

NEW 7890B Gas Chromatograph + 5977 Single Quadrupole



Today's Challenges

Economic - Routine -

- Productivity
- Investment Protection
- Cost of Ownership
- Ease-of-Use

Integrated GC/MSD Communications
OpenLAB, MassHunter

Economic - Method - Development

- Time = Money
- Skilled Resources
... Harder to Find

Sensitivity

- Trend – Lower LOD's
- “Imperfect” Samples



Improve Asset Utilization

Leverage and Protect Your Investment Better

5977A → 7890B

During MSD vent...

- Increases GC carrier gas flows,
Cools MSD faster
- **40% Faster Vent Times**
(280C → 100C)

In event of MSD Failure...

- Stops GC Flows
- Don't waste expensive He
- Don't build-up H₂



5977A ← 7890B

GC monitors GC/MSD connection.

If communication lost...

- GC shuts down various
(GC) thermal zones

Integrated GC-MSD Communication

Faster Maintenance, better asset protection,
safer H₂ use

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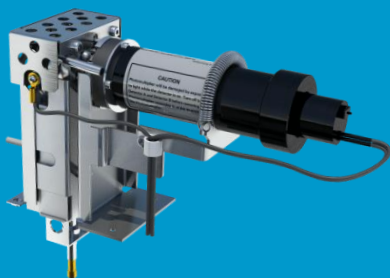
- Trend – Lower LOD's
- “Imperfect” Samples

5977A MSD
GC FPD „PLUS“

Expanded Laboratory Capability

Increasing Asset Flexibility

FPD Plus



Advanced components

UltiMetal Deactivation

Design Improvements for enhanced performance

Max Temp

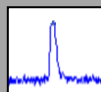
250C

400C

Higher Tmax

MDL pg/s

S



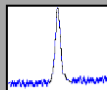
3.6

2.5



Higher Response

P



60

45



Lower Noise

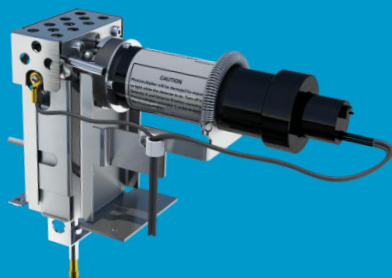
7890A FPD

7890B FPD Plus

Expanded Laboratory Capability

Increasing Asset Flexibility

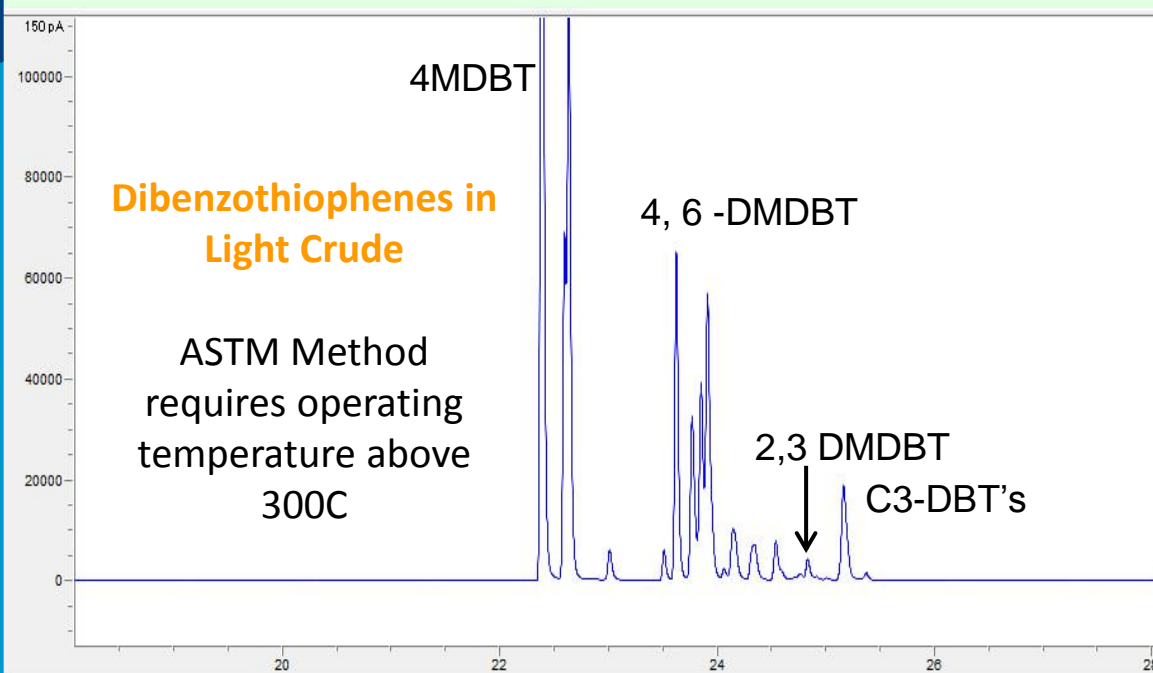
FPD Plus



Advanced components

UltiMetal Deactivation

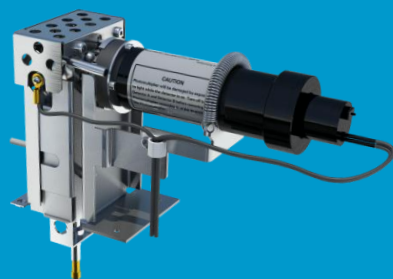
Design Improvements for enhanced performance



Expanded Laboratory Capability

Increasing Asset Flexibility

FPD Plus



Advanced components

UltiMetal Deactivation

Design Improvements for enhanced performance

ECD 3rd Detector



Allows Cl-containing pesticides in environmental and food samples to be detected along with an FPD and FID installed

Dual MMI



Used commonly for high throughput Mineral Oil/Total Petroleum Hydrocarbon (TPH) environmental analysis

7890B GC Detector Specifications

		Agilent 7890B	Agilent 7890A
FID	MDL	1.4 pg C/sec	1.5 pg C/sec
	Linear range	10e7	10e7
TCD	MDL	< 400 pg/mL Propane	< 400 pg/mL Propane
	Linear range	10e5	10e5
ECD	MDL	4.5 fg/sec	5.5 fg/sec
	Linear range	> 5 x 10e4	> 5 x 10e4
NPD (BLOS)	MDL for N	0.08 pg N/sec	0.1 pg N/sec
	MDL for P	0.01 pg P/sec	0.03 pg P/sec
	N Linear Range	10e5	10e5
	P Linear Range	10e5	10e5
FPD	MDL for S (FPD)	< 2.5 pg S/sec (FPD Plus)	< 3.6 pg S/sec
FPD	MDL for P (FPD)	< 45 fg P/sec (FPD Plus)	< 60 fg P/sec
FPD	S Linear range	10e3	10e3
FPD	P Linear range	10e4	10e4
PFPD	MDL for S (PFPD)	<1 pg S/sec	<1 pg S/sec
PFPD	MDL for P (PFPD)	<100 fg P/sec	<100 fg P/sec
PFPD	S Linear range	Ca 10e3	Ca 10e3
PFPD	P Linear range	Ca 10e3	Ca 10e3
SCD	MDL for S (SCD)	< 0.5 pg/s	< 0.5 pg/s
SCD	S Linear range	10e4	10e4

