

# RUST PREVENTION

## CORROSION MANAGEMENT SOLUTIONS



### WHY ARMOR?

Armor Protective Packaging® offers rust prevention and rust removal products that are clean, safe, easy, and that protect metals while in-process, in transport, or in storage. ARMOR combines its VCI (vapor corrosion inhibitor) Nanotechnology® with packaging materials such as paper and poly film to create products that displace moisture on metal and guard against rust. ARMOR also offers desiccants, emitters, foam pads and its Metal Rescue® Rust Remover Bath and Dry Coat™ Rust Preventative. For more than 40 years, ARMOR has worked with customers from around the globe to provide rust prevention and rust removal solutions and to Take the Work Out of Your Workday!



## ARMOR SHIELD®

### CF33 Emitter

#### FEATURES AND BENEFITS

**ARMOR SHIELD® CF33 Corrosion Inhibiting Emitter** is the most advanced VCI emitting system available. The Shield CF33 Emitter is shield shaped, light weight, low odor, and mildew resistant. It is made of reticulated foam impregnated with ARMOR's proprietary VCI Nanotechnology® offering unsurpassed corrosion inhibition with ease of application.

The **ARMOR SHIELD CF33 Emitter** provides exceptional corrosion protection for up to 33.5 cubic feet and has an effective reach radius, in all directions, of two feet. The **CF33 Emitter** is 4 1/16" tall by 3 1/2" wide by 3/8" thick. It is ideal for enclosed, non-ventilated areas such as electrical boxes, gun cabinets, or export containers.

- **Easy-to-Use:** no preparation needed
- **Simple Installation:** cable tie/string through hole to hang
- **Continuous Protection:** up to 24 months depending on environment
- **Safe:** non-hazardous, environmentally friendly
- **Complements:** other ARMOR VCI products and liquid rust inhibitors
- **Compatible:** with mechanical and electrical components

The proprietary ARMOR VCI Nanotechnology® comes with more than 40 years of industry experience. With service on four continents and in more than 25 countries, ARMOR is positioned to Eradicate Rust wherever and whenever you need them.



### Approved By/Conforms:

- FDA for use in equipment packaging
- Global OEM companies
- RoHS – REACH Compliant
- NACE Std TM0208-2008

# TECHNICAL DATA

## ARMOR PROTECTIVE PACKAGING CORROSION MANAGEMENT SOLUTIONS

### ARMOR SHIELD® CF33 Emitter

#### Product Overview

All Armor Protective Packaging® products utilize our proprietary and time-proven ARMOR vapor corrosion inhibitor (VCI) Nanotechnology®. Oxidation occurs when an electrolyte (water, oxygen, etc.) is present on the surface of a metal. The corrosion process begins when electrons flow through the electrolyte from high energy areas (anode) to low energy areas (cathode) of the metal. ARMOR VCI blocks this reaction by passivating the surface and inhibiting the electrochemical current flow from anode to cathode. ARMOR VCI's protective vapors adhere to a metal surface to form an invisible film only a few molecules thick to protect metal from attack.

ARMOR SHIELD® CF33 Emitter is a light weight, low odor, mildew resistant, open-cell polyether VCI foam. The CF33 Emitter is reticulated foam that is compressed in a process known as felting. Compression through felting provides increased effective density, uniform porosity, non-directional characteristics, and affects fluid-to-foam interactions making it ideal for use as a fluid conduit. The CF33 Emitter is designed for the long-term storage of ferrous and non-ferrous metals and is nitrite-free.

#### Compatibility of ARMOR SHIELD CF33 Emitter with Metals

Metal to be Protected	ARMOR SHIELD® CF33 Emitter
Aluminum	★ ★
Aluminum Bronze	★ ★
Aluminum Magnesium alloy	○
Brass	★ ★ ★
Bronze	★ ★ ★
Cadmium	★ ★ ★
Cast Iron	★
Chromium	★ ★
Constantan	★ ★ ★
Copper	★ ★ ★
Galvanized	★ ★ ★
Lead	○
Molybdenum	○ ○
Nickel	★ ★ ★
Nickel Silver (CU, Ni, Zn)	★ ★ ★
Silver	○ ○
Solder (Pb, Sn)	○
Steel	★ ★
Tin (Pure)	★ ★ ★
Tinned Steel	★ ★ ★
Zinc	★ ★ ★

#### Compatibility Key

- ★ ★ ★ Complete Protection
- ★ ★ Good Protection
- ★ This product will protect this metal from corrosion; however a more suitable formula may be available.
- Testing is recommended
- ○ Not Compatible

# TECHNICAL DATA

## ARMOR PROTECTIVE PACKAGING CORROSION MANAGEMENT SOLUTIONS

### **Length of Protection**

The ARMOR Shield CF33 Emitter will protect metal for approximately 12-24 months depending upon airflow and conditions such as the container/space size and the frequency of opening the space. When the Shield emitter is on a flat surface it protects up to 17 ft<sup>3</sup> (Cubic Feet). When the Shield emitter is hung from the center of the space it protects up to 33 ft<sup>3</sup> (Cubic Feet). The Shield emitter is effective immediately, but may take a few hours (from 6 to 36 hours) to fill the package space and deposit on all surfaces. It is important to note that proximity is critical -- the closer the emitter is to the metal, the faster the vapors will reach the critical areas. ARMOR recommends checking cabinets every 6 months to monitor effectiveness and upcoming expiration dates.

You will need to evaluate your needs, depending on storage environment, package integrity, condition of the parts and their location within the enclosure. Testing is always recommended in any application before use.

### **Proper Storage**

ARMOR distributes its Shield CF33 Emitters in re-closable plastic bags so they may be easily resealed for storage after an emitter is removed. To retain the effectiveness of VCI, it is vital that emitters be stored in sealed packaging. The Shield CF33 Emitter is designed to release VCI vapors quickly when exposed to the environment to ensure metal surfaces are protected immediately and thoroughly. When stored in sealed packaging, the VCI vapors quickly come to an equilibrium that allows the emitters to retain their VCI content well into the future.

### **Wash hands thoroughly after handling this product and before eating.**

All products manufactured Armor Protective Packaging® are warranted to be first class products and free from defects in material and workmanship. Liability under this warranty is limited to the net purchase price of any of such products proven defective or at our option to the repair or replacement of said products upon their return to us transportation prepaid. All claims on defective products must be made in writing 30 days after the receipt of such products in your plant and prior to further processing or combining with other materials and products. We make no warranty, express or implied, as to the suitability of any of our product for any particular use, and we shall not be subject to liability from any damages resulting from their use in operations not under our direct control. This warranty is exclusive of all other warranties, express or implied, and no representative of ours or any other person is authorized to assume for us any other liability in connection with the sale of our products.

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