

Structural Adhesive Solutions for Industry



LORD CORPORATION



AUTOMOTIVE

 $\label{eq:Automotive OEM} Automotive \ \mbox{OEM Assembly} \\ Tier \ \mbox{Component Assembly} \\ \ \mbox{Heat Protective Coatings} \cdot \mbox{Aftermarket Repair} \\$



TRUCK, BUS & OFF-HIGHWAY

 $\begin{tabular}{ll} Agriculture \\ Construction & Mining Equipment \\ Material Handling \cdot Bus and Truck \\ \end{tabular}$



INDUSTRY

Transportation · Construction Components Signs · Metal Working Industrial Equipments



ELECTRONICS

 $\label{lem:component} Component Assembly \cdot Industrial \ Lighting \\ Printed Electronics \ Industries \cdot Energy \cdot Protection \ \& \\ Conductive \ Materials \ for \ Automotive \ Microelectronics \\$



AEROSPACE & DEFENSE

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



ENERGY

Oil & Gas Solar & Wind



SOLUTIONS THAT INCREASE THE VALUE OF OUR CUSTOMERS' PRODUCTS

Founded 1924, LORD has been 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 privately-held company with world headquarters in Cary, North Carolina. Our company has regional headquarters in Geneva and Hong Kong, 17 manufacturing facilities in 8 countries and more than 90 strategically located sales and support centres worldwide. LORD employs close to 3,000 people.

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.



LORD® Structural Adhesives

Your optimal assembly solution!



With more than 40 years worldwide experience in engineered adhesives and a broad line of Acrylics, Epoxies and Urethanes, Lord successfully serve markets like:

- Transportation
- Signing
- Energy
- Building components
- Industrial equipments

LORD® Engineered adhesives are a simple, attractive and durable assembly solution.

Compared to mechanical fasteners like spot welding, rivets, clips, screws, they offer important cost saving opportunities through the use of thinner, lighter materials and the wide choice of bondable substrates. 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, much more robust and faster manufacturing processes. Cleaning and surface treatment operations can often be simplified, reducing induced cost and potential nuisances.

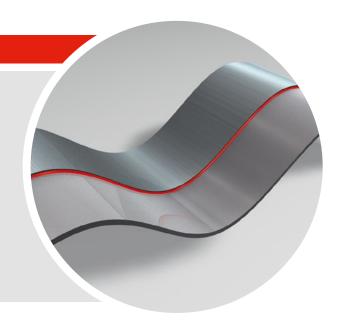
LORD® Engineered Adhesives perform in demanding applications under severe loads: We have a long lasting experience in cladding panels, parabolic antennas, traffic or commercial sign bonding, train and tram fitting, boat deck to hull bonding, machinery panels attachment, panels reinforcements, speciality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

Working beside you, our account managers and engineers identify the adhesive that best meets your needs and helps you in specifying and developing a turnkey solution. Finally, being a global company; LORD® can support you in any of your worldwide locations.

Please, find out about our products benefits in the following page.

IMPROVE YOUR DESIGN!

- Wide variety of materials
- Lighter materials
- Dissimilar materials
- Innovative materials
- Less stiffeners
- Complex shapes
- Aesthetic
- Reduced costs





IMPROVE YOUR PROCESS!

- Simple surface preparation
- Manual or automatic application
- V No thermal or mechanical damages
- Repositioning possible
- ✓ Wide choice of open and handling times
- Manual Seal in a single operation
- Compatible with powder coating
- ✓ Curing not dependent on moisture or heat

IMPROVE YOUR PERFORMANCE!

- High mechanical strength
- Proven fatigue resistance
- Reduces vibration and noise
- Excellent impact strength
- Excellent temperature resistance
- ✓ Proven Chemical/UV/Moisture resistance
- Excellent resistance to ageing
- No induced corrosion.