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OpenLAB, MassHunter

Economic - Method - Development

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Sensitivity

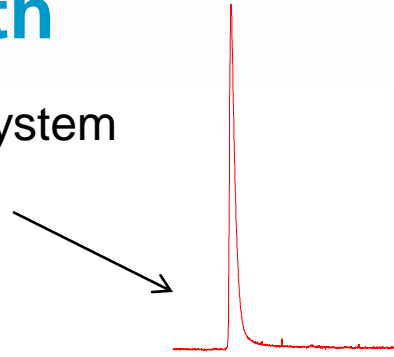
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5977A MSD
GC FPD „PLUS“
Inert Flow Path

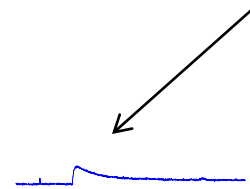
Improving Performance: Focus on sample flowpath



Inert system



Active system



Active or contaminated components in the flow path, before the detector, can reduce the overall sensitivity of the system

Consider the following:

- Inlet liner
- Gold seal
- SSL inlet (weldment)
- Column
- Capillary Flow Device
- Detector

Technologies that matter: Only from Agilent

Agilent has developed core competency in chemical vapor deposition surface deactivation resulting in proprietary processes to dramatically improve GC inertness.

Deactivation processes for:

- Glass
- Steel
- Gold
- Glass wool



Agilent Inert Flowpath SSL Inlet Option

Proprietary UltiMetal-Plus Treatment

Enhanced performance for trace GCMS and GC-ECD analysis of pesticides and drugs of abuse

Protects labile analytes contacting injector metal structure during high volume injections

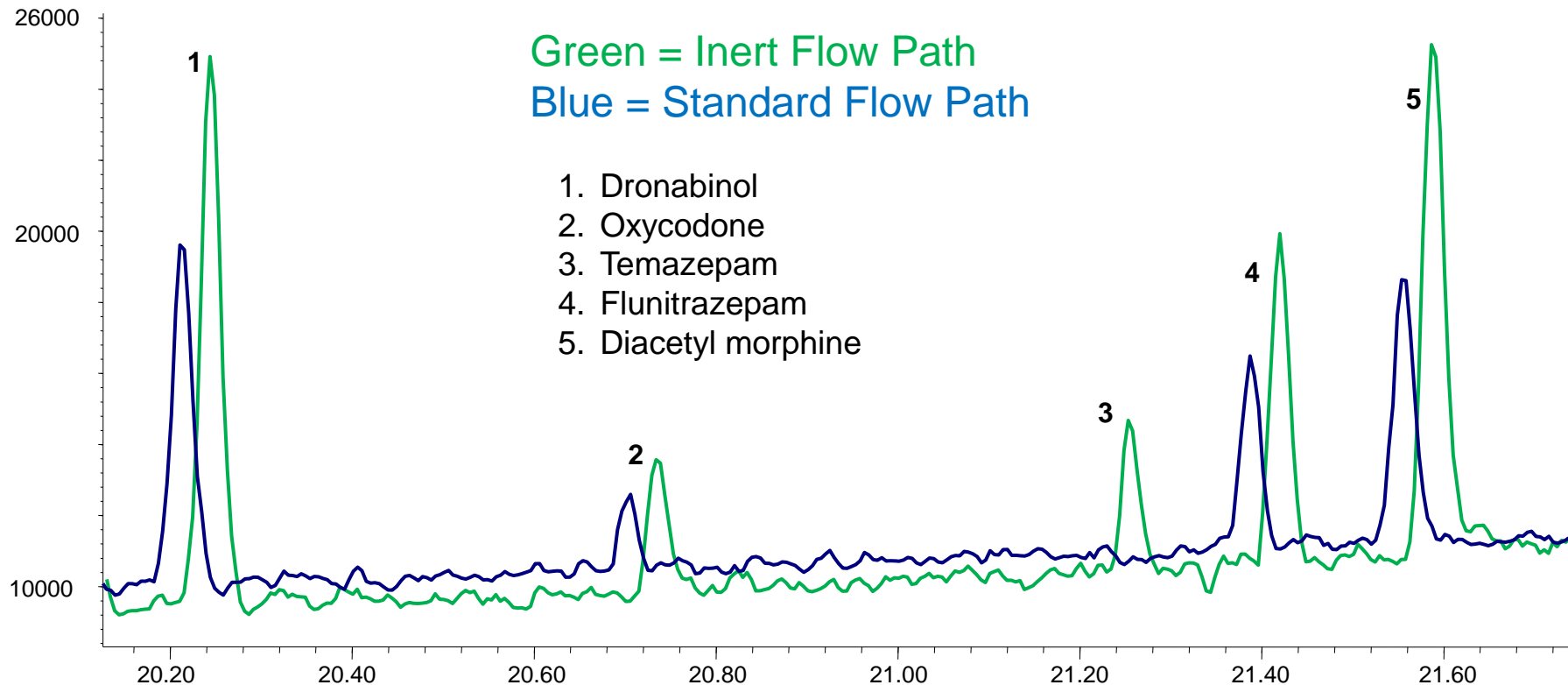
Available as 7890B Inert Flowpath option #114 or upgrade G3453B for 7890A/B



Putting it all together – Inert Flow Path

Inert Flow Path versus Standard Flow Path

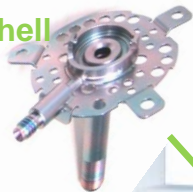
Drugs of Abuse 500 ppb using HP-5ms UI



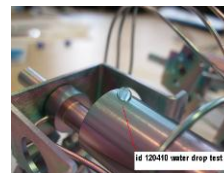
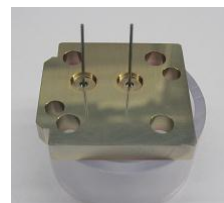
Column: Agilent J&W HP-5ms UI 30 m x 0.25 mm x 0.25 μ m
Oven: 100°C 4 min hold, 10°/min to 280°C, 6 °/min to 300°C (4.67 min hold),
Carrier : Helium 52.7 cm/s (2 mL/min) set at 100°C, EPC-Constant Flow
Inlet: Pulsed Splitless 35 PSI pulse until 0.73 min, 0.75 min purge 50 ml/min, gas saver 20, ml/min at 2 min
Inlet liner: Ultra Inert with wool / Standard single taper liner with wool (p/n 5190-3165)
Gold Seal: UI Gold Seal / Standard gold seal
Detector: MSD Scan mode 40 to 450 m/z, 230 °C source temp, 150 °C Quad temp, 310 °C transfer line

