dispensing from a cartridge [maximum +66 °C]. The addition of heat will shorten the open and handling time of the product.

Product Overview

RESIN	ACCELERATOR	MIX RATIO	EUROPEAN STANDARD PACKAGING	APPEARANCE	MAIN USE
ACRYLICS (Two-Component)					
LORD 403E	LORD 17	10:1	Cartridge and bulk	Off white to tan, non sag paste	Metal / Plastics / Composite
	LORD 19	4:1	Bulk	Off white to tan, non sag paste	Metal / Plastics / Composite
	LORD 19B	4:1	Cartridge and bulk	Black, non sag paste	Metal / Plastics / Composite
	LORD 19GB	4:1	Cartridge and bulk	Off white to tan, non sag paste	Metal / Plastics / Composite
LORD 406E	LORD 17	10:1	Cartridge and bulk	Off white to tan, non sag paste	Metal / Plastics / Composite
	LORD 19	4:1	Bulk	Off white to tan, non sag paste	Metal / Plastics / Composite
	LORD 19B	4:1	Cartridge and bulk	Black, non sag paste	Metal / Plastics / Composite
	LORD 19GB	4:1	Cartridge and bulk	Off white to tan, non sag paste	Metal / Plastics / Composite
LORD 410	LORD 17	10:1	Cartridge and bulk	Off white to tan, non sag paste	Metal / Plastics / Composite
	LORD 19	4:1	Bulk	Off white to tan, non sag paste	Metal / Plastics / Composite
	LORD 19B	4:1	Cartridge and bulk	Black, non sag paste	Metal / Plastics / Composite
	LORD 19GB	4:1	Cartridge and bulk	Off white to tan, non sag paste	Metal / Plastics / Composite
LORD 506	LORD 17	10:1	Cartridge and bulk	Tan, medium viscosity paste	Thermoplastic
LORD 606	LORD 17	10:1	Cartridge and bulk	Off white to white, non sag paste	Composite / Hybrid bonding
LORD 663	LORD 17	10:1	Cartridge and bulk	Off white to white, non sag paste	Composite / Hybrid bonding
LORD 810	20GB	2:1	Cartridge and bulk	Black Paste, non sag paste	Metal / Plastics / Composite
LORD 850	25GB	10:1	Cartridge and bulk	Amber Paste, non sag paste	Metal / Plastics / Composite
LORD 852	25GB	10:1	Cartridge and bulk	Amber Paste, non sag paste	Metal / Plastics / Composite
URETHANE (Two-Component)					
LORD 7542A	LORD 7542B	1:1	Cartridge and bulk	Brown liquid, brown paste after mixing	Plastics / Composite / Wood
	LORD 7542C	1:1	Bulk	Brown liquid, brown paste after mixing	Plastics / Composite / Wood
	LORD 7542D	1:1	Bulk	Brown liquid, brown paste after mixing	Plastics / Composite / Wood
	LORD 7542E	1:1	Bulk	Brown liquid, brown paste after mixing	Plastics / Composite / Wood
LORD 7545A	LORD 7545G	1:1	Bulk	Black non sag paste	Plastics / Composite / Wood
	LORD 7545B	1:1	Bulk	Off white or black non sag paste	Plastics / Composite / Wood
	LORD 7545C	1:1	Bulk	Off white non sag paste	Plastics / Composite / Wood
	LORD 7545E	1:1	Cartridge and bulk	Off white non sag paste	Plastics / Composite / Wood
	LORD 7545F	1:1	Cartridge and bulk	Off white non sag paste	Plastics / Composite / Wood
LORD 7550A	LORD 7550C	1:1	Cartridge	Cristal clear liquid	Plastic / Composite
LORD 7555A	LORD 7555C	1:1	Cartridge	Bright white non sag paste	Plastic / Composite
LORD 7556A	LORD 7556B	1:1	Cartridge	Translucent non sag paste	Plastic / Composite
	LORD 7556C	1:1	Cartridge	Translucent non sag paste	Plastic / Composite
URETHANE (One-Component)					
LORD 7411	-		Bulk	Blue paste	Lamination / reinforcement
LORD 7412	-		Bulk	Wax like paste	Lamination / reinforcement
LORD 7420	-		Bulk	Blue liquid	Lamination / reinforcement
LORD 7421	-		Bulk	Green gray liquid	Lamination / reinforcement
LORD 7650	-		Bulk	Honey liquid	Lamination / reinforcement
EPOXY (Two-Component)					
LORD 304-1	LORD 304-2	1:1	Bulk	Gray paste	Multipurpose, FRP
LORD 305-1	LORD 305-2	1:1	Cartridge and bulk	Clear blue liquid	Multipurpose, FRP
	LORD 307-2	1:1	Cartridge and bulk	Clear liquid	Multipurpose, FRP
LORD 309-1D	LORD 309-2D	1:1	Cartridge	Blue Green thixo paste	Multipurpose, FRP
LORD 310A	LORD 310 B	1:1	Cartridge and bulk	Gray paste	Multipurpose, SMC
	LORD 310B Black	1:1	Cartridge and bulk	Black paste	Multipurpose, SMC
	LORD 310B HT	3:2	Cartridge and bulk	Gray paste	Multipurpose, SMC
LORD 312A	LORD 312B	1.75:1	Bulk	Yellow liquid	Multipurpose
LORD 320	LORD 310B Black	1:1	Cartridge and bulk	Gray paste	Multipurpose, Rubber
LORD 3170A	LORD 3170B	1:1	Bulk	Honey paste	Cryogenic

