



Why high-purity chromatography solvents matter more than ever



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At its core, chromatography is built on detecting very small differences by separating, identifying, and quantifying compounds with precision. Chromatography's supreme sensitivity also makes it susceptible to interference.

Among the most overlooked sources of that interference? The solvents themselves.

Solvents aren't passive – they define the baseline, and at ultra-trace levels, even tiny impurities can disrupt performance.

Solvents are not passive carriers in chromatography workflows. They define the baseline, influence separation, and directly impact detection. As chromatographic instruments continue to advance—particularly in UHPLC and high-resolution LC-MS systems, which can detect compounds at trace and ultra-trace levels—detection limits are lower than ever before.

This progress enables deeper insight, but it also raises the bar for every input in the workflow. Even the smallest solvent impurities can become disruptive to performance at these levels.



High-purity solvents, such as those in the Chromasolv™ portfolio from Solstice Advanced Materials Research Chemicals, are specifically engineered to meet evolving demands. Designed for reliable performance across techniques like HPLC, UHPLC, GC, and LC-MS, they help build confidence that what you see in your data reflects your sample, not your solvent.

The cost of impurities

In practice, solvent-related issues rarely point directly to their source. They appear as familiar chromatography problems, making them subtle, persistent, and difficult to isolate:

- **Baseline noise and drift:** Trace UV-active impurities or particulate contamination can elevate the baseline or introduce instability over time. As instruments become more sensitive, even extremely low-level contaminants can distort the signal, making it harder to distinguish true analyte peaks.
- **Ghost peaks and contamination:** Residual contaminants in solvents can co-elute with target compounds or appear intermittently across runs. These artifacts create uncertainty in peak identification and often require additional verification, slowing down workflows.
- **Inconsistent retention times and separations:** Even minor differences in solvent composition, water content, or trace impurities can alter interactions with the stationary phase. Small but meaningful shifts in retention time affect reproducibility across runs and labs.

- Ion suppression or interference in LC-MS: In mass spectrometry workflows, solvent impurities can contribute background ions that compete with analytes during ionisation. This reduces sensitivity and can obscure low-abundance compounds that are critical to the analysis.

When any of these challenges occur, researchers are forced to isolate variables, re-run samples, and validate results. Labs lose time troubleshooting instead of generating data and advancing valuable research. In pharmaceutical development, impurity-related variability can obscure critical compounds, delaying approvals or risking patient safety. In environmental testing, it can lead to underreported pollutants. In food and beverage analysis, it can compromise detection of contaminants or allergens—raising compliance and recall risks. Even in routine QA/QC, inconsistent results can allow substandard materials to pass or require costly rework.

High-purity solvents depend not just on composition, but on how they're produced, handled, and protected.

What ensures high-purity?

Not all chromatography solvents are created equal. High-purity solvents are defined not just by their chemical composition, but by how they are produced, handled, and protected from contamination.

Purity starts with raw material selection and controlled manufacturing processes. Advanced purification and multi-stage filtration are required to remove trace contaminants that can interfere with sensitive detection methods.

Consistency is equally critical. Batch-to-batch reproducibility ensures that methods developed today will perform the same tomorrow, across instruments and labs.

From production to bench, packaging designed to preserve solvent integrity also plays a critical role. Even a highly purified solvent can become contaminated if exposed to particulates, leachables, or environmental impurities during filling, storage, or use. Clean bottles, low-extractable caps, and controlled filling environments are essential.



The trusted choice for chromatography solvents

Chromasolv high-purity solvents are developed specifically to address the challenges chromatographers face every day—from baseline instability to inconsistent results. Each product is engineered to deliver exceptionally low background noise, helping improve signal clarity and make even low-level analytes easier to detect. Strict control over manufacturing and purification ensures high batch-to-batch consistency, supporting reproducible performance across runs, methods, and laboratories.

This consistency is paired with application-specific design. Chromasolv solvents are available in grades tailored to the needs of modern chromatography, including LC, LC-MS, UHPLC, and GC, so scientists can match solvent performance to method requirements with confidence—reducing variability and minimising the need for troubleshooting.

For workflows that require even greater specificity, Solstice LabReady™ custom blends and packaging solutions provide ready-to-use formulations designed to fit exact method and operational needs, helping labs save time while maintaining purity standards.

Equally important is how that purity is protected. Chromasolv packaging is engineered to maintain solvent integrity from production to use. This includes:

- Dedicated filling lines to prevent cross-contamination
- Encapsulated filling environments with purified air to minimise particulate introduction
- Pre-rinsed containers and components to reduce residual contamination
- Dust caps and no-leach materials to prevent external and chemical interference
- Returnable Container Program and customisable packaging options to fit specific workflow and volume requirements

Together, these measures help ensure that the solvent entering your system is as pure as when it was produced.

When scientists can trust the purity and consistency of their research chemicals, less time goes to troubleshooting variability and labs can focus on advancing the discoveries that shape tomorrow.

Chromasolv delivers the clarity modern chromatography demands. To learn, visit <https://go.solstice.com/explore-chromasolv>