

ZERUST®  **EXCOR®**



CORROSION SOLUTIONS FOR THE METAL COIL INDUSTRY



ZERUST® is a product of
Northern Technologies
International Corporation



WHY CHOOSE ZERUST®?

PROVEN SAFE, RELIABLE AND EFFECTIVE CORROSION SOLUTIONS FOR METAL COILS

ZERUST® corrosion inhibiting products are a cost-effective way to protect metal coils from rust and corrosion during storage and shipping. 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.



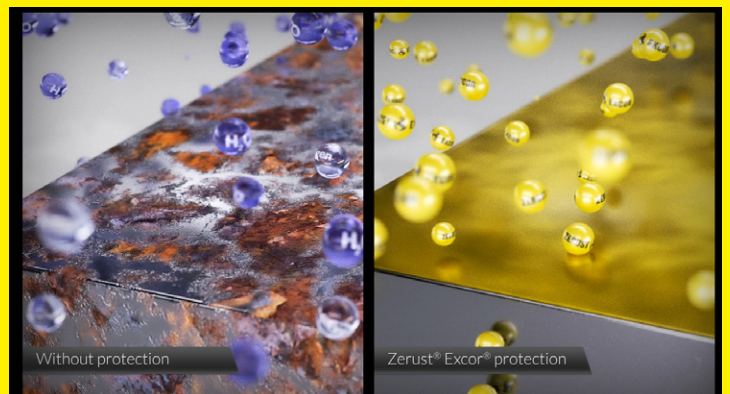
THE BENEFITS OF ZERUST® CORROSION INHIBITOR PRODUCTS



- **Ease of Use:** VCI paper and poly are simple to use and do not require specialized equipment or labor to apply, making them cost-effective.
- **Environmentally Friendly:** VCI paper and poly are environmentally friendly and do not release harmful substances into the air or soil.
- **Reusability:** VCI paper and poly can be reused multiple times, making them a more sustainable option compared to traditional coatings.
- **Protection in Enclosed Spaces:** VCI paper and poly provide protection against corrosion in enclosed spaces, such as containers or storage areas, where traditional coatings may not be effective.
- **Cost-Effective:** VCI paper and poly are cost-effective as they reduce the need to reapply, compared to traditional coatings.

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.



HEAVY-DUTY, HIGH-STRENGTH VCI PACKAGING SOLUTIONS FOR THE METAL COIL INDUSTRY

Metal coil suppliers and manufacturers' integrity and brand reputation rely upon supplying corrosion-free coils to their customers.

Corrosion is a common issue for metal coil manufacturers and suppliers due to high humidity at the manufacturing facilities, improper handling/packaging, and harsh conditions during the storage and transportation of the coils. Without the proper corrosion-inhibiting method, metal coils can become compromised quickly.



ZERUST® has helped metal coil suppliers and manufacturers replace rust-preventative oils with the use of our heavy-duty, high-strength VCI packaging products. ZERUST® packaging products protect the coil's metal surface by providing rip and tear resistance while emitting ZERUST's powerful vapor corrosion inhibitors (VCI) and allowing the metals to be ready for use directly out of VCI Packaging. For the metal coil suppliers and manufacturers required to use rust-preventative oils, ZERUST® Axxanol™ 33 is an oil-based corrosion preventive coating that is widely used for in-line rolling mill applications, cold-rolled sheets, and coils.

ZERUST® offers a wide array of heavy-duty, high-strength VCI packaging solutions for interleaving and wrapping metal coils during storage and shipping.