Agilent Inert Flow Path Solution

Ultimetal Plus Inlet Weldment, Shell and Transfer Lines



Ultimetal Plus- TCD, FPD, NPD/FID Jets



Ultra Inert Inlet Liner



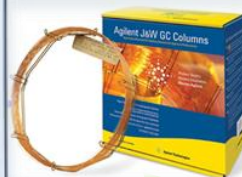
Ultimetal Plus Ferrules



Ultimetal Capillary Flow Technology Devices, Ultimate Union



Ultra Inert Gold Seal



Ultra Inert GC Column



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Integrated GC/MSD Communications
OpenLAB, MassHunter

Economic - Method - Development

- Time = Money
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Integrated Intelligence

Sensitivity

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- “Imperfect” Samples

5977A MSD
GC FPD „PLUS“

Inert Flow Path

Method Intelligence Tools A Smarter GC System

Completely Updated with AutoImport to Method

Integrated Intel
 Integrated GC ca
 Barcode Scannin
 Integrated early-
 GC:MSD commu
 3D Interactive C
 Sleep-Wake Mod
 ... Also coordina

The screenshot displays the 'Method Intelligence' software interface. It features a central panel with two columns: 'Original Method Parameters' (for Gas: He) and 'Calculated Method Parameters' (for Gas: H2). The parameters are listed with sliders and input fields:

- Length (m): 15 m
- Inner Diameter (µm): 530 µm
- Film Thickness (µm): 1 µm
- Phase Ratio: 132.5
- Inlet Pressure (gauge): 1.1003 psi (Original) / 0.7326 psi (Calculated)
- Outlet Flow (mL/min): 2.9999 mL/min (Original) / 4.351 mL/min (Calculated)
- Average Velocity (cm/s): 22.37 cm/sec (Original) / 32.849 cm/sec (Calculated)
- Outlet Pressure (abs): 14.696 psi
- Holdup Time: 1.1176 min (Original) / 0.76105 min (Calculated)
- Outlet Velocity (cm/s): 23.043 cm/sec (Original) / 33.421 cm/sec (Calculated)

At the bottom, there are two tables for temperature ramps:

#	Ramp Rate (°C/min)	Final Temp (°C)	Final Time (min)
Init		30	1
1	10.0000	75	10
2	0.0000	0	0

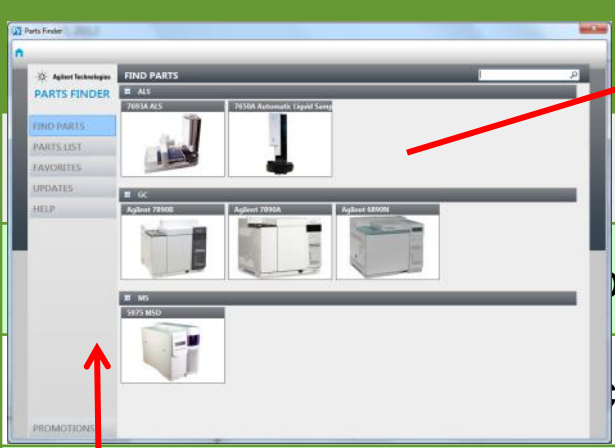
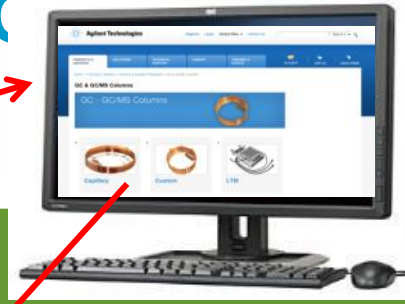
#	Ramp Rate (°C/min)	Final Temp (°C)	Final Time (min)
Init		30	0.68
1	14.6845	75	6.81
2	0.0000	0	0

Additional controls include 'Speed gain' (1.4685), 'Translate', 'Best Efficiency', 'Isothermal', and 'Ramps' (set to 2).

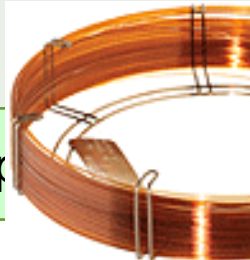
Is easier
 tion
 more efficiently
 t
 better
 & order easier
 ownership

Integrated Total Lifecycle ... A Smarter Choice

Faster and easier method development



Benefit



Develop methods easier

Easier configuration

Manage assets more efficiently

Monitor MSD vent

Protect system better

GC/MSD communication

Hardware and Parameters

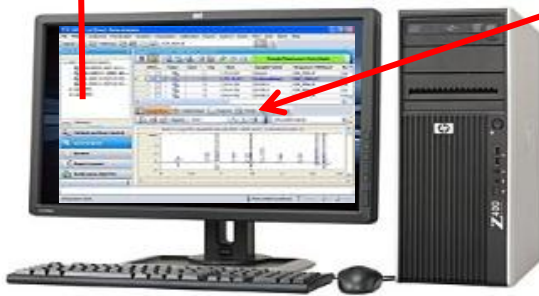
Bar Code Scanning Option

and

Agilent 977A MSD

AutoInput column, liner and septum information into method. Integrated with Parts Finder for seamless consumables management.

