



**Operating Instructions  
Hydrazine Dual Level Badge  
(Part Number: 382020)**

**Introduction**

Hydrazine is a colorless liquid with a penetrating odor resembling that of ammonia. It is extremely destructive to the tissues of the mucous membranes and upper respiratory tract. Symptoms of exposure may include coughing, wheezing, laryngitis, and shortness of breath, headache, nausea and vomiting. OSHA exposure limit for hydrazine is 1 ppm (TWA). NIOSH exposure limit for hydrazine is 0.03 ppm (2 hour ceiling). NIOSH recommends that hydrazine be handled as a potential occupational carcinogen in the workplace.

Hydrazine is used predominantly as a fuel for rocket and jet engines and in the manufacturing of pharmaceuticals. Hydrazine salts are used in refining and as corrosion inhibitors.

**Principle of Operation**

The SafeAir hydrazine dual level badge is a monitoring system designed to indicate the presence of hydrazine at concentrations below the permissible exposure limit. The SafeAir hydrazine dual level badge detects the presence of hydrazine by forming a color change in the shape of a half triangle. This indication is produced by a color-forming reaction which occurs when hydrazine reacts with a flat indicator layer. A color change may appear on the front and/or the back side of the badge, depending upon the exposure dose.

**Physical Specifications:**

Dimensions	74 mm x 41 mm x 1 mm
Weight	1.5 g
Refrigerated shelf life	1 year
Color change	orange to maroon

**Sampling Parameters:**

	<b>Front</b>	<b>Back</b>
Exposure dose:	8 ppb•hr	4 ppb•hr
Minimum detectable limit (8 hours)	1 ppb	0.5 ppb
Maximum recommended sampling time	2 days	2 days
Minimum recommended sampling time	5 minutes	5 minutes
Relative humidity range	23% - 83%	23% - 83%
Face velocity range	5 – 168 cm/sec	5 – 168 cm/sec
Temperature range	15°C - 35°C (60°F - 95°)	15°C - 35°C (60°F - 95°F)
Light effect – UV (direct sunlight)	no effect	no effect
Light effect – visible	no effect	no effect
Color stability	4 weeks	4 weeks

Known Interferences: Methyl hydrazine and high concentrations of aromatic amines

**Operating Instructions**

1. Allow the badge to warm to room temperature prior to removing the badge from its protective pouch.
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 half triangle will appear on the back-side of the badge when hydrazine is present at or above 4 ppb-hr. The half triangle will appear on the front-side of the badge when hydrazine is present at or above 8 ppb-hr.

**WARRANTY EXCLUSIONS AND LIMITATION OF LIABILITY**

IF THE USER DOES NOT ACCEPT THE FOLLOWING TERMS, THE USER SHOULD NOT USE THE SAFEAIR BADGES AND COLOR COMPARTORS.

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.



www.morphitec.com  
©2017, Morphix Technologies  
All rights reserved  
Publication Number: 01-382020A.10-0921  
US Patent Number: 6,284,198