

## Extra Peaks When Not Using the Same Syringe Filter - Troubleshooting

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### Overview

Unexpected extra peaks during HPLC analysis often originate from the syringe filter—not the sample or the instrument. When changing filter brands or membrane types, differences in extractables, binding behavior, and manufacturing purity can introduce trace contaminants or cause variable analyte recovery.

These issues are most likely to appear when the filter is not properly conditioned before use. AQ™ Brand syringe filters from MICROSOLV™ are designed to minimize these effects; however, most other membranes require discarding the initial portion of filtrate to avoid contamination and ensure consistency.

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### Why Filters Cause Extra Peaks

Many syringe filter membranes contain:

- Extractable materials such as manufacturing residues, surfactants, plasticizers, or monomers
- Adsorptive sites that temporarily bind analytes
- Variability in surface energy between brands, even when labeled as the same membrane type (e.g., nylon ≠ all nylon)

The first few milliliters that pass through the filter often contain the highest concentration of extractables. If this portion is injected into the HPLC system, artifacts such as:

- Extra peaks
- Baseline disturbances
- Reduced analyte recovery
- Shifts in retention time

...may occur.

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### The Importance of Reaching “Steady State”

To achieve reliable, repeatable chromatography, the membrane must be exposed to sufficient sample or solvent to saturate adsorptive sites and flush away extractables.

This conditioning process is known as bringing the filter to steady state, meaning:

- Adsorption has stabilized
- Extractables have been flushed
- The filter is no longer influencing chromatography

Without this step, chromatographic differences may arise simply due to how much sample has passed through the filter.

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## Recommended Conditioning Volumes

To minimize artifacts and improve reproducibility:

For most filter brands (non-AQ):

- 25 mm filters: discard 2–5 mL
- 13 mm or 4 mm filters: discard ~0.5 mL

For AQ™ nylon syringe filters:

- Due to the high purity and low extractable design of AQ™ filters, discarding the first 2–3 mL may not be required.

However, if the method is extremely sensitive, pre-rinsing is still considered best practice.

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## Why Filter Brand Matters

Do not assume all nylon filters—or any membrane type—behave identically across manufacturers. Differences in:

- Polymer formulation
- Additives
- Washing procedures
- Manufacturing quality
- Surface treatments

can greatly affect chromatographic outcomes.

The MICROSOLV™ AQ™ syringe filter line is engineered to minimize extractables and provide consistency across lots, making it ideal for analytical methods requiring high reproducibility.

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**Ordering Information:** For AQ™ syringe filter specifications, catalog numbers, and images: Click [HERE](#) for AQ™ syringe filter ordering information and pictures.

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**Attachment:** MICROSOLV filters equivalency study pdf [Download File](#)

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