



USER TRAINING

ADVANCED – PART 1

P008/80D 04/2022



Agenda

➔ Instrument window

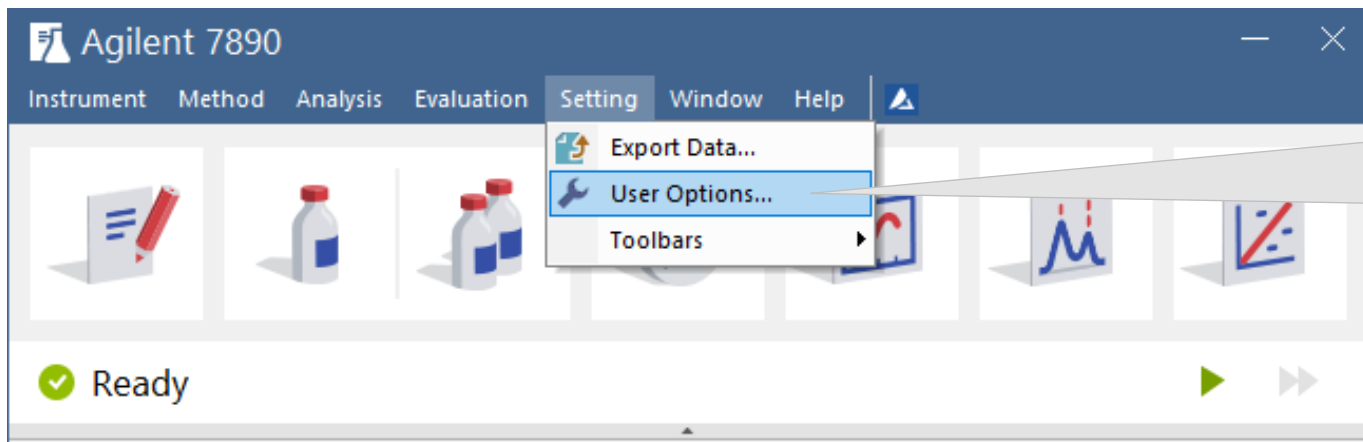
- ➔ Chromatogram window
 - Overlay, 3D View and Labels
 - Setup columns
 - User columns
 - Noise and Drift
 - Performance tab
 - Force peak function
 - Peak coloring
 - Graph properties

➔ Sequence table

- Overview
- Description of sequence window
- Basic functions
- Sequence mode
- Options
- Import
- Fill Series function



INSTRUMENT WINDOW → USER SETTINGS



User settings are stored in individual users desktop *.dsk files. For this reason they are set in the instrument window and not in the main Clarity window

Status: Ready to start run
Sent method: 7890a

Set user options and defaults

User Options (Admin - Clarity)

General | Graph | Axes Appearance | Signals & Curves | Gradient & Auxiliary Signals | Directories

- Show windows on the taskbar.
- Play sounds assigned to selected events.
- Send reports about unsuccessfully finished sessions.
- Request confirmation when opening old file formats.
- Warn when maximum zoom reached.
- Warn before running already measured sequence.
- Ask whether create new subdirectory after single run
- Warn when reusing a Standard Chromatogram in Calibration

Recent Files: 5

Mouse Wheel Step (in Graphs): 3

Limits: Chromatograms in Overlay: 20; Injections in Sequence: 1000

Counter (%n): Reset When Instrument Opening; Start at: 0, 1

Table Fonts: Use Default Font; Default Font...

Zoom Button: Left, Right

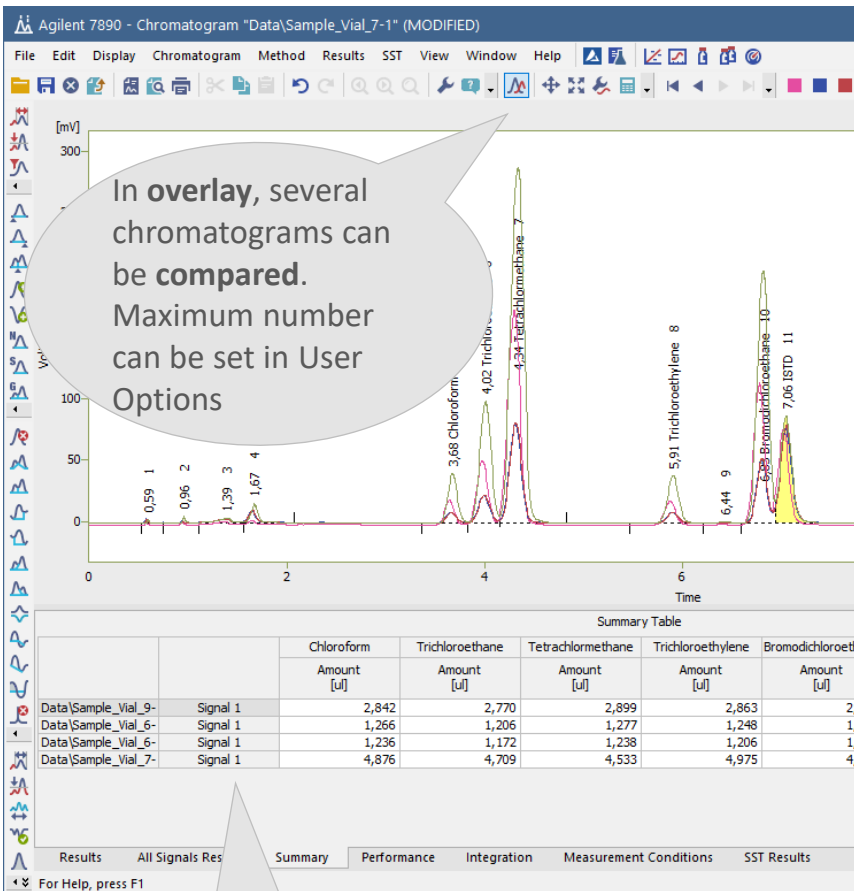
Left Button DoubleClick Means: Unzoom, Set Signal to Active, Show Properties Dialog

Chromatogram Cursors: Only Vertical Line, Arrows, Animated Arrows

Buttons: OK, Cancel, Apply, Help



CHROMATOGRAM WINDOW → OVERLAY



In **overlay**, several chromatograms can be **compared**. Maximum number can be set in User Options

Ctrl + click will **hide/show** the signal

Open Chromatogram - C:\Clarity_8.7\DataFiles\DEMO2\Data

Look In: Data

Name	Size	Type	Created	Last Change
Sample_1.prm	1290 kB	PRM Chromatogra...	10.12.2021 9:42	10.12.2021 9:42
Sample_2.prm	1306 kB	PRM Chromatogra...	10.12.2021 9:42	10.12.2021 9:42
Wine_Sample.prm	1210 kB	PRM Chromatogra...	10.12.2021 9:42	10.12.2021 9:42

File Name: Wine_Sample.prm

File Type: Chromatogram files (*.prm)

Version: #8; 04.02.2020 16:34:33, IA: 8.0 Rev.1 Recent (Linked Cali)

Signals:

- All signals
- UV detector
- RI detector

Open in Overlay

Replace Opened Chromatogram(s)

Browse Selected Chromatograms

Details for: Wine_Sample.prm

Created By:	Administrator	Created:	05.10.2007
Modified By:	Administrator	Modified:	14.12.2021
Sample ID:	Wine	Description:	Wine
Sample:	Sample	Time:	7,50 min
Signature:	Not signed	Has PDA Data:	No
GLP Mode:	Off	Has MS Data:	No

Summary table displays results for several chromatograms or **signals** **simultaneously**

Overlay can be activated also from **File open dialog**



CHROMATOGRAM WINDOW → OVERLAY - 3D VIEW

Agilent 7890 - Chromatogram "Data\Sample_Vial_7-1" (MODIFIED)

File Edit Display Chromatogram Method Results SST View Window Help

Global Peak Width
Global Threshold
Global Bunching
Baseline
Peak
Integration
Separation
Noise & Drift
Overlay
1 Data\Sample_Vial_9-1
2 Data\Sample_Vial_6-1
3 Data\Sample_Vial_6-2
4 Data\Sample_Vial_7-1
Chromatograms...
Measure Distance
Show Slope/Level
Create Label
Remove Label(s)
Merge...
Set Signal Names...

Move
Scale
Original
3D View
Clear 3D
Properties...
Mathematics...

