



## TECHNICAL DATASHEET

## PRODUCT NAME – RUST-X VCI Lamina Shrink Film

*PRODUCT CODE – Grade: 3 Layer Lamina VCI Film X linked 250 and 200 micron*

### PRODUCT DESCRIPTION

RustX VCI Lamina Films are manufactured using state of the art SMP Technology for speedy moisture passivation and provides long term corrosion protection to the packaged parts. VCI Lamina Films when sealed isolates the packed machinery and equipments from influx of humidity and VCI pacifies the environment inside the packaging. VCI Lamina films are suitable for ferrous and non ferrous metals and inhibit the development of corrosion, tarnishing etc. for upto 5 years in a complete system designed by RustX. RustX VCI Lamina Films are cross linked which increases the strength between the molecular chain and provides very high tear and tensile strength and dart impact.

RUST-X VCI Lamina Shrink Film is a specially designed product for the packaging of heavy equipment, armament, pallets, vehicles, automotive parts, engines, wind mills, power plant equipment, chemical plant equipment etc. RUST-X VCI Lamina Shrink film provides better corrosion protection compared to using ordinary Shrink Film and provides a single product with multiple features such as abrasion protection, movement restriction, water barrier as well as moisture barrier hence providing excellent option for long term preservation. The VCI properties of the shrink film provides long term

corrosion resistance due to the vapor corrosion inhibiting technology induced in the shrink film. The protective vapors are emitted from the film, which have the tendency to neutralize the moisture as well as form a multi-molecular film on the surface of the metal and inhibit the electrolytic process of oxidation.

The film can be printed in 6 colors

### FEATURES

- Powerful and extremely strong and excellent pliability to conform to coil configurations
- Multi-metal VCI protection for all surfaces
- High stretch ability
- Sharp edge resistance due to multi-molecular linking for increased strength
- Minimal equipment investment with substantial reduction in labor costs
- Increased production through-put
- Reduces usage cost and associated problems
- Dry packaging compatible product
- Quick to use, remove and easy to recycle

### UV PROTECTION

European norm: EN 13206:2001

Film duration: it's determined following the procedure described in the European norm



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EN13206, exposing plastic film in suitable machines equipped with specific lamps (those lamps irradiate a radiation similar to solar type).

To determine film duration, the adopted criterion only considers material degradation obtained in laboratory through the quick artificial ageing (Weather-o-meter or Wom).

The duration of a covering material is proportional to the period of exposure to the artificial ageing after which mechanical properties are not considered as more sufficient. Film classification on the base of artificial accelerated ageing

### UV PROTECTION PROPERTIES

Film classification on the base of artificial accelerated ageing.

Film Class	Duration (Hours)
N	≥400
A	≥1700
B	≥3200
C	≥4600
D	≥ 6000
E	≥ 7300

Correlation between natural ageing and artificial accelerated ageing (for film PE, EVA and EBA)

Climatic area kLy/Year	Predicted duration of film (years)			
	Exposition to Wom (hours)			
70-100 (North- Europe)	1700	3500	5300	7100
100-130 (Centre- Europe)	2800	5600	8400	
130-160 (South- Europe)	3900	7800		

### USAGE

The product to be packed can be wrapped with shrink film and then passed through heating tunnel or subjected to hot air through a gas gun or heated air gun.

The temperature for shrinking tunnel needs to be maintained above 150 C. This does not mean that the product will also reach 150 C. The process increases the temperature of the film and there is hardly any impact on the temperature of the product inside.

Use of gloves while handling the components as well as immediate packaging is important.



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#### TECHNICAL PROPERTIES

Physical Properties	Test Method	VCI Lamina Shrink Film
Colour	Visual	Outer White Inner Green
Thickness Availability	Micrometer	250 microns or 10 mil
VCI code		712-250
Specific Gravity	ASTM D 1298	Approx 1
VCI Test (VIA)		Pass
Salt Spray in VCI	ASTM B 117	24 hours +
Breaking Factor	ASTM D882-02 MD Lb/In	33.1
	TD Lb/In	31.05
Elongation at Break	ASTM D882-02 MD %	970%
	TD %	920%
Tensile Strength	ASTM D882-02 MD PSI	3102
	TD PSI	3040
Yield Strength	ASTM D882-02 MD PSI	1220
	TD PSI	1592
Shrink Temperature	Degree Celsius	165 to 230
Sealing Temperature	Degree Celsius	110 to 120
PE Content		40-50%
VCI Content		12-15%
Proprietary blends		30-40%

- Electrical grade steel Stainless steel
- Copper and Aluminum sheets
- Wrapping metal bodies, engines, turbines, heavy equipment
- Wrapping castings, forgings, sheet metal
- Wrapping electrical panels, motors

#### APPLICATIONS PICTURES



#### APPLICATIONS

- Machinery Packaging
- Steel Coils
- Galvanized sheets and coils
- Metal Tubes and wires

USA - 14310 Gannet St , La Mirada, California  
 info@rustxusa.com www.rustxusa.com  
 Italy | France | India | China | Mexico





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#### PACKAGING AND STORAGE

Store in a cool dry place and always keep VCI film wrapped when not in use.

#### DISPOSAL

Recommendation: Do not allow product to reach sewage system.

Disposal of product or waste must comply with official local regulations.

Packaging that cannot be recycled must be disposed in the same manner as the product.

#### SAFETY INFORMATION

- Keep Out Of Reach Of Children
- Keep Container Tightly Closed
- Not For Internal Consumption
- Consult Material Safety Data Sheet For More Information
- 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.
- Rust-X VCI chemistry is safe for sensitive electronics.
- Rust-X VCI chemistry imposes No galvanic effects, residues or changes in the properties of metals. The protective molecules dissipate upon opening of package.

#### HEAVY METALS DECLARATION

RUST-X Rust Preventive products do not contain Lead (Pb), Mercury (Hg), Cadmium (Cd), Hexavalent Chromium (Cr6), Polybrominated biphenyls (PBB), or Polybrominated di-phenylether complying with the re-stricted substances listed in Article 4(1) of the RoHS Directive. RUST-X Rust Preventive Oils are also REACH Compliant for exports to the European Union.

#### 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 HI TECH INTERNATIONAL/RUST-X 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



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replacement product under this warranty, the customer must notify Rust-X, Hi Tech International 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 film 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 HI TECH INTERNATIONAL/RUST-X be liable for incidental or consequential damages.

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info@rustxusa.com www.rustxusa.com  
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