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VBCI Series- A class of environmentally friendly corrosion inhibitors for a cleaner, greener, better tomorrow.

Vapro VBCI Sphere Absorption Pouch

Absorbs and Neutralises Corrosive Gas-H₂S



Introduction

Hydrogen sulphide (H₂S) is a common byproduct in sewerage treatment plants, primarily arising from the anaerobic decomposition of organic matter containing sulphur. In these environments, the lack of oxygen allows sulphur-reducing bacteria to thrive, metabolizing sulphate and organic sulphur compounds present in sewage and converting them into hydrogen sulphide.

This gas, notorious for its characteristic rotten egg odour, can pose significant health and safety risks, necessitating careful monitoring and management within treatment facilities.

The production of hydrogen sulphide typically occurs in areas with stagnant or slow-moving sewage, such as in sewer lines, sludge digesters, and sedimentation tanks.

Understanding the sources and conditions that foster H₂S formation is crucial for effective odour control and corrosion prevention in wastewater treatment systems.

The impact of hydrogen sulphide (H₂S) on corrosion depends on various factors such as concentration, temperature, pressure, exposure time, the nature of the material being corroded, and the presence of other corrosive agents.

Hydrogen sulphide (H₂S) is a corrosive gas that can cause damage to various materials, including metals. The concentration at which H₂S starts to cause corrosion can vary depending on several factors, including the material in question, the environment, and the duration of exposure. However, some general guidelines can be given:



Corrosion can begin at very low concentrations. For sensitive electronic components, even H₂S levels as low as 0.1 to 1 ppm can cause significant corrosion over time.

Copper and silver are particularly susceptible to tarnishing and corrosion by H₂S. Silver tarnishing can occur at concentrations as low as 0.1 ppm, and copper can begin to corrode at slightly higher concentrations, typically around 1 to 3 ppm.

Iron and steel are also affected by H₂S, though typically at higher concentrations. Iron and steel corrosion can start at concentrations of 5 to 10 ppm and becomes more significant at higher levels.

In general, in atmospheric conditions, noticeable corrosion can occur at H₂S concentrations of around 10 ppm and above, especially if the exposure is prolonged.

Description

The **VaproSphere** is a product specifically designed to safeguard silver, copper, and various ferrous metals from corrosion, particularly in environments where hydrogen sulphide (H₂S) gas is prevalent, such as in sewage treatment plants. Packaged in a breathable Tyvek material pouch, the **VaproSphere** is available in convenient 20-gram and 100-gram pouches, making it easy to apply in different settings.

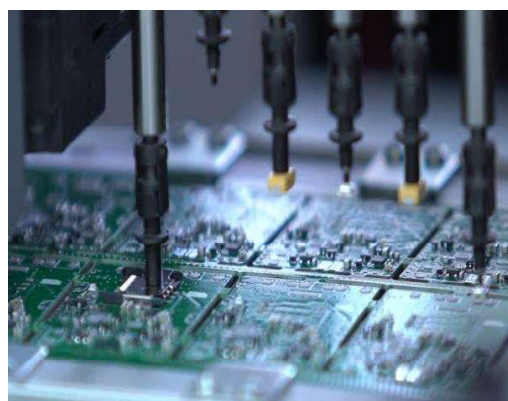
The **VaproSphere** is particularly effective in protecting electronic equipment and electrical junction boxes from corrosion. When used alongside other Vapro emitters, it offers enhanced protection. The product works by absorbing H₂S and neutralizing it within the equipment's enclosures, thereby preventing the gas's corrosive effects.

The **VaproSphere's** dual-action mechanism, combining absorption and neutralization, ensures the longevity and functionality of sensitive components and metal surfaces, even in harsh environments with a high risk of hydrogen sulphide exposure. This design and packaging of the **VaproSphere** make it an indispensable tool for preserving the integrity and lifespan of critical infrastructure and equipment in industrial and sewage treatment applications.

Benefits

Ease of application

- **Dual-action mechanism-** absorbs and neutralises corrosive H₂S, preventing corrosive damage
- **Effective Corrosion Protection:** Safeguards silver, copper, and ferrous metals from corrosion caused by hydrogen sulphide (H₂S) gas.
- **Breathable Packaging:** Packaged in a breathable Tyvek material pouch, ensuring optimal performance.
- **Convenient Application:** Available in 20-gram and 100-gram pouches for easy and flexible application in various settings.
- **Versatile Use:** Ideal for environments with imminent H₂S presence, such as sewage treatment plants.
- **Electronic Equipment Protection:** Highly effective in protecting electronic equipment and electrical junction boxes from corrosion.
- **Enhanced Protection:** Provides superior protection when used in conjunction with other Vapro emitters.
- **Longevity of Equipment:** Helps maintain the integrity and functionality of sensitive components and metal surfaces.
- **Critical Infrastructure Maintenance:** Essential for preserving critical infrastructure and equipment in industrial applications.
- **Ease of Use:** Simple to apply, making it accessible for various maintenance tasks.



