

ZERUST® EXCOR®



OUTDOOR STORAGE AND EXTREME ENVIRONMENT PROTECTION



ZERUST® is a product of
Northern Technologies
International Corporation

NTI®

WHY CHOOSE ZERUST®?

PROVEN SAFE, RELIABLE, AND EFFECTIVE CORROSION SOLUTIONS FOR OUTDOOR STORAGE



ZERUST® corrosion inhibiting products are a cost-effective way to protect equipment from rust and corrosion during outdoor storage and shipment. For over 50 years, ZERUST's proprietary vapor corrosion inhibitor (VCI) technology has been proven safe and effective for protecting metals. An analysis of compatibility using recognized test procedures can be arranged with a local ZERUST® representative.

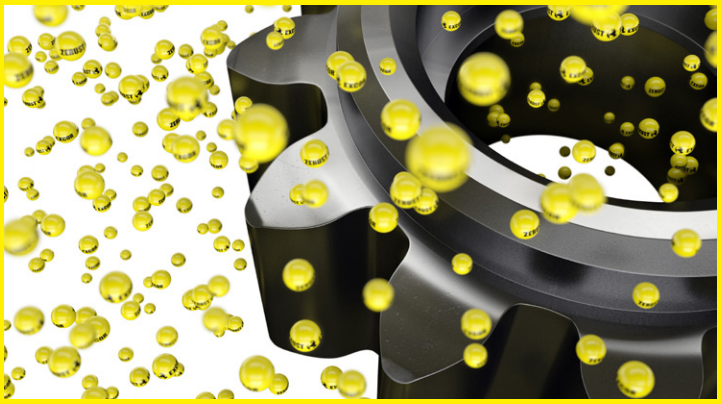
THE BENEFITS OF ZERUST® CORROSION INHIBITOR PRODUCTS



- **High-Strength Storage Protection:** Our products, like the ICT®510-OPS VCI Shrink Film, provide robust, high-strength protection that is resistant to environmental factors.
- **Long-Term Corrosion Resistance:** Solutions such as the Axxanol™ Spray-G and Z-Maxx Series offer extended protection periods, ensuring your assets remain rust-free.
- **Versatile Application:** ZERUST® products are suitable for a wide range of applications, from machinery and equipment to vehicles and components.
- **Ease of Use:** Our coatings and films are designed for easy application and removal, making maintenance straightforward and efficient.
- **Safety and Compliance:** ZERUST® products comply with global safety standards and are safe for use on a variety of metals and materials.

HOW ZERUST® VAPOR CORROSION INHIBITORS (VCIs) WORK

VCI molecules inhibit corrosion by preventing moisture and environmental elements from reacting with the metal surface. Since VCI molecules are transported through the air, they must be trapped around the metal surface using a poly bag or other enclosure. Later, when the enclosure or package is opened, the ZERUST® corrosion inhibiting layer dissipates, leaving clean, dry, and residue-free metals.



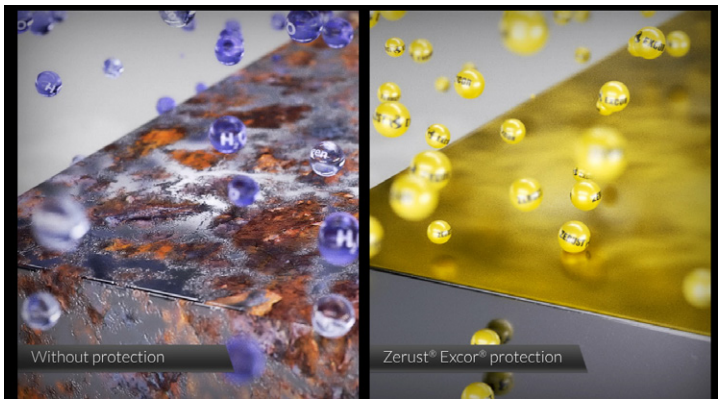
OUTDOOR STORAGE PROTECTION

When it comes to safeguarding valuable metal assets from corrosion in extreme environments, ZERUST® is the name to trust. Our advanced Vapor Corrosion Inhibitor technology (VCI) ensures comprehensive storage protection by saturating the interior of packaging materials, effectively reaching even the most inaccessible spaces and voids. This innovative approach makes ZERUST® the ideal solution for outdoor storage and preservation of equipment, vehicles, and components. ZERUST® products are versatile and can be adapted to protect a wide range of metal items.



SAFE FOR METALS, TOUGH ON HUMIDITY AND CONTAMINANTS

Reduce downtime due to corrosion with ZERUST® protection. Equipment stored outdoors is exposed to corrosive atmospheres with high humidity and condensation, which is typically found in extreme environments. ZERUST® corrosion inhibitor technologies work to combat these causes of corrosion, even acid gases and moisture. By creating an invisible shield on the metal surface, ZERUST® products provide long-lasting protection. Additionally, ZERUST® solutions are easy to apply and remove, ensuring maintenance is straightforward and efficient.



