



Operating Instructions
Formaldehyde Monitor
(Part Number: 380007)

Introduction

Formaldehyde is a colorless gas with a pungent, suffocating odor. It is a potent irritant to eyes, nose and throat. The most common effects of low level formaldehyde inhalation are eye, nose and upper respiratory irritation. Chronic symptoms of exposure are itching eyes, dry and sore throat, and possible difficulty in sleeping and unusual thirst after awakening. OSHA PEL (permissible exposure limit) for formaldehyde is 0.75 ppm (TWA). NIOSH REL (recommended exposure limit) is 0.016 ppm (TWA). NIOSH also recommends that formaldehyde be handled as a potential occupational carcinogen in the workplace.

Formaldehyde workplace exposure occurs because of its extensive use as an industrial chemical in the manufacturing of resins for adhesives, plastics, coatings and fabrics. Additional exposure to formaldehyde emissions comes from its use as a fumigant and sterilant. The major source of atmospheric discharge of formaldehyde is from combustion processes, specifically from the photo-oxidation of hydrocarbons in auto emissions.

Principle of Operation

The ChromAir passive monitor is a patented direct-read autogenic exposimeter. The device is constructed from six cells attached on one side to a flat indicator layer and on the other side to a series of different diffusive resistances. Formaldehyde gas diffuses to the cells through the different diffusive resistances and reacts with the indicator layer, producing color change from yellowish-brown to brown. The color produced on the indicator layer is a direct measure of the exposure dose. Visual color is achieved by observing the formation of the brown threshold color on the individual cell and reading the corresponding exposure dose.

Physical Specifications:

Dimensions	10.5 cm x 5.5 cm x 0.25 cm
Weight	11 g
Refrigerated shelf life	1 year
Color change	yellowish-brown to brown

Sampling Parameters:

Exposure range	
Badge	0.3 - 12 ppm•hr
Badge used with color comparator	0.3 - 40 ppm•hr
Maximum recommended sampling time	2 days
Minimum recommended sampling time	15 minutes
Relative humidity range	30% - 80%
Face velocity range	5 - 150 cm/sec
Temperature range	16°C - 35°C (61°F - 95°F)
Mean coefficient of variation	±10.23
Bias at ambient conditions	-2.73%
Light effect - UV (direct sunlight)	no effect
Light effect - visible	no effect
Known Interferences	acrolein

Operating Instructions

1. Allow the badge to warm to room temperature prior to removing the badge from its protective pouch.
2. Enter all pertinent information on the label before monitoring is started (i.e. name, location, date and start time).
3. For personnel monitoring, attach the badge near the user's breathing zone (i.e. collar) with the front side exposed to the surrounding atmosphere.
4. For area monitoring, attach the badge to a stand and mount in a centralized area with the front side exposed to the surrounding atmosphere.
5. Check the back side of the badge periodically to determine the exposure dose (ppm•hr).
6. To read the badge, locate the highest level cell with brown threshold color.
7. To obtain the average concentration (ppm) in the surrounding atmosphere, divide the exposure dose (ppm•hr) by the exposure time in hours. EXAMPLE: If the sampling time is 2 hours and the badge reads 2 ppm•hr, the average concentration is determined by: $\frac{2 \text{ ppm}\cdot\text{hr}}{2 \text{ hr}}$. Therefore the average concentration is 1 ppm.

WARRANTY EXCLUSIONS AND LIMITATION OF LIABILITY

IF THE USER DOES NOT ACCEPT THE FOLLOWING TERMS, THE USER SHOULD NOT USE THE CHROMAIR BADGES AND COLOR COMPARATORS.

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



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