How to apply?

There are several methods commonly used to detect hydrogen sulphide (H_2S) in enclosures such as confined spaces, industrial facilities, and offshore installations. These methods vary in their principles of operation, sensitivity, and suitability for different applications. Here are some common methods for detecting H_2S in enclosures:

- 1. Direct-Reading Gas Detectors:** Direct-reading gas detectors, also known as portable gas detectors or gas monitors, are commonly used to provide real-time measurements of H_2S concentrations in the air. These handheld devices use electrochemical sensors to detect H_2S levels and provide instant readings to the user. Direct-reading gas detectors are easy to use, portable, and suitable for on-the-spot monitoring in various industrial settings.
- 2. Colorimetric Tubes:** Colorimetric tubes are another popular method for detecting H_2S in enclosures. These tubes contain a chemical reagent that changes colour in the presence of H_2S . By drawing a calibrated volume of air through the tube using a hand pump, the user can determine H_2S concentrations based on the colour change observed. Colorimetric tubes are simple to use, cost-effective, and can provide semi-quantitative measurements of H_2S levels.

Determine the Required Number of VaproSphere Pouches:

Recommended Protection Guidelines: Refer to the VaproSphere product guidelines or manufacturer's recommendations to determine the number of pouches required based on the recorded H_2S concentration.

General Rule of Thumb: Typically, 20 grams of VaproSphere pouch may be sufficient for enclosures with low to moderate H_2S concentrations. Adjust the number of pouches accordingly for higher concentrations.

For example:

1 to 5 ppm H_2S : 1 pouch of 20 grams per cubic meter of enclosure space.

6 to 10 ppm H_2S : 2 pouches of 20 grams per cubic meter of enclosure space.

11 to 15 ppm H_2S : 3 pouches per cubic meter of enclosure space.

Above 15 ppm H_2S : Consult with the manufacturer for specific recommendations.

Available Packaging

20-gram pouch and 100-gram pouch



Prepare the Enclosure:

Ensure Cleanliness: Clean the enclosure to remove any existing corrosion or contaminants that might interfere with the VaproSphere's effectiveness.

Seal the Enclosure: Ensure the enclosure is sealed properly to prevent additional H₂S from entering and to maintain the effectiveness of the VaproSphere pouches.

Place the VaproSphere Pouches:

Strategic Placement: Distribute the VaproSphere pouches evenly throughout the enclosure. Place them near sensitive components, electronic equipment, and areas prone to corrosion.

Avoid Obstructions: Ensure that the pouches are not obstructed and have adequate exposure to the enclosure's air.



Monitor and Maintain:

Regular Inspections: Periodically inspect the pouches to ensure they are intact and functioning as expected.

Replace as Needed: Replace the VaproSphere pouches according to the manufacturer's recommended intervals or when they appear to be fully saturated and no longer effective.

Replace the VaproSphere pouch every 1 to 2 months under typical exposure conditions to 10 ppm of H₂S. This interval ensures effective H₂S removal and prevents saturation of the VaproSphere material.

Adjust the frequency based on actual H₂S levels, airflow rates, and specific product capacity data. Regular monitoring and testing can further refine this replacement schedule. Consult the manufacturer if unsure

Recheck H₂S Levels: Regularly measure the H₂S concentration to ensure it remains within safe limits and adjust the number of pouches if necessary.

Record Keeping:

Document Placement: Keep a record of the number of pouches used, their placement, and the initial H₂S levels.

Monitor Changes: Track any changes in H₂S levels and the condition of the pouches over time to ensure ongoing protection.

By following this procedure, you can effectively use VaproSphere pouches to protect against H₂S-induced corrosion, ensuring the longevity and functionality of your equipment and infrastructure



Magna International Pte Ltd
10H, Enterprise Road,
Singapore 629834.
Tel (65) 6786-2616
Fax (65) 6785-1497
Email info@vapprovbci.com
Web <http://www.vapprovbci.com>



Headquarters



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