SIGNS

- ► Traffic signs
- ► Commercial Signs
- ▶ Urban Furniture



Applications

- · Panel and Stiffeners
- Totems
- · Box Signs
- Reinforcement
- · Rubber pads
- · Panel to frame

BUILDING COMPONENTS

- ► Fascade
- ▶ Doors and Windows
- ► Elevators
- ▶ Blinds



Applications

- Accessories
- · Panel and Stiffeners
- Doors building
- · Blind fabric bonding

TRANSPORTATION

- ▶ Marine
- ► Train / Tram / Metro
- ► Truck / Trailer
- ► Off Highway vehicules
- ► Speciality vehicules
- ► Automotive tier supplier
- ► Aerospace



Applications

- · Ribs to hull
- · Deck/Liner to hull
- Corner and ceiling panels
- · Bonnets and Doors
- Interior Fitting
- Kitchen
- · Automotive parts
- Composite parts

ENERGY

- ▶ Wind
- ▶ Oil and Gas
- ▶ Solar



Applications

- · Metallic mirror to structure
- Drilling equipment
- Blade repair

INDUSTRIAL EQUIPMENTS

- ► Machinery
- ► Furniture
- ▶ Casing
- ► Electric cabinets
- ► Electronic
- ► Parabolic antennaes
- ► Hoses

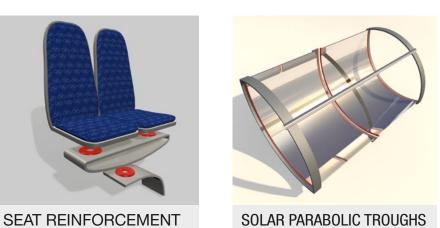


Applications

- · Panel and stiffeners bonding
- Sieves
- · Hose reinforcement
- Machinery casing
- · Electric cabinets
- Electronic casing
- Honey comb / Sandwich panels



CEILING PANEL









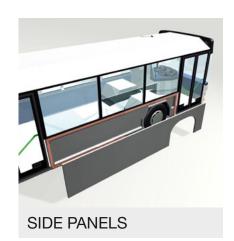




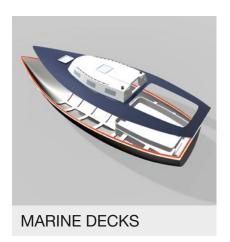


SATELLITE DISKS









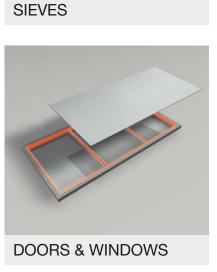


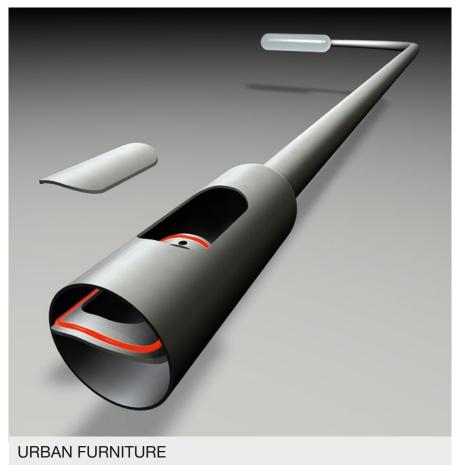












LORD® PRODUCT SELECTOR

DESIGN SU	BSTRATE	S	BARE METAL/	PRIMED/ COATED/ PAINTED	THERMO- PLASTICS PVC ABS			EPOXY CARBON		CERAMIC STONE			POLYESTER KEVLAR®
	PRODUCT	COLOR	ANODIZED/ GALVANIZED	PAINTED METAL	PVC ABS PMMA PC	FRP	SMC BMC	CARBON COMPOSITES	VULCANIZED RUBBER	STONE CONCRETE	WOOD	FOAMS FABRIC	KEVLAR® TPU
METAL	403E	Tan/Black											
	406E	Tan/Black											
	410	Tan/Black											
COMPOSITE /	606	White											
METAL	663	White											
PLASTIC /	506	Cream											
COMPOSITE	7542	Brown											
	7545	Brown							** / ***				
	7550	Clear							**				
	7555	Bright White							**				
	7556	Translucent							**				
<i>MULTIPURPOSE</i>	304	Grey	*						**				
	305	Blue/Clear	*						**				
	309	Blue-Green	*						**				
	310	Grey	*						**				
	312	Yellow	*						**				
	320	Black	*						**				
	3170	Amber	*						**				
LAMINATION	7411	Blue											
	7412	Beige											
	7420	Blue											
	7421	Green gray											
*Nist suitable for big	7650	Honey			/ ***····· A/D -								