Arrange overlaid chromatograms

Summary Table

		Chloroform	Trichloroethane	Tetrachloromethane	Trichloroethylene	Bromodichloroethane	ISTD
		Amount [ul]	Amount [ul]	Amount [ul]	Amount [ul]	Amount [ul]	Amount [ul]
Data\Sample_Vial_9-	Signal 1	2,842	2,770	2,899	2,863	2,823	ISTD
Data\Sample_Vial_6-	Signal 1	1,266	1,206	1,277	1,248	1,209	ISTD
Data\Sample_Vial_6-	Signal 1	1,236	1,172	1,238	1,206	1,176	ISTD
Data\Sample_Vial_7-	Signal 1	4,876	4,709	4,533	4,975	4,685	ISTD

Results All Signals Results Summary Performance Integration Measurement Conditions SST Results

Shift chromatograms in 3D

Agilent 7890 - Chromatogram "Data\Sample_Vial_7-1" (MODIFIED)

File Edit Display Chromatogram Method Results SST View Window Help

Voltage [mV]

Time

!!! Summary Table Some signals are hidden or moved/scaled !!!

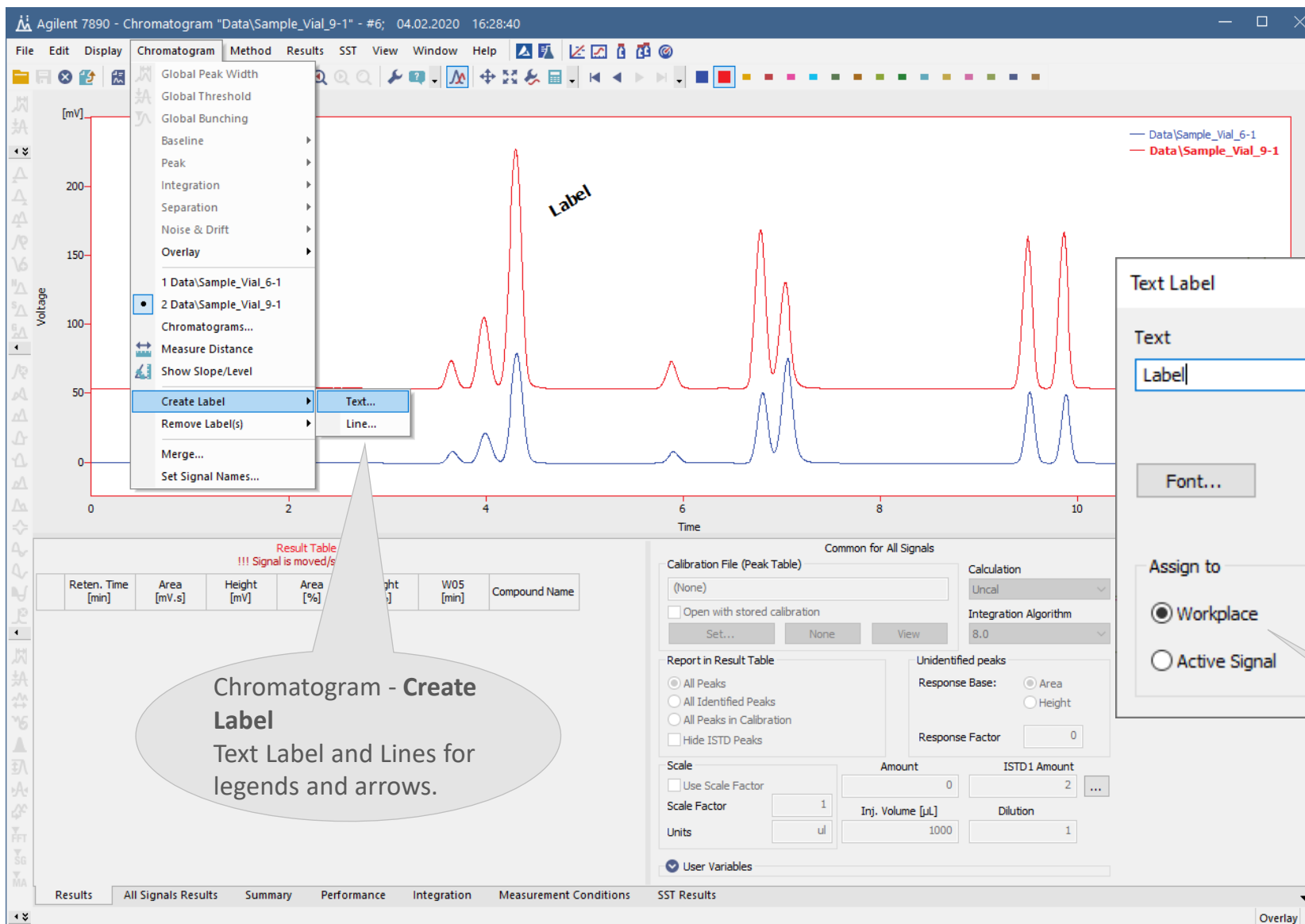
		Amount [N/A]

Results All Signals Results Summary Performance Integration Measurement Conditions

For Help, press F1



CHROMATOGRAM WINDOW → TEXT LABELS



Chromatogram - Create Label
Text Label and Lines for legends and arrows.

Text Label

Text
Label

Orientation
0 degrees

Font...

Assign to
 Workplace
 Active Signal

Anchor (Text Alignment)

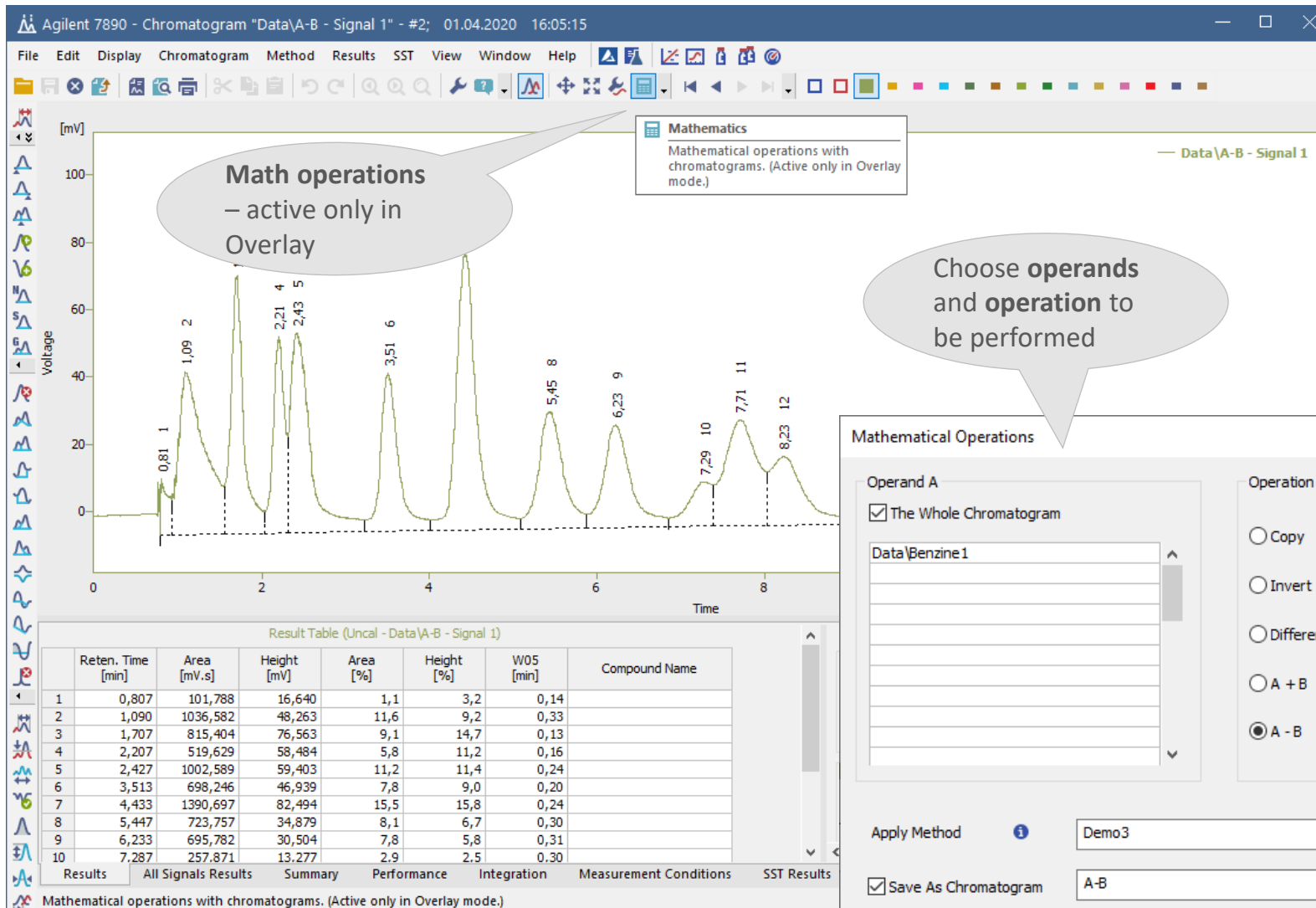
Text Alignment

OK
Cancel
Help

Label Assignment



CHROMATOGRAM WINDOW → MATHEMATICAL OPERATIONS





CHROMATOGRAM WINDOW → MOVE & SCALE

Agilent 7890 - Chromatogram "Data\2506MULTI - UV" - #7; 04.02.2020 16:28:35

File Edit Display Chromatogram Method Results SST View Window Help

!!! Signal is moved/scaled !!!

