ZERUST® EXCOR®

ZERUST® VCI Packaging Film and VCI Kraft Paper Series



ZERUST® Global Corrosion & Cleaning Management Solutions

Why Choose ZERUST®?

In today's competitive global marketplace, your metal products must travel thousands of miles through aggressive atmospheres, extreme daily changes in humidity and temperature, and possibly extended storage before your customers ever see them.



ZERUST® packaging solutions will resolve your corrosion problems while increasing your company's profitability by reducing operating costs, increasing process yields, and enhancing your customers' satisfaction. In some regions of the world, ZERUST® is also known as EXCOR® due to language differences.

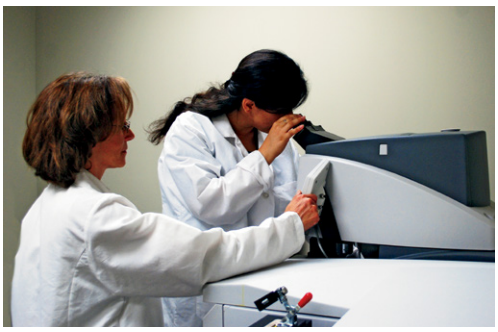
ZERUST®/EXCOR® field engineers on four continents use decades of accumulated applications experience to:

- Identify and resolve corrosion causes in processes.
- Eliminate unnecessary packaging and materials handling processes.
- Design optimal customer corrosion management solutions.
- Provide point-to-point customer service in over 70 countries.

Worldwide ZERUST®/EXCOR® Technical Support

Our internationally recognized scientists and field engineers work closely with customers to design and implement comprehensive corrosion management systems. Then, ZERUST®/EXCOR® representatives worldwide provide on-site technical support to ensure the efficacy of these solutions. ZERUST® applications engineers will assist with the on-site preparation and packaging of test shipments. At its destination, the shipment will be inspected and evaluated by a global ZERUST®/EXCOR® representative.

Laboratories and Test Facilities Across the Globe



The effectiveness of the proposed corrosion management system can be evaluated under extreme simulated climatic conditions in one of our many worldwide regional ZERUST® technical support centers. ZERUST® is a business unit of Northern Technologies International Corporation (NTIC). NTIC's management system is ISO 9001:2015 certified.

ZERUST® Lab Facility in
Circle Pines, Minnesota

Leaders in Corrosion Prevention

ZERUST® Corrosion Inhibitors

ZERUST® Integrated Corrosion Technology (ICT®) products and services include vapor corrosion inhibitors (VCIs) and other inhibitors and surface treatments. ZERUST® VCI packaging films and paper are safe* to use and contain proprietary chemical formulations that release an invisible, odorless, and corrosion-inhibiting vapor into the air. The ZERUST® vapor corrosion inhibitor molecules settle on exposed metal surfaces in an enclosure and interrupt the electrochemical process that causes corrosion. Other ZERUST® ICT® products augment the protection power of VCI technology to solve specific corrosion and surface preservation problems.

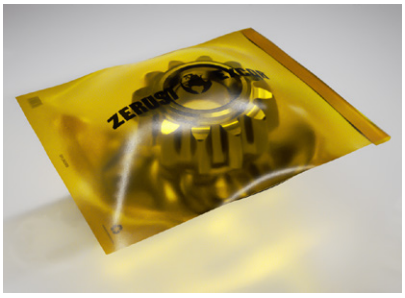
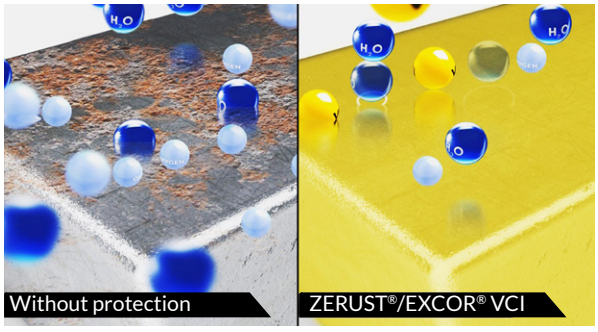


Illustration of a ZERUST®/ EXCOR® Vapor Corrosion Inhibitor Packaging System

What is VCI?

VCI is an abbreviation for Vapor Corrosion Inhibitor or Volatile Corrosion Inhibitor. VCIs are molecules that inhibit corrosion by forming a thin, protective layer on a metal surface within an enclosed space. This invisible layer prevents moisture and environmental elements from reacting with the metal surface and causing corrosion. The molecules dissipate when the enclosure is opened and do not need to be removed.



In effect, the ZERUST® VCI corrosion protection applies and removes itself.