ZERUST® PROTECTION DURING OUTDOOR STORAGE

Protect exterior surfaces of parts and equipment with ZERUST® ICT®510-OPS VCI Shrink Film and Axxanol™ Spray-G. ICT®510-OPS VCI Shrink Film provides high-strength, UV-resistant protection, conforming tightly around objects when heated. Axxanol™ Spray-G is a versatile rust preventative grease, easily applied to machinery and equipment for long-term corrosion resistance. Both products ensure your metal assets remain in optimal condition, ready for use whenever needed.



Large pieces of equipment shrink-wrapped in ZERUST® ICT®510-OPS Outdoor Preservation VCI Shrink Film for outdoor storage.



ZERUST® Axxanol™ Spray-G being applied to large equipment for outdoor storage, providing robust rust prevention.

PRODUCT SOLUTION HIGHLIGHTS

ZERUST® ICT®510-OPS OUTDOOR PRESERVATION VCI SHRINK FILM









ZERUST®/EXCOR® ICT®510-OPS Outdoor Preservation VCI Shrink Film is an 8-mil, high-strength shrink film integrated with ZERUST® Vapor Corrosion Inhibitor (VCI) technology and UV stabilizers, designed specifically for the long-term outdoor preservation of large assets. This premium shrink film offers advanced protection for equipment, vehicles, and components stored outdoors, ensuring superior corrosion and UV radiation resistance, even under extreme environmental conditions.

When heated, the film shrinks to conform tightly around objects, effectively repelling moisture and external contaminants, while the invisible, odorless, and non-toxic ZERUST® VCI molecules saturate the interior of the packaging, protecting hard-to-reach spaces and voids from corrosion. Upon removal from the packaging, the VCI will dissipate from the metal surface, allowing immediate painting, welding, or further processing. Ideal for lay-up and mothballing, the VCI Shrink Film can also be used in large applications by shrinking multiple sheets together to cover structures and machinery. With the use of ZERUST® Outdoor Preservation VCI Shrink Film, protected valuable metal assets are ready to use whenever and wherever needed.

Typical Properties

Property	Direction (Machine or Transverse)	ICT®510-OPS VCI Shrink Film*	ASTM Test Method
Film Thickness	-	8 mil (203 µm)	D-6988
Dart Impact Resistance	-	900 g	D-1709
Tear Strength	MD	1555 gf	D-1938
	TD	1762 gf	
Tensile Strength at Break	MD	23.9 MPa (3466 psi)	D-882
	TD	22.5 MPa (3263 psi)	
Elongation at Break	MD	930 %	D-882
	TD	895 %	
Water Vapor Transmission Rate	-	0.108 (g/100 in^2 day) @100°F (38°C), 100% RH	F-1249
Vapor Inhibiting Ability (VIA)	-	Pass	NACE TM0208

* Typical values, not meant to be a specification.

Availability

Part Number	Metal Protection	Quantity
100-F-00070	Ferrous	20’ x 100’ x 8 mil Opaque Gray Roll
100-F-00077	Ferrous	40” x 425’ x 8 mil Clear Roll
Accessories		
Part Number	**Quantity**	
250-X-00007	4” x 108’ x 9 mil Gray Preservation Tape (12 Rolls/Case)	
250-X-00008	6” x 108’ x 9 mil Gray Preservation Tape (8 Rolls/Case)	

PRODUCT SOLUTION HIGHLIGHTS

ZERUST® AXXANOL™ SPRAY-G



ZERUST®/EXCOR® Axxanol™ Spray-G is a sprayable grease-based rust preventative that provides the protection of a grease in the convenience of a sprayable form. It's designed to protect metal parts, equipment, and assemblies during long-term indoor and outdoor storage and challenging overseas shipping applications where a removable coating is essential. Use Axxanol™ Spray-G to safely protect machinery, equipment, other large metal assets, and more for up to 1 year‡ when stored outside or for up to 5 years‡ when stored indoors in accordance with Caterpillar Inc.'s 1E4973 specification.



After application, place the coated parts into ZERUST® Vapor Corrosion Inhibitor (VCI) film packaging products for a more robust solution that protects for years‡ during indoor and outdoor storage or challenging shipping conditions, such as ocean freight. Once the metal asset is ready to be put back into use or service, or if parts require further processing, the coating is easily removed from the metal surface with the use of a compatible ZERUST® AxxaWash™ product, commercial alkaline or solvent cleaner. Axxanol™ Spray-G does not intentionally contain barium or heavy metals and complies with Global Automotive Declarable Substance, TSCA, RoHS, and REACH SVHC requirements.



