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



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Operating Instructions For Sulfur Dioxide Monitor (Part Number: 382014)

Technical Summary

Physical Specifications:

Dimensions	(74 ± 1 mm) x (41 ± 1 mm) x (1 mm)
Weight	1.5 g
Refrigerated shelf life	1 year
Color change	off-white to cranberry

Sampling Parameters:

Exposure level	0.2 ppm-hr
Minimum detectable limit (8 hours)	0.025 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	59°F - 97°F
Light effect – UV (direct sunlight)	not recommended
Light effect – visible	no effect
Color stability	2 weeks

Applications:

The SafeAir sulfur dioxide 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

Sulfur dioxide is a colorless gas with a characteristic, irritating, pungent odor. It is corrosive and irritating to the upper and lower respiratory tracts, skin and eyes. Symptoms of mild exposure to sulfur dioxide include coughing, wheezing, shortness of breath, headache and vomiting. Exposure to high concentrations of sulfur dioxide is extremely destructive to the respiratory tract tissues. Exposure of the eyes to high concentrations may result in ulceration of the conjunctiva and cornea, whereas contact with skin causes severe burns. OSHA and NIOSH exposure limit for sulfur dioxide is 2 ppm (TWA).

Sulfur dioxide is a widely spread air pollutant. It is emitted as a byproduct in burning coal fuels in electric power generating plants, industrial boilers and molten sulfide ores in metallurgical plants. Sulfur dioxide is also used in the production and treatment of metals, sugar, cellulose, leather, fertilizers, ceramic, batteries, paper and many others.

Principle of Operation

The SafeAir sulfur dioxide badge is a monitoring system designed to indicate the presence of sulfur dioxide at concentrations below the permissible exposure limit. The SafeAir sulfur dioxide badge detects the presence of sulfur dioxide 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 sulfur dioxide 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 sulfur dioxide 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 sulfur dioxide badge should be refrigerated in its sealed bag at all times.

Benefits

1. **Accurate Detection:** The SafeAir sulfur dioxide badge is designed to react selectively with sulfur dioxide 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:**

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

Arsine ¹	Hydrazine	Phosphine ¹
Carbon Dioxide	Hydrogen Chloride	TDI ⁴
Chlorine	MMH ³	UDMH
Chloroformates ²	Phosgene	
Diborane ¹	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.

¹ To be used with the SafeAir hydrides badges

² To be used with the SafeAir phosgene badges

³ To be used with the SafeAir hydrazine dual level badges

⁴ To be used with the SafeAir aromatic isocyanates badges