Reten. Time [min]	Start Time [min]	End Time [min]	Apex Value [mV]	Start Value [mV]	End Value [mV]	Area [mV.s]	Height [mV]	Area [%]

Common for All Signals

Calibration File (Peak Table)
250X8HR1
 Open with stored calibration
Set... None View

Calculation
ESTD

Integration Algo
8.0

Report in Result Table
 All Peaks
 All Identified Peaks
 All Peaks in Calibration

Unidentified peaks
Response Base: A
 H

Results All Signals Results Summary Performance Integration Measurement Conditions SST Results

For Help, press F1

Overlay



CHROMATOGRAM WINDOW → SETUP COLUMNS

Columns **hidden** from display

Context menu invoked by **right mouse click** in table.

Hide selected column

	Reten. Time [min]	Response	Amount [g/l]	Amount% [%]	Peak Type	Compound
1	4,563	3,123	0,027	0,3	Ordnr	oxalic
2	5,203	253,32	1,609	16,8	Ordnr	citric
3	5,417	561,767	2,372	24,7	Ordnr	tartaric
4	6,300	217,399	1,181	12,3	Order	malic
8	8,160	177,151	1,181	12,3	Order	malic
9	8,550	193,934	1,181	12,3	Order	malic
11	10,347	152,602	1,181	12,3	Order	malic
C11	12,710					
	Total		9			

Setup Columns

Table Properties

Hide Value Units

Hide Columns

- Start Time [min]
- End Time [min]
- Apex Value [mV]
- Start Value [mV]
- End Value [mV]
- Area [mV.s]
- Height [mV]
- Area [%]
- Retention [%]
- W05 [min]
- RB
- Reten. Index [-]
- Centroid [min]
- Variance [min²]
- Skew [-]
- Excess [-]
- Asymmetry [-]
- Capacity [-]

Show Columns

- Reten. Time [min]
- Response
- Amount [g/l]
- Amount% [%]
- Peak Type
- Compound Name

User Columns

Add...

Edit Selected

Delete Selected

Selected Column(s) Properties

Show Value Units

Use Default Font

Font...

No.: Places Decimal Places

Preview

OK Cancel Default Help

Change order of the columns



CHROMATOGRAM WINDOW → USER COLUMNS

Custom calculations using **User columns**

Context menu invoked by **right mouse click** in table

	Reten. Time [min]	Response	Area	Amount% [%]	Peak Type	Compound Name
1	4,563	3,613	0,027	0,3	Order	
2	5,203	253,325	1,609	16,8	Order	
3	5,417	561,767	2,372	23,7	Order	
4	6,300	217,399	1,181	12,5	Order	
8	8,160	177,151	1,126	11,7	Order	
9	8,550	193,934	1,970	20,5	Order	
11	10,347	152,602	1,312	13,7	Order	
C11	12,710					
Total			9,596	100,0		

Special values for advanced features

Large variability using user and method variables



CHROMATOGRAM WINDOW → USER COLUMNS

Calculating Relative Retention Time (RRT)

Calculated RRT

Setup User Column using Special Values, Compound option

Agilent 7890 - Chromatogram "Data\2506MULTI - UV" - #6; 04.02.2020 16:28:35

File Edit Display Chromatogram Method Results SST View Window Help

100 [mV]
90
80
70
60
50
40
30
0

4,56 oxalic 1
5,20 citric
5,42 tartaric
6,30 malic 4
8,16 succinic 8
8,55 lactic 9
8,98
10

Time

Result Table (ESTD - Data\2506MULTI - UV)

	Reten. Time [min]	Response	Amount [g/l]	Amount% [%]	Peak Type	Compound Name	RRT
1	4,563	3,613	0,027	0,3	Ordnr	oxalic	0,877
2	5,203	253,325	1,609	16,8	Ordnr	citric	1,000
3	5,417	561,767	2,372	24,7	Ordnr	tartaric	1,041
4	6,300	217,399	1,181	12,3	Ordnr	malic	1,211
8	8,160	177,151	1,126	11,7	Ordnr	succinic	1,568
9	8,550	193,934	1,970	20,5	Ordnr	lactic	1,643
11	10,347	152,602	1,312	13,7	Ordnr	acetic	1,988
C11	12,710					methanol	2,443
	Total		9,596	100,0			11,771

Add User Column

Title: RRT Units:

Calculate Total

Expression:

Oper: + * / > < = > < > < > < >

Funcs: abs acos asin atg cos exp ln log max min round sin sqrt

Columns: Peak Number Reten. Time Amount Amount% Centroid Variance Skew Excess Asymmetry Capacity Efficiency Eff/ Summetry/Tailing

Variables: Sample Amount Sample Dilution Injection Volume ISTD1 Amount ISTD2 Amount ISTD3 Amount ISTD4 Amount ISTD5 Amount ISTD6 Amount ISTD7 Amount ISTD8 Amount ISTD9 Amount ISTD10 Amount

Special Values

Response based: Area Height

Response Factor:

Scale: Use Scale Factor Scale Factor: Units:

Amount [g/l]: ISTD1 Amount [g/l]:

Inj. Volume [µL]: Dilution:

User Variables

Results All Signals Results Summary Performance Integration Measurement Conditions SST Results

For Help, press F1



CHROMATOGRAM WINDOW → NOISE AND DRIFT

The screenshot shows the Agilent 7890 Chromatogram software interface. The main window displays a chromatogram with several peaks labeled with retention times: 3.66 Chloroform, 3.99 Trichloroethane, 4.31 Trichloroethane, and 5.90 Trichloroethylene. A 'Noise & Drift' menu is open, showing options like 'Noise Evaluation', 'ASTM Noise Evaluation', and '6-Sigma Noise Evaluation'. An 'Add User Column' dialog box is also open, showing the expression $[Height]/[Noise]$ and a list of variables including 'Noise'. A 'Result Table' is visible at the bottom, showing data for various peaks, including an entry for 'Noise (6,41-7,17 min): 74,4893 [mV]'.

Result Table (ISTD - Data\Sample_Vial_6-1)
Noise (6,41-7,17 min): 74,4893 [mV]