Typical Properties

Property	Axxanol™ Spray-G
Appearance	Sprayable grease with oily grease consistency
Substrates	Multimetal protection and yellow metal compatibility. However, as with any grease/oil-based products, an oil stain may be left in certain situations.
Coverage*	799 ft² (74 m²) per gal
VOC content EPA Method 24	Non-aerosol: 2.68 lb/gal (321 g/L) Aerosol: 4.5 lb/gal (545 g/L)
Flashpoint ASTM D93	177°F (81°C)
Viscosity	300 – 1,700 cPs @ 50RPM, spindle 63 @ 77°F (25°C) (non-aerosol)

* The theoretical coverage estimates, based on 1 mil (25 µm) wet film thicknesses (WFT), should only be used as a guide. Actual coverage data will vary in actual use based on the method of application, type of equipment used, part geometry, surface roughness, drain-off time, drag-out rate, evaporative loss, etc.



Availability

Part Number	Quantity *
350-M-00023AC	12 oz (355 ml) (12 Aerosol Cans/Case)
350-M-00023PL	5 Gal (19 L) Pail**
350-M-00023DR	55 Gal (208 L) Drum**

*Product sold in US customary units. Metric units approximate.
**5 Gallon approx. 35 lb, 55 Gallon approx. 400 lb.

PRODUCT SOLUTION HIGHLIGHTS

ZERUST® AXXANOL™ Z-MAXX SERIES



ZERUST®/EXCOR® Axxanol™ Z-Maxx Series consists of two products, Axxanol™ Z-Maxx and Z-Maxx LV. Z-Maxx is a thick NLGI 2 grease and is also offered as a lower viscosity (LV) NLGI 0 grease that is designed for spreadability and light lubrication properties. The original Z-Maxx is also a multipurpose EP lubrication grease for high-temperature range applications. Both products are hardworking rust preventative greases that are ideal for protecting bare-metal parts and components of machinery and equipment in extreme weather and salt-air conditions for up to 1 year‡ outdoors and 3 years‡ indoors.



After application, place the coated parts into ZERUST® Vapor Corrosion Inhibitor (VCI) film packaging products for a more robust solution that protects for years‡ during indoor storage or challenging shipping conditions, such as ocean freight. Once the metal asset is ready to be put back into use or service, or if parts require further processing, the coating is easily removed from the metal surface with the use of a compatible ZERUST® AxxaWash™ product, commercial alkaline or solvent cleaner. Axxanol™ Z-Maxx and Z-Maxx LV do not intentionally contain VOC, barium, or heavy metals and comply with Global Automotive Declarable Substance, TSCA, RoHS, and REACH SVHC requirements.



Typical Properties

Property	Z-Maxx Original	Z-Maxx LV
Appearance	Viscous grease that creates a translucent film	Less viscous grease that creates a translucent film
Substrates	Multimetal protection and yellow metal compatibility. However, as with any grease/oilbased products, an oil stain may be left in certain situations.	
Coverage*	290 ft² (27 m²) per gal	
Wet film thickness (WFT)	5 mil (127 µm)	
VOC content EPA Method 24	Components contain no VOC according to CARB	
Flashpoint ASTM D93	475°F (246°C)	390°F (199°C)
Grease grade	NLGI 2	NLGI 0

* The theoretical coverage estimates, based on 1 mil (25 µm) wet film thicknesses (WFT), should only be used as a guide. Actual coverage data will vary in actual use based on the method of application, type of equipment used, part geometry, surface roughness, drain-off time, drag-out rate, evaporative loss, etc.



Availability

Part Number	Product Name	Quantity *
360-M-00001PL	Axxanol™ Z-Maxx	5 Gal (19 L) Pail**
360-M-00001DR	Axxanol™ Z-Maxx	55 Gal (208 L) Drum**
360-M-00002PL	Axxanol™ Z-Maxx LV	5 Gal (19 L) Pail**
360-M-00002DR	Axxanol™ Z-Maxx LV	55 Gal (208 L) Drum**

*Product sold in US customary units. Metric units approximate.
**5 Gallon approx. 35 lbs, 55 Gallon approx. 400 lbs.

PRODUCT SOLUTION HIGHLIGHTS

ZERUST® AXXACOAT™ 90B HFS









ZERUST®/EXCOR® AxxaCoat™ 90B HFS is a sprayable high-flash rust preventative coating designed to protect metal parts and assemblies during long-term indoor and outdoor storage and challenging overseas shipping applications where a tough yet removable coating is essential. Use AxxaCoat™ 90B HFS to safely protect machinery, equipment, other large metal assets, and more for up to 2 years‡ when stored outdoors or for many years‡ when stored indoors.