- ZERUST® ICT® 400 VCI Paper Series: Poly Kraft and VCI Scrim
- ZERUST® ICT® 500 VCI Film Series: VCI Poly Film, Bags, Scrim, Stretch Film, and Coil Covers

HEAVY-DUTY, HIGH-STRENGTH VCI PACKAGING SOLUTIONS

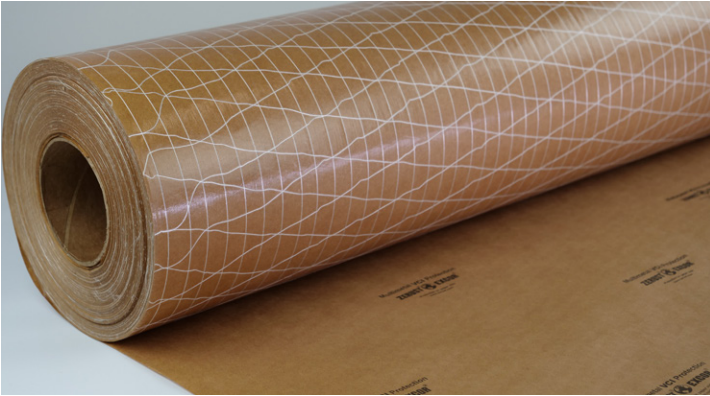


PRODUCT SOLUTION HIGHLIGHTS

ZERUST® ICT® 400 SERIES: VCI PAPER

ZERUST® ICT®430-35SR, ICT®432-35P, and ICT®420-35P are heavy-duty, high-strength VCI papers coated for superior strength that resists ripping and tearing. Use ZERUST® ICT® VCI Paper to wrap and protect metal coil rolls in shipment and storage.

ZERUST® ICT®430-35SR Scrim Reinforced VCI Kraft Paper



ZERUST® ICT®430-35SR Scrim Reinforced VCI Paper is a high-quality 35# kraft paper that is saturated on one side with proven ZERUST® corrosion inhibitors and laminated with a 3/4 mil polyethylene layer and fiberglass scrim on the backside to provide superior strength. Place the plain kraft paper side facing the metal surface to allow the powerful vapor corrosion inhibitors (VCI) to protect ferrous and non-ferrous metal coils.

ZERUST® ICT®432-35P Poly VCI Kraft Paper



ZERUST® ICT®432-35P is a kraft packaging paper containing ZERUST® Vapor Corrosion Inhibitor Technology (VCI) coated with a 3/4 mil plain polyethylene coating on one side. The plain polyethylene coating provides the kraft paper with increased tear and moisture resistance. Place the plain kraft paper side facing the metal surface to allow the powerful vapor corrosion inhibitors (VCI) to protect ferrous and non-ferrous metal coils.

ZERUST® ICT®420-35P VCI Poly Kraft Paper



ZERUST® ICT®420-35P is a polyethylene-coated VCI kraft paper with proprietary ZERUST® ICT® formulations contained within the polyethylene coating (coating on one side of the sheet only). Due to its 1 mil ZERUST® ICT® polyethylene coating, it provides the additional benefits of increased tear resistance and moisture resistance along with the versatility of paper and powerful ZERUST® corrosion protection. Place the polyethylene coating facing the metal surface to allow the powerful vapor corrosion inhibitors (VCI) to protect ferrous metal coils.

PRODUCT SOLUTION HIGHLIGHTS

ZERUST® ICT® 500 SERIES: VCI POLY FILM AND SCRIM

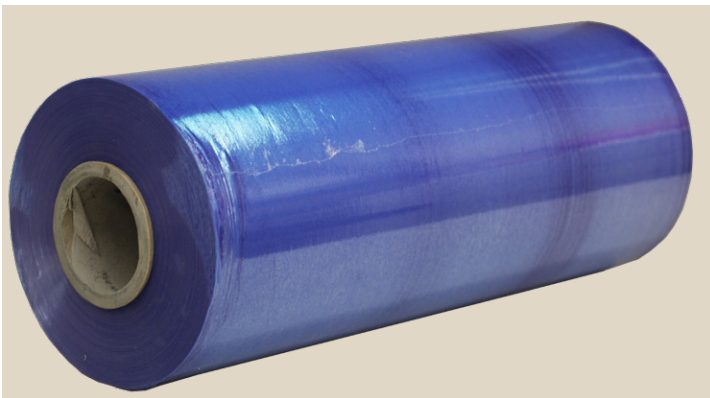
ZERUST® offers a custom coil wrapping solution by combining VCI coil covers with VCI stretch to provide a VCI-rich environment that protects metal coils from corrosion. In addition to VCI coil covers and stretch, ZERUST® VCI Scrim is great for interleaving applications where strength and tear resistance are essential and is ideal for wrapping and protecting large, heavy objects such as metal coils.

