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

MORPHIX® TECHNOLOGIES

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SAFEAIR® SYSTEM

Operating Instructions For Formaldehyde Monitor (Part Number: 382011)

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	yellowish-brown to dark brown

Sampling Parameters:

Exposure level	0.4 ppm·hr
Minimum detectable limit (8 hours)	0.05 ppm
Maximum recommended sampling time	16 hours
Minimum recommended sampling time	15 minutes
Relative humidity range	20% - 80%
Face velocity range	10 – 150 cm/sec
Temperature range	59℉ - 95℉
Light effect – UV (direct sunlight)	no effect
Light effect – visible	no effect
Color stability	18 hours

Applications:

The SafeAir formaldehyde badge may be used for personnel or area monitoring for exposure times ranging from 15 minutes to 16 hours.

Cross Interferences:

Acrolein is a known interference. Aldehydes in cigarette smoke cause a false positive indication. No other interferences are known.

Introduction

Formaldehyde is a colorless gas with a pungent, suffocating odor. It is a potent irritant to eyes, nose and throat. The most common effects of low level formaldehyde inhalation are eye, nose and upper respiratory irritation. Chronic symptoms of exposure are itching eyes, dry and sore throat, and possible difficulty in sleeping and unusual thirst after awakening. OSHA exposure limit for formaldehyde is 0.75 ppm (TWA). NIOSH exposure limit is 0.016 ppm (TWA). NIOSH also recommends that formaldehyde be handled as a potential occupational carcinogen in the workplace.

Formaldehyde workplace exposure occurs because of its extensive use as an industrial chemical in the manufacturing of resins for adhesives, plastics, coatings and fabrics. Additional exposure to formaldehyde emissions comes from its use as a fumigant and sterilant. The major source of atmospheric discharge of formaldehyde is from combustion processes, specifically from the photo-oxidation of hydrocarbons in auto emissions.

Principle of Operation

The SafeAir formaldehyde badge is a monitoring system designed to indicate the presence of formaldehyde at concentrations below the permissible exposure limit. The SafeAir formaldehyde badge detects the presence of formaldehyde 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 formaldehyde 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. Remove activation label before monitoring.
4. 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.
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. The exclamation mark appears within the triangle when formaldehyde is present. Please note that the exclamation mark will appear underneath the printed exposure dose (sensitivity).
7. To obtain the average concentration, divide the exposure dose (ppm·hr) by the exposure time in hours (hr).

Storage

The SafeAir formaldehyde monitor should be refrigerated in its sealed bag at all times.

Benefits

1. Accurate Measurements: The ChromAir formaldehyde monitor is designed to react selectively with formaldehyde 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 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 formaldehyde monitor offers the user the most inexpensive air sampling solution available.

Other Available Monitors

1. SafeAir Badges:

Ammonia	Dimethyl Amine	Ozone
Aniline	Hydrazine	Phosgene
Aromatic Isocyanates	Hydrides	Sulfur Dioxide
Carbon Dioxide	Hydrogen Chloride	UDMH
Carbon Monoxide	Hydrogen Sulfide	
Chlorine	Mercury	
Chlorine/Chlorine Dioxide	Nitrogen Dioxide	

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