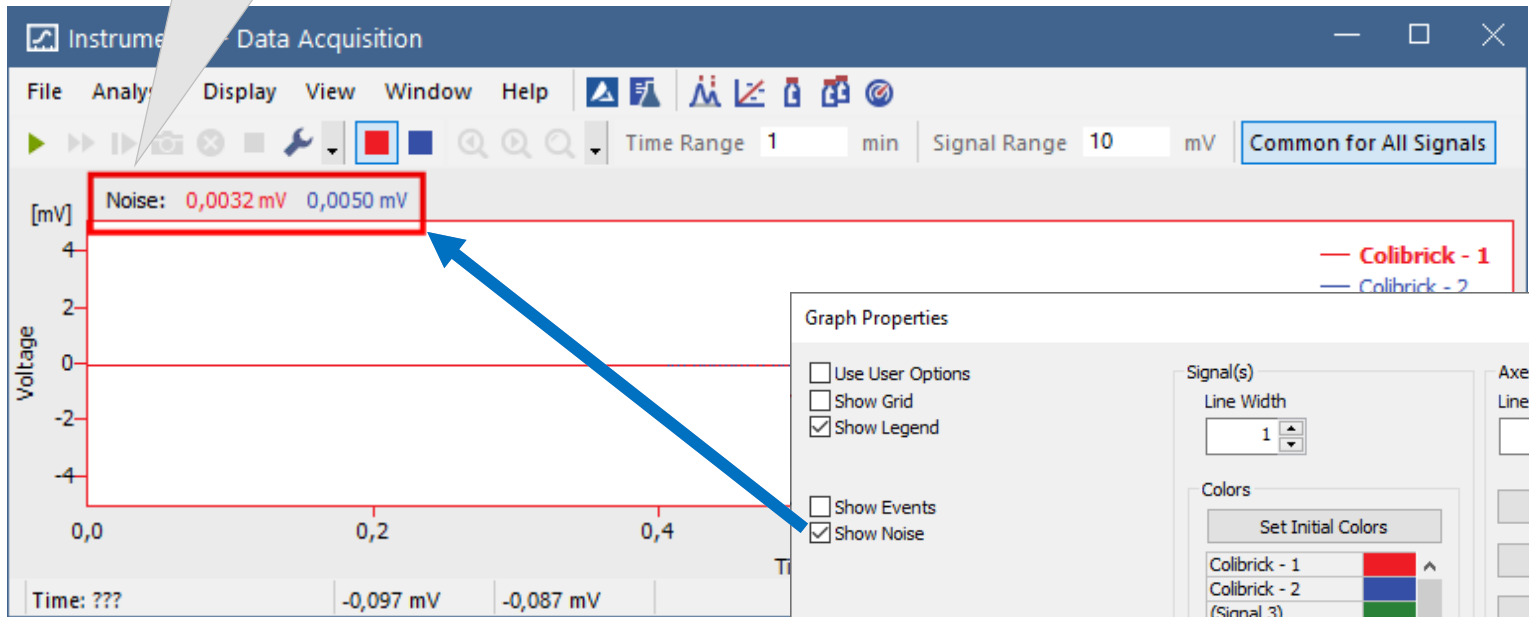
Reten. Time [min]	Response	Amount	Amount% [%]	Peak Type	Compound Name	S/N
4	3,660	63,390	14,5	Ordnr (by ISTD)	Chloroform	0,115
5	3,993	185,250	13,8	Ordnr (by ISTD)	Trichloroethan	0,296
6	4,317	688,950	11,6	Ordnr (by ISTD)	Tetrachloromet	1,073
7	5,903	1,011	0,07	Ordnr (by ISTD)	Trichloroethyle	0,111
8	6,810	0,687	0,05	ISTD	Bromodichloro	0,687
9	7,010	1,020	0,07	ISTD	Bromodichloro	1,020
10	9,010	0,693	0,05	ISTD	Tetrachloroeth	0,693
11	9,010	0,670	0,05	ISTD	Dibromochloro	0,670
Total		4,666				4,666

Drift and Noise displayed for selected intervals in Result table header

Drift and Noise can be used in User column calculations



Actual **noise monitoring** in the Data Acquisition window



Invoked by **right mouse click** in graph area

The 'Graph Properties' dialog box is open, showing various settings for the graph. The 'Show Noise' checkbox is checked. The 'Signal(s)' section shows a list of signals with their corresponding colors. The 'Axes' section shows 'Line Width' set to 1. The 'Background Colors' section shows 'Chart (waiting)' and 'Chart (running)' with 'Windows Default' selected. The 'Border' section shows 'Windows Default' selected. The 'OK', 'Cancel', and 'Help' buttons are at the bottom.

Signal(s)	Color
Colibrick - 1	Red
Colibrick - 2	Blue
(Signal 3)	Green
(Signal 4)	Yellow
(Signal 5)	Pink
(Signal 6)	Cyan
(Signal 7)	Light Green
(Signal 8)	Brown
(Signal 9)	Red
(Signal 10)	Dark Blue
(Signal 11)	Dark Green
(Signal 12)	Gold
(Signal 13)	Purple



CHROMATOGRAM WINDOW → ALL SIGNALS RESULT TABLE

Agilent 7890 - Chromatogram "Data\2506MULTI - RI" - #6; 04.02.2020 16:28:35

File Edit Display Chromatogram Method Results SST View Window Help

Displays results for all signals – not just active signal

— Data\2506MULTI - UV
— Data\2506MULTI - RI

100
90
80
70
60
50
40
30
0

0 5 10 15 [min]

5.20 citric 2
5.42 tartaric 2
6.05 glucose 3
6.30 malic 4
6.58 fructose 5
8.16 succinic 6
8.55 lactic 7
8.99 glycerol 8
10.33 acetic 9
12.71 methanol 10
14.83 ethanol 11

All Signals Result Table (ESTD - Data\2506MULTI)						
Signal Name	Reten. Time [min]	Response	Amount [g/l]	Amount% [%]	Peak Type	Compound Name
C1	RI	4,561				oxalic
1	UV	4,563	3,613	0,027	0,3	Ordnr oxalic
2	UV	5,203	253,325	1,609	16,8	Ordnr citric
1	RI	5,203	45,304	0,242	1,5	Ordnr citric
3	UV	5,417	561,767	2,372	24,7	Ordnr tartaric
2	RI	5,420	64,967	0,424	2,6	Ordnr tartaric
3	RI	6,053	69,369	0,581	3,5	Ordnr glucose
4	UV	6,300	217,399	1,181	12,3	Ordnr malic
4	RI	6,303	44,241	1,042	6,3	Ordnr malic
5	RI	6,580	83,122	0,610	3,7	Ordnr fructose
6	RI	8,157	44,988	0,239	1,5	Ordnr succinic
8	UV	8,160	177,151	1,126	11,7	Ordnr succinic
9	UV	8,550	193,934	1,970	20,5	Ordnr lactic
7	RI	8,550	37,328	0,726	4,4	Ordnr lactic
8	RI	8,900	46,461	1,123	6,8	Ordnr glycerol
9	RI	10,337	35,378	0,206	1,2	Ordnr acetic
11	UV	10,347	152,602	1,312	13,7	Ordnr acetic
C11	UV	12,710				methanol
10	RI	12,710	4,079	0,099	0,6	Ordnr methanol
11	RI	14,833	118,374	11,175	67,9	Ordnr ethanol
	UV	Total				
	RI	Total				
			9,596	100,0		
			16,467	100,0		

Common for All Signals

Calibration File (Peak Table)
250X8HR 1

Open with stored calibration

Set... None View

Calculation
ESTD

Integration Algorithm
8.0

Report in Result Table

All Peaks
 All Identified Peaks
 All Peaks in Calibration
 Hide ISTD Peaks

Unidentified peaks

Response Base:
 Area
 Height

Response Factor: 0

Scale

Use Scale Factor

Scale Factor: 1

Units: ul

Amount [g/l]: 0

ISTD1 Amount [g/l]: 0

Inj. Volume [µL]: 0

Dilution: 1

User Variables

Results All Signals Results Summary Performance Integration Measurement Conditions SST Results

For Help, press F1

Overlay



CHROMATOGRAM WINDOW → SUMMARY TABLE

Settings on **Summary tab** is compound specific

Settings on **Common tab** is for all compounds

		Sample Amount	Reten. Time [min]	Response
Data\Sample_Vial_6-	Signal 1	0,000	3,660	63,390
Data\Sample_Vial_7-	Signal 1	0,000	3,680	272,107
Data\Sample_Vial_9-	Signal 1	0,000	3,647	140,237



Summary Table Options

Table Inverted

Show All Signals

Report in Summary Table

All Identified Peaks

All Peaks in Calibration

OK Cancel

Chromatogram Header

Chromatogram / Signal

Signal / Chromatogram

		Data\Sample_Vial_6-	Data\Sample_Vial_7-	Data\Sample_Vial_9-
		Signal 1	Signal 1	Signal 1
Chloroform	Area [mV.s]	63,390	272,107	140,237
	Amount [ul]	1,266 ul	4,876 ul	2,842 ul
Trichloroethane	Area [mV.s]	185,250	806,068	419,318
	Amount [ul]	1,206 ul	4,709 ul	2,770 ul
Tetrachlormethane	Area [mV.s]	688,956	2725,112	1541,388
	Amount [ul]	1,277 ul	4,533 ul	2,899 ul
Trichloroethylene	Area [mV.s]	69,023	306,636	156,032
	Amount [ul]	1,248 ul	4,975 ul	2,863 ul
Bromodichloroethane	Area [mV.s]	378,298	1634,130	870,847
	Amount [ul]	1,209 ul	4,685 ul	2,823 ul
ISTD	Area [mV.s]	639,259	712,393	629,957
	Amount [ul]	ISTD	ISTD	ISTD