ZERUST® ICT® VCI Coil Covers



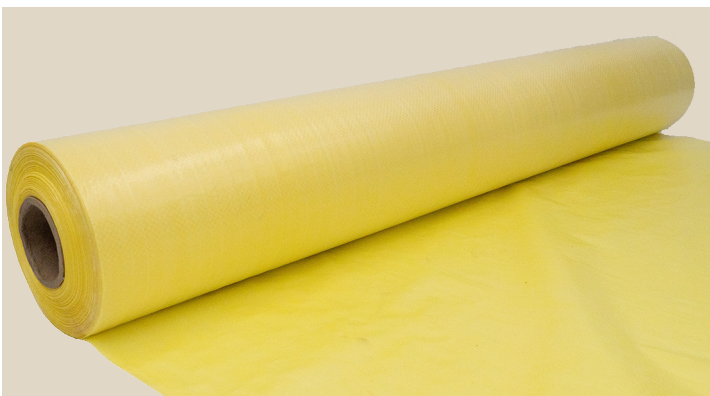
ZERUST® ICT® VCI Coil Covers are a convenient packaging product made of ZERUST® VCI film with an elastic band that's designed to fit over the top and bottom of metal coils, protecting them from corrosion and dust during storage and transportation. They are custom products designed to cover the most common sizes of metal coils and are reusable when in good condition. Additionally, the VCI Coil Covers are made of transparent film, allowing the coils to be visible for easy identification and inspection.

ZERUST® ICT®510-SM VCI Stretch Film



ZERUST® ICT®510-SM VCI Stretch Film is a high-quality cast film packaging product with high-stretch tension enabling it to form to metal coils. Its superior elastic stretch memory assures load stability in transit and tear resistance. In addition, it maintains a tight wrap, even with some abrasion and random cuts. Use ZERUST® VCI Stretch Film to wrap metal coils in combination with ZERUST® ICT® VCI Coil Covers to provide a VCI-rich environment that protects metal coils from corrosion during shipment and storage.

ZERUST® ICT®520-SRA VCI Plastic Scrim



ZERUST® ICT®520-SRA VCI Plastic Scrim is a durable polyethylene fabric with woven strands for strength and tear resistance, as well as vapor corrosion inhibitor (VCI) corrosion protection. ZERUST® VCI Plastic Scrim is great for interleaving applications where strength and tear resistance are important. For example, use ZERUST® VCI Scrim to provide corrosion protection when stacking or wrapping metal coils during shipment and storage.

IMPORTANCE OF PROTECTING GEARBOXES AT COIL SUPPLIERS

Gearboxes are pivotal components in the metal coil industry, ensuring the smooth and efficient operation of rolling mills. These intricate systems manage the speed and torque necessary for the rolling process. Given their critical role, maintaining gearboxes is essential to prevent operational disruptions. Routine inspections can identify minor issues such as oil leaks, overheating, and unusual vibrations before they escalate. Monitoring temperature changes with infrared tools ensures the gearbox operates within safe parameters. Regular lubrication is crucial to maintaining the performance and longevity of gearboxes, while ensuring alignment and cleanliness helps avoid mechanical failures. Corrosion poses a significant threat, particularly during periods of inactivity like mothballing, lay-up, or storage. Effective corrosion protection prolongs the lifespan of gearboxes and ensures they are ready for immediate operation when needed, safeguarding the productivity and reliability of coil suppliers' operations.



ZERUST® has been instrumental in helping metal coil suppliers protect their gearboxes from corrosion. By implementing solutions such as ZERUST® Axxanol™ 707C and 710C, suppliers have successfully preserved the integrity of their gearboxes during storage and shipping. These advanced VCI oil additives provide thorough protection for hard-to-reach internal surfaces, ensuring that gearboxes remain in optimal condition and ready for immediate use.