Lower cost of ownership



Integrated Intelligence A Smarter GC System

Avoid Unplanned Downtime

Integrated Intelligence Optimize your maintenance plan

Integrated GC calculators

- You determine your maintenance schedule,

not your instrument

Barcode Scanning with Auto-Input

- Use only the consumables you need, when

you need them

Integrated early-maintenance-feedback

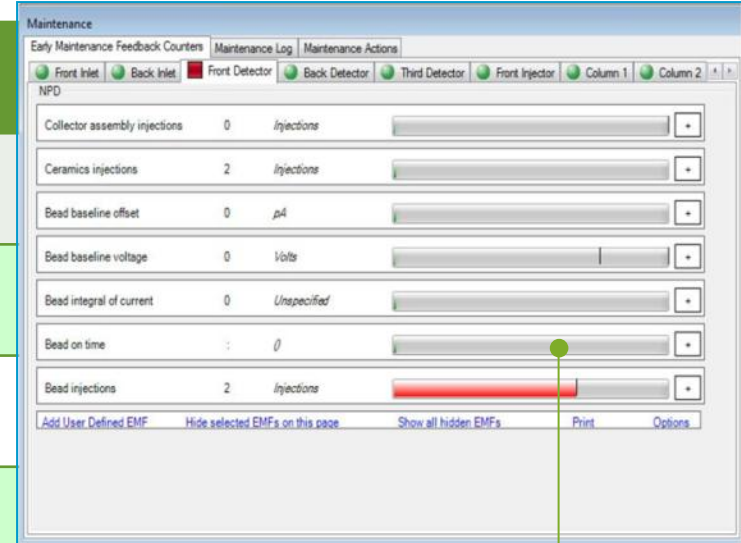
- A maintenance SOP built into your GC

GC:MSD communication

3D Interactive Consumable and Parts Finder

Sleep-Wake Modes

... Also coordinated with 5977A MSD



Protect system better

Early Maintenance Feedback

Find parts faster & order easier

When production or shipment

decisions are on the line,

Lower cost of ownership

unplanned downtime can cost

\$1000's



PARTS FINDER

FIND PARTS

PARTS LIST **3**

FAVORITES

UPDATES

HELP

PROMOTIONS

FIND PARTS



Ultra Inert Split Liners



Add To Parts List | Add To Favorites

<input type="checkbox"/>	Part Number	Part Description
<input type="checkbox"/>	5190-2294	Liner, ultra inert, split, straight, glass wool
<input checked="" type="checkbox"/>	5190-3164	Liner, Ultra Inert deactivation, split, straight, glass wool, 5/pk
<input checked="" type="checkbox"/>	5190-3168	Liner, Ultra Inert deactivation, split, straight, glass wool, 25/pk
<input type="checkbox"/>	5190-2295	Liner, ultra inert, universal, low pressure drop, GW
<input checked="" type="checkbox"/>	5190-3165	Liner, Ultra Inert, universal, low pressure drop, glass wool, 5/pk
<input type="checkbox"/>	5190-3169	Liner, Ultra Inert, universal, low pressure drop, glass wool, 25/pk
<input type="checkbox"/>	5190-4048	Liner, GC, Ultra Inert, straight, 0.75 mm id, recommended for SPME injections

Click Add to Parts List

Reducing Dependence on He

Agilent OptiGaging Express Smarter GC System

Integrated Intelligence Manage He Use Optimally

Integrated GC calculators

- Set time to sleep

Barcode Scanning with Auto-Input

- Choose to condition GC before first run

Integrated early-maintenance-feedback

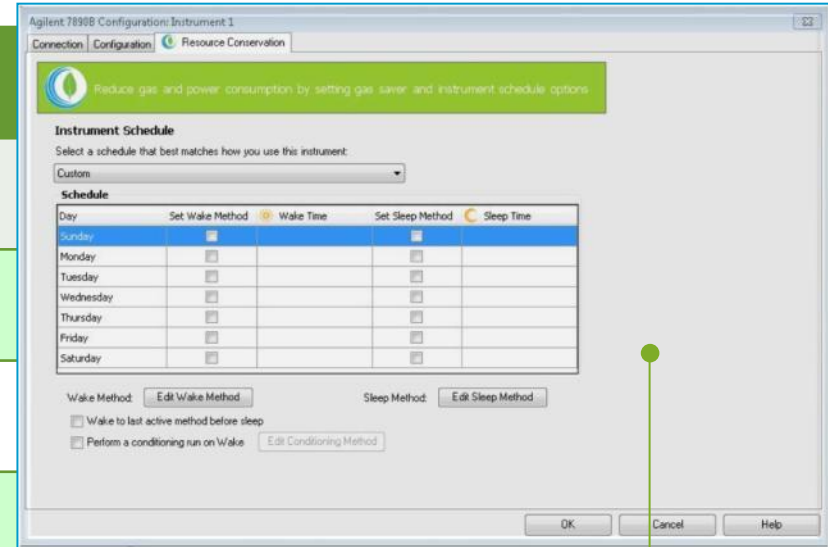
- Use only the gas you need

GC:MSD communication

3D Interactive Consumable and Parts Finder

Sleep-Wake Modes

... Also coordinated with 5977A MSD



Protect system better

Sleep-Wake Function

Find parts faster & order easier

Can save as much as 15% in gas usage – up to \$4,000 per year per instrument for many labs

Lower cost of ownership

Today's Challenges

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Integrated GC/MSD Communications
OpenLAB, MassHunter

Gas/Power Resource Management
OpenLAB, MassHunter

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5977A MSD
GC FPD „PLUS“

Inert Flow Path

Introducing the 7890B Gas Chromatograph

Re-defining Premium Gas Chromatography

Improved Performance Specifications

Best-in-class package of performance specifications

New & Expanded Accessories & Options

Improved FPD-Plus detector

ECD as 3rd detector option

New Inert Flowpath option

Dual MMI inlets

Integrated Intelligence Functions

GC-MSD communication

Sleep-wake function

Method development calculators

3D Interactive Graphical Parts Finder

Early Maintenance Feedback

Barcode Scanning with Auto-Input



New Agilent 5977 Series GC/MSD

The 5977 is the new Agilent GC/MSD platform and replaces the 5975C and 5975E systems

- Improves performance with high sensitivity **Extractor Ion Source**
- **MassHunter GC/MS Acquisition**
- **MassHunter** and **MSD ChemStation** data analysis
- Integration of **new Agilent Vacuum Pumps** brings intelligent operation
- **Direct Communication** between 7890B and 5977A for more productivity



New Agilent 5977 Series GC/MSD

What is the same as 5975?

- ✓ Quality
- ✓ Reliability
- ✓ Proven core technology since 5973/5975
 - Inert Ion Source
 - Heatable Gold Quartz Quadrupole
 - Triple Axis Detector
 - High Energy Diode
 - Triple Channel EM Detector
 - Productivity Software
(MSD ChemStation Data Analysis)



New Agilent 5977 Series GC/MSD

What is new with 5977?

- ✓ Better Performance
 - High Sensitive Extractor Ion Source
 - Improved Agilent Vacuum Pump
- ✓ More Productivity
 - Direct Communication 7890B ↔ 5977A
 - Protect system
 - Vent the system faster
 - Power save (Sleep/Wake)
 - MassHunter Software
 - Data Acquisition (Method/Sequence)
 - Data Analysis



New Extractor Ion Source for 5977

Why the Extractor EI Source?

