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



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## 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.

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## 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	Chlorine/Chlorine Dioxide	Mercury
Aniline	Dimethyl Amine	Nitrogen Dioxide
Aromatic Isocyanates	Formaldehyde	Ozone
Carbon Dioxide	Hydrazine	Phosgene
Carbon Monoxide	Hydrides	Sulfur Dioxide
Chlorine	Hydrogen Chloride	UDMH
2. **SafeAir Color Comparators:**

Arsine <sup>1</sup>	Hydrazine	Phosphine <sup>1</sup>
Carbon Dioxide	Hydrogen Chloride	TDI <sup>4</sup>
Chlorine	MMH <sup>3</sup>	UDMH
Chloroformates <sup>2</sup>	Phosgene	
Diborane <sup>1</sup>	Phosgene ext. range	

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

<sup>1</sup> To be used with the SafeAir hydrides badges

<sup>2</sup> To be used with the SafeAir phosgene badges

<sup>3</sup> To be used with the SafeAir hydrazine dual level badges

<sup>4</sup> To be used with the SafeAir aromatic isocyanates badges