ZERUST® VCI PROTECTS GEARBOXES AFTER FACILITY SHUT DOWN



Problem

A large steel roll supplier that shut down their facility contacted ZERUST® to preserve their assets. They needed to protect these assets in case the facility reopened or if they had to transfer equipment to other plants across the US. They were particularly concerned about preserving the large gearboxes along the manufacturing line.

Solution

A local ZERUST® representative inspected the assets and determined that Axxanol™ 707C would provide the best solution to protect the large gearboxes. 707C's vapor corrosion inhibitors (VCI) migrate to protect hard-to-reach internal surfaces of the gearbox for up to 2 years⁺ from rust and corrosion.

Results

The customer has been extremely happy with their corrosion-free results and now relies on ZERUST® for all their work-in-process, storage, and shipping VCI needs for their facilities across the US.

PRODUCT SOLUTION HIGHLIGHTS

ZERUST® ICT®700 SERIES: AXXANOL™ VCI OIL ADDITIVES

ZERUST® Axxanol™ VCI Oil Additives are designed to protect the internal surfaces of gearboxes against corrosion during mothballing, lay-up, bunkering, and other shipping and storage applications. Depending on the length of protection needed, ZERUST® offers multiple formulations to provide the best solution for your application.

ZERUST® Axxanol™ 707C



ZERUST® Axxanol™ 707C is a vapor-phase-only corrosion inhibitor concentrate specially formulated for protecting gearboxes during storage and shipping. Gearbox lubricating oils can drain away from internal surfaces, exposing these areas to corrosion from humid air condensation. When Axxanol™ 707C is mixed with approved lubricating oils, it emits vapor-phase molecules that migrate to exposed metal surfaces within the gearbox, providing corrosion protection for up to 2 years[‡]. This additive is designed to protect hard-to-reach internal components without containing barium or heavy metals, ensuring compliance with global environmental

standards. Its high flash-point and compatibility with various gearbox oils make Axxanol™ 707C an essential solution for maintaining the integrity and readiness of gearboxes during periods of inactivity.

ZERUST® Axxanol™ 710C



ZERUST® Axxanol™ 710C is an advanced anti-corrosion oil additive specifically engineered to safeguard gearboxes during extended storage and lay-up periods. Utilizing a combination of ZERUST® Contact Inhibitors and Vapor Corrosion Inhibitor (VCI) Technology, Axxanol™ 710C provides comprehensive protection for the internal metal surfaces of gearboxes. When mixed with approved lubricating oils, it emits VCI molecules that migrate to hard-to-reach areas within the gearbox, ensuring corrosion protection for up to 5 years[‡]. This additive offers superior protection for both aluminum and ferrous metals and complies with global

environmental regulations. With its high flash-point and excellent compatibility with various gearbox oils, Axxanol™ 710C is a reliable choice for preserving the operational readiness and extending the lifespan of gearboxes in the metal coil industry.

Unsure what's the best solution for your corrosion issue? Check with your ZERUST®/EXCOR® representative for a corrosion management system most effective for your metal assets.

Global Support

- | | | | |
|----------------------------------|------------|-------------------|--|
| Algeria | Denmark | Mexico | Sri Lanka |
| Angola | Ecuador | Monaco | Sweden |
| Argentina | Estonia | Morocco | Switzerland |
| Australia | Finland | Nepal | Taiwan |
| Austria | France | Netherlands | Thailand |
| Bangladesh | Gabon | Nigeria | Tunisia |
| Belarus | Germany | Norway | Turkey |
| Belgium | Hungary | Peru | Ukraine |
| Bhutan | India | Philippines | United Arab Emirates and MENA (Middle East & North Africa) |
| Bolivia | Indonesia | Poland | United Kingdom |
| Brazil | Ireland | Portugal | United States |
| Canada | Italy | Republic of Congo | Uruguay |
| Chile | Japan | Romania | Vietnam |
| China | Kazakhstan | Singapore | |
| Colombia | Korea | Slovak Republic | |
| Czech Republic | Latvia | Slovenia | |
| Democratic Republic of the Congo | Lithuania | South Africa | |
| | Luxembourg | Spain | |
| | Malaysia | | |

Visit www.zerust.com for more information!

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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.