

Introduction

Acetone is a colorless liquid with a sharp specific odor (the odor threshold is 4 ppb). It is narcotic in mild concentrations with toxic effects on the central nervous system. Chronic exposure causes mucous membrane irritation, heavy eyes and overnight headache. Acetone is a cumulative poison and can be found in the blood long after exposure. OSHA exposure limit for acetone is 1,000 ppm (TWA). NIOSH exposure limit for acetone is 250 ppm (TWA).

Principle of Operation

The ChromAir passive monitor is a patented direct-read autogenic exposimeter. The device is constructed from three cells attached on one side to a flat indicator layer and on the other side to a series of different diffusive resistances. The third cell is connected to the diffusion path with length-of-stain properties. Acetone vapor diffuses to the cells through the different diffusive resistances and reacts with the indicator layer producing color change from yellow to pink. After saturation of the third cell, the color change creeps along the length-of-stain diffusion path producing a sharp diffusion front. The color produced on the indicator layer, as spots and length-of-stain, is a direct measure of the exposure dose. Visual color comparison is achieved by: (1) observing the formation of the pink threshold color on the individual cell and reading the corresponding exposure dose, or (2) for doses exceeding 1,500 ppm•hr, reading the length-of-pink-stain from the scale.

Operating Instructions

1. Remove the pouch from refrigerator and allow it to warm to room temperature.
2. Remove the badge from its protective pouch.
3. Enter all pertinent information on the I.D. label before monitoring is started (i.e. name, location, date and start time).
4. For personnel monitoring, attach the badge near the user's breathing zone (i.e. collar) with the front side exposed to the surrounding atmosphere.
5. For area monitoring, attach the badge to a stand and mount in a centralized area with the front side exposed to the surrounding atmosphere.
6. Check the back side of the badge periodically to determine the exposure dose (ppm•hr).
7. To read the badge, locate the highest level cell with pink threshold color. If the exposure dose exceeds 1,500 ppm•hr, locate the pink color front in the length-of-stain diffusion path.
8. **For MEK exposure dose, multiply the dose printed on the badge by 0.9.**
9. **For MIBK exposure dose, multiply the dose printed on the badge by 0.8.**
10. 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 400 ppm•hr, the average concentration is determined by:
$$\frac{400 \text{ ppm}\cdot\text{hr}}{2 \text{ hr}}$$
 Therefore the average concentration is 200 ppm.

Storage

The ChromAir acetone monitor should be refrigerated in its sealed bag at all times.

Benefits

1. **Accurate Measurements:** The ChromAir acetone monitor is designed to react selectively with acetone with minimum interference from other substances. The unique design of the monitor minimizes the effects of different humidities, temperatures and air velocities on the accuracy of measurements. The design extends the range of the monitor from 20 to 24,000 ppm•hr and extends the sampling times from 1 minute to 24 hours.
2. **Applications:** The ChromAir monitor may be used for personnel screening, area monitoring or area mapping, and grab sampling.
3. **Ease of Use:** The ChromAir monitor is a direct-read device that gives immediate, on-site results. Use of this device requires minimum training.
4. **Cost Effective:** The ChromAir acetone monitor offers the user the most inexpensive air sampling solution available.

NOTE: The three cells are best used for short exposures or grab sampling. The length-of-stain path is preferable for working environment conditions.

Other Available Monitors

1. ChromAir Badges:

Ammonia	Formaldehyde	Methanol
Carbon monoxide	Glutaraldehyde	Ozone
Chlorine	Hydrogen sulfide	
Ethanol	Mercury	
2. ChromAir Color Comparators:

Ammonia	Formaldehyde
Carbon monoxide	Hydrogen sulfide
Chlorine	Mercury

If you require ChromAir monitors for a chemical hazard not listed, please contact Morphix Technologies® for a free compound consultation at (800) 808-2234.