WARRANTY EXCLUSIONS AND LIMITATION OF LIABILITY

IF THE USER DOES NOT ACCEPT THE FOLLOWING TERMS, THE USER SHOULD NOT USE THE SAFEAIR BADGES AND COLOR COMPARATORS.

Seller warrants that, for the lesser of one (1) year or the shelf-life provided on the Seller's product, its packaging or its literature, its products shall conform to the description of such products as provided on the Seller's product, its packaging or its literature. THIS WARRANTY IS EXCLUSIVE, AND SELLER MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE. Seller's warranties made in connection with this sale shall not be effective if Seller has determined, in its sole discretion, that Buyer has misused the products in any manner, has failed to use the products in accordance with safe industry standards and practices, or has failed to use the products in accordance with Seller's written operating instructions, or other instructions furnished by Seller to Buyer.

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

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SAFEAIR® STEL SYSTEM

Operating Instructions For Hydrogen Chloride Monitor (Part Number: 382024)

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	olive green to off-white

Sampling Parameters:

Concentration for:	
Badge	2.0 ppm
Badge with color comparator	2.0 – 26 ppm
Sampling time	15 minutes
Relative humidity range	11% - 92%
Face velocity range	10 – 150 cm/sec
Temperature range	45℉ - 104℉
Light effect – UV (direct sunlight)	no effect
Light effect – visible	no effect
Color stability	1 day

Applications:

The SafeAir STEL hydrogen chloride badge may be used for personnel or area monitoring for an exposure time of 15 minutes. For higher resolution, the SafeAir STEL hydrogen chloride badge may be used in conjunction with the SafeAir STEL hydrogen chloride color comparator (part number: 383008).

Cross Interferences:

No interferences are known.

Introduction

Hydrogen chloride (HCl) is a colorless to slightly yellow gas with an irritating, pungent odor. Acute exposure to HCl vapor or aerosol produces inflammation and may cause ulceration of the nose, throat, and larynx. Skin burns occur at high concentrations. Exposure to HCl may cause eye irritation and permanent damage with loss of sight. OSHA and NIOSH exposure limit for hydrogen chloride is 5ppm (ceiling).

Hydrogen chloride is used during pickling of metals including stainless steel, iron and nickel. It is also used as a catalyst or chlorinating agent in chemical synthesis during metal treatment and fabricating operations. It is used in the manufacture of glucose, corn sugar, and in brewing and other food processing operations. It is also used in industrial chemical cleaning operations, in production of plastics and resins and in the manufacture of fertilizers, dyes, dyestuffs, artificial silk, and pigments for paints.

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Principle of Operation

The SafeAir STEL hydrogen chloride badge is a monitoring system designed to indicate the presence of hydrogen chloride at concentrations below the permissible exposure limit. The SafeAir STEL hydrogen chloride badge detects the presence of hydrogen chloride 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 hydrogen chloride 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. Expose the badge for fifteen (15) minutes only.
6. The exclamation mark appears within the triangle when hydrogen chloride is present. Please note that the exclamation mark will appear underneath the printed concentration (ppm).
7. To determine concentrations beyond 2.0 ppm, the badge must be read with the color comparator between 1 hour and 3 hours after exposure.

Storage

The SafeAir STEL hydrogen chloride badge should be refrigerated in its sealed bag at all times.

Benefits

1. Accurate Detection: The SafeAir STEL hydrogen chloride badge is designed to react selectively with hydrogen chloride 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:

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

2. SafeAir Color Comparators:

Arsine[1]	Hydrazine	TDI[4]
Carbon Dioxide	MMH[3]	UDMH
Chlorine	Phosgene	
Chloroformates[2]	Phosgene ext. range	
Diborane[1]	Phosphine[1]	

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