

Optimizing Your GC Flow Path for Inertness

Ensuring an inert GC flow path has never been more critical

As regulatory agencies drive LODs lower for active analytes, you cannot afford adsorption caused by flow path activity. For starters, active GC flow path surfaces can cause peak tailing and signal loss, preventing sensitive analytes from being detected. What's more, repeating or re-verifying suspect analyses wastes resources, hinders productivity, and hurts your bottom line. Follow these steps to create the most inert flow path possible.

1. Maintain the inlet

Replace worn or dirty supplies—such as syringe needles, septa, ferrules, and inlet seals—to eliminate leaks and minimize downtime.

2. Prevent sample loss at injection

Always use a deactivated liner suited to your injection technique. Change the liner and gold seal when they become discolored due to nonvolatile residue buildup.

3. Select a highly inert column

Choose a column that has been tested for inertness with a rigorous test probe mixture. Examine column ends for chips and burrs under magnification, and be sure to position the column at the recommended depth.

4. Remember detector inertness

This is especially true for mass spectrometers, where an inert ion source prevents active compounds from attaching to metal surfaces. The best sources are constructed of a solid inert material, as opposed to an inert coating.

5. Use a gas purifier

A clean, high-quality gas supply that is free of oxygen and contaminants reduces the risk of column damage, sensitivity loss, and downtime.

