

Solvents to Avoid with Nylon Syringe Filters - HPLC Primer

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Overview

Nylon membranes are widely used in chromatography sample preparation due to their chemical robustness, low extractables, and excellent flow characteristics. However, like all polymeric filtration materials, nylon has specific solvent limitations.

Understanding which solvents are incompatible prevents membrane degradation, sample contamination, and compromised analytical results.

Solvents to Avoid with Nylon Syringe Filters

Nylon is generally resistant to many aqueous solutions and moderate organic solvents, but it is **NOT compatible** with certain chemical classes that can attack the polymer backbone or dissolve surface treatments.

The following should **not** be used with Nylon syringe filters:

1. Aldehydes

Aldehydes can interact with functional groups in nylon, causing:

- Membrane swelling
- Chemical attack on amide linkages
- Increased extractables
- Loss of mechanical integrity

Common incompatible aldehydes include formaldehyde, acetaldehyde, and glutaraldehyde.

2. Strong Acids

Strong mineral acids aggressively degrade nylon membranes, rapidly reducing filtration performance and potentially contaminating the filtrate. Avoid:

- Hydrochloric acid (HCl)
- Nitric acid (HNO₃)
- Sulfuric acid, hydrobromic acid, and others with similar corrosive properties

Even at moderate concentrations, these acids destabilize the nylon polymer and can lead to membrane rupture.

Why Compatibility Matters

Using incompatible solvents may result in:

- Membrane degradation or complete failure
- Leaching of nylon breakdown products into the sample
- Poor retention of particulates, resulting in cloudy filtrate
- Compromised HPLC data, including ghost peaks and variable retention times

For sensitive applications such as HPLC, UHPLC, LC-MS, and trace analysis, correct solvent compatibility is crucial for maintaining data integrity.

Selecting the Right Membrane

If aldehydes or strong acids must be filtered, consider switching to:

- PTFE membranes (excellent for strong acids and aggressive organics)
- Glass fiber prefilters for high-particulate samples
- Other specialty membranes depending on solvent chemistry

MICROSOLV provides compatibility charts and technical guidance for membrane selection.

AQ™ Syringe Filter Resources

For membrane options, solvent compatibility references, and ordering details

- Click [HERE](#) for syringe filters ordering information and pictures.
- Attachment: MICROSOLV filters equivalency study pdf [Download File](#)

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