Summary Table Options

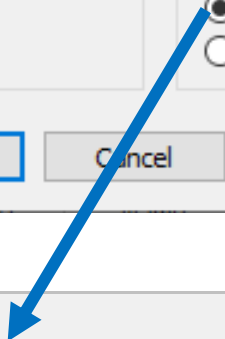
Table Inverted
 Show All Signals

Report in Summary Table
 All Identified Peaks
 All Peaks in Calibration

Chromatogram Header
 Chromatogram / Signal
 Signal / Chromatogram

Parameter Header
 Compound / Parameter
 Parameter / Compound

OK Cancel Help



	Sample Amount	Chloroform		Trichloroethane		Tetrachlormethane		
		Area [mV.s]	Amount [ul]	Area [mV.s]	Amount [ul]	Area [mV.s]	Amount [ul]	
Data\Sample_Vial_6-	Signal 1	0,000	63,390	1,266 ul	185,250	1,206 ul	688,956	1,277 ul
Data\Sample_Vial_7-	Signal 1	0,000	272,107	4,876 ul	806,068	4,709 ul	2725,112	4,533 ul
Data\Sample_Vial_9-	Signal 1	0,000	140,237	2,842 ul	419,318	2,770 ul	1541,388	2,899 ul



Summary Table Options

Table Inverted

Show All Signals

Report in Summary Table

All Identified Peaks

All Peaks in Calibration

Chromatogram Header

Chromatogram / Signal

Signal / Chromatogram

Parameter Header

Compound / Parameter

Parameter / Compound

OK Cancel Help

		Sample Amount	Area [mV.s]				
			Chloroform	Trichloroethane	Tetrachloroethane	Trichloroethylene	Bromodichloroethane
Data\Sample_Vial_6-	Signal 1	0,000	63,390	185,250	688,956	69,023	378,298
Data\Sample_Vial_7-	Signal 1	0,000	272,107	806,068	2725,112	306,636	1634,130
Data\Sample_Vial_9-	Signal 1	0,000	140,237	419,318	1541,388	156,032	870,847



CHROMATOGRAM WINDOW → PERFORMANCE TAB

Results – Performance parameters

Performance tab

Method Setup Demo1 (MODIFIED)

Common for all detectors

Subtraction
Chromatogram: [None]
Matching: No Change

Column Calculations
Unretained Time: 0,6 [min]
Column Length: 30000 [mm]
 Statistical Moments
 From Width at 50%

User Variables
Variable 1: Name: MethodUserVar1, Value: 0
Variable 2: Name: MethodUserVar2, Value: 0
Variable 3: Name: MethodUserVar3, Value: 0

Chromatogram Data (Peak Labels):

- 1.57
- 1.65
- 3.66 Chloroform
- 3.99 Trichloroethane
- 4.32 Tetrachloromethane
- 5.90 Trichloroethylene

Column Performance Table (Statistical - Data\Sample_Vial_6-1)

Reten. Time [min]	Centroid [min]	Variance [min ²]	Skew [-]	Excess [-]	Efficiency [th.p]	Eff/I [t.p./m]	Compound Name
1	0,573	0,745	0,02	0,196	-1,665	20	1
2	1,407	1,339	0,008	-0,524	-0,215	201	7
3	1,650	1,674	0,008	1,684	2,832	342	11
4	3,660	3,663	0,0030	-0,514	2,053	4533	151 Chloroform
5	3,993	3,996	0,0030	-0,033	-0,162	5246	175 Trichloroethane
6	4,317	4,316	0,0036	0,468	1,875	5214	174 Tetrachloromethane
7	5,903	5,903	0,0048	-0,522	5,460	7233	241 Trichloroethylene
8	6,810	6,807	0,0023	-0,155	-0,242	20414	680 Bromodichloroethane
9	7,060	7,062	0,0044	1,485	7,624	11239	375 ISTD
10	9,520	9,518	0,0020	0,008	-0,012	44246	1475 Tetrachloroethylene
11	9,880	9,882	0,0023	1,941	4,228	42788	1426 Dibromochloromethane

Method Setup Dialog (Values used for Capacity ratio and Efficiency calculation):

- Unretained Peak Time: 0,6 [min]
- Column Length: 30000 [mm]
- Column Calculation: Statistical Moments

Calculation type

Values used for Capacity ratio and Efficiency calculation

Results All Signals Results Summary Performance Integration Measurement Conditions SST Results



CHROMATOGRAM WINDOW → FORCE PEAK NAME FUNCTION

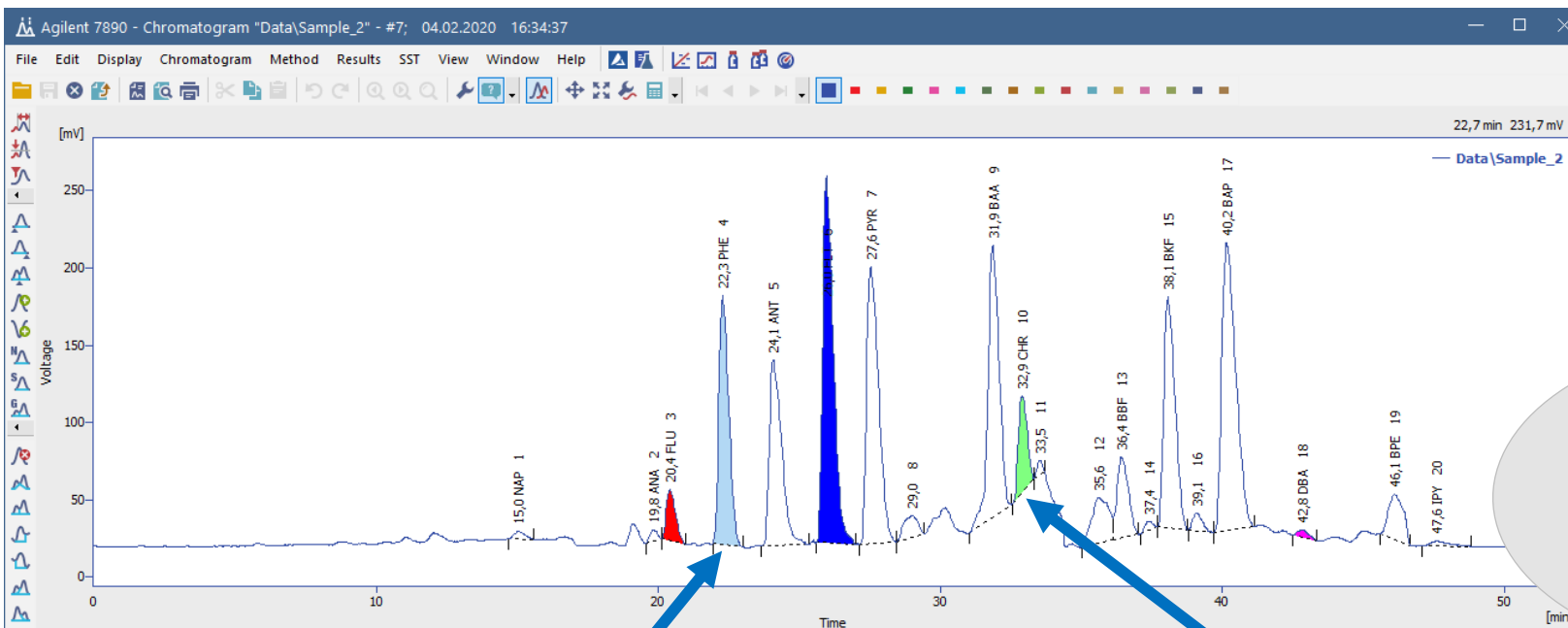
Chromatogram Operation	Time A [min]	Time B [min]	Value
Global Peak Width			0,100 min
Global Threshold			0,1000 mV
Global Filter - Bunching			2
Peak - Force Peak Name	7,060	0,050	ISTD

→ Name peaks without a calibration file or override identification by calibration

Select new Peak Identification



CHROMATOGRAM WINDOW → PEAK COLORING



Peaks in calibration can have a color assigned. When these peaks are identified in chromatogram they will be automatically colored

Result Table (ESTD - Data\Sample_2)

Reten. Time [min]	Response	Amount [ng/mL]	Amount% [%]	Peak Type	Compound Name	Is ISTD
1	15,033	129,837	N/A	N/A	NAP	???
2	19,817	127,165	17,970	0,6	Ordnr	ANA
3	20,417	773,934	27,606	1,0	Ordnr	FLU
4	22,283	3911,103	332,074	12,0	Ordnr	PHE
5	24,083	3634,580	76,649	2,8	Ordnr	ANT
6	25,967	6281,209	1199,296	43,3	Ordnr	FLT
7	27,550	5273,994	386,070	13,9	Ordnr	PYR
8	29,018	4821,062	172,677	6,2	Ordnr	BAA
9	31,867	1361,823	101,504	3,7	Ordnr	CHR
10	32,917	1361,823	101,504	3,7	Ordnr	CHR
11	33,511	1361,823	101,504	3,7	Ordnr	CHR
12	35,612	1482,470	121,867	8,6	Ordnr	BBF
13	36,433	1482,470	121,867	8,6	Ordnr	BBF
14	37,414	4090,483	60,689	3,5	Ordnr	BKF
15	38,083	4090,483	60,689	3,5	Ordnr	BKF
16	39,116	6393,280	146,863	5,3	Ordnr	BAP
17	40,167	6393,280	146,863	5,3	Ordnr	BAP
18	42,833	133,280	1,1	0,0	Ordnr	DBA
19	46,100	133,280	1,1	0,0	Ordnr	BPE
20	47,618	133,280	1,1	0,0	Ordnr	BPE

