

Increase Your Uptime and Your Profit

Agilent JetClean self-cleaning ion source for GC/MS



Now, There's a Better Way to Clean Your GC/MS Ion Source



Free yourself from manual ion source cleaning

The patented Agilent JetClean self-cleaning ion source greatly reduces—or even eliminates—the need for source cleaning on Agilent single and triple quadrupole GC/MS systems. A carefully controlled flow of hydrogen ensures that the ion source is kept free from contamination, protecting the integrity of your results. And, there's no disassembly required.

With innovative JetClean technology, your lab can:

- Increase instrument uptime. Fewer manual cleanings maximize productivity.
- Maintain data quality. A clean ion source ensures run-to-run reproducibility.
- Enhance operator convenience. Automated cleaning requires virtually no user intervention.

What's more, JetClean technology accommodates any workflow. You can clean and analyze simultaneously or clean when you're not acquiring data. Either way, JetClean delivers more uptime, more great results, and more data for your dollar.

Compatibility information

The Agilent JetClean self-cleaning ion source is available as an option on new Agilent single and triple quadrupole GC/MS systems. It can also be retrofit to these existing Agilent systems:



5977A/B



7000B/C/D



7010A/B



5977B
with Intuvo



7000D GC/TQ
with Intuvo

“The nature of our work meant we had to clean the ion source on our previous, non-Agilent GC/MS about once every two weeks. Since we started using the Agilent GC/MSD with JetClean, the source has been cleaned once in nine months meaning our instrument spends more time running samples and generating data—and our users spend less time having to remove, clean, and reinstall the source. JetClean has been a tremendous benefit on instrument uptime and lab productivity.”

– **Dr. Noga Sikron Persi**
Ben-Gurion University
Metabolomics Laboratory



Remove Matrix Deposits from the Ion Source— Without Removing the Ion Source

If your lab runs GC/MS analyses, manually cleaning the ion source is a time-consuming reality.

First you have to vent the MS, remove the ion source, and scrub the lens and other components. Then you need to put it all back together, pump down, and recalibrate the instrument. It's a labor-intensive process, but if you want good data, it has to be done.



Before



After

To imitate serious contamination in the source, we marked a lens with red ink, creating a significant Rhodamine 6 deposit. The JetClean self-cleaning ion source removed the deposit and restored performance with one automatic cleaning cycle.

Real-world advantages

Greater Convenience, Improved Data Quality, and Lower Operating Costs

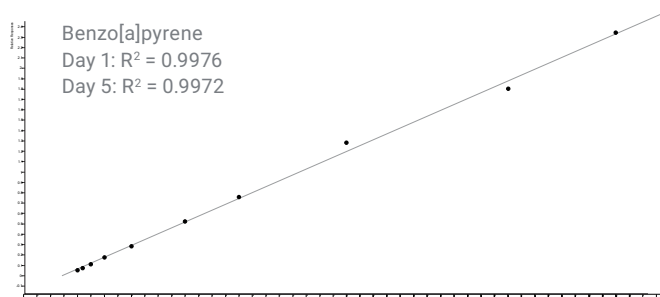


Satisfying the most demanding quality-control criteria

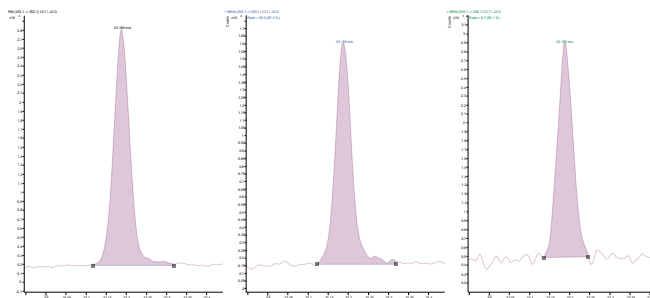
PAHs (polyaromatic hydrocarbons) were measured in palm oil after only a simple toluene extraction. Various concentrations of calibration, QC samples, and palm oil extracts were analyzed during a 5-day, 200-injection evaluation. The results show remarkable and maintained linearity, precision, low detection limits, and unmatched robustness.

Area %RSD (n=12)	Benzo[a]anthracene	Chrysene	Benzo[b]fluoranthene	Benzo[a]pyrene
Day 1	1.8	1.2	1.9	1.7
Day 5	2.9	4.3	2.8	4.9

The area response of 1 µg/kg spiked palm oil extract remained very stable during the 5-day study, resulting in less than 5% area response RSD.



