



What about the data management

26 November, 2015

KVCV: Dataflows in the lab

- Introducing Chromeleon 7
- User Interface
- eWorkflows™
- Data Processing and Reporting
- Samplemanager and Chromeleon
- Compliance
- Summary

Chromeleon CDS for your laboratory



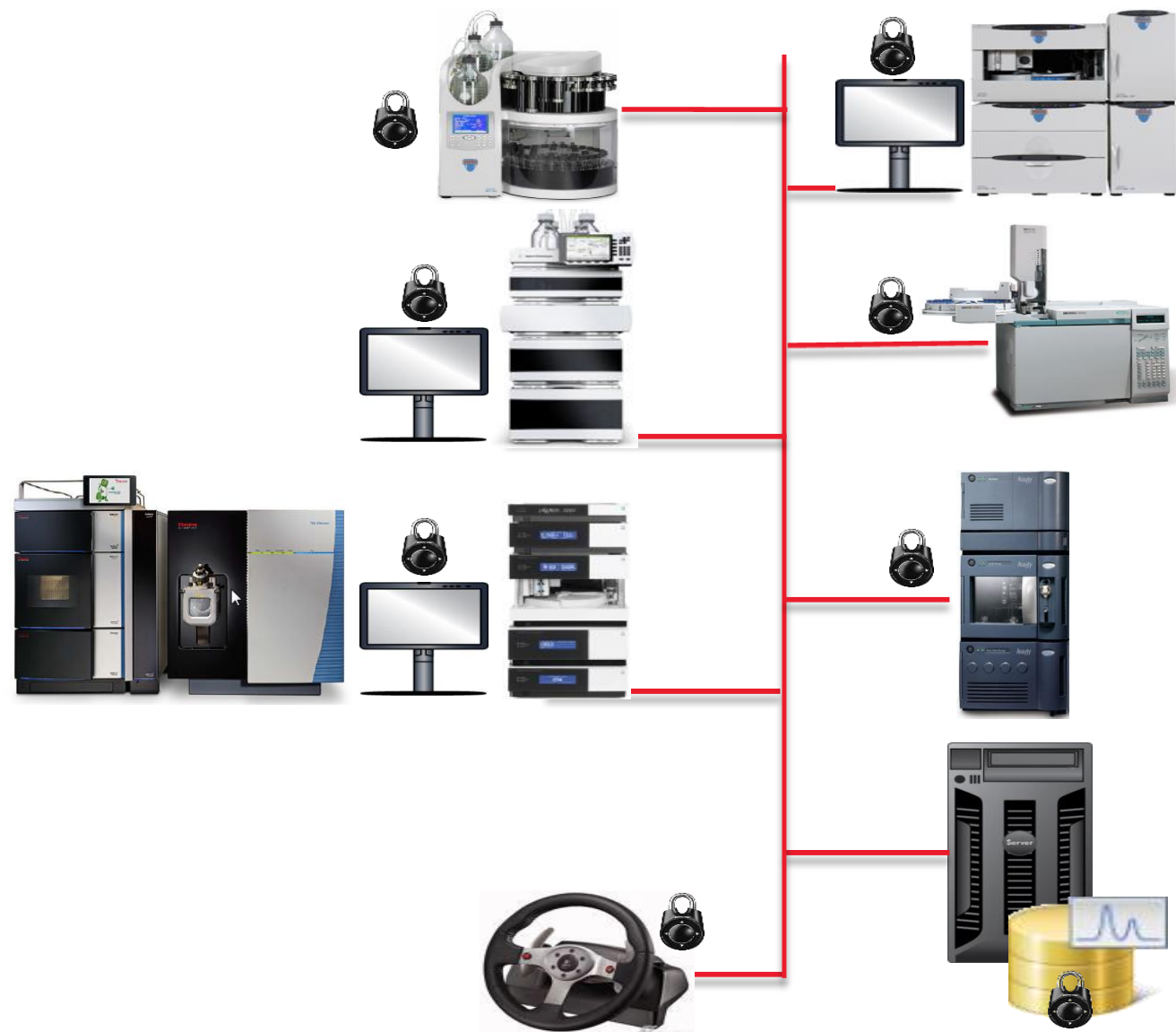


Stand alone or for your entire Enterprise



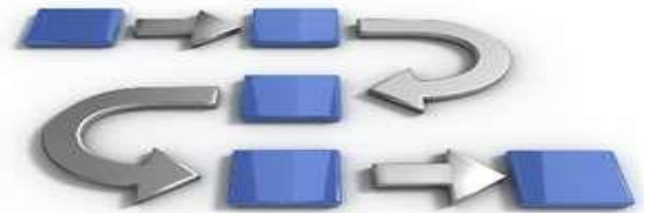
Key Features for an Enterprise Environment

- Networking capabilities
 - Central data storage
 - Choice of database
 - Acquiring data to a central Data Vault
 - Network failure protection
- Multiple Instrument Control
 - Instruments from different vendors
- Centralized Administration
 - License management, license server
 - User management
- Security
 - User management, access control
 - Electronic signatures



Key Features for an Enterprise Environment

- Archiving
 - Transfer of data to a long term archive
- Backup
 - Securing installation and configuration data for emergency restore
- Qualification
 - Installation, Operational and Performance Qualification
 - Both Software and Instruments
- Integration
 - LIMS, ELN
 - Custom tools





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S C I E N T I F I C

User Interface

Intuitive - Simple

The Chromeleon User Interface consists of two major parts:

- Chromeleon **Console**
- Chromatography **Studio**



The screenshot displays the Chromleon CDS Console interface for a '20130311 Water Analysis' sequence. The interface is divided into several sections:

- Navigation Pane (Left):** A tree view showing the project structure, including 'ChromleonData', 'Location 1', 'Lab B1 R143 - QC', 'Lab B1 R856 - R&D', 'Data', 'Anions', and '20130311 Water Analysis'.
- Table (Center):** A table with 10 rows and 11 columns. The columns are: #, ECD_1, Name, Type, Level, Position, Volume [µl], #Amount [mg/L] Chloride [ECD_1], #Chloride Amount Test [ECD_1], and Processing Me. The table contains data for calibration standards and water samples.
- Category Bars (Bottom):** A horizontal bar with three categories: 'Instruments', 'Data', and 'eWorkflows'. The 'Data' category is currently selected and highlighted in blue.
- Associated Items (Bottom):** A section showing a list of items related to the selected sequence, including 'Anions in Water', 'Anions in Water', 'AS12A Anions in Water', and 'AS12A Anions in Water'.

Two yellow callout boxes highlight the 'Navigation Pane' and 'Category Bars'.

#	ECD_1	Name	Type	Level	Position	Volume [µl]	#Amount [mg/L] Chloride [ECD_1]	#Chloride Amount Test [ECD_1]	Processing Me
1		Seven Anion Standard II - 1	Calibration Standard	01	RA1	25.0	0.141	Not Executed	AS12A Anions
2		Seven Anion Standard II - 2	Calibration Standard	02					
3		Seven Anion Standard II - 3	Calibration Standard	03					
4		Seven Anion Standard II - 4	Calibration Standard	04					
5		Seven Anion Standard II - 5	Calibration Standard	05	RA5	25.0	40.610	Not Executed	AS12A Anions
6		Seven Anion Standard II - 6	Calibration Standard	06	RB1	25.0	59.798	Not Executed	AS12A Anions
7		Drinking Water	Unknown		RB2	25.0	3.269	Passed	AS12A Anions
8		Tap Water	Unknown		RB3	25.0	12.887	Failed	AS12A Anions
9		Power Coolant Water	Unknown		RB4	25.0	n.a.	NA -> Passed	AS12A Anions
10		Power Coolant Water	Unknown		RB4	25.0	0.018	Passed	AS12A Anions

Integrated Sequence Editor

20130311 Water Analysis

#	ECD_1	Name	Type	Level	Position	Volume [µl]	#Amount [nr Chloride [EC
1		Seven Anion Standard II - 1	Calibration Standard	01	RA1	25.0	0.141
2		Seven Anion Standard II - 2	Calibration Standard	02	RA2	25.0	0.858
3		Seven Anion Standard II - 3	Calibration Standard	03	RA3	25.0	9.330
4		Seven Anion Standard II - 4	Calibration Standard	04	RA4	25.0	19.699
5		Seven Anion Standard II - 5	Calibration Standard	05	RA5	25.0	40.610
6		Seven Anion Standard II - 6	Calibration Standard	06	RB1	25.0	59.798
7		Drinking Water	Unknown		RB2	25.0	3.269
8		Tap Water	Unknown		RB3	25.0	12.887
9		Power Coolant Water	Unknown		RB4	25.0	n.a.
10		Power Coolant Water	Unknown		RB4	25.0	0.018