^{*}Not suitable for high moisture environments // **Primer 7701 may be necessary // ***use A/B or A/G type

For unlisted substrates, please contact LORD®

PROCESS S	SPEED		OPEN TII	ME (min.)				HANDLING TIE	ME (min.)			
	PRODUCT	SHORT	SHORT MEDIUM LONG VERY LONG		VERY LONG		SHORT MEDIUM LON		NG	VERY LONG		
METAL	403E	2-4						4-6				
	406E		6-10						12-17			
	410			20-45						60-	120	
COMPOSITE /	606		6-10						16-24			
METAL	663				45-75					130	-160	
PLASTIC /	506	4-6							8-12			
COMPOSITE	7542	4-7	11-15	20-30	50-60					60-120	180-240	
	7545	1-5 3-5	6-8	22-38	45-65			10	30	60	120-180	480-600
	7550	3-5								6	60	
	7555	3-5								6	60	
	7556	3-5	10-15							6	60	
MULTIPURPOSE	304					60-120						480-960
	305					60-120						480-960
	309					60-120						480-960
	310			30-	-60					360	-480	
	312					90-150						480-960
	320			30	-60					360	-480	
	3170					120						1440
LAMINATION	7411		Extende	d open tim	ne		Will depend on equipment setting					
	7412		Extende	d open tim	ne		Will depend on equipment setting					
	7420		Extende	d open tim	ne		Will depend on equipment setting					
	7421			d open tim					Will depend on			
	7650		Extende	d open tim	ne		Will depend on equipment setting					

PERFORMANCES MECHANICAL/ENVIRONMENTAL									
	PRODUCT	SHEAR STRENGTH	PEEL STRENGTH	IMPACT	SERVICE TEMP. (°C)	UV	MOISTURE	CHEMICAL	ADDITIONAL FEATURES
METAL	403E	OTTLETTOTT	O TALLETON		-40/+150	0.	motoronia.	OTTENIO TE	Choice of accelerators
	406E				-40/+150				Choice of accelerators
	410				-40/+150				Choice of accelerators
COMPOSITE /	606				-40/+150				
METAL	663				-40/+150				Tack free when cured
PLASTIC /	506				-40/+150				
COMPOSITE	7542				-40/+100				Ideal for bulk application
	7545				-40/+100				Ideal for cartridge application
	7550				-40/+100				Non yellowing
	7555				-40/+100				Non yellowing
	7556				-40/+100				Non yellowing
MULTIPURPOSE	304				-40/+120				Flexibility can be adjusted through ratio
	305				-40/+120				Exist in FDA approved version
	309				-40/+120				Flexibility can be adjusted through ratio
	310				-40/+204				HT version available
	312				-40/+120				Extremely fluid
	320				-40/+120				Toughened
	3170				-40/+120				Cryogenic application
LAMINATION	7411				-40/+100				Blue version of 7412
	7412				-40/+100				
	7420				-40/+100				
	7421				-40/+100				High solid content version of 7420
	7650				-40/+100				High green strength

PROCESS F	RHEOLOG	ìΥ,	VISCOSITY (000 Cp)				
	PRODUCT	FLUID	PASTE	NON SAG			
METAL	403E			100-280			
	406E			100-300			
	410			100-350			
COMPOSITE /	606			100-300			
METAL	663			125-350			
PLASTIC /	506	20-70					
COMPOSITE	7542**	before mixing		after mixing			
	7545			125-350			
	7550	3-8					
	7555			80-200			
	7556			70-250			
MULTIPURPOSE	304		30-250				
	305	15-30					
	309			300-1000			
	310		320-750				
	312	1-2					
	320			375-1500			
	3170		60-120				
LAMINATION	7411	Depends on ap	plication tempera	ture or dilution			
	7412	Depends on ap	ture or dilution				
	7420	0.2 - 0.7					
	7421	0.5 - 15					
	7650	0.4 - 2					

7650 0.4 - 2 ** Thixochemical-Product

How to use the selector

Start with the **Substrates table**. Select adhesives compatible with both substrates to be bonded: Green boxes. EXCELLENT
VERY GOOD
GOOD
NOT RECOMMENDED

- Substrate families are organised in columns: bare metals, plastics, composites, etc.
- You can also use the line shortcuts: Metal bonders, Composite / Metal bonder, etc., to facilitate your search.

