WARRANTY EXCLUSIONS AND LIMITATION OF LIABILITY

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

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 seek medical attention immediately.

Operating Instructions For Phosgene Medi-Badge
(Part Number: 382060-A)

Technical Summary

Physical Specifications:
- Dimensions: (74 ± 1 mm) x (41 ± 1 mm) x (1 mm)
- Weight: 1.5 g
- Shelf life: 1 year at 25°C
- Color change: white to red

Sampling Parameters:
- Exposure dose:
  - Badge: 10 ppm min
  - Badge with color comparator: 10 – 450 ppm.min
- Maximum recommended sampling time: 5 consecutive days
- Minimum recommended sampling time: 1 minute
- Relative humidity range: 20% - 100%
- Face velocity range: 5 - 168 cm/sec
- Temperature range: 13°C to 50°C
- Light effect – UV (direct sunlight): no effect
- Light effect – visible: no effect

Applications:
The SafeAir phosgene badge may be used for personnel or area monitoring for exposure times ranging from 1 minute to 5 days. For higher resolution, the SafeAir phosgene Medi-Badge may be used in conjunction with the SafeAir phosgene Medi-Badge Color Comparator (part number: 383020-A).

Cross Interferences:
Acyl halides, benzoyl chloride, cyanuric chloride, carbonyl bromide, chlorine monoxide and chloroformates are known interferences. No other interferences are known.
Introduction

Phosgene is a colorless, highly toxic gas with an odor resembling moldy hay. It is an insidious poison. There is no immediate irritation even when fatal concentrations are inhaled. It may cause severe pulmonary edema (abnormal fluid build up in the lungs) or pneumonia. Inhalation of high concentrations causes choking, coughing and painful breathing. OSHA PEL (permissible) exposure limit for phosgene is 0.1 ppm (averaged over an 8-hour work shift). NIOSH IDLH (immediately dangerous to life or health) exposure limit for phosgene is 2 ppm.

Phosgene is used in the manufacturing of numerous organic chemicals. It is also used in the production of glass, resins, dyes and plastics.

Principle of Operation

The SafeAir phosgene badge is a monitoring system designed to indicate the presence of phosgene. The SafeAir phosgene badge detects the presence of phosgene 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 phosgene reacts with a flat indicator layer.

Operating Instructions

1. Remove the badge from its protective pouch.
2. Remove activation label prior to use.
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. Between work shifts, store the badge in a sealed bag in a cool, dark environment.
5. The exclamation mark appears within the triangle when phosgene 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 (ppm min) by the exposure time in minutes (min).

Storage

The SafeAir phosgene badge should be stored at 25°C in its sealed bag at all times. Store the badge in a cool, dark, sealed environment between work shifts.

Benefits

1. Accurate Detection: The SafeAir phosgene badge is designed to react selectively with phosgene 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 Ozone
   Aromatic Isocyanates Hydrazine Sulfur Dioxide
   Carbon Monoxide Hydrogen Chloride
   Chlorine Hydrogen Sulfide
   Chlorine/Chlorine Dioxide Mercury

2. SafeAir Color Comparators:
   Chlorine
   Chloroformates¹
   Hydrazine
   Hydrogen Chloride
   TDI²

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 phosgene badges
² To be used with the SafeAir aromatic isocyanates badges