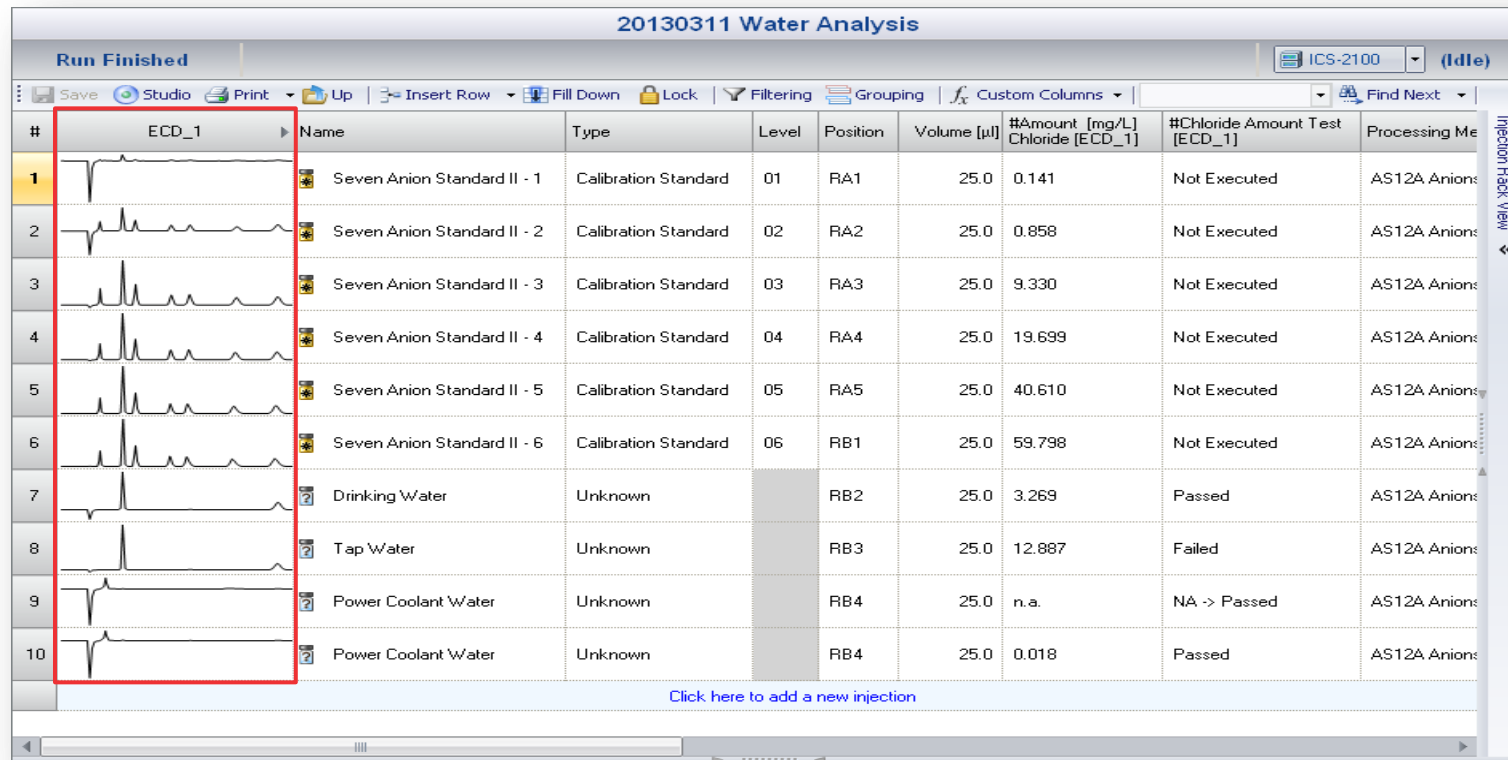
Click here to add a new injection

Name	Type	Date Modified	Comment
Anions in Water	View Settings	07-Oct-13 3:01 PM	
Anions in Water	Report Template	14-Mar-13 11:59 AM	
AS12A Anions in Water	Processing Method	07-Oct-13 11:53 AM	
AS12A Anions in Water	Instrument Method	22-Jul-10 2:03 PM	Instrument Method Anions in Water on AS12A column

Associated Items Custom Sequence Variables (0)

Working Area

Direct modification of Injection List



Proper and reproducible chromatography

Presence / absence of peaks

Quality of separation

Result Formula Columns – Quick Access to Results

20130311 Water Analysis

Run Finished ICS-2100 (Idle)

Save Studio Print Up Insert Row Fill Down Lock Filtering Grouping Custom Columns Find Next

#	ECD_1	Name	Type	Level	Position	Volume [μl]	#Amount [mg/L] Chloride [ECD_1]	#Chloride Amount Test [ECD_1]	Processing Me
1		Seven Anion Standard II - 1	Calibration Standard	01	RA1	25.0	0.141	Not Executed	AS12A Anions
2		Seven Anion Standard II - 2	Calibration Standard	02	RA2	25.0	0.858	Not Executed	AS12A Anions
3		Seven Anion Standard II - 3	Calibration Standard	03	RA3	25.0	9.330	Not Executed	AS12A Anions
4		Seven Anion Standard II - 4	Calibration Standard	04	RA4	25.0	19.699	Not Executed	AS12A Anions
5		Seven Anion Standard II - 5	Calibration Standard	05	RA5	25.0	40.610	Not Executed	AS12A Anions
6		Seven Anion Standard II - 6	Calibration Standard	06	RB1	25.0	59.798	Not Executed	AS12A Anions
7		Drinking Water	Unknown		RB2	25.0	3.269	Passed	AS12A Anions
8		Tap Water	Unknown		RB3	25.0	12.887	Failed	AS12A Anions
9		Power Coolant Water	Unknown		RB4	25.0	n.a.	NA -> Passed	AS12A Anions
10		Power Coolant Water	Unknown		RB4	25.0	0.018	Passed	AS12A Anions

Click here to add a new injection

Injection Rack View

View results without opening sequence data

Immediate SST result check

CmServiceAMS - Chromeleon Console

Back | Create | File | Edit | View | Tools | Help

Data | Filter

ChromeleonData

- Location 1
 - Lab B1 R143 - QC
 - Lab B1 R856 - R&D
 - Data
 - Additives
 - Amino_Acids
 - Aspirin
 - Calibration
 - GC
 - PAH
 - Spectra Sequences
 - System Tests
 - Water
 - Anions
 - 20130311 Water Analysis**
 - AS12A Calibration and Samples
 - Cations
 - Template Files
 - Lab B4 R056 - QC
- Location 2
- Location 3
- Control Chart Analysis 1
- Deleted Items

- ChromeleonLocal
- CM_BVC_local

Instruments

Data

eWorkflows

Sequence '20130311 Water Analysis' selected

20130311 Water Analysis

Run Finished

ICS-2100 (Idle)

Save | Studio | Print | Up | Insert Row | Fill Down | Lock | Filtering | Grouping | Custom Columns | Find Next

#	ECD_1	Name	Type	Level	Position	Volume [µl]	#Amount [mg/L] Chloride [ECD_1]	#Chloride Amount Test [ECD_1]	Processing Me
1		Seven Anion Standard II - 1	Calibration Standard	01	RA1	25.0	0.141	Not Executed	AS12A Anions
2		Seven Anion Standard II - 2	Calibration Standard	02	RA2	25.0	0.858	Not Executed	AS12A Anions
3		Seven Anion Standard II - 3	Calibration Standard	03	RA3	25.0	9.330	Not Executed	AS12A Anions
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5		Seven Anion Standard II - 5	Calibration Standard	05	RA5	25.0	40.610	Not Executed	AS12A Anions
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Click here to add

Associated Items Custom Sequence Variables (0)

Name	Type	Date Modified
Anions in Water	View Settings	
Anions in Water	Report Template	14-Mar-13 11:59 AM
AS12A Anions in Water	Processing Method	07-Oct-13 11:53 AM
AS12A Anions in Water	Instrument Method	22-Jul-10 2:03 PM

Instrument Method Anions in Water on AS12A column

CmServiceAMS: Full Access

Category Bars



- Provide immediate access to:
 - **Your instruments**

Category Bars – Easy Access

The screenshot displays the CmServiceAMS - Chromeleon Console interface. On the left, there is a sidebar with 'Instruments' and 'eWorkflows' sections. The main area features a top navigation bar with tabs like 'Home', 'PumpModule', 'Sampler', 'ColumnOven', 'UV', 'Audit', 'Startup', and 'Queue'. Below this, a status bar shows 'UltiMate3000_RS' and 'Chromeleon User'. The central part of the interface is divided into several ePanels: 'Pump (Flow On)' showing flow rate (3.70 ml/min) and pressure (595 bar); 'Oven' showing temperature (100 °C) and cooler status; and 'DAD-3000RS' showing wavelength settings (245, 254, 270, 300 nm) and UV/VIS status. To the right, a chromatogram plot shows 'mAU' vs 'min' with several peaks. Below the plot is a log table with columns for Date, Time, Retention Time, Device, and Message.

Date	Time	Retention Time	Device	Message
07-Oct-13	11:47:57	0.121	PumpModule.Pump	PumpModule.Pump.Curve = 5
07-Oct-13	11:47:57	0.121	PumpModule.Pump	PumpModule.Pump.%B.Value = 95.0
07-Oct-13	11:47:57	0.121	PumpModule.Pump	PumpModule.Pump.Flow.Nominal = 3.704
07-Oct-13	11:47:50	0.001	UV	Reading from simulation data file C:\Program File\Dionex\Chromeleon\bin\DDK\W1\Drivers\...
07-Oct-13	11:47:50	0.001	ColumnOven.Column_A	Log InjectionCounter: 13
07-Oct-13	11:47:50	0.001	ColumnOven.Column_A	Log CustomId: Demo

Control your instruments via intuitive ePanels



- Provide immediate access to:
- **Your data**

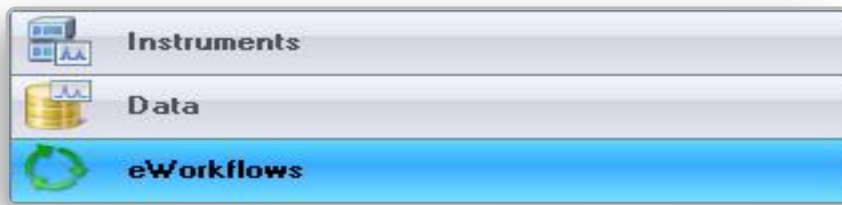
Category Bars – Easy Access

The screenshot displays the CmServiceAMS - Chromeleon Console interface. The main window shows a data table for '20130311 Water Analysis' with columns for #, ECD_1, Name, Type, Level, Position, Volume [µl], #Amount [mg/L] Chloride [ECD_1], #Chloride Amount Test [ECD_1], and Processing Me. The table lists various calibration standards and water samples. A sidebar on the left contains a tree view of data folders and a set of category bars for Instruments, Data, and eWorkflows. The Data category bar is highlighted in blue. Below the table, there is a section for 'Associated Items' with columns for Name, Type, Date Modified, and Comment.