Increase in ion count

- ✓ True increase in sensitivity



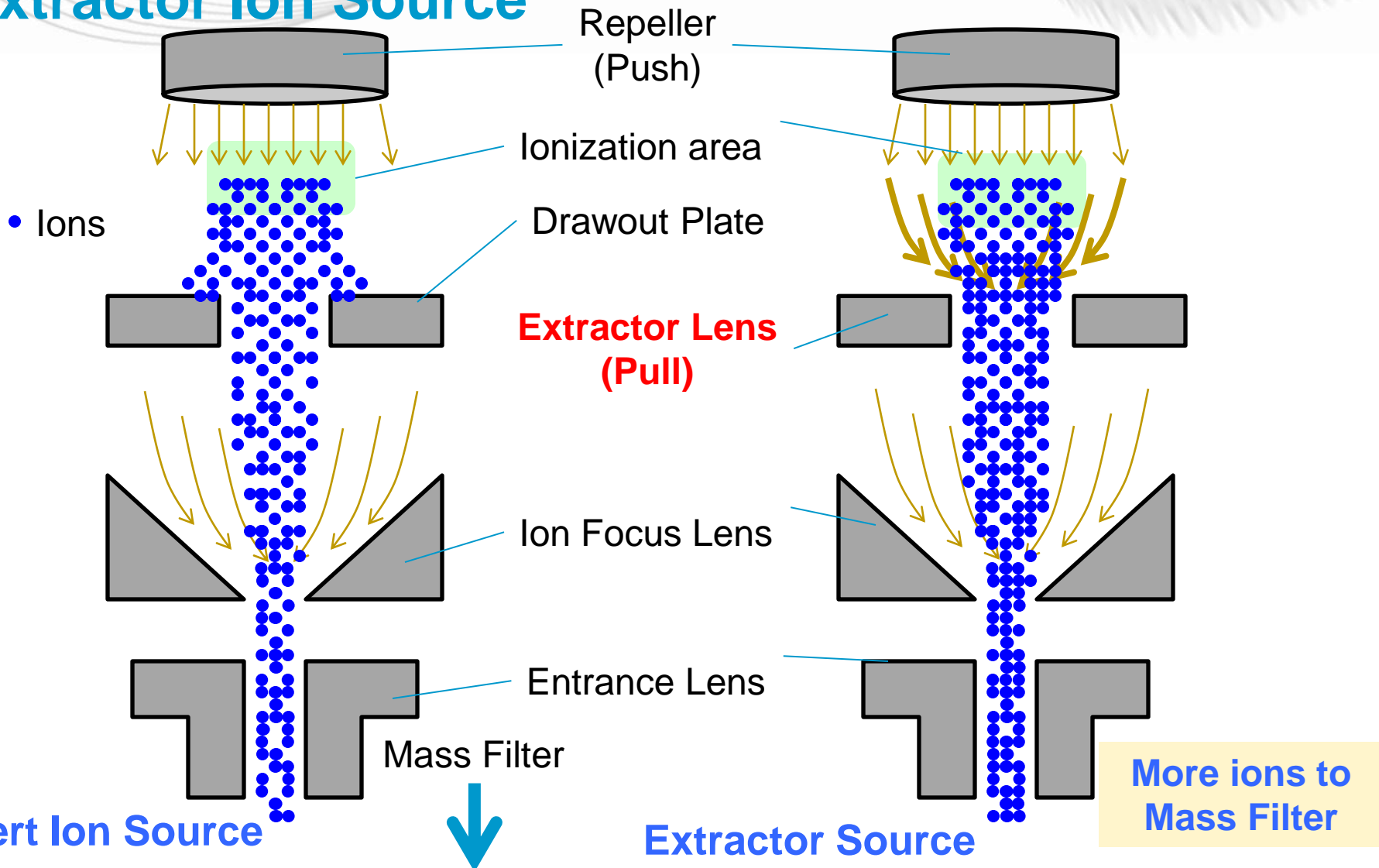
Better trace level precision

- ✓ Lower IDL and MDL



**Proven sensitivity increase demonstrated with
over 1500 7000 Series GC/TQ!**

Comparison between Inert Ion Source and Extractor Ion Source



Inert Ion Source

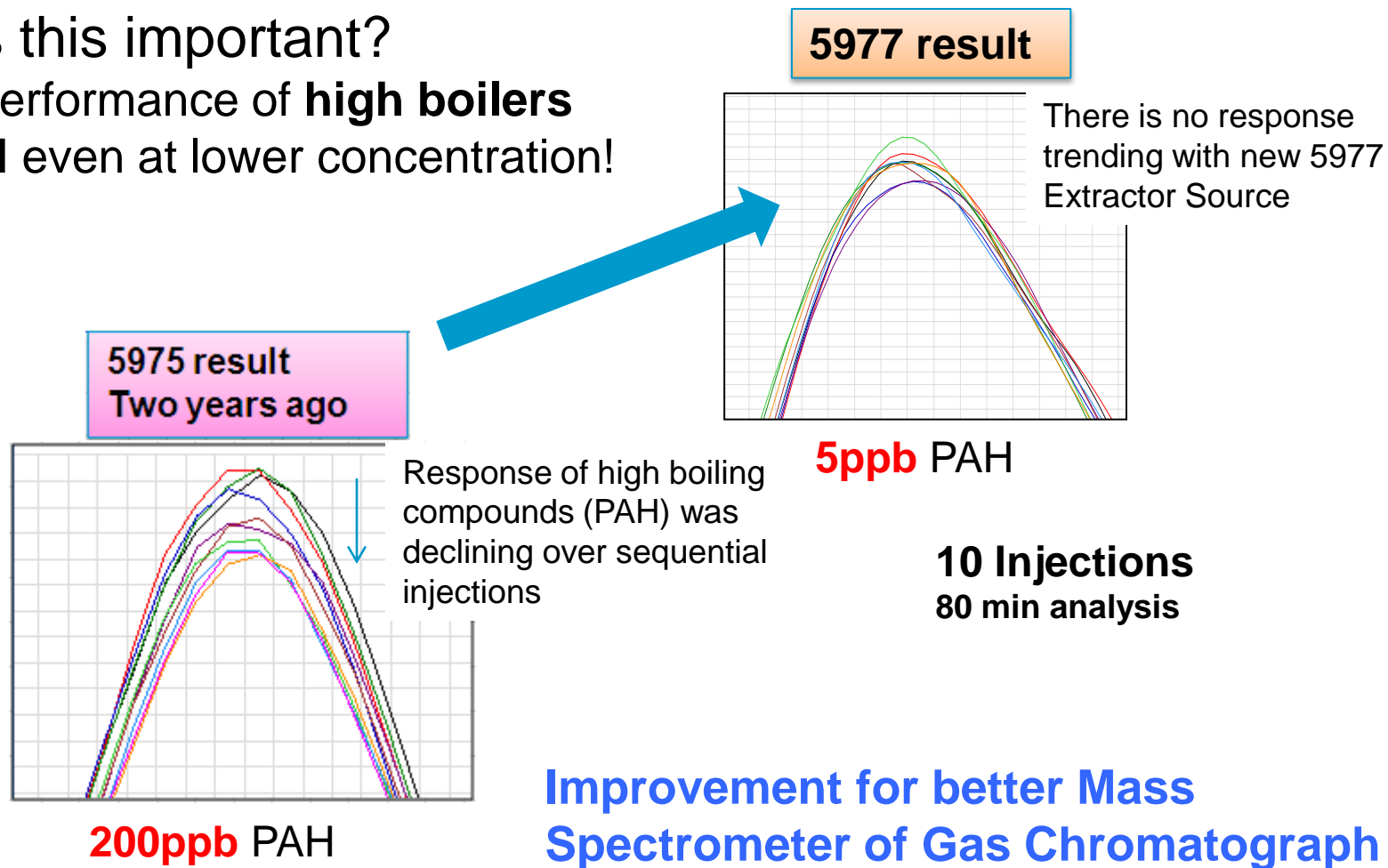
Extractor Source

More ions to Mass Filter

More improvements on 5977's Extractor Ion Source: Improved Thermal Profile

Why is this important?

Better performance of **high boilers**
i.e. PAH even at lower concentration!



New Agilent 5977 Series GC/MSD

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Better HW Features: Agilent Turbo Pump (V304)



Innovation for:

- **Higher pumping performance**
 - especially for He and H₂
- **High reliability**
 - lower cost of operation

Agilent Quality Standard

TwisTorr 304 FS

Press release : <http://www.agilent.com/about/newsroom/presrel/2012/19dec-ca12077.html>

Better HW Features: Agilent Rough Pumps



New DS42i

