

# MicroBlue™ Filter Rods

Reduced-Toxicity Technology

**Gen 4 Series**  
(Standard Acetate & MicroBlue™ Acetate)

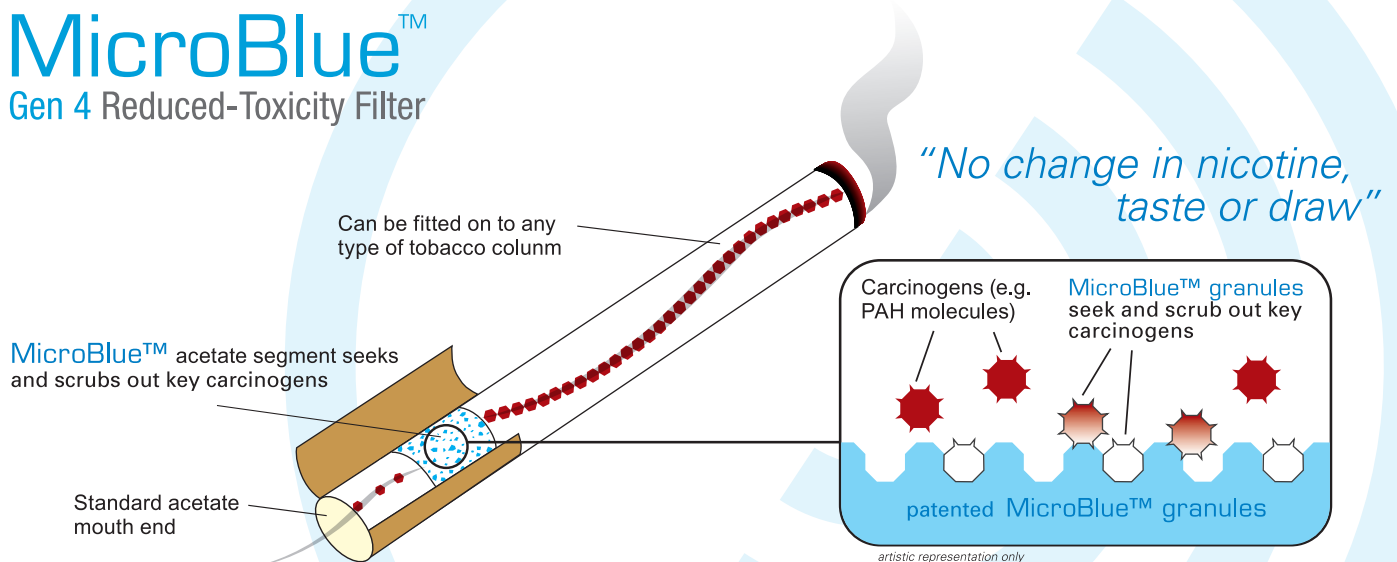
“Reduced toxicity with smoker satisfaction...”

- ▶ **Selective molecular filtration**
  - Significant reduction in overall toxicity and specific constituents
  - No change in nicotine or draw
- ▶ **No change in consumer experience** (taste, draw, look, nicotine, smell and touch)
- ▶ Safe, cost-effective components
- ▶ Standard and custom filter configurations
- ▶ Independently tested pursuant to **US FDA standards** (e.g. safety and threshold cancer risk assessment)

▶ Reduction Relative to Leading 'Light'	
○ Mutagenicity* (Ames)	30%
○ Cytotoxicity (NRU)	18%
○ Benzo[a]pyrene (PAH)	12%
○ Crotonaldehyde (aldehyde)	18%
○ Ammonia	13%
○ Tar	No change
○ Nicotine	No change
○ Pressure drop	No change

\* Ames Test TA-100/+9: Base-pair DNA mutations are the molecular signature for tobacco-induced lung cancer.

## MicroBlue™ Gen 4 Reduced-Toxicity Filter



**Pragmatic • Scientific • Patented**

For more information on the MicroBlue™ range of Reduced-Toxicity products – [contact.us@filligent.com](mailto:contact.us@filligent.com)

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## Reduced-Toxicity Technology

### Gen 4 Series

(Standard Acetate & MicroBlue™ Acetate)



## Scientific Explanation

The MicroBlue™ reduced-toxicity filtration technology includes an innovative yet inexpensive material that selectively binds and inactivates many of the carcinogens in cigarette smoke. The “scavenging” activity is due to its high molecular affinity for Polycyclic Aromatic Hydrocarbons (PAHs) and other classes of carcinogens found in smoke. This intelligent and selective filtration leaves nicotine, taste and draw and other smoking sensations untouched. The MicroBlue™ technology is safe and does not add anything to mainstream smoke; its only effect on smoke is to **selectively remove** a significant amount of harmful carcinogens.

## Testing Protocols

- ▶ All tests were conducted in internationally accredited laboratories (including Filligent's ISO 17025:2003 certified laboratory).
- ▶ All test samples use a standard Leading Light cigarette. The only change is the use of a MicroBlue™ filter of the same dimensions for MicroBlue™ samples. This permits a direct comparison of the relative efficacy of the filters, by keeping all else equal.
- ▶ Smoke chemistry and condensate collection: ISO with 100% vent blocking.
- ▶ Base-pair DNA damage: Ames Reverse Bacterial Mutation Assay (OECD 471); TA-100 strain of *Salmonella Typhimurium* with S9 activation. This is the standard threshold cancer-risk assessment test used by the FDA and OECD for assessing base-pair mutations, which are the molecular signature for tobacco-induced lung cancer.

## Test Results

Constituent	International Standard Test	Reduction Relative to Leading Light	Comments
Tar	ISO 4387	NM	Measured with 100% ventilation blocking
Nicotine	ISO 4387	NM	Measured with 100% ventilation blocking
Carbon monoxide	ISO 4387	NM	Measured with 100% ventilation blocking
Pressure drop	CORESTA N°41	NM	Draw resistance of cigarettes and filter rods
Mutagenicity (Ames)	Health Canada T-501	30%	Using the TA-100 strain +S9. This is the standard threshold cancer-risk assessment test used by the US FDA and OECD for base-pair DNA mutations, which are the molecular signature for tobacco-induced lung cancer
Cytotoxicity (NRU)	Health Canada T-502	18%	This is the standard threshold test for assessing overall cell death, which can contribute to a host of tobacco-induced diseases such as chronic obstructive pulmonary disease
Benzo[a]pyrene	CORESTA N°58	12%	Principal representative for polycyclic aromatic hydrocarbons
Crotonaldehyde	Health Canada T-104	18%	Principal representative for carbonyls (aldehydes)
Ammonia	Health Canada T-101	13%	Contributes to the killing of lung cilia and the onset of respiratory diseases

\*NM = Not Material, i.e., the test results were within one standard deviation

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