#	ECD_1	Name	Type	Level	Position	Volume [µl]	#Amount [mg/L] Chloride [ECD_1]	#Chloride Amount Test [ECD_1]	Processing Me
1		Seven Anion Standard II - 1	Calibration Standard	01	RA1	25.0	0.141	Not Executed	AS12A Anions
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		Seven Anion Standard II - 5	Calibration Standard	05	RA5	25.0	40.610	Not Executed	AS12A Anions
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Name	Type	Date Modified	Comment
Anions in Water	View Settings	07-Oct-13 3:01 PM	
Anions in Water	Report Template	14-Mar-13 11:59 AM	
AS12A Anions in Water	Processing Method	07-Oct-13 11:53 AM	
AS12A Anions in Water	Instrument Method	22-Jul-10 2:03 PM	Instrument Method Anions in Water on AS12A column

Directly access your data and results



- Provide immediate access to:

- **Your eWorkflows**

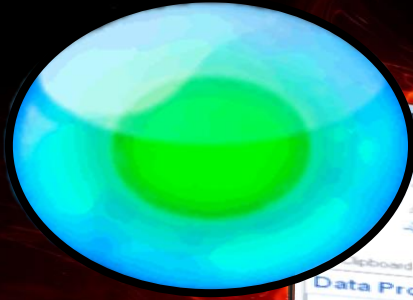
Category Bars – Easy Access

The screenshot shows the CmServiceAMS - Chromeleon Console interface. The main window displays the details for the 'RSLC Alkylphenone Linearity' workflow. The description states: 'This eWorkflow will create a sequence which contains an Alkylphenone Linearity Run on the Ultimate 3000 RSLC system.' The workflow type is 'HPLC' and its status is 'Approved for Use'. A 'Launch' button is visible, with a tooltip that reads '< Run 'RSLC Alkylphenone Linearity' using instrument 'ICS-2100' >'. Below this, a table shows the instrument status and queue status.

#	Instrument Name	Instrument Status	Sequence Status	Queue Status
1	ICS-2100	Idle		Pending sequences: 2

At the bottom of the table, a green text entry reads: 'RSLC Alkylphenone Linearity 2013-10-07 11:36:26 (Injection: 16 of 50)'. The left sidebar features three category bars: 'Instruments', 'Data', and 'eWorkflows', with 'eWorkflows' highlighted in blue. A yellow callout box is positioned over the 'eWorkflows' bar.

Start your runs via eWorkflows

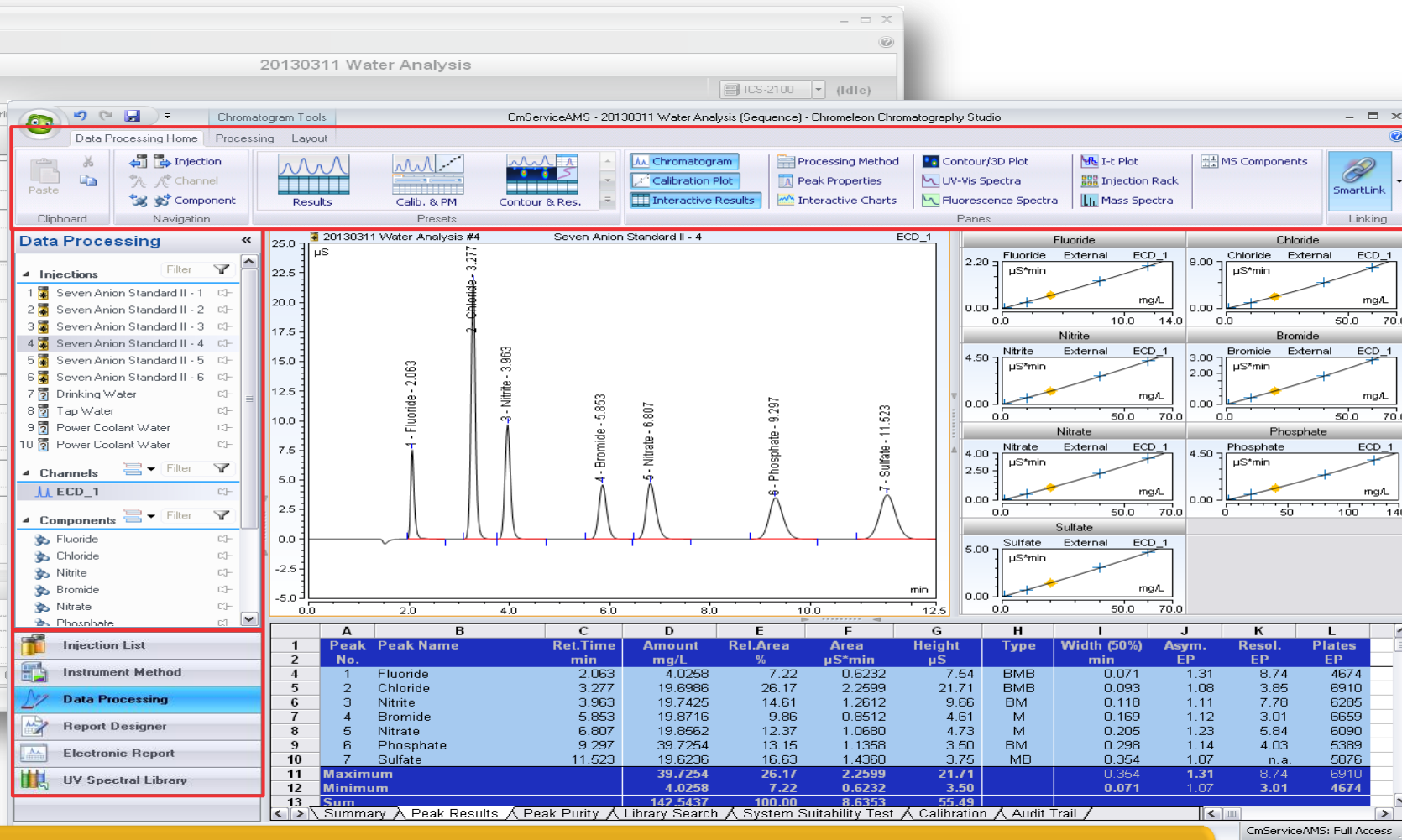


- Used for All Data Evaluation
- Provides access to every object in the sequence:
 - Injection List
 - Instrument Method
 - Processing Method
 - Results
 - Report Template
 - Electronic Report
 - Spectral Library
- Opens in separate window on task bar – makes working with multiple sequences easy
- Uses new “Ribbon” technology introduced in Microsoft Office 2007

Ribbon

Navigation Pane

Category Bars



All details of an experiment

Work with multiple objects at the same time

The screenshot displays the Chromeleon Chromatography Studio interface. The main window is titled "CmServiceAMS - RSLC Alkylphenone Linearity 2013-10-07 11-36-26 (Sequence) - Chromeleon Chromatography Studio". The interface includes a menu bar (Home, Insert, Page Layout), a toolbar with various icons, and a "Report Designer" sidebar on the left. The central workspace is divided into several panes:

- Report Designer:** A list of report sections including Linearity 4, Linearity 5, Sample 17, Injection List, Instrument Method, Data Processing, Report Designer (highlighted), Electronic Report, and UV Spectral Library.
- Peak Analysis Report:** A summary table with the following data:

Sample Name:	Linearity 4	Injection Volume:	1.00
Injection Type:	Calibration Standard	Dilution Factor:	1.0000
Instrument Method:	RSLC Linearity	Operator:	CmServiceAMS
Inj. Date / Time:	07-Oct-2013 / 11:47	Run Time:	0.24
- Chromatogram:** A plot titled "RSLC Alkylphenone Linearity 2013-10-07 11-36-26 #12" showing detector response (mAU) versus time (min). The x-axis ranges from 0.000 to 0.240 minutes, and the y-axis ranges from -100 to 900 mAU. Several peaks are labeled with their retention times: 1-Uracil - 0.022, 2-Acetanilide - 0.030, 3-Acetylphenone - 0.044, 4-Propiophenone - 0.065, 5-Butyrophenone - 0.088, 6-Benzophenone - 0.100, 7-Valerophenone - 0.120, 8-Hexanophenone - 0.146, 9-Heptanophenone - 0.162, and 10-Octanophenone - 0.177.
- Table:** A table below the chromatogram providing peak analysis data:

No.	Time min	Peak Name	Width min	Height mAU	Resol. (USP)	Resol. (EP)	Plates (USP)	Plates (EP)	Asymmetry
1	0.022	Uracil	0.005	429.235	1.723	1.733	388	389	1.503
2	0.030	Acetanilide	0.005	714.683	2.665	2.685	651	658	1.536

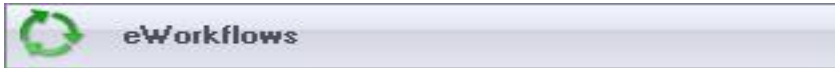
The taskbar at the bottom shows three open instances of CmServiceAMS: "CmServiceAMS - Ch...", "CmServiceAMS - 20...", and "CmServiceAMS - RS...". The "CmServiceAMS - RS..." window is highlighted with a red box, indicating the active report designer window.



