



Zerust® Natur-VCI™ Film

Certified Compostable VCI Film

The Zerust®/Excor® Natur-VCI™ series is an internationally certified fully biodegradable and compostable Volatile Corrosion Inhibiting (VCI) packaging material designed to protect metal components from rust and corrosion during shipment and short-term storage.

Zerust® Natur-VCI™ products, with a thickness of 60 microns (2.3 mil) or less, pass the NACE Standard TM0208 VCI corrosion protection test to level 3, but also meet international standards for compostable plastics including ASTM D6400, EN 13432, and are certified 100% compostable by TUV Austria.

End of Life Disposal

Natur-VCI™ film is engineered for safe disposal in a professionally managed composting facility, where the carbon in the film is utilized as a food source by micro-organisms to completely break-down the plastic into humus, water and CO₂. The resulting humus can be used as a natural fertilizer and/or soil amendment in agriculture. Natur-VCI™ meets the ASTM D6400 "Standard Specification for Labeling of Plastics Designed to be Aerobically Composted in Municipal or Industrial Facilities" and is certified (Cert # TA8012004702) by TUV Austria for the European EN 13432 standard "Packaging - Requirements for packaging recoverable through composting and biodegradation - Test scheme and evaluation criteria for the final acceptance of packaging."



Benefits

Certified Compostable

Powerful and safe* corrosion protection and packaging combined in one step

Provides enhanced mechanical performance properties in terms of tensile strength, resistance to tearing, elongation at tear and puncture resistance in conformity with DIN EN ISO 527-3/2/200 and ASTM D1709/A. In many cases these properties allow the implementation of thinner films (i.e. 2.3 mil rather than 4 mil), allowing customers to reduce the environmental impact

Metals components are ready for use and assembly directly after being taken out of the packaging

Carbon Savings

By replacing 100 metric tons (100,000 kg) of conventional polyethylene plastic VCI packaging with Natur-VCI™, the following equivalent environmental benefits are achieved.**



118 ton reduction in CO₂ emissions for every 100 metric tons of VCI film



Reduction in CO₂ emissions equivalent to 25 cars driven for a year for every 100 metric tons of VCI film



Reduction in CO₂ emissions equivalent to the consumption of 50,262 Liters of gasoline for every 100 metric tons of VCI film



Reduction in CO₂ emissions equivalent to the carbon sequestered by 1,951 tree seedlings grown for 10 years for every 100 tons of VCI film

Application Type

Storage
Shipping
Work in progress

*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.

**WARN MODEL. Source: US EPA Greenhouse Gas Equivalencies Calculator (as of September 2019).



Product Information

Description	Zerust®/Excor® Natur-VCI™ Film is a fully biodegradable and compostable polymer volatile corrosion inhibiting (VCI) packaging product.
Appearance	Typical color is translucent green. Subject to order minimums.
Types of Metal Protected	Ferrous (steel, iron and alloys) and non-ferrous (aluminum, copper, brass, bronze, and galvanized).* <small>*Given the higher water vapor transmission rate of Natur-VCI™ compared to PE, for yellow metals, it is critical to evaluate the usage condition before recommending for use in high temperature and humidity.</small>
Protection Life	Protects clean dry metals for up to 6 months when used correctly.
Storage	Store in original packaging away from direct sunlight in conditions below 85°F (30°C) and 50% RH for up to 1 year from the date of shipment.
End of Life Disposal	This product is intended to be disposed in an industrial composting facility after use in order to reduce environmental impact.

Property	Direction (Machine or Transverse)	Zerust® Natur-VCI™ Film*	ASTM Test Method
Density	-	1.26-1.28 gm/cm ³	D792-13, Method A
Dart Impact Resistance	-	> 500 g	D-1709
Tear Strength	MD	100-200 gf	D-1938
	TD	200-400 gf	
Tensile Strength	MD	28-40 MPa	D-882
	TD	28-40 MPa	
Elongation at Break	MD	500-900 %	D-882
	TD	500-900 %	
Vapor Inhibiting Ability (VIA)	-	Pass	NACE TM0208
Water Vapor Transmission Test	-	11-14 (g/100 in ² .day) @37.8°C (100°F)/90% RH	ASTM F-1249

* Typical values, not meant to be a specification.

Please refer to the Safety Data Sheet and the Processing Guide for specific handling and processing instructions.

DECLARATION

This Data sheet and information it contains is considered to be accurate at the date of printing. No representation or warranty, expressed or implied is made as to the accuracy or completeness of the data and information contained in this publication. It is the User's obligation to evaluate and use products safely and within the scope advised in the data sheet and to comply with all applicable laws and regulations.

LIMITED WARRANTY

All statements, technical information and recommendations contained herein are based on validations and tests conducted by Northern Technologies International Corporation/Zerust® or its partners and are believed to be reliable, but the accuracy or completeness thereof is not guaranteed. We warrant our products will be free from defects when shipped to customer. Our obligation under this warranty shall be limited to replacement of product that proves to be defective. To obtain replacement product under this warranty, the customer must notify Northern Technologies International Corporation/Zerust® or its partners or agent of the claimed defect within 3 months after shipment of product to customer. Customer shall pay all freight charges for replacement products. We shall have no liability for any injury, loss or damage arising out of the use of or the inability to use the products. And any financial claims shall be limited to the value of the products sold. Before using, user shall determine the suitability of the product for its intended use, and user assumes all risk and liability whatsoever in connection therewith. No representation or recommendation not contained herein shall have any force or effect unless in a written document signed by an officer of the company. The foregoing warranty is exclusive and in lieu of all other warranties, express, implied or statutory, including without limitation any implied warranty of merchantability or of fitness for a particular purpose. In no case shall Northern Technologies International Corporation/Zerust® be liable for incidental or consequential damages. For full warranty and disclaimer information visit, www.zerust.com/warranty.

©2013-2020 Northern Technologies International Corporation (NTIC). All Rights Reserved. NTIC is the owner of the following trademarks: ActivPak®, Cor Tab®, EXCOR®, Flange Saver®, ICT®, NTI®, Plastabs®, Z-CIS®, Zerion®, ZERUST® 洁乐特 and the Color "Yellow". ABRIGO®, UNICO®, and VALENO® are registered trademarks of EXCOR GmbH, a Joint Venture Partner of NTIC.

Availability

Zerust®/Excor® Natur-VCI™ Film is a custom product. Contact a Zerust® account manager for pricing and availability.

Zero-Waste

After parts* are shipped to the end user, the Natur-VCI™ bags may be reused to collect food scraps at the end user's facility and sent to their local compost site. Natur-VCI™ meets ASTM D6400 and is certified by TUV Austria (Cert # TA8012004702).

*Parts cannot be coated with rust preventative oils, unless oil is certified compostable.

Precautions

Do not use for:

- Outdoor protection
- Components coated with rust preventative oils, unless oil is certified compostable
- Components leaking or dripping with oils/fluids

Safety

- 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.
- Zerust® VCI chemistry is safe for sensitive electronics. No galvanic effects, residues or changes in the properties of metals. The protective molecules dissipate upon opening of package.

ZERUST® EXCOR®

Natur-Tec®