



**Operating Instructions**  
**Sulfur Dioxide Badge**  
**(Part Number: 382014)**

**Introduction**

Sulfur dioxide is a colorless gas with a characteristic, irritating, pungent odor. It is corrosive and irritating to the upper and lower respiratory tracts, skin and eyes. Symptoms of mild exposure to sulfur dioxide include coughing, wheezing, shortness of breath, headache and vomiting. Exposure to high concentrations of sulfur dioxide is extremely destructive to the respiratory tract tissues. Exposure of the eyes to high concentrations may result in ulceration of the conjunctiva and cornea, whereas contact with skin causes severe burns. OSHA PEL (permissible exposure limit) for sulfur dioxide is 5 ppm (TWA). NIOSH REL (recommended exposure limit) for sulfur dioxide is 2 ppm (TWA).

Sulfur dioxide is a widely spread air pollutant. It is emitted as a byproduct in burning coal fuels in electric power generating plants, industrial boilers and molten sulfide ores in metallurgical plants. Sulfur dioxide is also used in the production and treatment of metals, sugar, cellulose, leather, fertilizers, ceramic, batteries, paper and many others.

**Principle of Operation**

The SafeAir sulfur dioxide badge is a monitoring system designed to indicate the presence of sulfur dioxide at concentrations below the permissible exposure limit. The SafeAir sulfur dioxide badge detects the presence of sulfur dioxide 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 sulfur dioxide 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	off-white to cranberry

**Sampling Parameters:**

Exposure level	0.2 ppm-hr
Minimum detectable limit (8 hours)	0.025 ppm
Maximum recommended sampling time	48 hours
Minimum recommended sampling time	15 minutes
Relative humidity range	15% - 90%
Face velocity range	10 – 150 cm/sec
Temperature range	15°C - 36°C (59°F - 97°F)
Light effect – UV (direct sunlight)	not recommended
Light effect – visible	no effect
Color stability	2 weeks
Known Interferences	No interferences are known

**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 sulfur dioxide is present. Please note that the exclamation mark will appear underneath the printed exposure dose (sensitivity).

**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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