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eWorkflows™

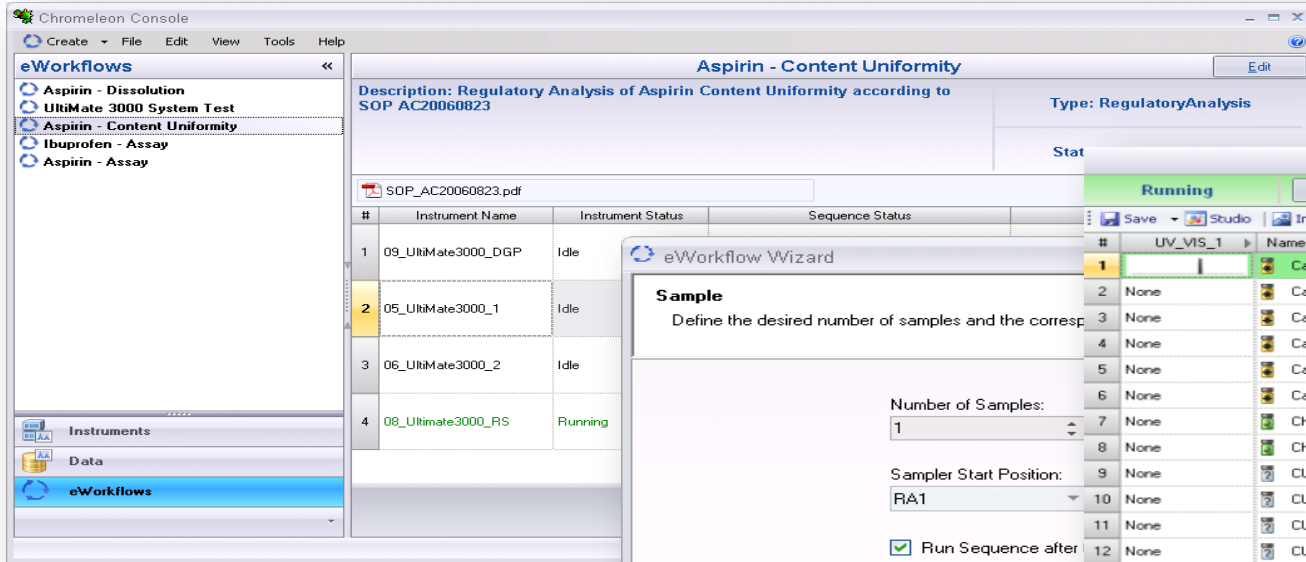
The Ultimate in Operational Simplicity



- Provide immediate access to:
 - Your instruments
 - Your data
 - Your eWorkflows
- **Easily find functionality you need**
- **No training required to start run**

- eWorkflows automate all chromatography processes
- Applies to all laboratories:
 - QA/QC laboratories
 - Pilot plant laboratories
 - Production plant laboratories
 - Method development laboratories
 - Research laboratories
- Takes you from Samples to Results in only a few steps

- An eWorkflow brings together all aspects of a chromatography run:
 - Instruments which are allowed to run this application
 - All associated files:
 - Instrument Methods
 - Processing Methods
 - Reports
 - Spectral Libraries
 - Documents with description of method
 - Template for sequence name and storage location
 - Custom Variables
 - Rules for sequence layout



Sequence is created and can be immediately run

Choose eWorkflow, select instrument, and click “Start”

Enter number of samples, and start position

Running

CU_Aspirin_20090119

05_UltiMate3000_1 (Running)

#	UUV_VIS_1	Name	Type	Level	Position	Volume [µl]	Pharmacopeia	Dosage Form	Status	Inje
1		Calibration	Standard	01	RA1	10.000	EP	Common Dosage Form	Running	19/
2	None	Calibration	Standard	01	RA1	10.000	EP	Common Dosage Form	Idle	
3	None	Calibration	Standard	02	RA2	10.000	EP	Common Dosage Form	Idle	
4	None	Calibration	Standard	02	RA2	10.000	EP	Common Dosage Form	Idle	
5	None	Calibration	Standard	03	RA3	10.000	EP	Common Dosage Form	Idle	
6	None	Calibration	Standard	03	RA3	10.000	EP	Common Dosage Form	Idle	
7	None	Check Standard	Validation	04	RA4	10.000	EP	Common Dosage Form	Idle	
8	None	Check Standard	Validation	04	RA4	10.000	EP	Common Dosage Form	Idle	
9	None	CUT_Asp_96315 No. 1	Unknown		RA5	10.000	EP	Common Dosage Form	Idle	
10	None	CUT_Asp_96315 No. 2	Unknown		RA6	10.000	EP	Common Dosage Form	Idle	
11	None	CUT_Asp_96315 No. 3	Unknown		RA7	10.000	EP	Common Dosage Form	Idle	
12	None	CUT_Asp_96315 No. 4	Unknown		RA8	10.000	EP	Common Dosage Form	Idle	
13	None	CUT_Asp_96315 No. 5	Unknown		RB1	10.000	EP	Common Dosage Form	Idle	
14	None	CUT_Asp_96315 No. 6	Unknown		RB2	10.000	EP	Common Dosage Form	Idle	
15	None	CUT_Asp_96315 No. 7	Unknown		RB3	10.000	EP	Common Dosage Form	Idle	
16	None	CUT_Asp_96315 No. 8	Unknown		RB4	10.000	EP	Common Dosage Form	Idle	
17	None	CUT_Asp_96315 No. 9	Unknown		RB5	10.000	EP	Common Dosage Form	Idle	
18	None	CUT_Asp_96315 No. 10	Unknown		RB6	10.000	EP	Common Dosage Form	Idle	
19	None	Check Standard	Validation	04	RA4	10.000	EP	Common Dosage Form	Idle	
20	None	Check Standard	Validation	04	RA4	10.000	EP	Common Dosage Form	Idle	

Click here to add a new injection

Name	Type	Date Modified	Comment
Aspirin CUT	Processing Method	19/01/2009 11:55 AM	
Aspirin CUT	Report Definition	19/01/2009 11:55 AM	
Aspirin CUT	Instrument Method	19/01/2009 11:55 AM	Aspirin CUT on Ultimate_1
Aspirin CUT	View Settings	19/01/2009 11:55 AM	

Associated Items Custom Variables

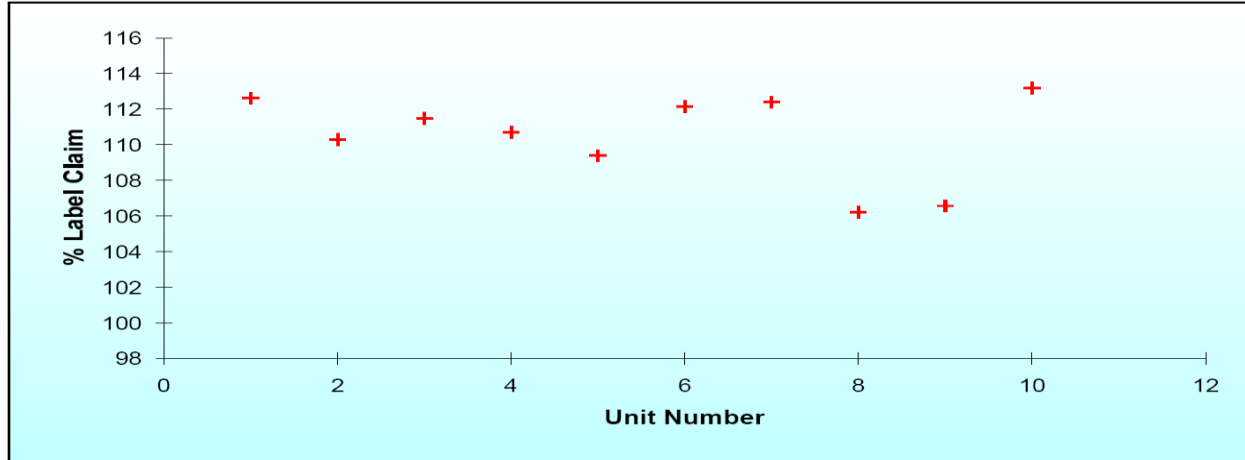
Uniformity of Dosage Units Report

General

Product Batch Number	86315	<i>Target Content T</i>	102.0
Peak Name	Aspirin	<i>Correction Factor</i>	1.050
<i>CUT Number</i>	186781	<i>Max. Acceptance Value L1</i>	15.0
<i>Channel</i>	UV_VIS_1	<i>Lower Amount Limit</i>	Not needed if n=10!
<i>Dosage Form</i>	Common Dosage Forms	<i>Upper Amount Limit</i>	Not needed if n=10!
<i>Pharmacopeia</i>	EP		

Results

<i>Mean</i>	110.5	n = 10
<i>Standard Deviation s</i>	2.5	
<i>Reference Value M</i>	102.0	
<i>Acceptance Value AV</i>	14.4	
Test Result	Test passed	



- This eWorkflow also:
- Processes all data
- Calculates all results

- eWorkflows take you from Sample to Results in the minimum number of steps
- Fully customizable for any application
- Minimum amount of training required
- Reduces errors and produces results faster
- A new framework for Operational Simplicity