Our Commitment to Health, Safety and the Environment

We are committed to making safe and effective products that reduce the industry's impact on the environment. ZERUST® is the inventor of VCI poly technology and continues to lead the market in product effectiveness, service, and safety. ZERUST®/EXCOR® products are approved by many major companies' toxicology, engineering, and packaging departments and comply with health and safety regulations around the globe.

*Safe for people. This product does not pose a health hazard to users due to its classification as an article according to EU REACH, UN GHS, US OSHA HazCom, and CA WHMIS regulations.

ICT®400 and 500 VCI Packaging Guide

Use ZERUST®/EXCOR® VCI Packaging for Clean, Dry and Corrosion-Free Products.

ZERUST® VCI Film



ZERUST® VCI Film is available in a wide range of options.

ZERUST® VCI Bags



ZERUST® VCI Bags can enclose a part or line a box in seconds.

ZERUST® VCI Stretch Film



ZERUST® VCI Stretch Film securely encloses products.

ZERUST® VCI Skin Film



ZERUST® VCI Skin Film secures parts to ZERUST® treated cardboard.

ZERUST® VCI Shrink Film



ZERUST® VCI Shrink and Outdoor Shrink Film conform to objects.

ZERUST® VCI Foam Sheeting



ZERUST® Foam Sheeting offers corrosion protection as well as physical protection.

ZERUST® VCI Scrim Film



ZERUST® Scrim contains woven strands for strength and tear resistance.

ICT®400 VCI Kraft Paper Series



ZERUST® VCI Kraft Paper and Poly Paper are cost-effective corrosion-inhibiting packaging.

Sustainable Corrosion Solutions from ZERUST®/EXCOR®

ZERUST®/EXCOR® introduces the Natur-VCI® and ICT®510-PCR30 VCI Film, groundbreaking sustainable corrosion protection solutions. Natur-VCI® is a fully biodegradable and compostable material, while ICT®510-PCR30 incorporates 30% post-consumer recycled polyethylene, both designed for superior metal protection during shipping, storage, and work-in-progress stages. Utilizing advanced ZERUST® Vapor Corrosion Inhibitors (VCI), these products offer invisible, odorless protection, ensuring metals are ready for immediate use. Ideal for eco-conscious industries, they represent our commitment to environmental sustainability without compromising on performance.





ZERUST®/EXCOR® VCI Films, Bags and Kraft Papers

ZERUST® carries and produces a wide range of corrosion-inhibiting films, kraft papers, VCI bags, and VCI sheeting technologies. ZERUST® film and sheeting products come in various thicknesses, strength enhancements, protection types, colors, shapes, and sizes. Your customer service representative can help recommend the ideal packaging solution for your application needs. The list below includes stock and non-stock options. Most products can be made in a range of metal protection types upon request.



ZERUST®/EXCOR® Paper and Film Products		Typical Metal Protection Types*			
Product Name	Description	Ferrous	Non Ferrous	Multi Metal	Anti Tarnish
ZERUST® ICT420	VCI Kraft Paper			x	
ZERUST® ICT®420-35P	VCI Poly-Coated Kraft Paper	x			
ZERUST® ICT®427-35	Premium VCI Kraft Paper - High Load			x	
ZERUST® ICT®430-35SR	VCI Scrim Reinforced Paper			x	
ZERUST® ICT®432-35P	Poly-Coated VCI Kraft Paper			x	
ZERUST® VCI Kraft Envelopes	VCI Kraft Paper Music String Envelopes			x	
ZERUST® ICT®504-LM	Moisture-Limiting VCI Film	x			
ZERUST® ICT®510-C	Stock Classic VCI Film	x	x	x	x
ZERUST® ICT®510-CLHD	High-Density Classic VCI Film	x	x	x	x
ZERUST® ICT®510-SM	Machine-Grade Stretch VCI Film	x		x	
ZERUST® ICT®510-MSF	Adhesive VCI Masking Film	x			
ZERUST® ICT®510-SK	Skin VCI Film	x	x	x	
ZERUST® ICT®510-SRK	Heat-Shrink VCI Film	x	x	x	x
ZERUST® ICT®510-OPS	Outdoor Preservation VCI Shrink Film	x	x	x	
ZERUST® ICT®520-HS	High-Strength VCI Film	x	x	x	
ZERUST® ICT®520-XF	High-Strength Woven VCI Film	x	x	x	
ZERUST® ICT®520-SRA	Woven-Scrim Polyethylene VCI Fabric	x	x	x	
ZERUST® ICT®520-CSL	Cold-Seal Adhesive VCI Film	x		x	
ZERUST® ICT®520-CB1	Acid-Gas Scavenger Anti-Tarnish Film				x
ZERUST® ICT®540-SDA	Advanced Long-Term Protection VCI Film	x	x	x	
ZERUST® ICT®570-CC	Closed-Cell VCI Foam Sheeting	x			
ZERUST® ICT®510-PCR30	30% Post-Consumer Recycled VCI Film	x		x	
ZERUST® Natur-VCI®	Biodegradable and Compostable VCI Film			x	
ZERUST® Profile Board	Rigid-Plastic VCI Profile Board	x	x	x	
ZERUST® VCI Film Converted Products					
ZERUST® Tote Covers	Transparent VCI Film with elasticized edges for covering work-in-progress totes	x	x	x	x
ZERUST® VCI Bags and Tubing	VCI Film in a range of metal protection types, sizes, construction; gusset, flat, zipper	x	x	x	x
ZERUST® Weapon Protection Kits	VCI Bags designed to protect weapons and accessories	x		x	

