



**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/m³ (TWA). NIOSH REL (recommended exposure limit) for mercury is 0.05 mg/m³ (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 · hr	0.08 mg/m ³ · 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. 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. 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.

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Warning: Keep out of reach of children. If ingested seek medical attention immediately.



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