



## Operating Instructions Hydrogen Sulfide Badge (Part Number: 382015)

### 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 PEL (permissible exposure limit) for hydrogen sulfide is 20 ppm (TWA). NIOSH REL (recommended 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

### Physical Specifications:

Dimensions	74 mm x 41 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	10°C - 40°C (50°F - 104°F)
Light effect – UV (direct sunlight)	no effect
Light effect – visible	no effect
Color stability	6 days
Known Interferences	No interferences are known

### Operating Instructions

1. Allow the badge to warm to room temperature prior to removing the badge from its protective pouch.
2. 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.
3. For area monitoring, attach the badge to a stand and mount in a centralized area with the front side exposed to the surrounding atmosphere.
4. 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).

### **WARRANTY EXCLUSIONS AND LIMITATION OF LIABILITY**

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

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



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