* Metal protection types include the most commonly selected stock and non-stock options. Please check with your ZERUST®/EXCOR® representative for other options available upon request.

ZERUST® at Work: Application Photos

With ZERUST®, packaging and corrosion protection become one application step. No messy greases or time-consuming removal.



Large items wrapped in outdoor preservation VCI shrink film.



ActivPak® fast-acting diffuser gives added protection in packaging.



Large assemblies protected in ZERUST® gusseted VCI bags.

Health, Safety and the Environment



ZERUST® VCI packaging films and papers are safe* to use, recyclable and reduce waste caused by corrosion. It is important to us that our products are easy to safely and accurately use.

Safe for People: This product does not pose a health hazard to users due to its classification as an article according to EU REACH, UN GHS, US OSHA HazCom and CA WHMIS regulations.

Recyclable: ZERUST® poly VCI film products and kraft VCI paper can be recycled and incinerated. Check with local regulations on disposal. ZERUST® film products that are clean and free of holes and tears may be reused.

Reduces Waste: Product reduces the impact on the environment by extending material life and reducing waste and energy associated with rework or producing new items.

ZERUST®/EXCOR® Technology is Easy to Apply

To use ZERUST® VCI Packaging, simply place metal parts into ZERUST®/EXCOR® packaging and seal tightly. ZERUST® vapor molecules diffuse from the packaging, saturate the interior of the package and form a powerful corrosion-inhibiting molecular layer on all exposed metal surfaces. Later, when the parts are removed from the packaging, the ZERUST® corrosion-inhibiting molecules will vaporize into the atmosphere. Parts will be clean, dry and corrosion-free — and ready for immediate use.

Types of ZERUST® Films and Papers

Ferrous

Protect iron, steel and cast iron metals using the trademark yellow ZERUST® Ferrous Packaging. Clear and custom colors and printing are available.

Non-Ferrous

Protect aluminum, copper, brass, bronze and galvanized steel with ZERUST® Non-Ferrous Packaging. Custom colors and printing are available.

Multimetal

Protect combinations of ferrous and non-ferrous metals with ZERUST® Multimetal Packaging. Custom colors and printing are available.

Anti-Tarnish

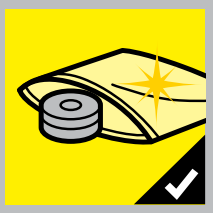
Protect silver, copper and related alloys from tarnishing with ZERUST® Anti-Tarnish and other special acid-gas scavenging packaging films.

Integrated Corrosion Technology (ICT®)

ZERUST® wrapping products can be integrated with additional corrosion-inhibiting technologies for application-specific protection such as anti-static, rip-stop, water vapor barriers, acid-gas scavengers (AGS), UV block, custom sizes, reusable covers and more.



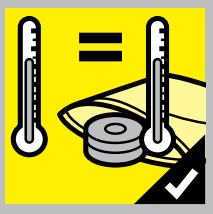
Instructions For Use



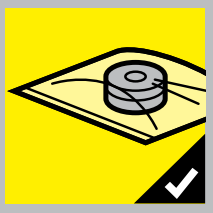
Pack only clean and dry parts.



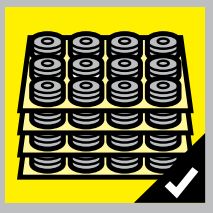
Always wear clean and dry gloves when handling metal parts to protect them from corrosion causing fingerprints.



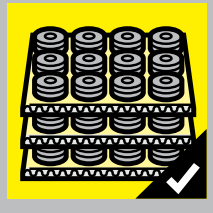
When packing, the temperature of the parts should be near room temperature to avoid condensed moisture.



Tightly close packages with tape, heat seal, zip ties or by folding over. Reseal after every use.



Insert additional ZERUST® materials as interleave for added protection in larger and tightly packed or layered packages.



Avoid direct contact of metal with wood, paper or cardboard (sources of moisture and acid).

ZERUST® EXCOR®

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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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