



**VpCI™ ADDITIVES FOR COATINGS, FLUIDS, ADHESIVES AND PLASTICS**

# M-138/M-138 C

**PRODUCT DESCRIPTION**

Cortec® M-138 and M-138 C are Volatile Corrosion Inhibitor (VCI) powder masterbatches for use in the Rubber and Sealant Compounding Industry. Corrosion protection for multimetal parts, either in contact or in close proximity to rubber rollers, gaskets or manufactured parts is a major problem that is often solved only by use of environmentally unfriendly coatings or expensive alloys. Cortec® M-138 and M-138 C are powdered compounds that can be added in low concentrations to rubber formulations to solve these basic problems. M-138 C is designed for applications involving aluminum and cast iron. It should not be used when copper is present. A finished rubber part can contain both a contact corrosion inhibitor and an emitting source for VCI chemistry. These products open up new design and cost saving solutions to industry and manufacturing process, and to anyone that has had problems with metallic components in contact with elastomers.

**BACKGROUND**

Historically, elastomeric compounds have shown a tendency to cause corrosion to metal parts from direct or indirect contact. Examples are idled or driven rollers in close proximity to metal parts in office machines. To solve this problem, expensive metal alloys or environmentally unfriendly metal coatings have been used. Relief of this problem would reduce costs and allow improved design features for this industry.

Similar corrosion problems have been associated with gaskets and rubber molded parts in the automotive industry. Corrosion protection is usually expensive and/or environmentally unfriendly. Solutions have escaped most designers. The General Motors Research Procedure (GMRP) is a test procedure designed to measure the degree of corrosion protection in direct contact between elastomeric gaskets and steel blocks. Table 1 gives the results of adding M-138 to three different elastomeric compounds.

**GMRP Corrosion Test Results  
After 14 days @ 125°F (52°C)**

	GM Corrosion Rating
<b>Nitrile (control)</b>	1.5
M-138 (5%)	0
<b>Natural Rubber (control)</b>	1
M-138 (1%)	0
M-138 (3%)	0
M-138 (6%)	0
<b>EPDM (control)</b>	1.5-2
M-138 (1%)	0
M-138 (2%)	0
M-138 (5%)	0

**PRODUCT APPLICATION**

In most cases, a trial run of a particular rubber compound is suggested. The powder is added to the elastomeric material at the compounding stage along with the other additives. The addition of M-138 or M-138 C to the rubber formulation will not typically change the physical properties of the molded rubber.



## FEATURES

- Provides multimetal corrosion protection to finished products
- Allows addition of VCI compounds at the compounding stage
- Provides true VCI emitter properties to finished rubber products
- Gives greater design freedom in choice of materials
- Reduces the cost of corrosion protection for metal components
- Non-toxic and non-flammable additive
- Simplifies mix design for compounding of elastomers

## TYPICAL PROPERTIES

*M-138 and M-138 C*

Appearance                      White to off-white powder  
Non-volatile Content            95-100%

## PACKAGING

Cortec® M-138 and M-138 C are available in 100 pound (45.5 kg) polyethylene lined drums. Store in a sealed container in a dry warehouse with temperature not exceeding 100°F (38°C). Under these conditions the shelf life is up to 2 years.

## APPLICATIONS

- Rubberized coatings
- Elastomeric gaskets and sealants
- Steel belted radial tires
- Reinforced rubber hoses and belts
- Elastomeric parts and components
- Elastomeric membranes for auto roofs

**FOR INDUSTRIAL USE ONLY**  
**KEEP OUT OF REACH OF CHILDREN**  
**KEEP CONTAINER TIGHTLY CLOSED**  
**NOT FOR INTERNAL CONSUMPTION**  
**CONSULT MATERIAL SAFETY DATA SHEET FOR MORE INFORMATION**

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Distributed by:



4119 White Bear Parkway, St. Paul, MN 55110 USA  
Phone (651) 429-1100, Fax (651) 429-1122  
Toll Free (800) 4-CORTEC, E-mail [info@cortecvci.com](mailto:info@cortecvci.com)  
Internet <http://www.cortecvci.com>

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