



Filter Breakthrough Indicator Organics Vapors (OV BTI LFF)

PN: 152-0000



Manual



1. Application

The Breakthrough Indicator (PN: 1520000) is qualitative (yes/no) colorimetric indicator for the exhaustion and end-of-service life of low-flow filters. 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. Forane 13. Gasoline, 14. HFIP (Hexafluoroisopropanol), 15. Methanol, 16 Methyl acrylate, 17. Naphtha, 19. Phenol, 20. Sulfolane, 21. THF (Tetrahydrofuran).

2. Specifications

2.1. Overall Specification

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| a. Weight: | 2.8g (0.1oz) |
| b. Dimensions: | 50mm (2.0in), diameter: 9.5mm (0.375in) |
| c. Threading: | M10 x 1mm |
| d. Operating temperature: | 4°C to 40°C (39°F to 104°F) |
| e. Operating humidity: | 5% RH to 85%RH |
| f. Minimum detectable limit: | See performance specifications (2.2.) |
| g. Color change: | Aliphatic hydrocarbons; orange to light red
Other organics; orange to dark red
Phenol and acidic vapors; orange to red |
| h. Storage temperature: | 4°C to 25°C, (39°F to 77°F) |
| i. Shelf life: | 14 months at 4°C to 25°C, (39°F to 77°F) |
| j. Service life: | 1 year |

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 breakthrough indicator was exposed to the airflow 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 and limitations

Basic vapors in high concentrations impair the performance of the organic vapors breakthrough indicator. The indicator does not respond to gaseous aliphatic hydrocarbons (i.e. methane, ethane, propane and butane), aldehydes (i.e. formaldehyde) or basic organic vapors (i.e. pyridine and aliphatic amines). No other interferences or limitations are known.

Operating Instructions

- Ensure that packaging pouch is intact.
- Open packaging pouch by tearing off the top part from one of side notches.
- Remove one Breakthrough Indicator from packaging pouch, reseal pouch.
- Remove the 3/8" plug from the filter outlet lid.
- Remove the protective red plug to activate the breakthrough indicator.**
- Attach Breakthrough Indicator into the 3/8" filter outlet lid.



Caution: Only hand tighten indicator into carbon absorber

- Replace filter when the Breakthrough Indicator changes color, See color changes above (2.1. g).

Solvent (10% in Water)	Breakthrough Indication Time	
	First Noticeable Color (min)	Final Color (min)
Acetic acid	6	14
Acetone	10	26
Acetonitrile	10	30
Acrylonitrile	7	42
Benzene	2	5
Carbon tetrachloride	10	30
Chloroform	12	30
Dichloromethane	5	15
Ethanol	10	30
Ethyl Acetate	2	5
Ethyl acrylate	7	39
Ethyl ether	>1	5
Forane (isoflurane, 1-Chloro-2,2,2-trifluoroethyl difluoromethyl ether)	>1	4
Gasoline	14	60
Hexane	7	15
HFIP (Hexafluoroisopropanol)	1	4
Hydrochloric acid	> 1	4
Methanol	2	5
Methyl acrylate	4	36
Naphtha	10	30
Phenol	20	6 hours
Sulfolane	8	17
THF (Tetrahydrofuran)	10	20
Toluene	2	8
Trifluoroacetic acid	4	30
Xylenes	14	60