Peak selected in result table will be highlighted

Agilent 7890 - Calibration Calib\PAH_EPA <-- ISTD (MODIFIED)

File Edit Display Calibration View Window Help

Manual Recalib

Calibration Summary Table (15/0 - Calib\PAH_EPA - Signal 1)

Used	Compound Name	Reten. Time	Left Window	Right Window	Peak Type	Named Groups	Is ISTD	Use ISTD	Peak Color	LOD	LOQ	Response	Manual Resp.
1	<input checked="" type="checkbox"/> NAP	14,955	0,300 min	0,200 min	Ordnr		None			0,000	0,000	A	0,0000
2	<input checked="" type="checkbox"/> ANA	19,778	0,300 min	0,300 min	Ordnr		None			0,000	0,000	A	0,0000
3	<input checked="" type="checkbox"/> FLU	20,342	0,300 min	0,300 min	Ordnr		None			0,000	0,000	A	0,0000
4	<input checked="" type="checkbox"/> PHE	22,230	0,300 min	0,300 min	Ordnr		None			0,000	0,000	A	0,0000
5	<input checked="" type="checkbox"/> ANT	24,012	0,350 min	0,350 min	Ordnr		None			0,000	0,000	A	0,0000
6	<input checked="" type="checkbox"/> FLT	25,908	0,300 min	0,300 min	Ordnr		None			0,000	0,000	A	0,0000
7	<input checked="" type="checkbox"/> PYR	27,487	0,300 min	0,300 min	Ordnr		None			0,000	0,000	A	0,0000
8	<input checked="" type="checkbox"/> BAA	31,803	0,300 min	0,300 min	Ordnr		None			0,000	0,000	A	0,0000
9	<input checked="" type="checkbox"/> CHR	32,855	0,600 min	0,600 min	Ordnr		None			0,000	0,000	A	0,0000
10	<input checked="" type="checkbox"/> BBF	36,378	0,350 min	0,350 min	Ordnr		None			0,000	0,000	A	0,0000
11	<input checked="" type="checkbox"/> BKF	38,000	0,350 min	0,350 min	Ordnr		None			0,000	0,000	A	0,0000
12	<input checked="" type="checkbox"/> BAP	40,078	0,500 min	0,500 min	Ordnr		None			0,000	0,000	A	0,0000
13	<input checked="" type="checkbox"/> DBA	42,763	0,500 min	0,500 min	Ordnr		None			0,000	0,000	A	0,0000
14	<input checked="" type="checkbox"/> BPE	46,018	0,500 min	0,500 min	Ordnr		None			0,000	0,000	A	0,0000



CHROMATOGRAM WINDOW → PEAK COLORING

Graph Properties

Graph | Axes Appearance | Time Axis | Signal Axis | Signals | Gradient & Auxiliary Signals | Auxiliary Signal Details

Use User Options
 Preview Graph
 Show Workplace Labels
 Show Grid
 Show Legend
 Show Balloon Help
 Show Events
 Show Data Points

Baseline
 Line

 Marks
Color:
 As Active Signal
Select... [Color swatch]

Peak Tags
 Simplified Peak Tags
 Retention Time
 Name
 Peak Number
 Group ID
Enhanced Format...
Font...
 Font Color As Active Signal

Background Colors
Chart:
 Windows Default
Select... [Color swatch]
Border:
 Windows Default
Select... [Color swatch]

Peak Area Coloring
 Set by Calibration
 Highlight Selected Peaks in Graph

OK Cancel Apply Help

Highlight peaks selected in Results table or Graph

Peak Color set in Calibration file

The image shows the Agilent 7890 chromatogram software interface. The main window displays a chromatogram plot with peaks labeled at retention times 0.58, 0.94, 1.40, and 1.65. A context menu is open over the plot, listing options such as Baseline, Peak, Integration, Separation, Noise & Drift, Overlay, Previous Zoom, Next Zoom, Unzoom, Create Label, Remove Label(s), Use User Options, Preview Graph, and Properties... (highlighted with a blue arrow). The 'Properties...' option is linked to the 'Graph Properties' dialog box, which is shown in two overlapping instances. The top instance shows the 'Graph' and 'Time Axis' tabs. The 'Time Axis' tab is selected, showing options for 'Visible' (checked), 'Title', 'Units Type' (Use Instrument settings), 'Prefix', and 'Units' (min). The 'Offset & Scale' section shows 'Offset' (0,000000) and 'Scale' (1). The 'Range' section shows 'From' (0,000000) and 'To' (10,500000). The bottom instance of the dialog box shows the 'Time Axis' tab with the 'Visible' checkbox checked and the 'Units' dropdown set to 'min'. Callout boxes provide additional context: one points to the 'Properties...' option in the context menu, and another points to the 'Time Axis' tab in the dialog box.

Context menu invoked by right mouse click in the graph area of Chromatogram window

Time Axis properties setting



Graph Properties

Graph | Axes Appearance | Time Axis | Signal Axis | **Signals** | Gradient & Auxiliary Signals | Auxiliary Signal Details

Data\Sample_2

Use User Options
Set Initial Colors

Grey Out Inactive Signals

Scale Y Mode

- Preserve Signal Ratios
- Scale to All Signals
- Scale to Active Signal
- Scale Signals Separately

Scale Maximum to:
Maximum value

Scale Minimum to:
Minimum value

Show
 Show Labels

Line Width
1

Color...

Offset & Scale

X Offset: 0,000000 [min]
X Scale: 1
Y Offset: 0 [mV]
Y Scale: 1

Original

OK Cancel Apply Help

Signal scaling

Individual Signal settings
Scale and Move



CHROMATOGRAM WINDOW → GRAPH PROPERTIES → GRADIENT & AUXILIARY SIGNALS

The image shows two overlapping windows of the 'Graph Properties' dialog box. The top window is on the 'Gradient & Auxiliary Signals' tab, and the bottom window is on the 'Auxiliary Signal Details' tab. Callouts point to specific sections in both windows.

Gradient & Auxiliary Signals Tab (Top Window):

- Use User Options
- Show Auxiliary Signals
- Show Gradient
- Show Total Flow
- Show Y Axis for:
 - (do not show)
 - Auxiliary Signals
 - Gradient
 - Total Flow
- Solvent Colors:**
 - Solvent D: [Red swatch]
 - Solvent C: [Magenta swatch]
 - Solvent B: [Cyan swatch]
 - Solvent A: [Yellow swatch]
 - Set to Initial

Auxiliary Signal Details Tab (Bottom Window):

- Source:
 - from the Active Chromatogram Only
 - from All Open Chromatograms
- Common Settings by Auxiliary Signals Types:**

	From	To	Auto	Show
Flow			<input checked="" type="checkbox"/>	<input type="checkbox"/>
Pressure			<input checked="" type="checkbox"/>	<input type="checkbox"/>
Temperature			<input checked="" type="checkbox"/>	<input type="checkbox"/>
Voltage			<input checked="" type="checkbox"/>	<input type="checkbox"/>

- Override Settings for Opened Chromatograms:**

	From	To	Auto	Show	Use Co

Buttons: OK, Cancel, Apply, Help

Gradient display options

Auxiliary Signals options

Agenda

- ➔ Instrument window
- ➔ Chromatogram window
 - Overlay, 3D View and Labels
 - Setup columns
 - User columns
 - Noise and Drift
 - Performance tab
 - Force peak function
 - Peak coloring
 - Graph properties

- ➔ Sequence table
 - Overview
 - Description of sequence window
 - Basic functions
 - Sequence mode
 - Options
 - Import
 - Fill Series function



- Defines a **series of samples to be measured**
- Essential for working with **autosamplers**
- For controlled autosamplers the **Vial number** and **Injection volume** are loaded from this table
- **Graphical interface**

→ Allows **modifications** during a run for **not yet processed samples**

The 'Select Vial' window displays two 8x6 grids of vial numbers. The left grid contains vials 1-48, and the right grid contains vials 49-96. A legend on the right defines the colors for each vial's status: Available (white), First Destination (green), Reagent A (cyan), Reagent B (blue), Reagent C (yellow), Reagent D (orange), Transport (dark green), and Error (red). In the left grid, vial 10 is green, vial 1 is cyan, vial 2 is blue, vial 3 is yellow, and vial 4 is orange. The 'Current Vial' field at the bottom shows '1:B2'. Buttons for 'OK', 'Cancel', and 'Help' are located at the bottom of the window.