Data Processing and Reporting

COBRA™ Detection Algorithm / SmartPeaks™

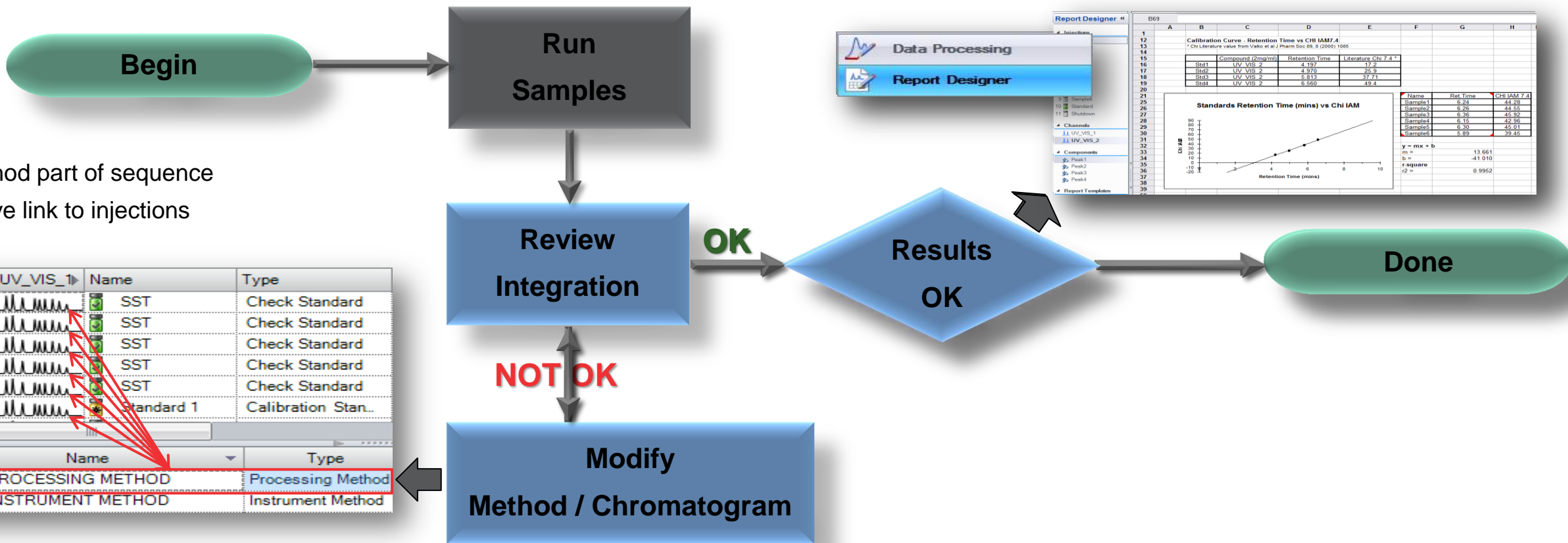
Category Bar – Data Processing

The screenshot displays the 'Chromatogram Tools' software interface. The main window shows a chromatogram with four peaks labeled: 1 - Uracil - 0.022, 2 - Acetanilide - 0.030, 3 - Acetophenone - 0.044, and 4. A 'Data Processing' menu is open, listing options: Injection List, Instrument Method, Data Processing (highlighted), Report Designer, Electronic Report, and UV Spectral Library. The 'Data Processing' sub-menu is expanded, showing a table of peak data and a table of linear regression parameters.

A	B
1	Peak No.
2	Peak Name
4	1 Uracil
5	2 Acetanilide
6	3 Acetophenone 0.044
7	4 Propriophenone 0.061
8	5 Butyrophenone 0.088
9	6 Benzophenone 0.100
10	7 Valerophenone 0.120
11	8 Hexanophenone 0.146
12	9 Heptanophenone 0.163
13	10 Octanophenone 0.177
14	Maximum
15	Minimum
16	

G	H	I	J	K	L
Std.Dev. %	Coeff. of Determination	C0 (Offset)	C1 (Slope)	C2 (Curve)	
0.7402	0.99987	-0.0022	0.0073	0.0000	
0.9464	0.99978	-0.0100	0.0168	0.0000	
1.0498	0.99973	-0.0050	0.0198	0.0000	
1.1566	0.99968	-0.0114	0.0164	0.0000	
1.1540	0.99968	-0.0048	0.0145	0.0000	
1.0071	0.99976	-0.0049	0.0128	0.0000	
1.1299	0.99969	-0.0103	0.0125	0.0000	
0.7547	0.99986	-0.0010	0.0123	0.0000	
1.0031	0.99976	-0.0033	0.0104	0.0000	
1.0441	0.99974	-0.0037	0.0092	0.0000	
1.1566	0.99987				
0.7402	0.99968				

All Data Processing settings (p.e. Peak Integration and Detection)



- Method part of sequence
- Active link to injections

Operational Efficiency

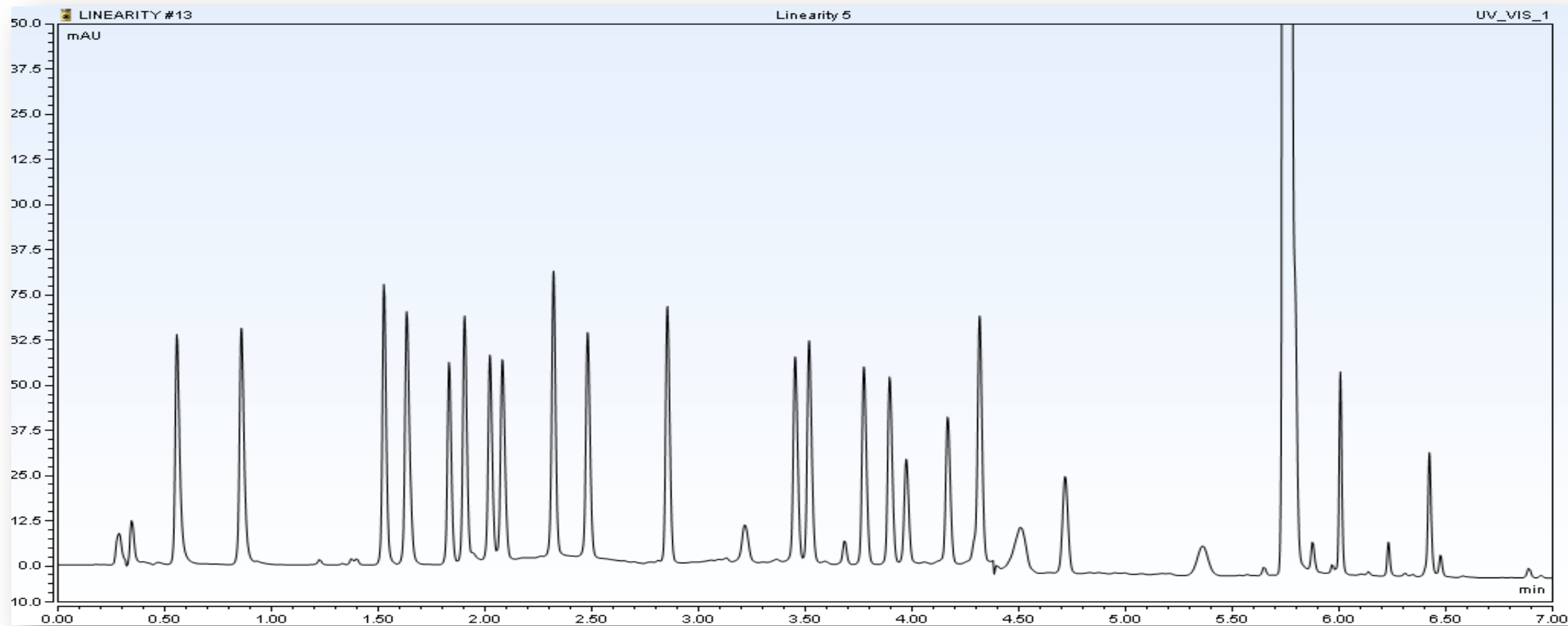
- Method is dynamically linked to each injection = instant updates
- No need to export data
- All reporting and calculations are within a validated environment.
- Greater productivity - up to **98%** time saving

- Most time consuming and tedious task in chromatography process:

Chromatogram Integration

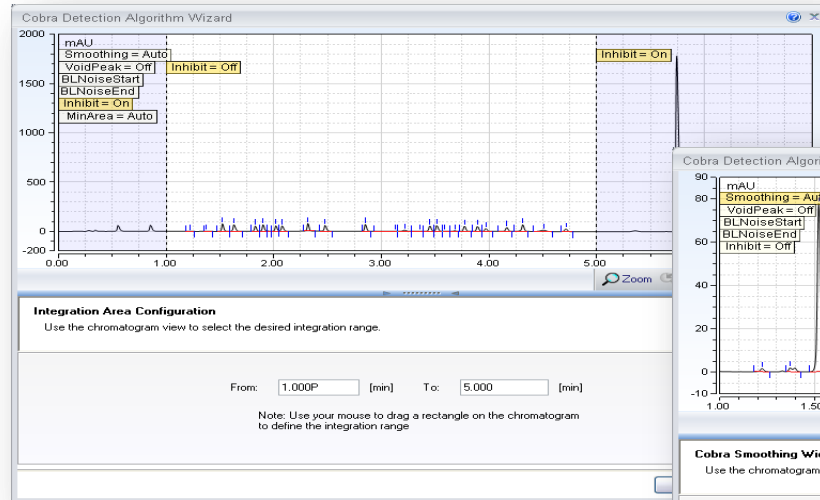
- Chromeleon 7 introduces two new tools to extremely simplify this process:
 - Cobra Peak Detection Algorithm / Wizard
 - SmartPeaks Integration Assistant