High performance
Energy saving design
“Inverter” mode not active with diff pump



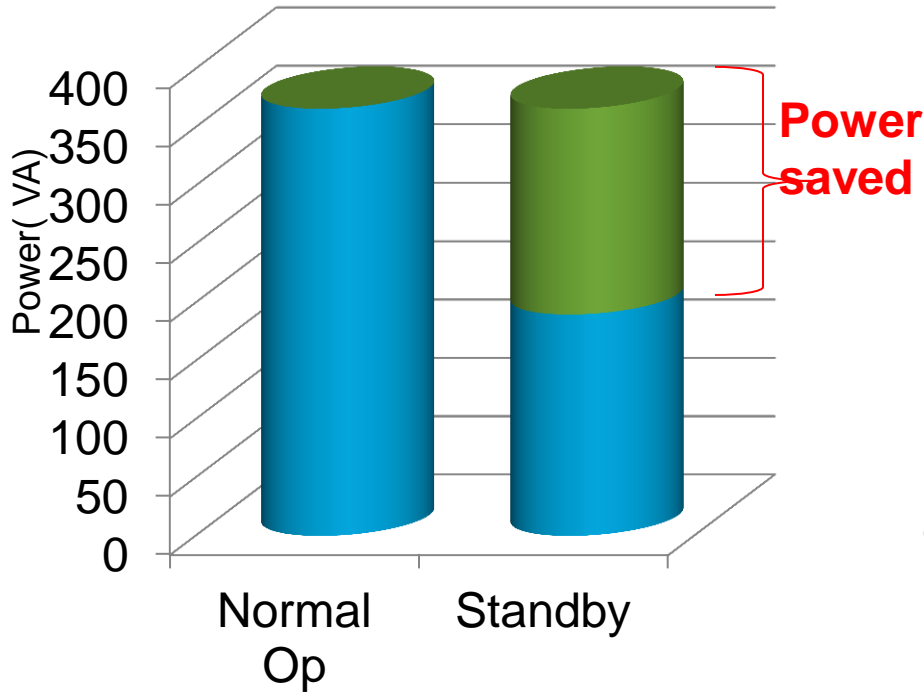
New IDP-3c

High performance
Oil-free scroll pump
NH₃ Cl compatible

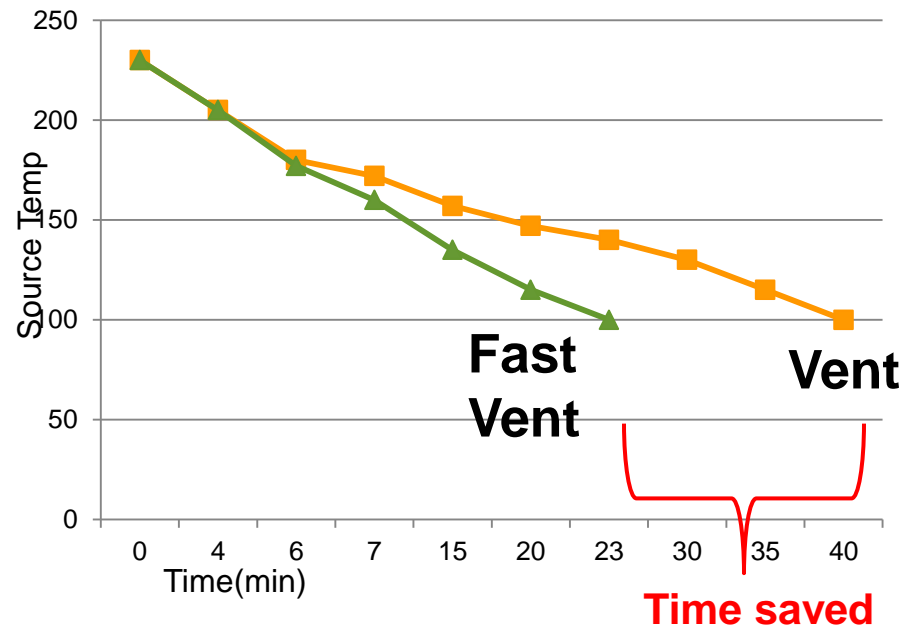
with Agilent Quality Standards

Saving Energy and Time

Power Consumption - 5977



Time saved using Fast Vent



Example of Cost simulation of saving power with Agilent 7890B/5977A at Environmental Lab

Assumptions

- GC/MSD cycle time: 40 minutes (30min for data acq./10 min for cool down & prep)
- Sample: 30 samples/day
- Working day: 5 days/week, no operating on Sat/Sun

GC/MSD wake time = 40 min/sample * 30 samples * 5 days/week
= 6,000 min/week = **100 hours/week**
= **32 kWh**

GC/MSD sleep time = 168 hours/week – 100 hours/week = **68 hours/week**
= **13 kWh**

Total Power usage (1 week) = 45 kWh (with Sleep mode)

Total Power Usage (1 week) = 54 kWh (without Sleep mode)

Weekly MS Power saving per instrument = 9kWh (17%)

New Agilent 5977 Series GC/MSD

What is new with 5977?