When used indoors, AxxaCoat™ 90B HFS coating dries to form a slightly tacky, matte black film. However, when used outdoors and exposed to solar radiation, the coating will cure to a hard, dry-to-the-touch, matte black film. Once the metal asset is ready to be put back into use or service, the coating may be removed with mineral spirits or kerosene. For an optimal corrosion management solution tailored to your metal assets, we encourage consulting with a ZERUST®/EXCOR® representative.

Typical Properties

Property	AxxaCoat™ 90B HFS
Appearance	Black thixotropic mixture dries to form a slightly tacky, matte black film. However, when used outdoors and exposed to solar radiation, the coating cures to a hard, dry-to-the-touch, matte black film.
Substrates	Multimetal protection
Coverage*	107 ft^2 – 267 ft^2 per gal
Wet film thickness (WFT)	Apply 6 – 15 mil (150 – 375 µ) for indoor protection, or 9 – 15 mil (225 – 375 µ) for outdoor protection
Dry film thickness	2.1 – 5.25 mil (52.5 – 131.25 µ) when fully cured
Time between successive coats	2 hrs @ 77°F (25°C)
Cure time (3 – 6 mil WFT)**	48 – 72 hrs @ 77°F (25°C), or 1 – 2 hrs @ 140°F (60°C) & <75% RH
VOC content EPA Method 24	5.51 lb/gal (541 g/L)
Flashpoint ASTM D93	177°°F (81°C)
Density	0.86 – 0.88 g/cm^3 140°F (60°C)
Viscosity	150 – 250 cPs @ 50RPM, spindle 61 @ 77°F (25°C)

* The theoretical coverage estimates, based on 1 mil (25 µm) wet film thicknesses (WFT), should only be used as a guide. Actual coverage data will vary in actual use based on the method of application, type of equipment used, part geometry, surface roughness, drain-off time, drag-out rate, evaporative loss, etc.
**Coating may be slightly tacky to the touch. Coatings exposed to solar radiation will cure to a hard, dry-to-the-touch surface

Availability

Part Number	Quantity *
350-M-00077PL	5 Gal (19 L) Pail
350-M-00077DR	55 Gal (208 L) Drum

*Product sold in US customary units. Metric units approximate.







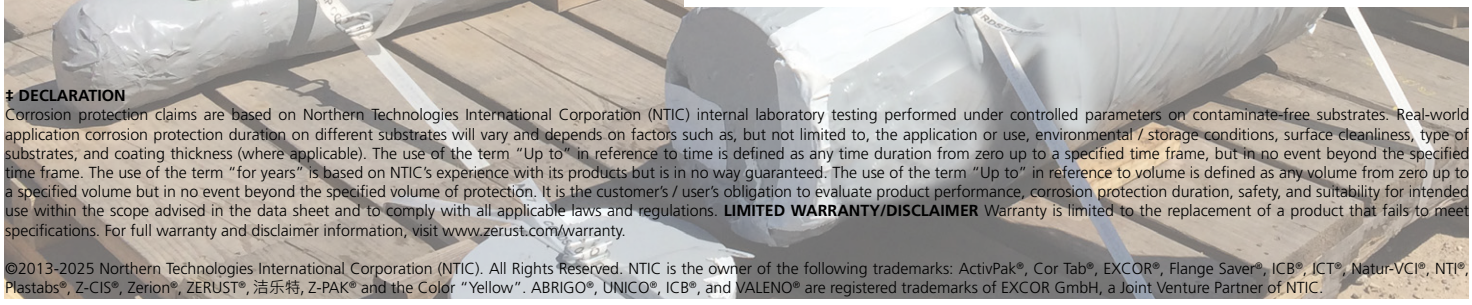
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‡ DECLARATION
Corrosion protection claims are based on Northern Technologies International Corporation (NTIC) internal laboratory testing performed under controlled parameters on contaminate-free substrates. Real-world application corrosion protection duration on different substrates will vary and depends on factors such as, but not limited to, the application or use, environmental / storage conditions, surface cleanliness, type of substrates, and coating thickness (where applicable). The use of the term "Up to" in reference to time is defined as any time duration from zero up to a specified time frame, but in no event beyond the specified time frame. The use of the term "for years" is based on NTIC's experience with its products but is in no way guaranteed. The use of the term "Up to" in reference to volume is defined as any volume from zero up to a specified volume but in no event beyond the specified volume of protection. It is the customer's / user's obligation to evaluate product performance, corrosion protection duration, safety, and suitability for intended use within the scope advised in the data sheet and to comply with all applicable laws and regulations. **LIMITED WARRANTY/DISCLAIMER** Warranty is limited to the replacement of a product that fails to meet specifications. For full warranty and disclaimer information, visit www.zerust.com/warranty.

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