Peak Detection – Cobra Wizard

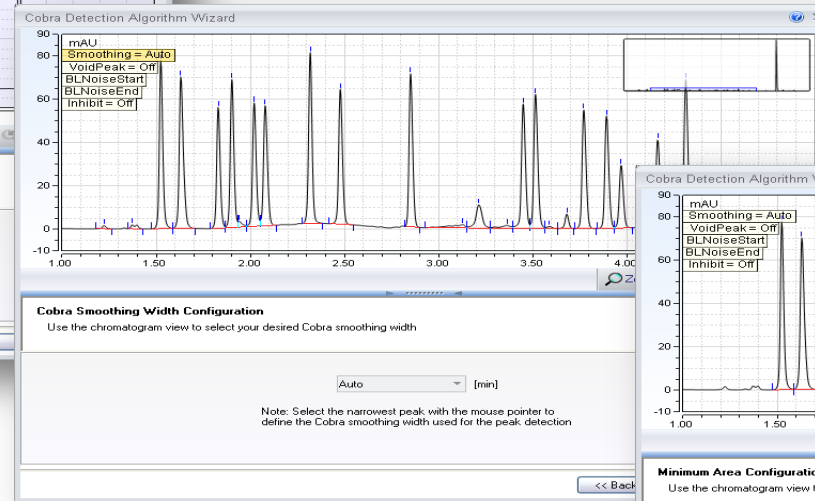




Start Cobra Wizard

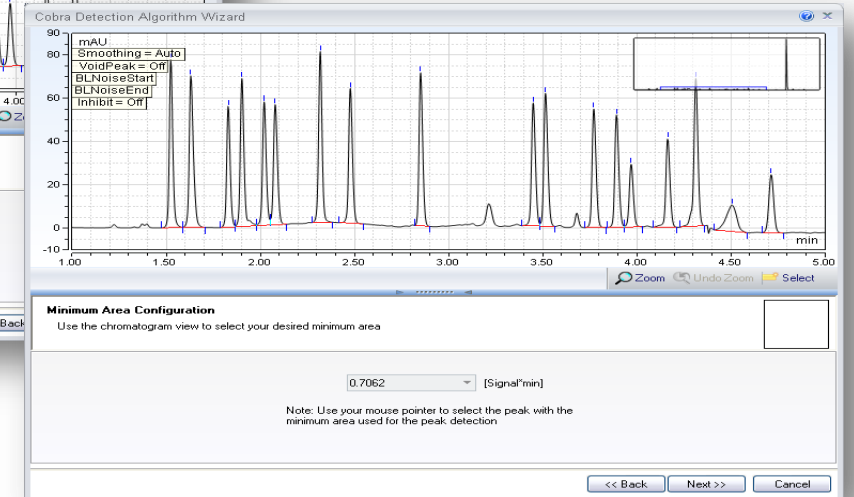


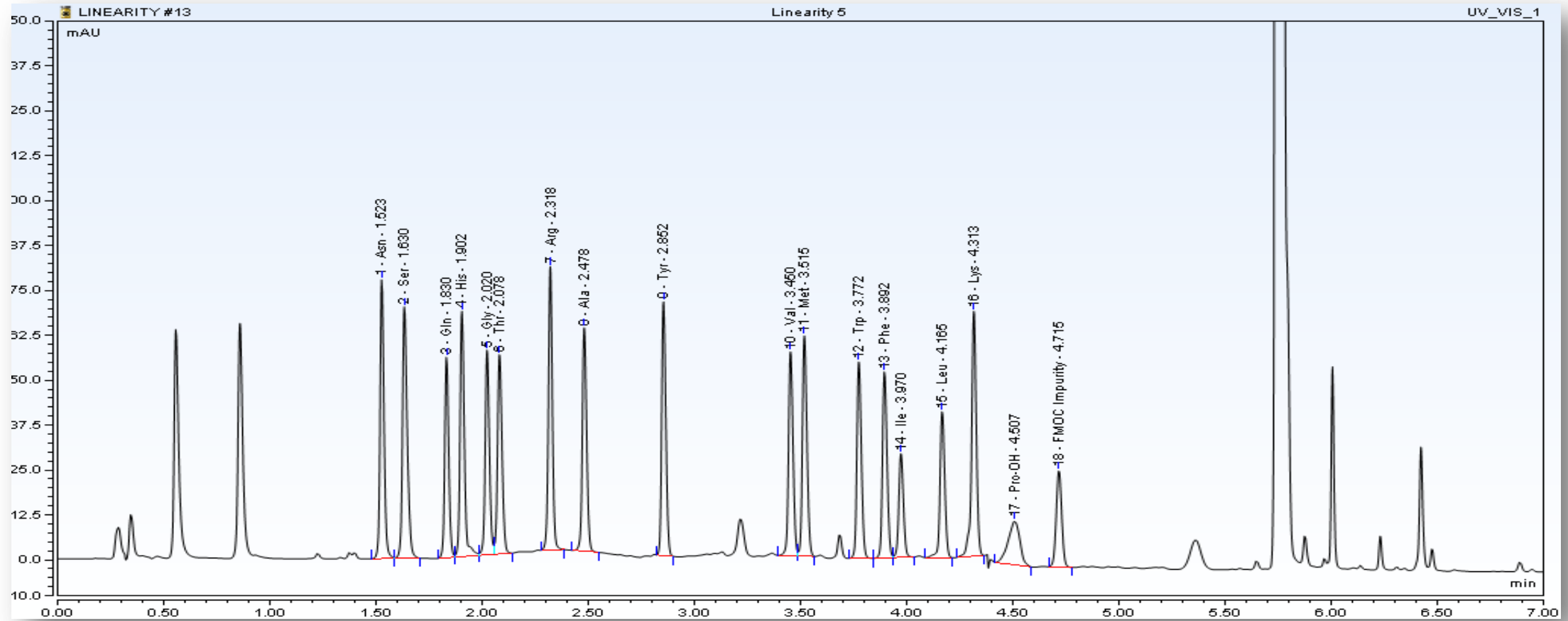
Define the integration range



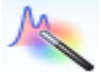
Select the narrowest peak to be integrated