FEATURES	SPEED	OPEN TIME (min.)	HANDLING TIME (min.)	VISCO 000 CP	SHEAR MPa ^a	Tg (°C)	ELONGA-TION ^b (%)	SERVICE TEMP. (°C)
Excellent wetting, Multipurpose	Fast	2-4	4-6	100-280	16-23	72	30	-40/+150
Improved resistance to high temperature (powder coat)	Fast	2-4	4-6	100-280	16-23	72	30	-40/+150
Black version of 403E/19	Fast	2-4	4-6	100-280	16-23	72	30	-40/+150
250µm bondline thickness control version of 403E/19	Fast	2-4	4-6	100-280	16-23	72	30	-40/+150
Excellent wetting, Multipurpose	Medium fast	6-10	12-17	100-300	16-23	72	30	-40/+150
Improved resistance to high temperature (powder coat)	Medium fast	6-10	12-17	100-300	16-23	72	30	-40/+150
Black version of 406E/19	Medium fast	6-10	12-17	100-300	16-23	72	30	-40/+150
250µm bondline thickness control version of 406E/19	Medium fast	6-10	12-17	100-300	16-23	72	30	-40/+150
Excellent wetting, Multipurpose	Medium slow	20-45	60-120	100-350	16-23	72	30	-40/+150
Improved resistance to high temperature (powder coat)	Medium slow	20-45	60-120	100-350	16-23	72	30	-40/+150
Black version of 410/19	Medium slow	20-45	60-120	100-350	16-23	72	30	-40/+150
250µm bondline thickness control version of 410/19	Medium slow	20-45	60-120	100-350	16-23	72	30	-40/+150
Excellent wetting	Fast	4-6	8-12	20-70	16-18	112	20	-40/+150
Wide range of bondline thicknesses (100µm - 20 mm)	Fast	6-10	16-24	100-300	16-18	100	10	-40/+150
Wide range of bondline thicknesses (100µm - 20 mm)	Slow	45-75	130-160	125-350	16-18	100	10	-40/+150
Low read through, high elasticity	Medium fast	8-12	20-25	40-130	16-23	43	190	-40/+150
High impact, high peel loads, high fatigue	Medium fast	6-10	18-24	100-400	16-23	80	96	-40/+150
High impact, high peel loads, high fatigue	Medium slow	20-25	50-70	100-400	16-23	81	103	-40/+150
For MMD machine use, gravity-fed	Fast	4-7	60-120	3-10 ^c	14-16	48	90	-40/+100
For MMD machine use, gravity-fed	Medium fast	11-15	120	3-10 ^c	14-16	48	90	-40/+100
For MMD machine use, gravity-fed	Medium slow	20-30	180	3-10 ^c	14-16	44	90	-40/+100
For MMD machine use, gravity-fed	Slow	50-60	240	3-10 ^c	14-16	45	90	-40/+100
Cartridge application, Multipurpose	Very fast	1.5	10	125-350	14-16	51	70	-40/+100
Cartridge application, Multipurpose	Fast	3-5	30	125-350	14-16	30	70	-40/+100
Cartridge application, Multipurpose	Medium fast	6-8	60	125-350	14-16	49	70	-40/+100
Cartridge application, Multipurpose	Medium slow	22-38	120-180	125-350	14-16	29	160	-40/+100
Cartridge application, Multipurpose	Slow	45-65	480-600	125-350	14-16	39	145	-40/+100
Fast sealing, non yellowing	Fast	3-5	45	3-8	14-16	48	130	-40/+100
Fast sealing, non yellowing	Fast	3-5	45	80-200	14-16	41	200	-40/+100
Fast sealing, non yellowing	Fast	3-5	45	70-250	14-16	52	160	-40/+100
Fast sealing, non yellowing	Medium fast	10-15	60	70-250	14-16	52	220	-40/+100
Application temperature 40 °C - 90 °C				Paste	25-30		380	-40/+100
Application temperature 40 °C - 90 °C				Paste	25-30		380	-40/+100
Sprayed, dip applied or brushed				Liquid	25-30		360	-40/+100
Sprayed, dip applied or brushed				Liquid	25-30		360	-40/+100
Sprayed, dip applied or brushed				Liquid	Substrate tear ^d			-40/+100
General purpose	Slow	60-120	480-960	30-250	16-20	56	10	-30/+120
Large surface, Flexible	Slow	60-120	480-960	15-30	14-15	61	31	-30/+120
Large surface, Flexible, FDA approved	Slow	60-120	480-960	15-30	14-15	61	31	-30/+120
General purpose	Slow	90-120	480-960	300-1000	16-20	70	6	-30/+120
General purpose	Medium	30-60	360-480	320-750	16-20	60	2	-40/+150
General purpose	Medium	30-60	360-480	320-750	16-20	60	2	-40/+150
Very High Temperatures	Medium	30-60	360-480	320-750	16-20	100	2	-40/+204
Potting, Large surface, High elongation	Slow	90-150	480-960	1-2	12-14	50	56	-30/+120
Tough	Medium	30-60	360-480	375-1500	16-20	80	3	-40/+150
Multipurpose	Very slow	120	1440	60-120	18-20			-253/+80

LORD and “Ask Us How” are trademarks of LORD Corporation or one of its subsidiaries.

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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