- ✓ Better Performance
 - High Sensitive Extractor Ion Source
 - Improved Agilent Vacuum Pump
- ✓ More Productivity
 - **Direct Communication 7890B ↔ 5977A**
 - Protect system
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 - MassHunter Software
 - Data Acquisition (Method/Sequence)
 - Data Analysis



Key features of “Direct Communication” between 7890B and 5977A



Sleep/Wake mode

- In sleep mode, MSD will go to the Power save mode (320W → 190W)
 - Laboratory Operating Cost Reduction (see the previous slide for detail)

Safety Control

- If 5977A MSD Pumps fail, 7890B will shut off the gas supply for protecting GC/MSD system.
 - Helium Carrier gas : This prevents wasting gas.
 - Hydrogen Carrier gas: This reduces the risk of explosion in MSD.

Cool Down MSD Faster (FastVent)

- When MSD Vent Cycle started, GC will cool down MSD analyzer at the optimum gas flow to MSD.
- → Less time to wait for cooling down MSD analyzer (40 min → 25 min when cooling down from 280C to 100C)

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 - **MassHunter Software**
 - Data Acquisition (Method/Sequence)
 - Data Analysis



MassHunter GC/MS Acquisition for GC/MSD

Unified GC/MS Acquisition and MassHunter Data Analysis; with MSD ChemStation workflow for GC/MSD



MassHunter
Quant Qual

MSD ChemStation

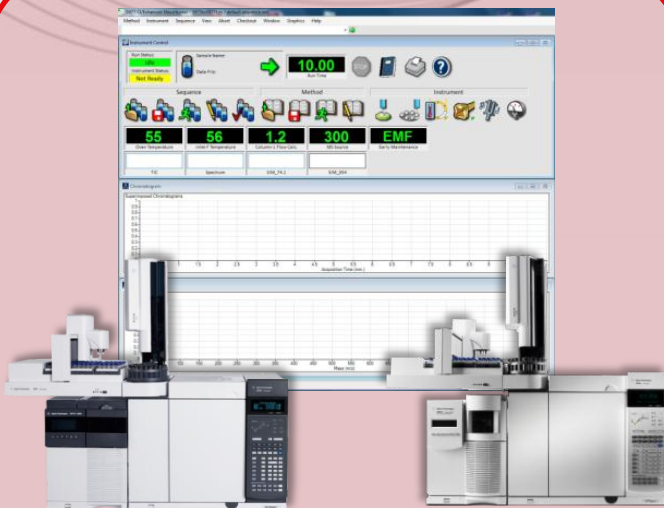
Familiar GC/MS Acquisition

Simplified MSD Method Editor

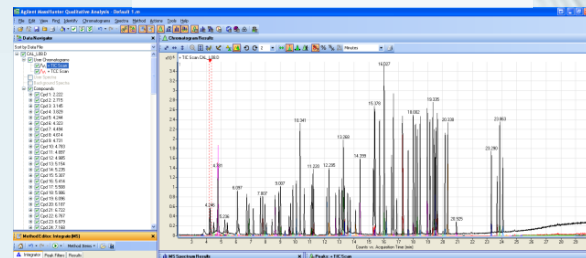
Comprehensive EMF (Including MS)

New GC Driver with Integrated Calculators

GC/MSD Software



MassHunter Qual

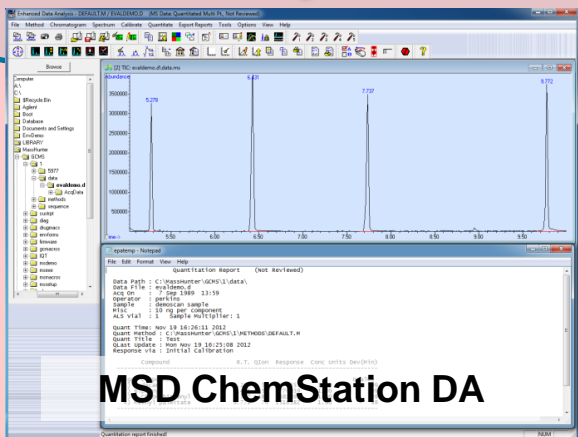


MassHunter Quant

Agilent MassHunter Quantitative Analysis - VDA - VolatileOrganics

Sample		Sample Type	Compound	Unit	Fluorobenzene	Dichlorobenzene	Chlorobenzene	Vinyl Chloride	Benzonitrile		
RT	Final Conc.	Accuracy	RT	Final Conc.	Accuracy	RT	Final Conc.	Accuracy	RT	Final Conc.	Accuracy
3.1	0.1725	94.8	4.480	0.1725	105.0	4.730	0.2524	57.0	5.231	1.0162	203.0
4.4	0.7456	74.4	4.482	1.3020	100.4	4.720	0.7893	74.0	5.237	1.2903	130.0
6.8	1.7223	68.8	4.470	1.2706	103.0	4.721	1.7066	67.0	5.235	4.4656	12.0
7.0	4.5017	90.0	4.496	5.1113	110.2	4.733	4.8911	97.0	5.240	5.2636	105.3
7.2	15.1203	103.0	4.493	15.1203	103.0	4.730	9.8111	96.2	5.231	9.3195	93.1
8.4	15.1922	118.0	4.484	15.1922	118.0	4.733	14.4384	103.8	5.235	13.5244	95.2
9.8	20.2956	101.5	4.484	15.5605	97.0	4.733	20.6427	103.2	5.240	20.0062	100.0
10.0	29.7917	99.0	4.480	29.3894	97.0	4.726	20.2267	100.0	5.239	20.4263	101.4
11.0	40.8956	102.4	4.493	39.1846	98.0	4.720	40.9444	103.4	5.237	39.6464	99.1
12.0	48.5854	97.0	4.489	51.1527	102.4	4.723	48.7623	97.0	5.236	50.5471	101.1
15.0	102.0250	4.493	10.5240	4.730	110.4034	5.244	9.3956				
15.0	4.489	4.7640	95.3	4.739	4.0186	80.4	5.235	3.9527	71.1		
Blank#01	Blank#02	Blank	6.200	0.1136	4.489	0.8416	4.730	0.1991	5.256	1.2636	
Blank#02	Blank	6.200	0.1974	4.482	0.2476	4.723	0.0060	5.230	0.8476		
SAMPLE01	SAMPLE01	Sample	6.200	0.2527	4.500	0.2527	4.730	0.0000	5.205	0.9960	
SAMPLE02	SAMPLE02	Sample	6.200	0.2527	4.486	0.1168	4.641	0.0000	5.245	0.9011	
SAMPLE03	SAMPLE03	Sample	6.480	0.2053	4.489	0.2053	4.730	0.0000	5.280	1.1762	
SAMPLE04	SAMPLE04	Sample	6.200	0.1739	4.471	0.1739	4.730	0.0000	5.262	1.0591	
SAMPLE05	SAMPLE05	Sample	6.200	0.2524	4.486	0.2524	4.734	0.2568	5.260	0.9641	

CS



MassHunter GC/MS Acquisition

And Use Either
MassHunter Data Analysis

OR

MSD ChemStation Data Analysis

G1701FA

MSD Productivity ChemStation OR MassHunter?

