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

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SAFEAIR® SYSTEM

Operating Instructions For Carbon Monoxide Monitor (Part Number: 382012)

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	brown to black

Sampling Parameters:

Exposure level	7.0 ppm·hr
Minimum detectable limit (8 hours)	0.9 ppm
Maximum recommended sampling time	10 hours
Minimum recommended sampling time	15 minutes
Relative humidity range	40% - 90%
Face velocity range	10 – 150 cm/sec
Temperature range	50℉ - 104℉
Light effect – UV (direct sunlight)	no effect
Light effect – visible	no effect
Color stability	2 days

Applications:

The SafeAir carbon monoxide badge may be used for personnel or area monitoring for exposure times ranging from 15 minutes to 10 hours.

Cross Interferences:

Hydrogen sulfide reacts with approximately the same sensitivity. High concentrations of ethylene, acetylene and hydrogen cause false positive indications.

Introduction

Carbon monoxide is a colorless, odorless gas. It is the only commonly used industrial gas which is both highly toxic and odorless. Symptoms of exposure to carbon monoxide include headaches, palpitations, dizziness, weakness and nausea. Low levels of carbon monoxide in air, which are not immediately hazardous to life, may impair reaction time or sensory perception. Chronic exposure to low levels of carbon monoxide may adversely affect the cardiovascular system. Loss of consciousness and death may result from continued or more intense exposure. OSHA exposure limit for carbon monoxide is 50 ppm (TWA). NIOSH exposure limit for carbon monoxide is 35 ppm (TWA).

Carbon monoxide is a widely spread air pollutant. It is a byproduct in the combustion of gasoline, diesel, kerosene and coal fuel, therefore, carbon monoxide may exist in different industries, residential areas and highways.

Principle of Operation

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

Benefits

1. Accurate Detection: The SafeAir carbon monoxide badge is designed to react selectively with carbon monoxide with minimum 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	Dimethyl Amine	Nitrogen Dioxide
Aniline	Formaldehyde	Ozone
Aromatic Isocyanates	Hydrazine	Phosgene
Carbon Dioxide	Hydrides	UDMH
Chlorine	Hydrogen Sulfide	
Chlorine/Chlorine Dioxide	Mercury	

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