

Filter Breakthrough Indicator
Inline MV 680
Acids, Ammonia, Halogens, Hydrogen Sulfide
and Organic Vapors
(BTI Inline MV 680)
PN: 680

Specification

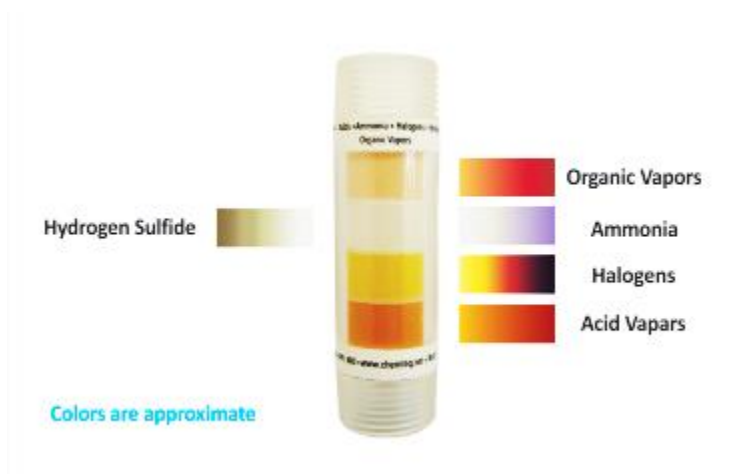


Figure 1



1. Application

The Breakthrough Indicator Inline MV 680 (BTI Inline MV 680), is qualitative (yes/no) colorimetric indicator for real-time indication of acids, ammonia, halogens, hydrogen sulfide and organic vapors. Organic vapors include: Acetone, Acetonitrile, Acids (i.e. acetic acid, hydrochloric acid, trifluoroacetic acid and trichloroacetic acid), Acrylonitrile, Aliphatic hydrocarbons (i.e. hexane), Aromatic hydrocarbons (i.e. benzene, toluene and xylenes), Chlorinated hydrocarbons (i.e. carbon tetrachloride, chloroform and dichloromethane (methylene chloride), Ethanol, Ethyl acetate, Ethyl acrylate, Ethyl ether, Gasoline, HFIP (hexafluoroisopropanol), Methanol, Methyl acrylate, Naphtha, Phenol, Sulfolane, THF (tetrahydrofuran).

BTI Inline MV 680 has four indicators, from bottom to top: Acids, Halogens, Ammonia and Hydrogen Sulfide, and Organic vapors.

2. Specifications

2.1. Overall Specification

- a. Weight: 28g (1.0oz)
- b. Dimensions: 89.9mm (3.5in), diameter 24.5mm (1.0in)
- c. Inlet & outlet dimensions: ¾" MNPT
- d. Operating temperature: 4°C to 40°C (39°F to 104°F)
- e. Operating humidity: 5% RH to 90%RH
- f. Fluids allowed: Gases and vapors (not suitable for liquids)
- g. Minimum detectable limit: Acids: 4ppm-min
(Tested at 30 cm/sec face velocity) Ammonia: 10ppm-hr
Halogens: 0.5ppm-hr
Hydrogen Sulfide: 1.0ppm-min
Organic Vapors: See performance specifications (2.2.)
- h. Color change: Acids: Orange to red
Ammonia: Light blue to purple
Halogens: Yellow to red or purple
Hydrogen Sulfide: Light blue to brown or black
Organic Vapors: Orange to red
- i. Storage temperature: 4°C to 25°C, (39°F to 77°F)
- j. Shelf life: 1 year at 4°C to 25°C, (39°F to 77°F)
- k. Service life: 1 year

2.2. Performance Specification

To determine the sensitivity of the organic vapors 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 acids and 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.

Solvent (10% in Water)	Breakthrough Indication Time	
	First Noticeable Color (min)	Final Color (min)
Acetone	10	10
Acetonitrile	10	30
Benzene	2	5
Carbon tetrachloride	10	30
Chloroform	12	30
Dichloromethane (methylene chloride)	5	15
Ethanol	10	30
Ethyl Acetate	2	5
Gasoline	14	60
Hexane	7	15
HFIP (Hexafluoroisopropanol)	1	4
Methanol	2	5
Methyl acrylate	4	36
Methyl amine	2	12
Naphtha	10	30
Phenol	20	6 hours
Pyridine	10	30
Sulfolane	8	17
THF (tetrahydrofuran)	10	20
Toluene	2	8
Trifluoroacetic acid	4	30
Xylenes	14	60

3. Operating Instructions

- a. Ensure that packaging pouch is intact.
- b. Open packaging pouch by tearing off the top part from one of the side notches.
- c. Remove the BTI Inline from the packaging pouch.
- d. Remove the protective red plugs to activate the breakthrough indicator.



Caution: Only hand tighten filter into tubing

- e. Color change of indicator indicates the presence of its respective contaminant(s), See figure 1.