Operating Instructions for Hydrogen Sulfide Monitor
Part# 380009-10

Technical Summary

Physical Specifications:

Dimensions	10.5cm x 5.5cm x 0.25cm
Weight	11g
Refrigerated shelf life	2 years
Color Change	light blue to gray

Sampling Parameters:

Exposure range for:	
Badge	1 - 240 ppm x hr
Badge used with color comparator	0.4 - 350 ppm x hr
Maximum recommended sampling time	48 hours
Minimum recommended sampling time	15 minutes
Relative humidity range	33% - 80%
Face velocity range	10 - 150 cm/sec
Temperature range	16 - 36°C (61 - 97°F)
Mean coefficient of variation	±9.7
Bias at ambient conditions	- 4.2%
Light effect - UV (direct sunlight)	no effect
Light effect - visible	no effect

Applications:
The ChromAir hydrogen sulfide badge may be used for personnel or area monitoring for exposure times ranging from 15 minutes to 48 hours. For higher resolution, the ChromAir hydrogen sulfide badge may be used in conjunction with the ChromAir hydrogen sulfide color comparator (part number: 384002).

Specificity:
No interference is 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. NIOSH and OSHA 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 ChromAir passive monitor is a patented direct read autogenic exposimeter. The device is constructed from six cells attached on one side to a flat indicator layer and on the other side to a series of different diffusive resistances. Hydrogen sulfide gas diffuses to the cells through the different diffusive resistances and reacts with the indicator layer, producing color change from light blue to gray upon high exposure. The color produced on the indicator layer is a direct measure of the exposure dose. Visual color comparison is achieved by observing the formation of the gray threshold color on the individual cell and reading the corresponding exposure dose.

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. Enter all pertinent information on the I.D. label before monitoring is started (i.e. name, location, date and start time)
4. For personnel monitoring, attach the badge near the user's breathing zone (i.e. collar) with the front side exposed to the surrounding atmosphere.
5. For area monitoring, attach the badge to a stand and mount in a centralized area with the front side exposed to the surrounding atmosphere.
6. Check the back side of the badge periodically to determine the exposure dose (ppm x hr).
7. To read the badge, locate the highest level cell with gray threshold color.
8. To obtain the average concentration (ppm) in the surrounding atmosphere, divide the exposure dose (ppm x hr) by the exposure time in hours. Example: If the sampling time is 2 hours and the badge reads 4 ppm x hr, the average concentration is determined by dividing 4 ppm x hr by 2 hr. Therefore the average concentration is 2 ppm.

Storage:
The ChromAir hydrogen sulfide monitor should be refrigerated in its sealed bag at all times.

Benefits:
1. Accurate Measurements: The ChromAir hydrogen sulfide monitor is designed to react selectively with hydrogen sulfide with minimum interference from other substances. The unique design of the monitor minimizes the effects of different humidities, temperatures and air velocities on the accuracy of the measurements.
2. Applications: The ChromAir monitor may be used for personnel screening and for area monitoring or area mapping.
3. Ease of Use: The ChromAir monitor is a direct read device that gives immediate, on-site results. Use of this device requires minimum training.
4. Cost Effective: The ChromAir hydrogen sulfide monitor offers the user the most inexpensive air sampling solution available.

AFC International, Inc.
PO Box 894 • DeMotte IN 46310
219-987-6825 • 800-952-3293 • Fax 219-987-6826
www.afcintl.com • sales@afcintl.com