Continue with the **Performance table**.

Check if the pre selected references are likely to withstand application constraints: Green boxes.

- Mechanical behaviour
- Environmental behaviour

Refine and finalize your selection through the **Process tables**. Finish refining your choice by identifying the references that best suit your process needs:

- Adhesive curing speed: Fast, medium, slow
- Adhesive rheology: Non sag, fluid, etc.

Product Chemistry

	•	
ACRYLIC	URETHANE	EP0XY

RESIN	ACCELERATOR	MIX RATIO	EUROPEAN STANDARD PACKAGING	APPEARANCE	MAIN USE
ACRYLICS (T	wo-Component)			
	LORD 17	10:1	Cartridge and bulk	Off white to tan, non sag paste	Metal / Plastics / Composite
LORD 403E	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 17	10:1	Cartridge and bulk	Off white to tan, non sag paste	Metal / Plastics / Composite
LORD 406E	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 17	10:1	Cartridge and bulk	Off white to tan, non sag paste	Metal / Plastics / Composite
LORD 410	LORD 19	4:1	Bulk	Off white to tan, non sag paste	Metal / Plastics / Composite
LOND 410	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 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 506	LORD 17	10:1	Cartridge and bulk	Tan, medium viscosity paste	Thermoplastic
JRETHANE (Two-Componen	t)			
	LORD 7542B	1:1	Cartridge	Brown liquid, brown paste after mixing	Plastics / Composite / Wood
1 ODD 75 404	LORD 7542C	1:1	Ask your commercial representative	Brown liquid, brown paste after mixing	Plastics / Composite / Wood
LORD 7542A	LORD 7542D	1:1	Ask your commercial representative	Brown liquid, brown paste after mixing	Plastics / Composite / Wood
	LORD 7542E	1:1	Ask your commercial representative	Brown liquid, brown paste after mixing	Plastics / Composite / Wood
	LORD 7545G	1:1	Cartridge and bulk	Black non sag paste	Plastics / Composite / Wood
	LORD 7545B	1:1	Cartridge	Off white or black non sag paste	Plastics / Composite / Wood
LORD 7545A	LORD 7545C	1:1	Cartridge	Off white non sag paste	Plastics / Composite / Wood
	LORD 7545E	1:1	Ask your commercial representative	Off white non sag paste	Plastics / Composite / Wood
	LORD 7545F	1:1	Ask your commercial representative	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
LOND 7555A			•		·
LORD 7556A	LORD 7556B LORD 7556C	1:1 1:1	Cartridge Cartridge	Translucent non sag paste Translucent non sag paste	Plastic / Composite Plastic / Composite
IIDETUANE /	One-Componen	+\			
	One-Componen	l)	Dulle	Dive meets	Laurination / vainfavaamant
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 305-2	1:1	Cartridge and bulk	Clear blue liquid	Multipurpose, FRP
LORD 305-1	LORD 307-2	1:1	Cartridge and bulk	Clear liquid	Multipurpose, FRP
I ODD 200 1D			-		
LORD 309-1D	LORD 309-2D	1:1	Cartridge	Blue Green thixo paste	Multipurpose, FRP
1000 045	LORD 310 B	1:1	Cartridge and bulk	Gray paste	Multipurpose, SMC
LORD 310A	LORD 310B BLACK	1:1	Cartridge and bulk	Black paste	Multipurpose, SMC
	LORD 310B	2:1	Cartridge and bulk	Gray paste	Multipurpose, SMC
LORD 312A	LORD 312B	1:1	Bulk	Yellow liquid	Multipurpose
	LORD 310B BLACK	1:1	Cartridge and bulk	Gray paste	Multipurpose, Rubber
LORD 320					

