



Filters Breakthrough Indicator (BTI) Organic Vapors

(PN: 189)

Manual



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1. Application

The OV BTI (PN: 189) is qualitative (yes/no) colorimetric indicator for the saturation and end-of-service life of filters. The BTI designed to provide real-time indication of the breakthrough of organic vapors. The indicator is most suited for process vents filters associated with distillation, thin-film evaporation, solvent extraction, waste containers and liquids transfers. The indicator is designed to provide real-time indication of the breakthrough of organic vapors, including:

1. Acetone, 2. Acetonitrile, 3. Acids (i.e. Acetic acid, Hydrochloric acid, Trifluoroacetic acid Trichloroacetic Acid), 4. Acrylonitrile, 5. Aliphatic hydrocarbons (i.e. hexane), 6. Aromatic Hydrocarbons (i.e. benzene, toluene and xylenes), 7. Chlorinated hydrocarbons (i.e. carbon tetrachloride, chloroform and dichloromethane (methylene chloride)), 8. Ethanol, 9. Ethyl Acetate, 10. Ethyl acrylate, 11. Ethyl ether, 12. Gasoline, 13. HFIP (Hexafluoroisopropanol), 14. Methanol, 15 Methyl acrylate, 16. Naphtha, 17. Phenol, 18. Sulfolane, 19. THF (Tetrahydrofuran). This indicator cannot detect basic organic compounds such as pyridines, aliphatic and aromatic amines. Please contact us for alternative indicator for detecting basic organic compounds.

2. Specifications

2.1. Overall Specifications

- a. Weight: 28g (1.0oz)
- b. Dimensions: 89.9mm (3.5in), diameter: 24.5mm (1.0in)
- c. Inlet dimensions: ½" MNPT
- d. Operating temperature: 4°C to 32°C (39°F to 89.6°F)
- e. Operating humidity: 5% RH to 85%RH
- f. Minimum detectable limit: See Performance Specification 2.2
- g. Color change: orange to red
- h. Storage temperature: 4°C to 25°C, (39°F to 77°F)
- i. Shelf life: 12 months at 4°C to 25°C, (39°F to 77°F)
- j. Service life: 12 months
- k. Light effect: For indoor use only.
Outdoor use: Use with BTI protective sleeve, PN: 180-3000. Sold separately.

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 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.

3. Operating Instructions

- a. Ensure that packaging pouch is intact.
- b. Open packaging pouch by tearing off the top part from one of side notches.
- c. Remove the Breakthrough Indicator from the packaging pouch.
- d. Remove the ½" threaded plug from the carbon absorber outlet lid.
- e. Remove the protective red plug to activate the breakthrough indicator.
- f. Thread the Breakthrough Indicator into the ½" threaded carbon absorber outlet lid.



Caution: Only hand tighten indicator into carbon absorber

- g. Replace carbon absorber when the Breakthrough Indicator changes color to red.

Solvent (10% in Water)	Breakthrough Indication Time	
	First Noticeable Color (min)	Final Color (min)
Acetone	10	30
Acetonitrile	10	30
Benzene	4	43
Carbon tetrachloride	10	30
Chloroform	2	8
Dichloromethane (methylene chloride)	2	8
Ethanol	10	30
Ethyl Acetate	2	5
Gasoline	14	60
Hexane	10	30
HFIP Hexafluoroisopropanol	1	4
Methanol	2	5
Naphtha	10	30
Phenol	45	6 hours
Sulfolane	8	17
THF (Tetrahydrofuran)	10	20
Toluene	2	8
Trifluoroacetic acid	4	30
Xylenes	14	60

COLORS ARE APPROXIMATE



Unexposed



Aliphatic
hydrocarbons
& alcohols



Exposed
Other organic
vapors