

Technical Resource

Armor Protective Packaging® 6 R's of Sustainability

Armor Protective Packaging® products have been "green" and certainly "sustainable" long before they were the trendy buzzwords that they are today. In providing corrosion inhibiting and rust removal products that are safe, clean and easy-to-use, ARMOR products provide tremendous environmental and economic benefits while protecting public health, welfare and environment over their full commercial life cycle.

Given the importance of the sustainability movement, ARMOR has put forth additional resources and focus on both our product line and the way we do business. Here are some of the ways that ARMOR maintains its environmental and sustainability leadership.

The ARMOR 6 R's of Sustainability

By the most popular definition (traced to a 1987 UN conference), sustainability is defined as meeting present needs without compromising the ability of future generations to meet their needs. As applied to corrosion management and the shipping and storing of metal products, sustainability means reducing the negative impact on the environment and on people through increased use of renewable materials, reduction in the amount of oils and harmful chemicals used and using less energy in manufacturing and shipping.

The ARMOR 6 R's of Sustainability include:

- 1. REDUCE source materials used to create rust-prevention packaging
- 2. REMOVE rust without the use of acids or other harsh chemicals and save metal from scrap
- 3. RECYCLED content is utilized whenever possible -- without sacrificing performance
- 4. **RECYCLABLE** rust-prevention packaging offered to reduce pollution and the need for virgin raw materials, saving energy and natural resources
- 5. RENEWABLE products such as VCI paper -- made from replenishable natural resources are a priority and are offered whenever possible
- 6. **REJECT** or prevent rust in a clean, safe and easy-to-use way to preserve metal parts and prevent the waste of natural resources

Customers large and small are becoming increasingly more aware of their impact on the environment and future generations. Fueled by Walmart's Packaging Scorecard and Sustainability Index, companies have been implementing sustainable strategies that impact their supplier's packaging and corrosion prevention decisions. In fact, while the primary and initial goals may have been to preserve the environment and future generations, upon close inspection, many of the ARMOR 6 R's of sustainability are actually cost savings as well.

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ARMOR Helps Customers Improve Their Sustainability By...

- Analyzing, evaluating and recommending the most effective corrosion-management solutions possible.
- Offering eco-friendly, recyclable rust-prevention products made from recycled content and/or renewable resources (whenever possible) that are clean, safe and easy-to-use.
- Using ARMOR VCI Nanotechnology[™] (vapor corrosion inhibitors) combined with materials such as Kraft paper and poly film to create rust-prevention packaging free of the hazards of oils, grease, coatings or harmful chemicals.
- Helping achieve the 6 R's of Sustainable Corrosion Management.
- 1. **REDUCE** source materials used to create rust-prevention packaging Use Less. Waste Less.
 - The U.S. EPA ranks source reduction as its highest priority in waste management
 - In 2005, ARMOR was the first to manufacture a multi-layer VCI film called the DEFENDER[™] whose unique design uses 25-30% less materials and conserves natural resources
 - VCI is strategically positioned only on the inside layer of film, next to metal parts, reducing the amount of VCI resin that is needed
 - Innovative engineering allows DEFENDER VCI Film to be downgauged by 25-30% without compromising performance
- 2. **REMOVE** rust without the use of acids or other harsh chemicals and save metal from scrap
 - Metal Rescue® Rust Remover Bath is a water-based rust remover designed to remove rust from iron and steel
 - o It's safe on everything except rust, including skin, clothing, paint, rubber and plastics
 - Metal Rescue removes rust without the use of caustic chemicals that are harmful to the environment and people
 - o It is effective, environmentally friendly, non-flammable and fume free
- 3. **RECYCLED** content is utilized whenever possible -- without sacrificing performance
 - ARMOR has a minimum of 30% post-industrial recycled content in its DEFENDER® and CRUSADER® VCI Films and in its SEA Film
 - ARMOR has a minimum of 50% post-industrial recycled content in all ARMOR POLY® VCI Films (except for those that contain heat shrink, UV inhibitors and HD)
- 4. **RECYCLABLE** rust-prevention packaging offered to reduce pollution and the need for virgin raw materials, saving energy and natural resources
 - Nearly all ARMOR products are recyclable, including ARMOR WRAP® VCI Papers and ARMOR POLY® VCI Films

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- 5. **RENEWABLE** products such as VCI paper -- made from replenishable, natural resources are a priority and are offered whenever possible
 - ARMOR WRAP® VCI Papers are made from wood -- a renewable and recyclable natural resource
 - Paper sustainability in the USA has increased due to the use of advances in papermaking technology. Over 2.5 billion trees are planted in the USA alone each year (millions more grow from seeds and sprout naturally)
 - \circ 65% of paper used in the USA was recovered for recycling
 - Over 67% of U.S. pulp and paper mills' energy needs are a result of renewable biomass and fuels
- 6. **REJECT** or prevent rust in a clean, safe and easy-to-use way to preserve metal parts and prevent the waste of natural resources
 - ARMOR VCI Nanotechnology™ preserves and protects metal parts from rust and corrosion and prevents the waste of natural resources
 - ARMOR products <u>do not contain</u> messy oils or hazardous RP sprays that are harmful to people and the environment
 - Salvaging a part from rust vs. scrapping it reduces energy usage, greenhouse gases and the carbon footprint
 - 6,950 watt hours of energy are needed to produce 1 kilogram of iron from iron ore and 13,900 watt hours to produce steel while ARMOR products prevent rust and the waste of natural resources

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