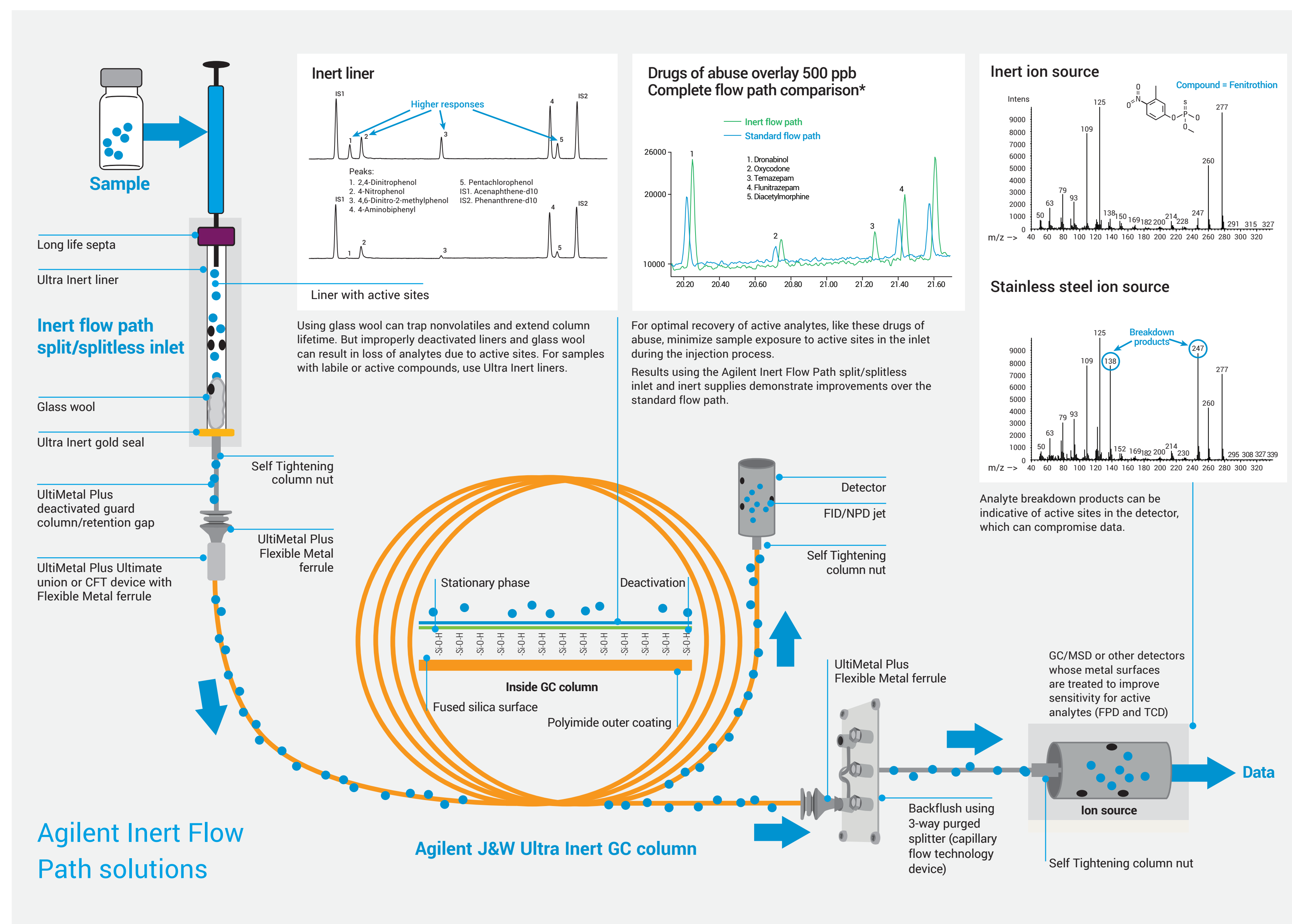
Agilent J&W Ultra Inert GC columns

Polarity guidelines: While polarity is not directly related to selectivity, it has a pronounced effect on compound retention. For compounds of similar volatility, you can increase retention by choosing a stationary phase with polarities similar to the solutes.

High polar	DB-WAX UI
Mid polar	DB-35ms UI
	DB-624 UI
Non/Low polar	DB-5ms UI
	HP-5ms UI
	DB-1ms UI
	HP-1ms UI

Application-specific Ultra Inert columns

- **DB-UI 8270D:** environmental semivolatiles
- **DB-Select 624 UI for 467:** pharmaceutical residual solvents
- **DB-FATWAX UI:** FAME analysis, including Omega 3 and Omega 6
- **DB-BAC1 UI and DB-BAC2 UI:** blood alcohol quantification*



An integrated approach to inertness from injection through detection

Our patented chemistries for glass and metal surfaces ensure accurate quantification and high sensitivity for trace-level analysis of even active analytes.

Agilent Ultra Inert GC columns, liners, and gold seals

Agilent J&W Ultra Inert GC columns are rigorously tested to ensure exceptionally low bleed and consistently high inertness. Ultra Inert liners provide low surface activity and reproducible vaporization for active analyte delivery. Ultra Inert gold seals ensure a smooth surface that reduces analyte adsorption.

Agilent UltiMetal Plus Flexible Metal ferrules

UltiMetal Plus Flexible Metal ferrules provide a leak-free seal to reduce the risk of column breakage. UltiMetal Plus deactivation on each ferrule's surface expands system inertness. These ferrules are also compatible with Agilent capillary flow technology and inlet/detector fittings.

Agilent Self Tightening column nut

This innovative stainless steel GC column nut delivers a tight connection—without upgrades or adaptors—for less background noise and more reliable results. A spring-driven piston presses against the graphite/polyimide ferrule, maintaining a leak-free seal with no retightening, even after hundreds of injections.

Agilent FID/NPD jets

Agilent's improved FID/NPD jet design allows for easier column installation and jet replacement, reducing the risk of column damage; the lack of thread lubricant reduces the risk of contamination. These jets are designed to fit all GC platforms—both capillary and packed column detector body.

Agilent Gas Clean filters

Installing an Agilent Gas Clean filter removes contaminants, ensuring the highest quality gas flows through the system, leak free, maintaining flow path inertness and column integrity. Highly sensitive indicators provide maximum instrument protection.

Agilent GC and GC/MS instruments

By combining a solid inert ion source with an Ultra Inert GC flow path, Agilent GC, GC/MSD, ion trap GC/MS, triple quadrupole GC/MS, and GC/Q-TOF instruments deliver higher sensitivity and reliability while reducing downtime and maintenance.

By the numbers: the Agilent difference

>260,000 labs served

As of 2015, more than a quarter million labs around the globe trust Agilent to achieve their analytical goals.

>50 years of innovation

Since 1965, Agilent has been the recognized leader in mass spectroscopy for better quantitation.

>98% satisfaction

Agilent completes over 85% of service calls in the first day—and has a 98% customer satisfaction rate.

#1 in quality

All Agilent GC columns and supplies are manufactured and tested using the strictest standards—and we back it up with a proof of performance certificate for each capillary GC column and many supplies.

To learn more about creating the most inert flow path, and to download your free brochure, visit www.agilent.com/chem/inert

