

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.

Seller warrants that, for the lesser of one (1) year or the shelf-life provided on the Seller's product, its packaging or its literature, its products shall conform to the description of such products as provided on the Seller's product, its packaging or its literature. THIS WARRANTY IS EXCLUSIVE, AND SELLER MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE. Seller's warranties made in connection with this sale shall not be effective if Seller has determined, in its sole discretion, that Buyer has misused the products in any manner, has failed to use the products in accordance with safe industry standards and practices, or has failed to use the products in accordance with Seller's written operating instructions, or other instructions furnished by Seller to Buyer.

Seller's sole and exclusive liability and Buyer's exclusive remedy with respect to products to Seller's satisfaction to be defective or nonconforming shall be replacement of such products without charge or refund of the purchase price, in Seller's sole discretion, upon the return of such products in accordance with Seller's instructions. All claims must be brought within one (1) year of shipment, regardless of their nature.

SELLER SHALL NOT IN ANY EVENT BE LIABLE FOR INCIDENTAL, CONSEQUENTIAL OR SPECIAL DAMAGES OF ANY KIND RESULTING FROM ANY USE OR FAILURE OF THE PRODUCTS, EVEN IF SELLER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGE INCLUDING, WITHOUT LIMITATION, LIABILITY FOR LOSS OF USE, LOSS OF WORK IN PROGRESS, DOWN TIME, LOSS OF REVENUE OR PROFITS, FAILURE TO REALIZE SAVINGS, LOSS OF PRODUCTS OF BUYER OR OTHER USE OF ANY LIABILITY OF BUYER TO A THIRD PARTY ON ACCOUNT OF SUCH LOSS, OR FOR ANY LABOR OR ANY OTHER EXPENSE, DAMAGE OR LOSS OCCASIONED BY SUCH PRODUCT INCLUDING PERSONAL INJURY OR PROPERTY DAMAGE UNLESS SUCH PERSONAL INJURY OR PROPERTY DAMAGE IS CAUSED BY SELLER'S GROSS NEGLIGENCE.

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



2557 Production Road
Virginia Beach, VA 23454
Phone: (757) 431-2260 Fax: (757) 216-6209
e-mail: customerservice@morphtec.com

©1997, Morphix Technologies®

All rights reserved

Publication Number: KM3-2A.8-0606

US Patent Number: 5,364,593



Operating Instructions For Acetone Monitor* (Part Number: 380020)

Technical Summary

Physical Specifications:

Dimensions	10.5 cm x 5.5 cm x 0.25 cm
Weight	11 g
Refrigerated shelf life	1 year
Color change	yellow to pink

Sampling Parameters:

Exposure range	20 - 24,000 ppm•hr
Maximum recommended sampling time	24 hours
Minimum recommended sampling time	1 minute
Relative humidity range	15% - 95%
Face velocity range	10 - 165 cm/sec
Temperature range	10°C - 45°C (50°F - 113°F)
Light effect - UV (direct sunlight)	not recommended
Light effect - visible	no effect

Applications:

The ChromAir acetone badge may be used for personnel or area monitoring for exposure times ranging from 1 minute to 24 hours.

Cross Interferences:

Alcohols, aromatic solvents and aliphatic solvents DO NOT affect the accuracy of measurements. The presence of ammonia inhibits the performance of the monitor. At very high concentrations (more than two times the permissible limit), acrolein and acetic acid may influence the first and second cells. No other interferences are known.

* The acetone badge may be used to monitor for methyl ethyl ketone (MEK) and methyl isobutyl ketone (MIBK) by applying a multiplication factor.

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.