

# Zerust® Case Study > > >

## TECHNOLOGY THAT PROTECTS METAL FROM CORROSION

### ICT™510-CLHD Film vs VCI Paper

Vapor corrosion inhibiting paper (VCI paper) has been widely used as a corrosion inhibiting packaging product for many years as it is relatively inexpensive and easy to use. However, VCI paper falls short when compared to Zerust® ICT™510-CLHD Film from Northern Technologies International Corporation (NTIC), prompting many companies to make the switch to Zerust® ICT™510-CLHD Film.

Zerust® ICT™510-CLHD Film is a lightweight yet strong corrosion inhibiting polyethylene film that is used to wrap or interleave between parts, to laminate other materials or as a replacement for corrosion inhibiting paper. Zerust® ICT™510-CLHD Film offers many advantages over paper including increased durability, a high resistance to moisture damage and a longer shelf and protection life.

#### SITUATION

A customer asked NTIC to test a competitor's VCI paper against Zerust® ICT™510-CLHD Film (1.5 mil) to help solidify their decision to switch to Zerust® ICT™510-CLHD Film.

#### TEST PROCEDURE

NTIC tested two 1010 steel panels packaged in the competitor's VCI paper and two panels packaged in ICT™510-CLHD Film. The panels were then placed in an environmental test chamber (high temperature and high humidity conditions) for 30 days according to ASTM D-1709-91 and evaluated.

#### RESULTS

The panels packaged in the competitor's VCI paper showed corrosion after only 3 days! The panels packaged in Zerust® ICT™510-CLHD Film still showed NO CORROSION after 30 days in the chamber. In addition, Zerust® ICT™510-CLHD Film is mechanically superior to VCI paper - it is stronger, more difficult to tear, resists breakage at a higher impact force and stretches to better manage any "stress" imposed on the package (see "Table of Mechanical Properties" on right).

This case makes it clear that Zerust® ICT™510-CLHD Film outperformed the VCI paper in both environmental chamber testing and mechanical property testing. To order Zerust® ICT™510-CLHD Film, please call +1 (763) 225-6600, fax +1 (763) 225-6645 or email sales@zerust.com.

### Case Photos



1010 steel panels packaged in a competitor's VCI paper corroded after only 3 days in the test chamber!



The 1010 steel panels packaged in Zerust® ICT™510-CLHD Film showed **absolutely no corrosion** after 30 days in the test chamber.

### TABLE OF MECHANICAL PROPERTIES

	TENSILE STRENGTH (psi)	ELONGATION AT BREAK (%)	TEAR RESISTANCE (lbs)	DART IMPACT STRENGTH (grams)
<b>ASTM Test Used</b>	D-882-01	D-882-01	D-1938-99	D-1709-02
<b>Meaning</b>	How much force is needed to break the sample by pulling on it?	How far will the sample stretch before breaking?	If a small tear occurs, how difficult is it for the sample to continue tearing?	During an impact from a blunt object, how much force will the sample withstand?
	<i>Machine Direction / Cross Direction</i>	<i>Machine Direction / Cross Direction</i>	<i>Machine Direction / Cross Direction</i>	
<b>VCI PAPER</b>	2600 / 1900	19 / 14	0.153 / 0.159	Less than 40 grams
<b>ICT510-CLHD Film (1.5 mil)</b>	4200 / 2400	295 / 146	0.755 / 1.07	71.5
<b>Comparison</b>	Film is about 1.5 times stronger.	Film will stretch 1.5 to 3 times its original length.	Film is many times more resistant to tearing.	It requires very little impact weight to break paper.

### APPLICATION TYPE



### CORROSION PROTECTION FOR:



NORMAL ENVIRONMENT

AGGRESSIVE ENVIRONMENT

EXTREME ENVIRONMENT



## OTHER PRODUCTS AVAILABLE

### **ICT™ 400 Series: Packaging Paper**

Acid-free, pH neutral corrosion inhibiting paper and poly paper offer short-term corrosion protection for metal parts.

### **ICT™ 500 Series: Packaging Films**

Our most widely used series of products. A variety of films offer short or long-term corrosion protection for parts and equipment during storage or shipment.



Most Zerust® paper and film products are recyclable.  
Please consult your Zerust® Representative and Federal,  
State and Local Regulations.

### **ICT™ 600 Series: Rust Removers**

Highly effective rust removers for light to severe rust removal. All ICT™600 series rust removers are non-toxic, non-hazardous & non-corrosive.

### **ICT™ 700 Series: Liquid Additives and Coatings**

Temporary corrosion protection for parts in-between production processes, during storage, or for added protection to the ICT™ 500 series products during ocean shipments.

### **ICT™ 800 Series: Diffusers**

Self-contained, portable products that diffuse Zerust® ICT™ chemicals to protect metals within enclosures, such as tool boxes, electrical boxes, etc.

**For more information about the various products listed above, please visit [www.zerust.com](http://www.zerust.com) or contact us at +1 (763) 225-6600.**

# **Zerust® EXCOR®**

*A product of:*

**Northern Technologies  
International Corporation**

4201 Woodland Road

P.O. Box 69

Circle Pines, MN 55014

PH: +1 (763) 225-6600

FAX: +1 (763) 225-6645

EMAIL: [sales@zerust.com](mailto:sales@zerust.com)

WEB: [www.zerust.com](http://www.zerust.com)