Glass and Ceramic primer

TPE, TPO and EPDM primers

Vulcanized rubber

LORD AP134

Chemlok 459X

LORD 7701

Clear, light straw yellow liquid

Amber liquid

Cloudy liquid

FEATURES	SPEED	OPEN TIME (min.)	HANDLING TIME (min.)	VISCO 000 CP	SHEAR MPA ^a	TG (°C)	ELON- GATION ^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 40/+150
Black version of 403/19 250 µm bondline thickness control version of 403/19	Fast Fast	2-4 2-4	4-6 4-6	100-280 100-280	16-23 16-23	72 72	30 % 30 %	-40/+150 -40/+150
•								
Excellent wetting, Multipurpose Improved resistance to high temperature (powder coat)	Medium fast Medium fast	6-10 6-10	12-17 12-17	100-300 100-300	16-23 16-23	72 72	30 % 30 %	-40/+150 -40/+150
Black version of 406/19	Medium fast	6-10	12-17	100-300	16-23	72	30 %	-40/+150 -40/+150
250 µm bondline thickness control version of 406/19	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 -40/+150
Black version of 410/19	Medium slow	20-45	60-120	100-350	16-23	72	30 %	-40/+150
250 µm bondline thickness control version of 410/19	Medium slow	20-45	60-120	100-350	16-23	72	30 %	-40/+150
Wide range of bondline thicknesses (100µm - 20mm)	Fast	6-10	16-24	100-300	16-18	100	10%	-40/+150
Wide range of bondline thicknesses (100µm - 20mm)	Slow	45-75	130-160	125-350	16-18	100	10%	-40/+150
Excellent wetting	Fast	4-6	8-12	20-70	16-18	50	20%	-40/+150
Excellent wetting	i ast	4-0	0-12	20-70	10-10	30	20 /0	- 4 0/+130
For MMD machine use, gravity-fed	Fast	4-7	60-120	3-10°	14-16		90%	-40/+100
For MMD machine use, gravity-fed	Medium fast	11-15	120	3-10°	14-16		90%	-40/+100
For MMD machine use, gravity-fed	Medium slow	20-30	180	3-10°	14-16		90%	-40/+100
For MMD machine use, gravity-fed	Slow	50-60	240	3-10°	14-16		90%	-40/+100
Cartridge application, Multipurpose	Very fast	1.5	10	125-350	14-16			-40/+100
Cartridge application, Multipurpose	Fast	3-5	30	125-350	14-16			-40/+100
Cartridge application, Multipurpose	Medium fast	6-8	60	125-350	14-16			-40/+100
Cartridge application, Multipurpose Cartridge application, Multipurpose	Medium slow Slow	22-38 45-65	120-180 480-600	125-350 125-350	14-16 14-16			-40/+100 -40/+100
	_							
Fast sealing, non yellowing	Fast	3-5	45	3-8	14-16			-40/+100
Fast sealing, non yellowing	Fast	3-5	45	80-200	14-16			-40/+100
Fast sealing, non yellowing	Fast	3-5	45	70-250	14-16			-40/+100
Fast sealing, non yellowing	Medium fast	10-15	60	70-250	14-16			-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
·						- 00	3 70	
Multipurpose	Very slow	120	1440	60-120	18-20			-253/+80

^a Typical cohesive strength

 $^{^{\}mbox{\tiny b}}\mbox{Elongation}$ at break

 $^{^{\}mbox{\tiny c}}$ Thixochemical Products: fluid before mixing, non sag after

^d Peel test



HIGH PERFORMANCE - LOW VOC

Our aqueous Chemosil®/Chemlok® adhesives are our greenest solutions using water as a base with little to no VOCs.

Whether you need to comply with stricter governmental regulations or want to become more sustainable ... Ask Us How.

SUSTAINABLE

We offer a line of solvent-based Chemosil®/Chemlok® adhesives that contain no heavy metals.

LOW CARBON FOOTPRINT

We offer a solvent free line of aqueous Chemosil®/Chemlok® adhesives designed to meet low hazardous air pollutant guidelines.

Values stated herein 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.

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LORD Europe

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