- Simply **add samples** by filling any field in the **last empty row**
- Other fields will be **copied from previous row**
- Several samples can be added by **copying from a table**
- Allows the **import** of sample data from text files
- Allows **reprocessing of last measured** sample set

	Status	Run	SV	EV	I/V	Sample ID	Sample	Sample Amount	ISTD1 Amount	Sample Dilut.	Inj. Vol. [µL]	File Name	Sample Type	Lvl	Method Name	Report Style	Open	Open Calib.	Print
1		<input checked="" type="checkbox"/>		1	1	1 Halocar...	Std_1	0,400	2,000	1,000	5,000	%Q	Stan	1	Demo1	Calibration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2		<input checked="" type="checkbox"/>		2	2	1 Halocar...	Std_2	1,000	2,000	1,000	5,000	%Q	Stan	2	Demo1	Calibration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3		<input checked="" type="checkbox"/>		3	3	1 Halocar...	Std_3	3,000	2,000	1,000	5,000	%Q	Stan	3	Demo1	Calibration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4		<input checked="" type="checkbox"/>		4	4	1 Halocar...	Std_4	5,000	2,000	1,000	5,000	%Q	Stan	4	Demo1	Calibration	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5		<input checked="" type="checkbox"/>		5	8	2 Halocar...	Sample	5,000	2,000	1,000	5,000	%Q Vial_...	Unkn		Demo1	Analysis	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6		<input type="checkbox"/>															<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

For Help, press F1

Single Analysis: No method sent - Ready to send method or start sequence | Vial: 1 / Inj.: 1

File Name:



SEQUENCE WINDOW → DESCRIPTION

Start, End vial and Injections number.

File name, automatic %variables for SV, EV, IV

Automatic recalibration from sequence

Individual Post-Run settings for each row

	Status	Run	SV	EV	I/V	Sample ID	Sample	Sample Amount	ISTD 1 Amount	Sample Dilut.	Inj. Vol. [µL]	File Name	Sample Type	Lvl	Method Name	Report Style	Open	Open Calib.	Print
1		<input checked="" type="checkbox"/>	1	1	1	Halocar...	Std_1	0,400	2,000	1,000	5,000	%Q	Standard	1	Demo1	Calibration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2		<input checked="" type="checkbox"/>	2	2	1	Halocar...	Std_2	1,000	2,000	1,000	5,000	%Q	Standard	2	Demo1	Calibration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3		<input checked="" type="checkbox"/>	3	3	1	Halocar...	Std_3	3,000	2,000	1,000	5,000	%Q	Standard	3	Demo1	Calibration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4		<input checked="" type="checkbox"/>	4	4	1	Halocar...	Std_4	5,000	2,000	1,000	5,000	%Q	Standard	4	Demo1	Calibration	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5		<input checked="" type="checkbox"/>	5	8	2	Halocar...	Sample	5,000	2,000	1,000	5,000	%Q Vial_...	Unknown		Demo1	Analysis	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6		<input type="checkbox"/>															<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

For Help, press F1

0,05 min - Running - Acquisition running Vial: 4 / Inj.: 1

File Name: Std_4

Several vials and/or injections defined on single row

Displays the state of the sequence – runtime etc.



SEQUENCE WINDOW → DESCRIPTION

Row status indicator

Run sequence starts a sequence (resets the status)

	Status	Run	SV	EV	I/V	Sample ID	Sample	Sample Amount	ISTD1 Amount	Sample Dilut.	Inj. Vol. [µL]	File Name	Sample Type	Lvl	Method Name	Report Style	Open	Open Calib.	Print
1		<input checked="" type="checkbox"/>	1	1	1	Halocar...	Std_1	0,400	2,000	1,000	5,000	%Q	Standard	1	Demo 1	Calibration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2		<input checked="" type="checkbox"/>	2	2	1	Halocar...	Std_2	1,000	2,000	1,000	5,000	%Q	Standard	2	Demo 1	Calibration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3		<input checked="" type="checkbox"/>	3	3	1	Halocar...	Std_3	3,000	2,000	1,000	5,000	%Q	Standard	3	Demo 1	Calibration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4		<input checked="" type="checkbox"/>	4	4	1	Halocar...	Std_4	5,000	2,000	1,000	5,000	%Q	Standard	4	Demo 1	Calibration	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5		<input checked="" type="checkbox"/>	5	8	2	Halocar...	Sample	5,000	2,000	1,000	5,000	%Q Vial_...	Unknown		Demo 1	Analysis	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6		<input type="checkbox"/>															<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

For Help, press F1

Single Analysis: Ready - Ready to start

Vial: 5 / Inj.: 1

File Name:

Use row, add new rows during sequence run

Tooltip with actual file name



SEQUENCE WINDOW → BASIC FUNCTIONS

Resume sequence
continues from last injection

Skip vial

Check Sequence

Agilent 7890 - Sequence Demo1

File Edit Sequence View Window Help

	Status	Run	SV	EV	I/V	Sample ID	Sample	Sample Amount	ISTD1 Amount	Sample Dilu.	Inj.Vol. [µL]	File Name	Sample Type	Lvl	Method Name	Report Style	Open	Open Calib.	Print
1		<input checked="" type="checkbox"/>	1	1	1	Halocar...	Std_1	0,4	2,000	1,000	5,000	%Q	Standard	1	Demo1	Calibration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2		<input checked="" type="checkbox"/>	2	2	1	Halocar...	Std_2	1	2,000	1,000	5,000	%Q	Standard	2	Demo1	Calibration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3		<input checked="" type="checkbox"/>	3	3	1	Halocar...	Std_3		2,000	1,000	5,000	%Q	Standard	3	Demo1	Calibration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4		<input checked="" type="checkbox"/>	4	4	1	Halocar...	Std_4		2,000	1,000	5,000	%Q	Standard	4	Demo1	Calibration	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
5		<input checked="" type="checkbox"/>	5	8	2	Halocar...	Sample		2,000	1,000	5,000	%Q	Unknown		Demo1	Analysis	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6		<input type="checkbox"/>															<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

For Help, press F1

0,06 min - Running Injection running Vial: 1 / Inj.: 1 File Name: Std_1

Stop sequence will stop the sequence run. Repeated Stop will stop the current analysis

Repeat Injection and Skip Vial only in active sequence



SEQUENCE WINDOW → BASIC FUNCTIONS

Use „Bypass“ to perform run without injection for startup and shutdown methods

Include in SST – perform SST test when injection is finished

Stored Calib. – chromatogram will be opened with stored calibration

	Status	Run	SV	EV	I/V	Sample ID	Sample	Sample Amount	ISTD1 Amount	Sample Dilut.	Inj. Vol. [µL]	File Name	Sample Type	Lvl	Method Name	Report Style	Open	Open Calib.	Print	Include in SST	Stored Calib.	Close All
1		<input checked="" type="checkbox"/>	1	1	1	Bypass		0,000	0,000	1,000	0,000	%s %J %P %Q	Bypass		Demo1		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2		<input checked="" type="checkbox"/>	1	1	1	Halocar...	Std_1	0,400	2,000	1,000	5,000	%s %J %P %Q	Standard	1	Demo1	Calibration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3		<input checked="" type="checkbox"/>	2	2	1	Halocar...	Std_2	1,000	2,000	1,000	5,000	%s %J %P %Q	Standard	2	Demo1	Calibration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4		<input checked="" type="checkbox"/>	3	3	1	Halocar...	Std_3	3,000	2,000	1,000	5,000	%s %J %P %Q	Standard	3	Demo1	Calibration	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5		<input checked="" type="checkbox"/>	4	4	1	Halocar...	Std_4	5,000	2,000	1,000	5,000	%s %J %P %Q	Standard	4	Demo1	Calibration	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6		<input checked="" type="checkbox"/>	5	8	2	Halocar...	Sample	5,000	2,000	1,000	5,000	%Q Val_%2v-%i	Unknown		Demo1	Analysis	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
7		<input type="checkbox"/>															<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

