

Filter Breakthrough Indicator (BTI LFF)

For Benzene, Carbon Tetrachloride, Chloroform,
Diethyl Ether, Gasoline, Hexane, Methylene Chloride,
Naphtha, Phenol, Tetrahydrofuran, Toluene and Xylenes

(PN: 149-0000)



Manual



1. Application

The Breakthrough Indicator (PN: 149-0000) is qualitative (yes/no) colorimetric indicator for the saturation and exhaustion of low-flow filters. It is designed to provide real-time indication of the breakthrough of hydrocarbons and halogenated hydrocarbons vapors, including:

- a. Benzene
- b. Carbon Tetrachloride
- c. Chloroform
- d. Diethyl Ether
- e. Gasoline
- f. Hexane
- g. Methylene Chloride
- h. Naphtha
- i. Phenol
- j. Tetrahydrofuran
- k. Toluene
- l. Xylenes

2. Specifications

2.1. Overall Specification

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|------------------------------|--|
| a. Weight: | 3.8g (0.14oz) |
| b. Dimensions: | 79mm (3.1in), diameter: 10mm (0.39in) |
| c. Operating temperature: | 4°C to 35°C (39°F to 95°F) |
| d. Operating humidity: | 5% RH to 85%RH |
| e. Minimum detectable limit: | See performance specifications (2.2.) |
| f. Color change: | Orange to red |
| g. Storage temperature: | 4°C to 25°C, (39°F to 77°F) |
| h. Service life: | 1 year |
| i. Shelf life: | 14 Mon. at 4°C to 25°C, (39°F to 77°F) |

2.2. Performance Specification

To determine the sensitivity of the breakthrough indicator, a solution/mixture of 10% solvent in water was bubbled with ambient air at a flow rate of 5cc/min. The airflow was passed through the breakthrough indicator until a color change was observed. The elapsed time to observe the first noticeable and the final colors for the respective organic solvent is depicted in the table below.

2.3. Cross interferences

Basic vapors in high concentrations impair the performance of the organic vapors breakthrough indicator. Acid vapors in high concentrations produce color similar to organic vapors. No other interferences are known.

Solvent (10% in Water)	Breakthrough Detection Time	
	First Noticeable Color (min)	Final Color (min)
Benzene	4	43
Carbon Tetrachloride	6	24
Chloroform	2	8
Diethyl Ether	3	28
Gasoline	14	60
Hexane	10	30
Methylene Chloride	2	8
Naphtha	10	30
Phenol	90	6 hours
Tetrahydrofuran	10	20
Toluene	12	43
Xylenes	18	39

3. Operating Instructions

- Ensure that packaging pouch is intact.
- Open packaging pouch by tearing off the top part from one of side notches.
- Remove breakthrough Indicator from packaging pouch.
- Remove the $\frac{3}{8}$ " plug from the filter's outlet lid.
- Remove the protective red plug to activate the breakthrough indicator.**
- Attach Breakthrough Indicator into the $\frac{3}{8}$ " filter outlet lid (adapter might be needed, please contact us for further information).



Caution: Only hand-tie indicator into filter outlet

- Replace filter when the Breakthrough Indicator changes color to red.

