



## Operating Instructions Perfluoroisobutylene (PFIB) Badge (Part Number: 382025)

### Introduction

Perfluoroisobutylene (PFIB) is a highly toxic, colorless, odorless gas which is a respiratory hazard. PFIB irritates the respiratory tract. Inhalation exposure may cause severe symptoms of pulmonary edema. However, severe symptoms of pulmonary edema may be delayed for several hours before a rapid deterioration of health occurs. Excessive exposure may cause death.

PFIB is produced as a significant by-product in the manufacture of fluoropolymers, tetrafluoroethylene and hexafluoropropylene. It is also used as etching material for the semiconductor fabrication and synthesis of polymeric materials industry. Because of its high toxicity to humans, PFIB is designated as a Chemical Warfare Agent (CWA) and therefore is contained in Schedule 2 of the Chemical Weapons Convention (CWC).

### Principle of Operation

The SafeAir Perfluoroisobutylene (PFIB) badge is a monitoring system designed to indicate the presence of PFIB at concentrations below the permissible exposure limit. The SafeAir PFIB badge detects the presence of PFIB by forming a color change in the shape of a half triangle. This indication is produced by a color-forming reaction which occurs when PFIB reacts with a flat indicator layer.

### Physical Specifications:

Dimensions	74 mm x 41 mm x 1 mm
Weight	1.5 g
Refrigerated shelf life	6 months
Color change	off-white to pink

### Sampling Parameters:

Exposure dose	3.0 ppm·min
Color Comparator Range	3.0 – 30 ppm·min
Maximum recommended sampling time	12 hours
Minimum recommended sampling time	5 minutes
Relative humidity range	35% – 90%
Face velocity range	5 – 25 cm/sec
Temperature range	0°C – 37°C (32°F – 98.6°F)
Light effect – UV (direct sunlight)	minor background discoloration
Light effect – visible	no effect
Color stability	12 hours
Known Interferences	HCl at concentrations >600ppm for >5 minutes. No interference from HFP or TFE.

### Operating Instructions

1. Allow the badge to warm to room temperature prior to removing the badge from its protective pouch. Dispose of pouch and humidity pack.
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 front side of the badge when PFIB is present.
5. When using the SafeAir PFIB color comparator, read badge within 30 minutes of the end of the sampling period.

Warning: Do not disassemble badge. Keep out of reach of children, if ingested seek medical attention immediately.

### **WARRANTY EXCLUSIONS AND LIMITATION OF LIABILITY**

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