Aromatic isocyanates, such as toluene diisocyanate (TDI) and methylene diphenyl disiocyanate (MDI), are commonly used to make various polymers such as polyurethanes. Polyurethanes have significant application in the manufacture of rigid and flexible foams. They are also used in the production of adhesives, elastomers and coatings. Polyurethane coatings are preferred in the automotive refinishing industry where high performance coatings are required.

Principle of Operation

The SafeAir aromatic isocyanates badge is a monitoring system designed to indicate the presence of TDI and/or MDI at concentrations below the permissible exposure limit. The SafeAir aromatic isocyanates badge detects the presence of TDI and/or MDI by forming a color change in the shape of an exclamation mark inside the triangle. This indication is produced by a color-forming reaction, which occurs when TDI and/or MDI react 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**: off-white to red

Sampling Parameters:

- **TDI**: 5 ppb∙hr
- **MDI**: 3.5 ppb∙hr
- **Minimum detectable limit (8 hours)**: 0.6 ppb
- **Maximum recommended sampling time**: 24 hours
- **Minimum recommended sampling time**: 15 minutes
- **Relative humidity range**: 11% - 87%
- **Face velocity range**: 10 – 100 cm/sec
- **Temperature range**: 60°F - 91°F
- **Light effect – visible**: no effect
- **Color stability**: two weeks

Known Interferences: Other aromatic isocyanates and high concentrations of hydrazine

**Operating Instructions**

1. Prior to removing the badge from its protective pouch, allow the badge to warm to room temperature.
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 begins to appear within the triangle when TDI and/or MDI are present at the sensitivity level. Please note that the exclamation mark will appear on the front of the badge.
5. For higher resolution and wider range, a SafeAir TDI color comparator is available for use with this badge. To obtain the average concentration of TDI, divide the exposure dose (ppb∙hr) by the exposure time in hours (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 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.