Select the smallest peak to be integrated

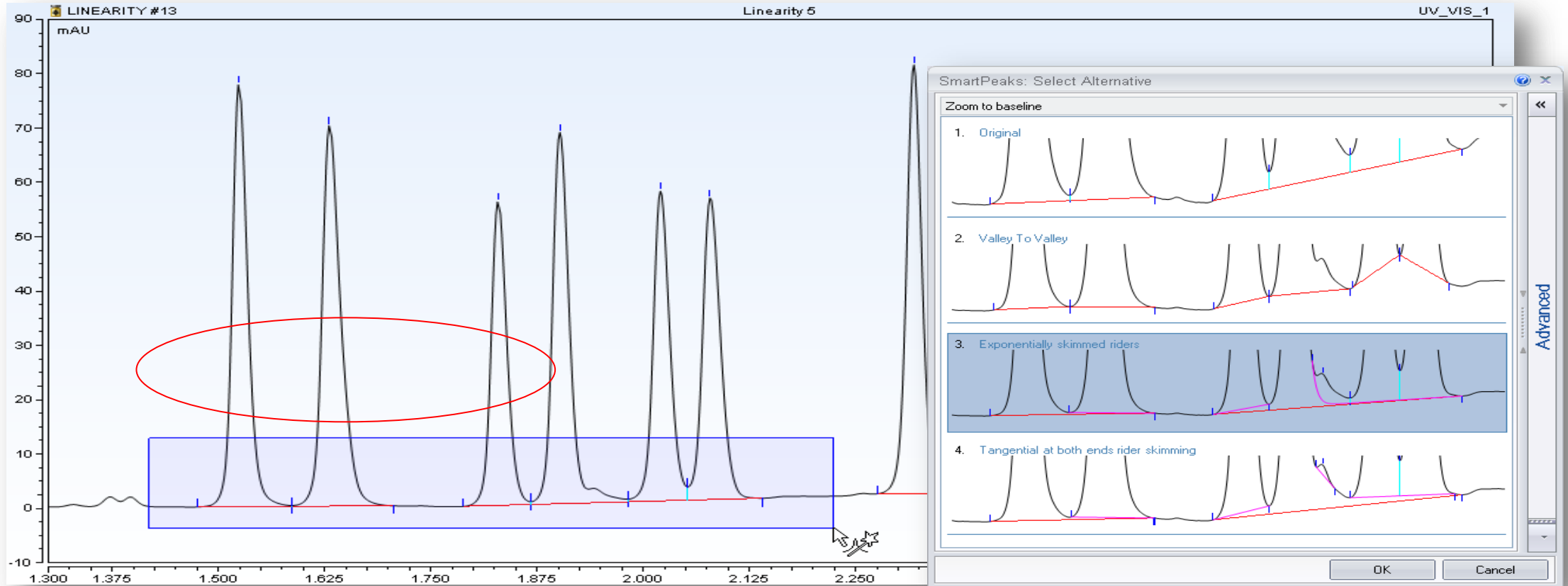




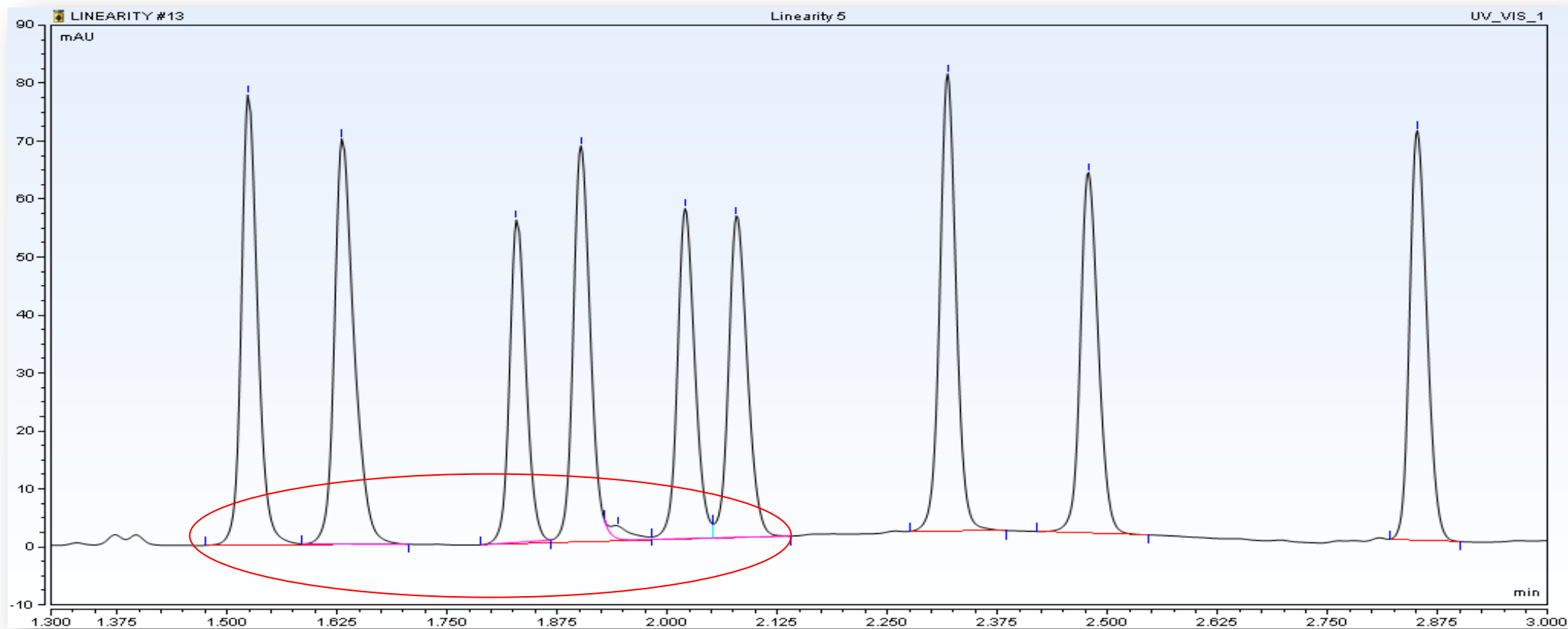
And your integration is done!



Activate SmartPeaks Wizard



Select the integration you want



And your integration is done!

Data Dynamic Linking and Updating - 1

Likely cause is this outlier point. To investigate, double click point and associated chromatogram is automatically displayed

A	B	C	D	E	F	G	H	I	J	K	L	M	
1	Inj. No.	Injection Name	Type	Ret.Time min	Amount mmol/L	Rel.Area %	Area mAU*min	Height mAU	Type	Width (50%) min	Asymmetry EP	Resolution EP	Plat EP
5	1	Cal Standard 1 (0.005 mM)	Calibration	3	0.0045	3.10	0.031	1.215	BMB	0.02	1.03	6.09	9
6	4	Cal Standard 2 (0.010 mM)	Calibration	3	0.0089	3.65	0.062	2.385	BMB	0.02	1.07	6.09	9
7	7	Cal Standard 3 (0.050 mM)	Calibration	3	0.0441	4.05	0.310	11.906	BMB	0.02	1.10	6.01	9
8	10	Cal Standard 4 (0.100 mM)	Calibration	3	0.1582	7.08	1.113	28.580	M*	0.03	n.a.	5.57	7
9	13	Cal Standard 5 (0.200 mM)	Calibration	3	0.1725	4.14	1.214	47.126	BMB	0.02	1.09	5.77	9
13	Standard Deviation			0.002	0.0817	1.55	0.5750	19.51		0.001	0.03	0.23	8
14	Relative Standard Deviation			0.06%	105.26%	35.18%	105.26%	106.95%		5.46%	2.86%	3.89%	9
16	Correlation Coefficient:		0.853684										
17	Specification:		>0.999										
18	Pass/Fail:		Fail										

Calibration has failed specification

Data Dynamic Linking and Updating - 2

cmadmin - 04 SmartPeaks (Sequence) - Chromeleon Chromatography Studio

Calibration Plot Tools

Data Processing Home Processing Layout

Paste Injection Channel Component

Clipboard Navigation Results Calib. & PM Contour & Res.

Chromatogram Calibration Plot Interactive Results

Processing Method Peak Properties Interactive Charts

Contour/3D Plot UV-Vis Spectra Fluorescence Spectra

I-t Plot Injection Rack Mass Spectra

MS Components SmartLink

Linking

Data Processing

- 7 Cal Standard 3 (0.050 mM)
- 8 Cal Standard 3 (0.050 mM)
- 9 Cal Standard 3 (0.050 mM)
- 10 Cal Standard 4 (0.100 mM)
- 11 Cal Standard 4 (0.100 mM)
- 12 Cal Standard 4 (0.100 mM)
- 13 Cal Standard 5 (0.200 mM)
- 14 Cal Standard 5 (0.200 mM)
- 15 Cal Standard 5 (0.200 mM)
- 16 Sample 1
- 17 Sample 2
- 18 Blank

Channels: Pump_Pressure, UV_VIS_1

Components: Injection List, Instrument Method, Data Processing, Report Designer, Electronic Report, UV Spectral Library

04 SmartPeaks #10 [manipulated] Cal Standard 4 (0.100 mM) UV_VIS_1

Peak 10 - 3.075

Integration is incorrect!

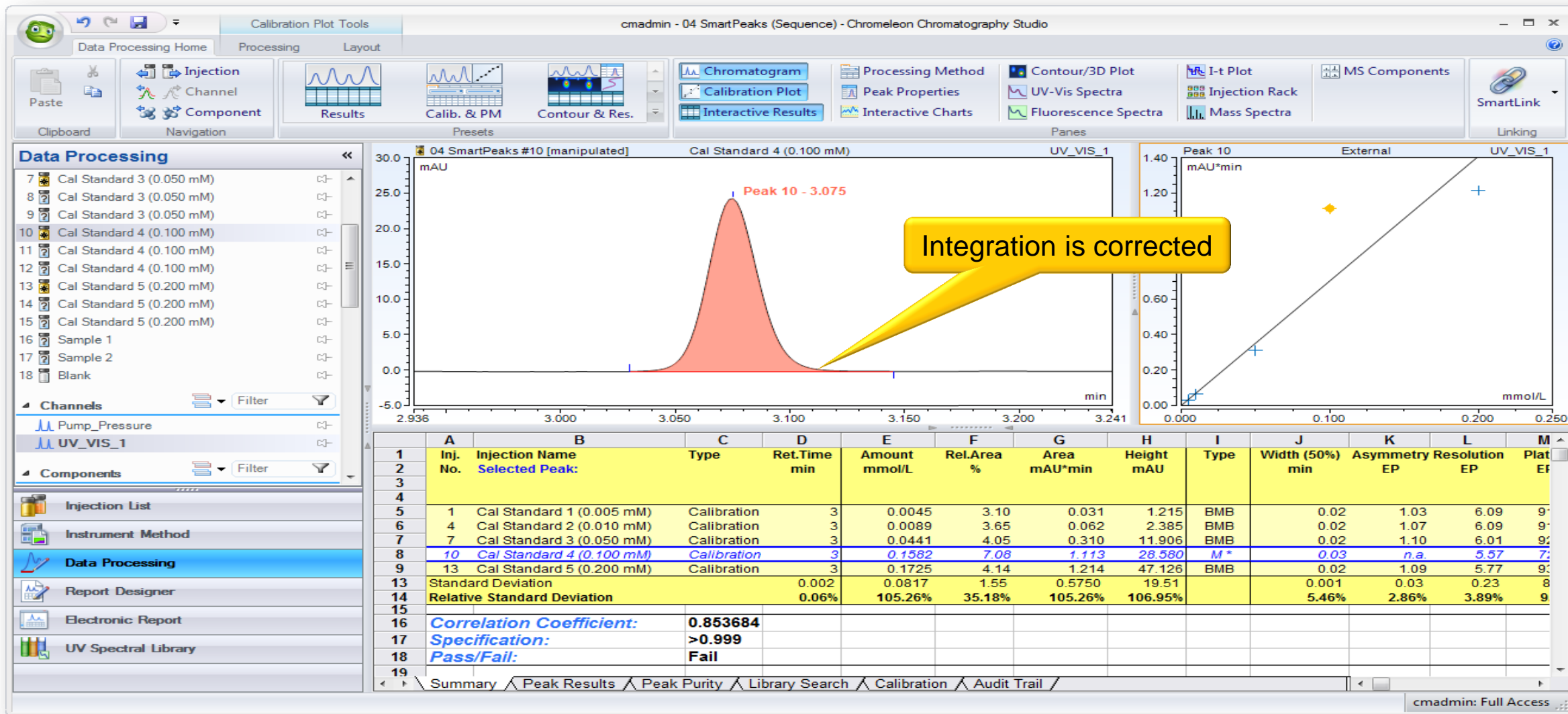
Peak 10 External UV_VIS_1

	A	B	C	D	E	F	G	H	I	J	K	L	M
	Inj. No.	Injection Name	Type	Ret.Time min	Amount mmol/L	Rel.Area %	Area mAU*min	Height mAU	Type	Width (50%) min	Asymmetry EP	Resolution EP	Plate EP
5	1	Cal Standard 1 (0.005 mM)	Calibration	3	0.0045	3.10	0.031	1.215	BMB	0.02	1.03	6.09	9
6	4	Cal Standard 2 (0.010 mM)	Calibration	3	0.0089	3.65	0.062	2.385	BMB	0.02	1.07	6.09	9
7	7	Cal Standard 3 (0.050 mM)	Calibration	3	0.0441	4.05	0.310	11.906	BMB	0.02	1.10	6.01	9
8	10	Cal Standard 4 (0.100 mM)	Calibration	3	0.1582	7.08	1.113	28.580	M*	0.03	n.a.	5.57	7
9	13	Cal Standard 5 (0.200 mM)	Calibration	3	0.1725	4.14	1.214	47.126	BMB	0.02	1.09	5.77	9
13	Standard Deviation			0.002	0.0817	1.55	0.5750	19.51		0.001	0.03	0.23	8
14	Relative Standard Deviation			0.06%	105.26%	35.18%	105.26%	106.95%		5.46%	2.86%	3.89%	9
16	Correlation Coefficient:		0.853684										
17	Specification:		>0.999										
18	Pass/Fail:		Fail										

Summary / Peak Results / Peak Purity / Library Search / Calibration / Audit Trail /

cmadmin: Full Access

Data Dynamic Linking and Updating - 3



Data Dynamic Linking and Updating - 4

cmadmin - 04 SmartPeaks (Sequence) - Chromeleon Chromatography Studio

Calibration Plot Tools

Data Processing Home Processing Layout

Paste Injection Channel Component

Clipboard Navigation

Results Calib. & PM Contour & Res.