New file name variables
 %P – Project
 %s – Sequence
 %J – Method

Close All – close all currently opened chromatograms in overlay to prepare for next summary report



Passive sequence

- Clarity only expects Start signal, time of analysis is set on autosampler

Active sequence

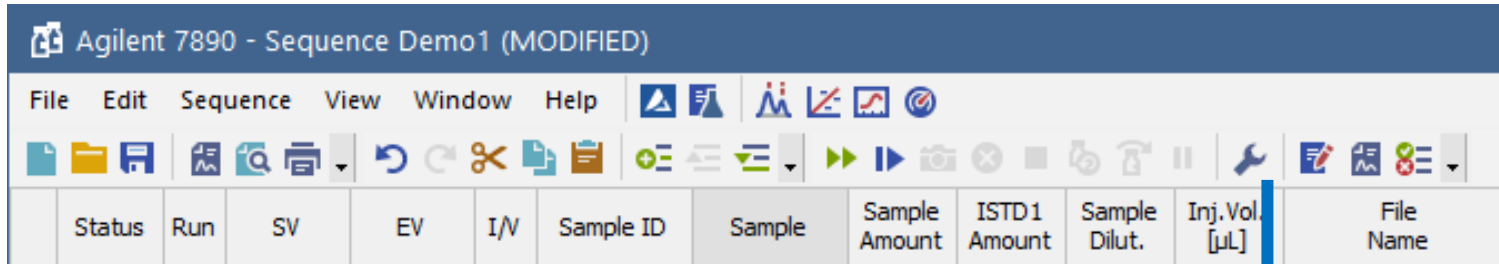
- Clarity sends a Ready signal to autosampler and waits for Start signal

AS control (Active sequence)

- Autosampler injects according to SV, EV, IV and Inj. Volume in sequence table



SEQUENCE WINDOW → OPTIONS



Options are:
- Active
- Passive

Initial value for %n

Defines mode of calibration applied for the whole sequence

Sequence Options

Sequence Mode
Active

Idle Time before First Injection
Idle Time: 0 [min]

Run Lines
1-5

Counter (%n)
Start at: 0 1
Reset when: Run Sequence Open Instrument Never
Current Value: 1

Format
 Automatically Manually

Calibration and Sequence Usage
 Calibration used as specified by user
 Clone on first recalibration (safe calibration usage)
 Standard Addition Measurement
 Calibration Bracketing

Description:

OK Cancel Help



SEQUENCE WINDOW → IMPORT

Agilent 7890 - Sequence Noname (MODIFIED)

File Edit Sequence View Window Help

- New Ctrl+N
- Open... Ctrl+O
- Save Ctrl+S
- Save As... Ctrl+Shift+S
- Send Sequence by E-Mail
- Import...**
- Export...
- Report Setup... Ctrl+Alt+P
- Print Preview... Ctrl+Shift+P
- Print To PDF...
- Send Printed PDF by E-Mail...
- Print... Ctrl+P
- 1 Demo1
- 2 Ethanol in blood
- 3 TC_SequenceFill
- Close Window

Import Sequence Step 1

File Name: C:\Clarity\DataFiles\DEMO1\Sequence.txt

Delimiter: <TAB> Decimal Delimiter: , <COMMA>

Preview: First Row Is Header

1	Run	SV	EV	I/V	Sample ID	Sample	Sample Amount	ISTD1 Amount	Sample I
2	1	1	1	1	Halocarbons	Std_1	0,400	2,000	
3	1	2	2	1	Halocarbons	Std_2	1,000	2,000	
4	1	3	3	1	Halocarbons	Std_3	3,000	2,000	
5	1	4	4	1	Halocarbons	Std_4	5,000	2,000	

Import Sequence Step 2

Column Matching:

Sequence Column	Imported Column
SV	SV
EV	EV
I/V	I/V
Sample ID	Sample ID
Sample	Sample
Comments	
Sample Amount	Sample Amount
ISTD1 Amount	ISTD1 Amount
ISTD2 Amount	
ISTD3 Amount	
ISTD4 Amount	
ISTD5 Amount	
ISTD6 Amount	
ISTD7 Amount	

Sequence

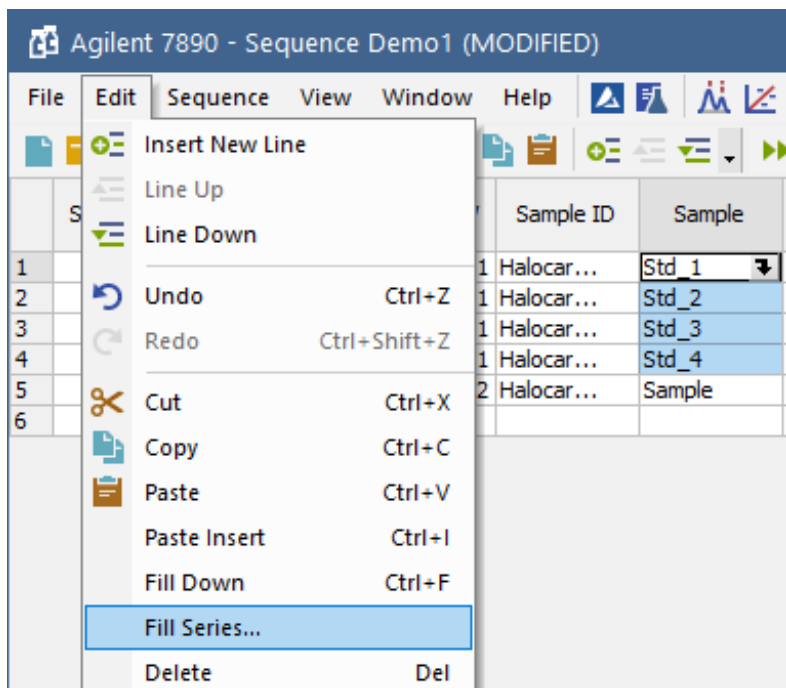
- Create New
- Append to Existing
- Save Sequence and Delete Import File
- Save Import Settings
- Show Sequence Options

Assign the **respective fields to be imported**. Only Start vial (SV) and file name must be set (marked in bold) Other fields will be filled by default values.

Select the file to import



SEQUENCE WINDOW → FILL SERIES

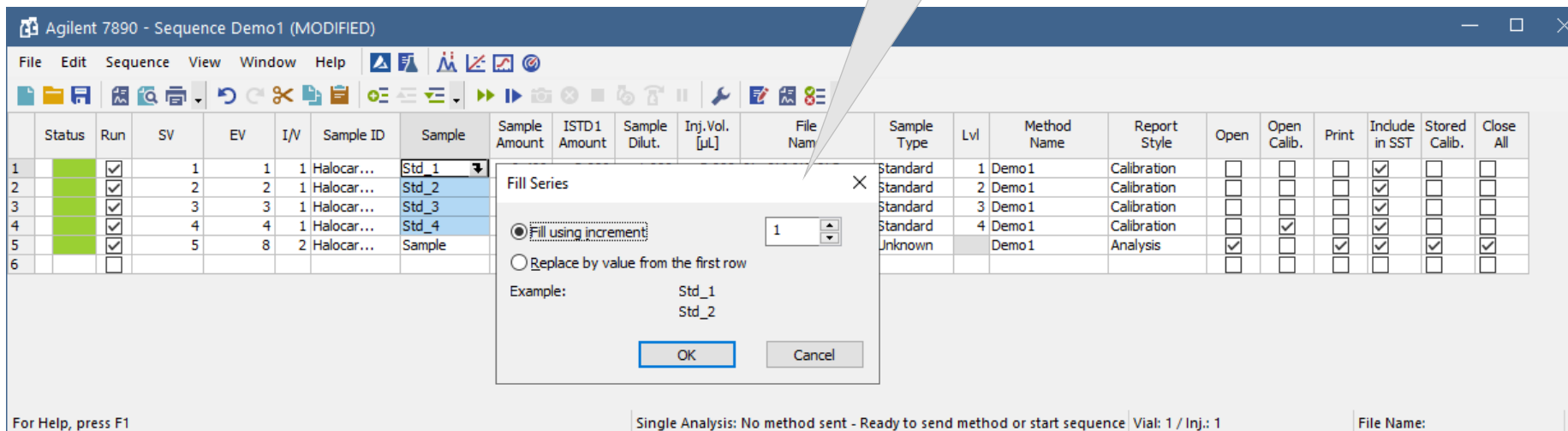


→ Tables - function **Fill Series...**

→ In **Sequence** window

→ In **Calibration** window

→ **Gradient Both** numeric and text fields





...THANK YOU FOR YOUR TIME



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