Operating Instructions
Ammonia Monitor
(Part Number: 382010)

Introduction
Ammonia is a colorless gas with a sharp, irritating odor. It is a typical respiratory and eye irritant. Depending on the concentration, it may cause burning sensations, coughing, wheezing, headaches and conjunctivitis. High exposures cause caustic skin burns, eye swelling with possible loss of vision, shortness of breath and nausea. Ammonia causes chemical pneumonitis (deep lung inflammation) and pulmonary edema (abnormal fluid buildup in the lungs). OSHA PEL (permissible exposure limit) for ammonia is 50 ppm (TWA). NIOSH REL (recommended exposure limit) for ammonia is 25 ppm (TWA).

Ammonia is a commonly used chemical. As a product of normal biodegradation of bio products, it is spread as a pollutant in poultry plants and animal farms. Ammonia is used in the production of nitric acid, ammonia salts, fertilizers, leather, cooling and freezing systems, cleaning liquids, etc.

Principle of Operation
The SafeAir ammonia badge is a monitoring system designed to indicate the presence of ammonia at concentrations below the permissible exposure limit. The SafeAir ammonia badge detects the presence of ammonia by forming a color change in the shape of an exclamation mark inside the triangle. This indication is produced by a color-forming reaction that occurs when ammonia reacts with a flat indicator layer.

Physical Specifications:
- Dimensions: (74 ± 1 mm) x (41 ± 1 mm) x (1 mm)
- Weight: 1.5 g
- Refrigerated shelf life: 1 year
- Color change: beige to black

Sampling Parameters:
- Exposure level: 4.0 ppm·hr
- Minimum detectable limit (8 hours): 0.50 ppm
- Maximum recommended sampling time: 48 hours
- Minimum recommended sampling time: 15 minutes
- Relative humidity range: 15% - 90%
- Face velocity range: 10 – 150 cm/sec
- Temperature range: 50°F - 104°F
- Light effect – UV (direct sunlight): not recommended
- Light effect – visible: no effect
- Color stability: 4 weeks
- Known Interferences: primary aliphatic 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 exclamation mark appears within the triangle when ammonia is present. The exclamation mark will appear underneath the printed exposure dose (sensitivity). Please note that additional color development may occur for up to five minutes after the end of the sampling period.

WARRANTY EXCLUSIONS AND LIMITATION OF LIABILITY

If the user does not accept the following terms, the user should not use the SafeAir badges.

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, delay in 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.

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