CORTEC CORPORATION

Environmentally Safe VpCI®/MCI® Technologies

VpCI®-609/609 S Biodegradable Powders

Corrosion Inhibiting Powder for Ferrous Metals, Patent Pending

DESCRIPTION

VpCI®-609 is a water-soluble Vapor ph ase Corrosion Inhibitor (VpCI®) powder for wet or dry corrosion protection of ferrous metals and aluminum. VpCI®-609 is also available as VpCI®-609 S (with silica) and VpCI®-609 W (ready-to-use liquid version).

UFI: 3U20-J0EA-E002-G43C

PACKAGING & STORAGE

VpCI®-609/609 S powders are available in 5 pound (2.3 kg), 50 pound (23 kg), and 100 pound (45 kg) moisture barrier bags packed in fiber-lined drums. Also available in pouches such as EcoPouch®.

VpCI®-609 W is available in 5 gallon (19 L) pails, 55 gallon (208 L) drums, liquid totes, and bulk.

To ensure best product performance, store in original packaging, indoors, and out of direct sunlight at 40-100 °F (4-38 °C).

Shelf life: 2 years

CORROSION INHIBITING VpCI® POWDER

FEATURES

- VpCI®-609 is accepted by Cefas as an offshore chemical. Registered under OCNS number 25717 allowing use at 5,000 ppm
- Protects in liquid phase, vapor phase, and at the air-water interface
- Creates a molecular corrosion inhibiting layer on metal surface
- Provides up to 24 months of continuous protection
- Does not contain nitrites, phosphates, or heavy metals
- Passes Vapor Inhibiting Ability Test (NACE Standard TM0208-2008) before and after Exhaustion Test (MIL-STD-3010C)

ADVANTAGES

- Vapor-phase inhibiting action protects inaccessible and recessed surfaces
- If the VpCI® layer is disturbed by moisture or the opening of an enclosed space, the layer is replenished by continuous vapor redeposition
- Prevents future corrosion of precoated and painted surfaces
- VpCI® layer typically does not need to be removed prior to processing or use
- If required, powder is easily removed by air gun or water flush
- Does not increase alkalinity
- Provides economical protection for very large applications
- Available in ready-to-use liquid form for convenience in hydrostatic testing and preservation applications
- Offers the best ecological footprint in comparison with competitive VCI powders
- One of the most powerful, fast-acting water-soluble Vapor phase Corrosion Inhibiting molecules used worldwide for corrosion remediation and control

VpCI®-609/609 S Biodegradable Powders

VpCI®-609 TOXICOLOGICAL TESTING RESULTS (Performed by Nortech A.S. [Norway])*

- Biodegradability: 100% biodegradable in marine environment, rapidly degradable substance (OECD** 306, BOD 28 Marine Test)
- Toxicity: very low (LD-50 = 5,000 mg oral-rat)
- Bioaccumulation potential: none (OECD Guideline 117)

Testing performed in accordance with Oslo-Paris commission protocol

****Organization for Economic Co-Operation and Development***

TYPICAL USES

- Tubular structures, pipes, and vessels
- Voids, cavities, and tanks
- Internal surfaces of compressors, turbines, engines, tanks, boilers, heat exchangers
- Steam condensate lines, closed circuit heating, and cooling systems
- Equipment during and after hydrostatic testing
- Parts, components, and completed assemblies during shipping and storage
- Additive to shot-blasting media, wet blasting
- Additive to standing water

PHYSICAL PROPERTIES

VpCI®-609	
Appearance	Off-White Crystalline Powder
pH	6-7 (1% in water)
Solubility in Water	15%
Bulk Density	38-39 lb/ft³ (0.61-0.63 kg/L)
VpCI®-609 S	
Appearance	White to Off-White Powder
pH	5.9-6.9 (1% in water)
Bulk Density	37-38 lb/ft³ (0.59-0.61 kg/L)
VpCI®-609 W	
Appearance	Colorless Liquid
pH	8.0-8.5
Weight per Gallon	8.5-8.6 lbs (1.02-1.03 kg/L)

