SAFEAIR

Operating Instructions
Mercury Dual Level Badge
(Part Number: 382005)

Introduction

Mercury is a silver-white, heavy, mobile, liquid metal with no specific odor. It is readily absorbed through the skin, the gastrointestinal tract and the respiratory tract. Chronic exposure may cause inflammation of the mouth and gums, kidney damage, muscle tremors, depression and nervousness. Mercury spills and heated mercury are particularly hazardous. OSHA PEL (permissible exposure limit) in the general industry for mercury is 0.1 mg/m^3 (TWA). NIOSH REL (recommended exposure limit) for mercury is 0.05 mg/m^3 (TWA).

Mercury is used in barometers, thermometers, hydrometers, pyrometers, and in mercury arc lamps producing ultraviolet rays. It is also used in pharmaceuticals, agricultural chemicals and antifouling paints.

Principle of Operation

The SafeAir mercury badge is a monitoring system designed to indicate the presence of mercury at concentrations below the permissible exposure limit. The SafeAir mercury badge detects the presence of mercury by forming a color change in the shape of an exclamation mark inside the triangle. This indication is produced by a color-forming reaction that occurs when mercury reacts with a flat indicator layer.

Physical Specifications:

Dimensions	74 mm x 41 mm x 1 mm
Weight	1.5 g
Refrigerated shelf life	1 year
Color change	white to purple

Sampling Parameters:	**Front**	**Back**
Exposure level	0.25 $mg/m^3 \cdot hr$	0.08 $mg/m^3 \cdot hr$
Minimum detectable limit (8 hours)	0.031 mg/m^3	0.01 mg/m^3
Maximum recommended sampling time	48 hours	48 hours
Minimum recommended sampling time	15 minutes	15 minutes
Relative humidity range	10% - 86%	10% - 86%
Face velocity range	10 – 150 cm/sec	10 – 150 cm/sec
Temperature range	10°C - 40°C (50°F - 104°F)	10°C - 40°C (50°F - 104°F)
Light effect – UV (direct sunlight)	no effect	no effect
Light effect – visible	no effect	no effect
Color stability	2 days	2 days

Known Interferences: Arsine, phosphine and other hydrides

Operating Instructions

1. Prior to opening and removing a badge from its inner silver pouch, allow the badges to warm to room temperature. Store the remaining badges in the inner silver pouch zip-closed inside the white outer pouch. **Once the silver pouch is opened, the remaining badges must be used within 30 days.**
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. The exclamation mark appears within the triangle when mercury is present. Please note that an exclamation mark may appear on either the back or the front and the back of the badge.

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.

MORPHIX TECHNOLOGIES

www.morphtec.com
©2017, Morphix Technologies
All rights reserved
Publication Number: 01-382005A.10-0123
US Patent Number: 6,284,198