



## Operating Instructions Chlorine Badge (Part Number: 380004)

### Introduction

Chlorine is a greenish-yellow gas with a pungent, irritating odor. Generally, chlorine is a potent respiratory system irritant. Mild exposures to chlorine cause burning of eyes, nose and mouth. Exposure to high concentrations (e.g. 1000 ppm) is likely to be fatal. The NIOSH REL (recommended exposure limit) for chlorine is 0.5 ppm (ceiling), whereas the OSHA PEL (permissible exposure limit) is 1ppm (ceiling).

Chlorine is an important chemical commodity widely used in the production of safe drinking water. It is also extensively used in the production of paper products, dyestuffs, textiles, petroleum products, chlorinated solvents, etc.

### 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. Chlorine gas diffuses to the cells through the different diffusive resistances and reacts with the indicator layer, producing color change from yellow to orange. The color produced on the indicator layer is a direct measure of the exposure dose. Visual color comparison is achieved by observing the formation of the orange 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	2 years
Color change	yellow to orange

### Sampling Parameters:

Exposure Dose Range	0.4 - >13 ppm•hr
Maximum recommended sampling time	2 days
Minimum recommended sampling time	15 minutes
Relative humidity range	35% - 85%
Face velocity range	5 - 150 cm/sec
Temperature range	15°C - 35°C (59°F - 95°F)
Light effect - UV (direct sunlight)	no effect
Light effect - visible	no effect
Known Interferences	bromine, iodine and hydrogen chloride

### 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 orange 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 4 ppm•hr, the average concentration is determined by:  $\frac{4 \text{ ppm}\cdot\text{hr}}{2 \text{ hr}}$  Therefore the average concentration is 2 ppm.

### **WARRANTY EXCLUSIONS AND LIMITATION OF LIABILITY**

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

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



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