METALS PROTECTED

- Carbon steel
- Stainless steel
- Aluminum
- Other ferrous metals

METHOD OF APPLICATION

Apply VpCI®-609 in dry form by dusting, fogging, or sprinkling. (Fogging is easily achieved by using a low pressure air hose and sandblast cup. Large conventional sandblasting systems can also be used). For wet applications using VpCI®-609/609 S Powder, pre-mix with water to dissolve the powder prior to application. For VpCI®-609 W, dilute to recommended concentration and mix well prior to application. Apply VpCI®-609 in aqueous form by spray, flush, or immersion. After application simply cover and close or seal the interior cavity or void.

DOSAGE

Product	Dosage*
VpCI®-609/609 S	0.3-0.5 oz/ft³ (300-500 g/m³)
VpCI®-609 W	4-8% (when hydrotesting)

These are general dosing guidelines and may not be suitable for every application. Please contact Cortec® Technical Service for specific dosing information.

METHOD OF REMOVAL

When required, VpCI®-609/609 S in powder form can be easily removed by using a low pressure air gun or a water rinse. Typically, if applied in aqueous form, the product does not require removal. If necessary, a simple water rinse or flush will suffice.

LIMITATIONS

- Do not use on copper, copper-based alloys, and other soft yellow metals. Compatibility with non-metalics should be evaluated.
- Caking of powder may occur when it is exposed to moisture and then dried. The likelihood of this is increased when powder is exposed to high heat and multiple wet/dry cycles. To avoid caking of powder do not over apply or unevenly disperse the dry powder. In aqueous applications make sure powder has been totally dissolved before using. Over extended periods of protection, this caking may require a more involved cleaning prodedure. Contact Cortec® Technical Service for futher details.
- Powder is not soluble in hydrocarbon fluids. Rinse powder from vessels before adding hydrocarbon fluid.
- Powder should be removed from the area on each side of weld before welding or other high temperature processing.

Note: Regular VpCI®-609 has a tendency to clump. For dry fogging application use VpCI®-609 S (with silica) where acceptable.

VpCI®-609/609 S Biodegradable Powders

STANDARD TEST METHODS

NACE Standard TM0208-2008	Vapor Inhibiting Ability
OECD 306, BOD-28	Marine Biodegradability Test
EPA/600/4-90/027F	Sea Water Toxicity Test
MIL-I-22110C	Vapor Inhibiting Ability

DISTRIBUTED BY:

TEXAS TECHNOLOGIES, INC.
3600 W. Whitestone Blvd. Cedar Park, TX 78613
800.858.1379 or 512.267.0100
E-Mail: info@texastechnologies.com
www.texastechnologies.com

CORTEC CORPORATION
Environmentally Safe VpCI®/MCI® Technologies

LIMITED WARRANTY

All statements, technical information and recommendations contained herein are based on tests Cortec® Corporation believes to be reliable, but the accuracy or completeness thereof is not guaranteed.

Cortec® Corporation warrants Cortec® products will be free from defects when shipped to customer. Cortec® Corporation's obligation under this warranty shall be limited to replacement of product that proves to be defective. To obtain replacement product under this warranty, the customer must notify Cortec® Corporation of the claimed defect within six months after shipment of product to customer. All freight charges for replacement products shall be paid by customer.

Cortec® Corporation shall have no liability for any injury, loss or damage arising out of the use of or the inability to use the products.
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 Cortec® Corporation.

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 CORTEC® CORPORATION BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES.

Revised: 06/27/23. Supersedes: 09/05/19.

©Cortec Corporation 2002-2023 of Cortec® Corporation. All Rights Reserved. Copying and/or manipulation of these materials in any form without the written authorization of Cortec® Corporation is strictly prohibited. 2023, ©Cortec® Corp. ISO accreditation applies to Cortec's processes only.