

WARRANTY EXCLUSIONS AND LIMITATION OF LIABILITY

IF THE USER DOES NOT ACCEPT THE FOLLOWING TERMS, THE USER SHOULD NOT USE THE SAFEAIR BADGES.

Seller warrants that, for the lesser of one (1) year or the shelf-life provided on the Seller's product, its packaging or its literature, its products shall conform to the description of such products as provided on the Seller's product, its packaging or its literature. THIS WARRANTY IS EXCLUSIVE, AND SELLER MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE. Seller's warranties made in connection with this sale shall not be effective if Seller has determined, in its sole discretion, that Buyer has misused the products in any manner, has failed to use the products in accordance with safe industry standards and practices, or has failed to use the products in accordance with Seller's written operating instructions, or other instructions furnished by Seller to Buyer.

Seller's sole and exclusive liability and Buyer's exclusive remedy with respect to products to Seller's satisfaction to be defective or nonconforming shall be replacement of such products without charge or refund of the purchase price, in Seller's sole discretion, upon the return of such products in accordance with Seller's instructions. All claims must be brought within one (1) year of shipment, regardless of their nature.

SELLER SHALL NOT IN ANY EVENT BE LIABLE FOR INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES OF ANY KIND RESULTING FROM ANY USE OR FAILURE OF THE PRODUCTS, EVEN IF SELLER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGE INCLUDING, WITHOUT LIMITATION, LIABILITY FOR LOSS OF USE, LOSS OF WORK IN PROGRESS, DOWN TIME, LOSS OF REVENUE OR PROFITS, FAILURE TO REALIZE SAVINGS, LOSS OF PRODUCTS OF BUYER OR OTHER USE OF ANY LIABILITY OF BUYER TO A THIRD PARTY ON ACCOUNT OF SUCH LOSS, OR FOR ANY LABOR OR ANY OTHER EXPENSE, DAMAGE OR LOSS OCCASIONED BY SUCH PRODUCT INCLUDING PERSONAL INJURY OR PROPERTY DAMAGE UNLESS SUCH PERSONAL INJURY OR PROPERTY DAMAGE IS CAUSED BY SELLER'S GROSS NEGLIGENCE.

Warning: Keep out of reach of children, if ingested seek medical attention immediately.



2557 Production Rd.
Virginia Beach, VA 23454
Phone: (757) 431-2260 Fax: (757) 216-6209
e-mail: customerservice@morphtec.com

©1997, Morphix Technologies®
Publication Number: KM1-15A.4-0714
US Patent Number: 6,284,198



Operating Instructions For Hydrogen Sulfide Monitor (Part Number: 382015)

Technical Summary

Physical Specifications:

| | |
|-------------------------|------------------------------------|
| Dimensions | (74 ± 1 mm) x (41 ± 1 mm) x (1 mm) |
| Weight | 1.5 g |
| Refrigerated shelf life | 2 years |
| Color change | pale blue to gray |

Sampling Parameters:

| | |
|-------------------------------------|-----------------|
| Exposure level | 2.0 ppm·hr |
| Minimum detectable limit (8 hours) | 0.25 ppm |
| Maximum recommended sampling time | 48 hours |
| Minimum recommended sampling time | 15 minutes |
| Relative humidity range | 15% - 90% |
| Face velocity range | 10 – 150 cm/sec |
| Temperature range | 50°F - 104°F |
| Light effect – UV (direct sunlight) | no effect |
| Light effect – visible | no effect |
| Color stability | 6 days |

Applications:

The SafeAir hydrogen sulfide badge may be used for personnel or area monitoring for exposure times ranging from 15 minutes to 48 hours.

Cross Interferences:

No interferences are known.

Introduction

Hydrogen sulfide is a colorless gas with a strong odor resembling rotten eggs. Continuous exposure to low concentrations (15 - 20 ppm) generally causes irritation to the mucous membranes. It may also cause headaches and dizziness. High concentrations (200 - 300 ppm) can result in respiratory arrest leading to unconsciousness. Exposure for more than 30 minutes at concentrations as high as 700 ppm has been fatal. Continuous inhalation of low concentrations may cause loss of the sense of smell which makes the detection of its presence by odor ineffective. OSHA exposure limit for hydrogen sulfide is 20 ppm (TWA). NIOSH exposure limit for hydrogen sulfide is 10 ppm (TWA).

Hydrogen sulfide is a widely spread pollutant. It is emitted as a byproduct in many industries such as oil refineries, production of sulfuric acid, leather, gelatin, artificial silk and sugar. As a product of normal biodegradation of bioproducts, hydrogen sulfide is spread in waste water treatment locations.

Principle of Operation

The SafeAir hydrogen sulfide badge is a monitoring system designed to indicate the presence of hydrogen sulfide at concentrations below the permissible exposure limit. The SafeAir hydrogen sulfide badge detects the presence of hydrogen sulfide by forming a color change in the shape of an exclamation mark inside the triangle. This indication is produced by a color-forming reaction which occurs when hydrogen sulfide reacts with a flat indicator layer.

Operating Instructions

1. Remove the pouch from the refrigerator and allow it to warm to room temperature.
2. Remove the badge from its protective pouch.
3. For personnel monitoring, attach the badge near the user's breathing zone (i.e. the collar) with the front side exposed to the surrounding atmosphere.
4. For area monitoring, attach the badge to a stand and mount in a centralized area with the front side exposed to the surrounding atmosphere.
5. The exclamation mark appears within the triangle when hydrogen sulfide is present. Please note that the exclamation mark will appear underneath the printed exposure dose (sensitivity).
6. To obtain the average concentration, divide the exposure dose (ppm·hr) by the exposure time in hours (hr).

Storage

The SafeAir hydrogen sulfide badge should be refrigerated in its sealed bag at all times.

Benefits

1. **Accurate Detection:** The SafeAir hydrogen sulfide badge is designed to react selectively with hydrogen sulfide with no interference from other substances.
2. **Applications:** The SafeAir badge may be used for personnel screening and for area monitoring or area mapping.
3. **Ease of Use:** The SafeAir badge is a direct-read device that gives immediate, on-site results.

Other Available Monitors

1. **SafeAir Badges:**

| | | |
|---------------------------|-------------------|----------------|
| Ammonia | Formaldehyde | Phosgene |
| Aromatic Isocyanates | Hydrazine | Phosgene Dura |
| Carbon Monoxide | Hydrogen Chloride | Phosgene Medi |
| Chlorine | Mercury | Sulfur Dioxide |
| Chlorine/Chlorine Dioxide | Ozone | |
2. **SafeAir Color Comparators:**

| | | |
|-----------------------------|---------------------|------------------|
| Chlorine | Hydrogen Chloride | Phosgene Dura |
| Chloroformates ¹ | Phosgene | Phosgene Medi |
| Hydrazine | Phosgene ext. range | TDI ² |

If you require SafeAir monitors for a chemical hazard not listed, please contact Morphix Technologies® for a free compound consultation at (800) 808-2234.

¹ To be used with the SafeAir phosgene badges

² To be used with the SafeAir aromatic isocyanates badges