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



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## Operating Instructions For Hydrazine Monitor (Part Number: 382002)

### 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	orange to maroon

#### Sampling Parameters:

Exposure dose:	
Badge	8 ppb-hr
Badge with color comparator	4.5 – >300 ppb-hr
Minimum detectable limit (8 hours)	1 ppb
Maximum recommended sampling time	2 days
Minimum recommended sampling time	5 minutes
Relative humidity range	23% - 83%
Face velocity range	5 – 168 cm/sec
Temperature range	63°F - 95°F
Light effect – UV (direct sunlight)	no effect
Light effect – visible	no effect
Color stability	4 weeks

#### Applications

The SafeAir hydrazine badge may be used for personnel or area monitoring for exposure times ranging from 5 minutes to 2 consecutive days. For higher resolution, the SafeAir hydrazine badge may be used in conjunction with the SafeAir hydrazine color comparator (part number: 383001).

#### Relative Humidity Correction Factor

For better determination of hydrazine concentrations at relative humidities greater than 55%, it is recommended that the results obtained from reading the badge be multiplied by a correction factor of 1.13 for every 10% RH greater than 55%.

#### Cross Interferences

Monomethyl hydrazine and aromatic amines are known interferences. No other interferences are known.

## Introduction

Hydrazine is a colorless liquid with a penetrating odor resembling that of ammonia. It is extremely destructive to the tissues of the mucous membranes and upper respiratory tract. Symptoms of exposure may include coughing, wheezing, laryngitis, and shortness of breath, headache, nausea and vomiting. OSHA exposure limit for hydrazine is 1 ppm (TWA). NIOSH exposure limit for hydrazine is 0.03 ppm (2 hour ceiling). NIOSH recommends that hydrazine be handled as a potential occupational carcinogen in the workplace.

Hydrazine is used predominantly as a fuel for rocket and jet engines and in the manufacturing of pharmaceuticals. Hydrazine salts are used in refining and as corrosion inhibitors.

## Principle of Operation

The SafeAir hydrazine badge is a monitoring system designed to indicate the presence of hydrazine at concentrations below the permissible exposure limit. The SafeAir hydrazine badge detects the presence of hydrazine 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 hydrazine 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 hydrazine 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 (ppb-hr) by the exposure time in hours (hr).

## Storage

The SafeAir hydrazine badge should be refrigerated in its sealed bag at all times.

## Benefits

1. Accurate Detection: The SafeAir hydrazine badge is designed to react selectively with hydrazine 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	Formaldehyde	Phosgene
Aromatic Isocyanates	Hydrogen Chloride	Phosgene Dura
Carbon Monoxide	Hydrogen Sulfide	Phosgene Medi
Chlorine	Mercury	Sulfur Dioxide
Chlorine/Chlorine Dioxide	Ozone	
2. SafeAir Color Comparators:

Chlorine	Phosgene	Phosgene Medi
Chloroformates <sup>1</sup>	Phosgene ext. range	TDI <sup>2</sup>
Hydrogen Chloride	Phosgene Dura	

If you require SafeAir monitors for a chemical hazard not listed, please contact Morphix Technologies® for a free compound consultation at (800) 808-2234.

<sup>1</sup> To be used with the SafeAir phosgene badges

<sup>2</sup> To be used with the SafeAir aromatic isocyanates badges