1-Year Software Maintenance Agreement

MSD ChemStation

Established Agilent GC/MSD User

- Adding instrument to routine production
- Established workflows
- **Macros, Macros, Macros**

DRS or Screener DB

EnviroQuant User

- Uses the US EPA workflow, especially reports and QA/QC criteria.
- *MassHunter EnviroQuant targeted for late 2013*

MassHunter

Look and feel of modern software

Superior Quantitation

21CFR11 & Other Regulated Labs

Multi disciplinary MS lab

- Have Agilent Triple Quad or (Q-)TOF
- LC/MS, ICP-MS, & GC/MS
- MS and MS/MS



The Value of G1701FA Software

All Inclusive G1701FA Software Package

- MassHunter GC/MS Acquisition
- MassHunter Quantitative Analysis
- MassHunter Qualitative Analysis
- MSD ChemStation Data Analysis
- 21CFR11 Compliance tools (Acquisition and MH Quantitative Analysis)
- GC/MS and LC/MS Translators

Collated User Information

- Workflow guides, Video Tutorials, all in one location

Support

- 1yr Upgrade, Updates, and Phone Support
- Training and Familiarization options

MSD ChemStation DA

MassHunter Qual

MassHunter Quant

Sample	Name	Data File	Type	Level	Acq. Date/Time	RT	Final Conc.	Accuracy	RT	Final Conc.	Accuracy	RT	Final Conc.	Accuracy
1	CAL_L03	CAL_L03.D	Cal	3	6/20/2008 4:53 AM	4.237	0.1736	94	4.489	0.7754	103	0.2575	819	1.0102
2	CAL_L04	CAL_L04.D	Cal	4	6/20/2008 5:33 AM	4.261	0.1466	74.6	4.452	1.0056	103.4	4.728	0.7957	824
3	CAL_L05	CAL_L05.D	Cal	5	6/20/2008 6:06 AM	4.240	1.723	85.3	4.470	2.0780	103.3	4.721	1.7066	86.5
4	CAL_L06	CAL_L06.D	Cal	6	6/20/2008 6:44 AM	4.257	4.5017	80.0	4.496	5.5113	110.2	4.733	4.8911	97.6
5	CAL_L07	CAL_L07.D	Cal	7	6/20/2008 7:21 AM	4.249	10.7001	103.0	4.493	4.720	83.03	98.0	93.33	93.1
6	CAL_L08	CAL_L08.D	Cal	8	6/20/2008 8:04 AM	4.244	15.9823	106.5	4.494	15.1976	103.3	4.733	15.4384	102.9
7	CAL_L09	CAL_L09.D	Cal	9	6/20/2008 8:41 AM	4.240	20.2996	101.5	4.494	18.5965	97.9	4.723	20.6497	103.0
8	CAL_L10	CAL_L10.D	Cal	10	6/20/2008 9:19 AM	4.245	25.7913	99.3	4.489	23.2934	97.4	4.725	26.2157	103.0
9	CAL_L11	CAL_L11.D	Cal	11	6/20/2008 9:57 AM	4.249	40.9500	102.4	4.493	39.1840	98.0	4.729	40.5484	102.4
10	CAL_L12	CAL_L12.D	Cal	12	6/20/2008 10:39 AM	4.248	48.9584	97.9	4.489	46.1762	102.4	4.723	46.782	97.6
11	QC_L07	CAL_L07.D	QC	7	6/20/2008 11:13 AM	4.247	10.2103	4.493	4.491	11.5740	4.730	10.8474	5.344	
12	QC_L06	QC_L06.D	QC	6	6/20/2008 11:50 AM	4.248	2.6323	51.3	4.493	4.7440	96.3	4.739	4.0159	80.4
13	Blank01	Blank01.D	Blank	6/20/2008 12:20 PM	4.269	0.1134	4.493	0.8418	4.730	0.1951	5.356	1.2038		
14	SAMPLE01	SAMPLE01.D	Sample	6/20/2008 1:07 PM	4.262	0.2476	4.492	0.8476	4.723	0.0000	5.330	0.8476		
15	SAMPLE01	SAMPLE01.D	Sample	6/20/2008 1:44 PM	4.900	0.2527	4.490	0.8418	4.730	0.0000	5.355	0.8568		
16	SAMPLE02	SAMPLE02.D	Sample	6/20/2008 2:22 PM	4.450	0.1653	4.491	0.8418	4.730	0.0000	5.345	0.8011		
17	SAMPLE03	SAMPLE03.D	Sample	6/20/2008 3:09 PM	4.450	0.2053	4.491	0.8418	4.730	0.0000	5.330	1.1752		
18	SAMPLE04	SAMPLE04.D	Sample	6/20/2008 3:38 PM	4.471	0.1736	4.491	0.8418	4.730	0.0000	5.352	1.0591		
19	SAMPLE05	SAMPLE05.D	Sample	6/20/2008 4:16 PM	4.436	0.2534	4.730	2.2985	5.350	0.9041				

Expanded Capabilities: 7890B/5977A

Improving the Industry Standards for GC/SQ

Higher Ion Count

- Extractor EI source
 - Increased ion count
 - S/N > 1500:1
 - IDL < 10 fg (*industry first*)
 - Improved thermal profile

Better Vacuum by Agilent Pump

- New Agilent V304 Turbo
 - TwisTorr
 - Molecular Drag technology
 - Improved pumping light gases
 - H₂ (220 L/s); He (255 L/s)
 - Agilent Floating Suspension
 - Longer life
 - Quiet operation

Safety/Protection

- Vacuum failure → Shut off gas (He or H₂)



Save Time & Energy

- Sequence Scheduler
 - “Standby” post run
 - “Ready to run” from standby
 - “Bake Mode” as needed
- Factory backflush option
- Fast Vent capability
- DS42i rough pump “standby” power reduction

Faster Scanning

- 20,000 u/s
 - But never equal to the 7200 Q-TOF speed or ‘scan’ sensitivity

7890B GC Features

- EMF, calculator, etc.

All of 5975’s features also built in 5977, such as “Gold Quad”, SIM/Scan, Gain tuning, Triple-Axis Detector, Trace Ion Detection, Auto CI, etc..