

# **SAFEAIR<sup>®</sup> STEL**

## **S Y S T E M**

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

#### **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.

#### **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.

#### **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°F - 104°F
Light effect – UV (direct sunlight)	no effect
Light effect – visible	no effect
Color stability	1 day
Known Interferences	No interferences are known.

#### **Operating Instructions**

1. Allow the badge to warm to room temperature prior to removing the badge from its protective pouch.
2. 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.
3. For area monitoring, attach the badge to a stand and mount in a centralized area with the front side exposed to the surrounding atmosphere.
4. Expose the badge for fifteen (15) minutes only.
5. 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).
6. A color comparator is available for use with this badge. To determine concentrations beyond 2.0 ppm, the badge must be read with the color comparator between 1 hour and 3 hours after exposure.

#### **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.

Seller's sole and exclusive liability and Buyer's exclusive remedy with respect to products to Seller's satisfaction to be defective or nonconforming shall be replacement of such products without charge or refund of the purchase price, in Seller's sole discretion, upon the return of such products in accordance with Seller's instructions. All claims must be brought within one (1) year of shipment, regardless of their nature.

SELLER SHALL NOT IN ANY EVENT BE LIABLE FOR INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES OF ANY KIND RESULTING FROM ANY USE OR FAILURE OF THE PRODUCTS, EVEN IF SELLER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGE INCLUDING, WITHOUT LIMITATION, LIABILITY FOR LOSS OF USE, LOSS OF WORK IN PROGRESS, DOWN TIME, LOSS OF REVENUE OR PROFITS, FAILURE TO REALIZE SAVINGS, LOSS OF PRODUCTS OF BUYER OR OTHER USE OF ANY LIABILITY OF BUYER TO A THIRD PARTY ON ACCOUNT OF SUCH LOSS, OR FOR ANY LABOR OR ANY OTHER EXPENSE, DAMAGE OR LOSS OCCASIONED BY SUCH PRODUCT INCLUDING PERSONAL INJURY OR PROPERTY DAMAGE UNLESS SUCH PERSONAL INJURY OR PROPERTY DAMAGE IS CAUSED BY SELLER'S GROSS NEGLIGENCE.

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



www.morphtec.com  
©2017, Morphix Technologies  
All rights reserved  
Publication Number: KM1-33A.6-0217  
US Patent Number: 6,284,198