Excellent linearity: calibration ranging from 1 to 100 ng/mL with R^2 values > 0.997.



Quant and qualifier ion plots of Benzo[a]pyrene at 1 ng/mL. Robust signal and Gaussian peak shape were maintained during the study.

“We have been using a GC/MS system with JetClean source for more than one year. During this time, we did not need to clean the ion source. Data intensity was stable during this time... It is a very powerful technique to our research.” – Analysis of Polymers with Pyrolyzer

– Professor Hajime Ohtani
The Nagoya Institute

By How Much Could You Increase Your Lab's Revenue?



See for yourself

Plug in the numbers that are relevant to your lab and see the actual impact JetClean can have on your operation.

Number of cleanings per year	<input type="text"/>
Runtime per sample (minutes)	<input type="text"/>
Revenue per sample	<input type="text"/>
Operational days per year	<input type="text"/>

Reset form

Realized increased revenue from your GC/MS analysis using JetClean*

Cost Factor	Without JetClean	With JetClean**
Number of estimated cleanings per year		
Number of samples run per year		
Revenue per year		
Days gained from JetClean		
Additional samples run		
Revenue gained from JetClean		

**Actual value of increased revenue is dependent on the application.*

***These calculations are based on JetClean in Clean-Only mode.*

[Learn more](#) about the Agilent JetClean self-cleaning ion source.

Challenging Matrices, Excellent Results



Discover how to achieve greater reliability with less ion source cleaning

These application notes describe how JetClean significantly improves calibration linearity and precision for analyzing potentially harmful substances in high-matrix samples. To read the full story, click each title.



[Optimized GC/MS/MS Analysis for PAHs in Challenging Matrices](#)

The Agilent 8890 GC combined with an Agilent 7000D triple quadrupole GC/MS system was used for the analysis of polycyclic aromatic hydrocarbons (PAHs). By proper selection of instrument configuration and operating conditions, the system provides a robust means of analyzing PAHs in difficult matrices.



[Optimized GC/MS Analysis for PAHs in Challenging Matrices](#)

The Agilent 8890 GC combined with an Agilent 5977 Series MSD system was used for the analysis of PAHs. By proper selection of instrument configuration and operating conditions, the system provides a robust means of analyzing PAHs in difficult matrices.



[Maintaining Sensitivity and Reproducibility with the Agilent JetClean Self-Cleaning Ion Source for Pesticides in Food and Feed](#)

Approximately 200 various pesticides were analyzed in organic honey extract on the Agilent 7010A series triple quadrupole GC/MS with and without the use of the Agilent JetClean self-cleaning ion source.



[Agilent JetClean: In-situ GC-MS Ion Source Cleaning and Conditioning](#)

GC/MS maintenance is a universal requirement for maintaining analytical targets during sample analysis. Rapid intra-column backflushing, one vital enhancement in the GC/MS maintenance process, has improved ion source and GC longevity and made GC column and inlet maintenance rapid and ventless. Additionally, the elimination of late-eluting components that foul an ion source has become a salient feature of the pressure-controlled tee configurations

“Our laboratory carries out pesticide residue analysis with the Agilent 7000 GC/MS/MS. The samples include common fruits and vegetables, but we also analyze more difficult herbal samples, and monitor baby food, which has lower detection requirements. To satisfy SANCO defined QA/QC specifications with these varied samples, the GC/MS source usually had to be cleaned every 2 weeks. After installing the JetClean system, the frequency of the manual source cleaning has been greatly reduced, we now manually clean the source only once every 3 months. This increased productivity and freed up operator time is greatly appreciated.” – Analysis of Polymers with Pyrolyzer

– **Jana Pulkrabova, PhD**

Head of the Department of Food Analysis and Nutrition,
University of Chemistry and Technology, Prague

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Whatever you need to analyze, we are here to help you implement the ideal configuration to achieve your goals. Agilent has decades of experience designing and building chromatography and mass spectrometry systems. Our longstanding partnerships and collaborations span every field of application. This is what enables Agilent to provide you with the best solution for your analytical needs.

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© Agilent Technologies, Inc. 2021
Published in the USA, April 28, 2021
5991-9517EN