Chromatogram Calibration Plot Interactive Results

Processing Method Peak Properties Interactive Charts

Contour/3D Plot UV-Vis Spectra Fluorescence Spectra

I-t Plot Injection Rack Mass Spectra

MS Components

SmartLink

Linking

Data Processing

- 7 Cal Standard 3 (0.050 mM)
- 8 Cal Standard 3 (0.050 mM)
- 9 Cal Standard 3 (0.050 mM)
- 10 Cal Standard 4 (0.100 mM)
- 11 Cal Standard 4 (0.100 mM)
- 12 Cal Standard 4 (0.100 mM)
- 13 Cal Standard 5 (0.200 mM)
- 14 Cal Standard 5 (0.200 mM)
- 15 Cal Standard 5 (0.200 mM)
- 16 Sample 1
- 17 Sample 2
- 18 Blank

Channels: Pump_Pressure, UV_VIS_1

Components: Injection List, Instrument Method, Data Processing, Report Designer, Electronic Report, UV Spectral Library

04 SmartPeaks #10 [manipulated] Cal Standard 4 (0.100 mM) UV_VIS_1

Peak 10 - 3.075

Peak 10 External UV_VIS_1

A	B	C	D	E	F	G	H	I	J	K	L	M
1	Inj. No.	Injection Name	Type	Ret.Time min	Amount mmol/L	Rel.Area %	Area mAU*min	Height mAU	Type	Width (50%) min	Asymmetry EP	Resolution EP
5	1	Cal Standard 1 (0.005 mM)	Calibration	3	0.0045	3.10	0.031	1.215	BMB	0.02	1.03	6.09
6	4	Cal Standard 2 (0.010 mM)	Calibration	3	0.0089	3.65	0.062	2.385	BMB	0.02	1.07	6.09
7	7	Cal Standard 3 (0.050 mM)	Calibration	3	0.0441	4.05	0.310	11.906	BMB	0.02	1.10	6.01
8	10	Cal Standard 4 (0.100 mM)	Calibration	3	0.1582	7.08	1.113	28.580	M*	0.03	n.a.	5.57
9	13	Cal Standard 5 (0.200 mM)	Calibration	3	0.1725	4.14	1.214	47.126	BMB	0.02	1.09	5.77
13	Standard Deviation			0.002	0.0817	1.55	0.5750	19.51		0.001	0.03	0.23
14	Relative Standard Deviation			0.06%	105.26%	35.18%	105.26%	106.95%		5.46%	2.86%	3.89%
16	Correlation Coefficient:		0.853684									
17	Specification:		>0.999									
18	Pass/Fail:		Fail									

Summary / Peak Results / Peak Purity / Library Search / Calibration / Audit Trail /

cmadmin: Full Access

Data Dynamic Linking and Updating - 5

cmadmin - 04 SmartPeaks (Sequence) - Chromeleon Chromatography Studio

Calibration Plot Tools

Data Processing Home Processing Layout

Paste Injection Channel Component Clipboard Navigation Results Calib. & PM Contour & Res. Chromatogram Calibration Plot Interactive Results Processing Method Peak Properties Interactive Charts Contour/3D Plot UV-Vis Spectra Fluorescence Spectra I-t Plot Injection Rack Mass Spectra MS Components SmartLink Linking

Data Processing

- 7 Cal Standard 3 (0.050 mM)
- 8 Cal Standard 3 (0.050 mM)
- 9 Cal Standard 3 (0.050 mM)
- 10 Cal Standard 4 (0.100 mM)
- 11 Cal Standard 4 (0.100 mM)
- 12 Cal Standard 4 (0.100 mM)
- 13 Cal Standard 5 (0.200 mM)
- 14 Cal Standard 5 (0.200 mM)
- 15 Cal Standard 5 (0.200 mM)
- 16 Sample 1
- 17 Sample 2
- 18 Blank

Channels: Pump_Pressure, UV_VIS_1

Components: Injection List, Instrument Method, **Data Processing**, Report Designer, Electronic Report, UV Spectral Library

04 SmartPeaks #10 Cal Standard 4 (0.100 mM) UV_VIS_1

Peak 10 - 3.075

Peak 10 External UV_VIS_1

A	B	C	D	E	F	G	H	I	J	K	L	M	
1	Inj. No.	Injection Name	Type	Ret.Time min	Amount mmol/L	Rel.Area %	Area mAU*min	Height mAU	Type	Width (50%) min	Asymmetry EP	Resolution EP	Plate
5	1	Cal Standard 1 (0.005 mM)	Calibration	3	0.0051	3.10	0.031	1.215	BMB	0.02	1.03	6.09	9
6	4	Cal Standard 2 (0.010 mM)	Calibration	3	0.0102	3.65	0.062	2.385	BMB	0.02	1.07	6.09	9
7	7	Cal Standard 3 (0.050 mM)	Calibration	3	0.0507	4.05	0.310	11.906	BMB	0.02	1.10	6.01	9
8	10	Cal Standard 4 (0.100 mM)	Calibration	3	0.1030	4.14	0.631	24.383	BMB	0.02	1.06	5.92	9
9	13	Cal Standard 5 (0.200 mM)	Calibration	3	0.1983	4.14	1.214	47.126	BMB	0.02	1.09	5.77	9
13	Standard Deviation			0.002	0.0801	0.45	0.4903	19.04		0.000	0.03	0.14	1
14	Relative Standard Deviation			0.06%	109.01%	11.72%	109.01%	109.40%		0.67%	2.54%	2.27%	1
16	Correlation Coefficient:		0.999516										
17	Specification:		>0.999										
18	Pass/Fail:		Pass										

Summary / Peak Results / Peak Purity / Library Search

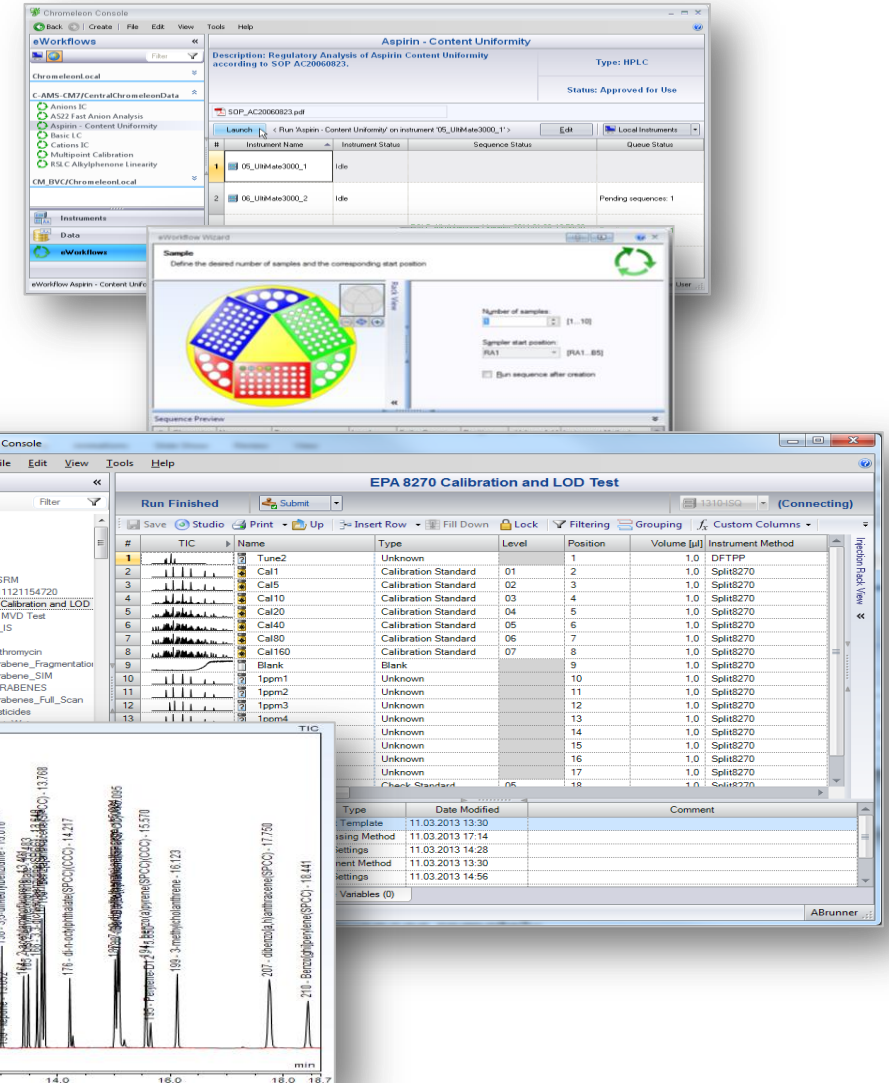
cmadmin: Full Access

- How can you include MS in your laboratory CDS?
- Chromeleon™ 7.2 Chromatography Data System supports MS instrument control and data processing with all main front-end separation techniques (GC, LC, IC) in an enterprise environment



MS is Fully Integrated within Chromeleon CDS

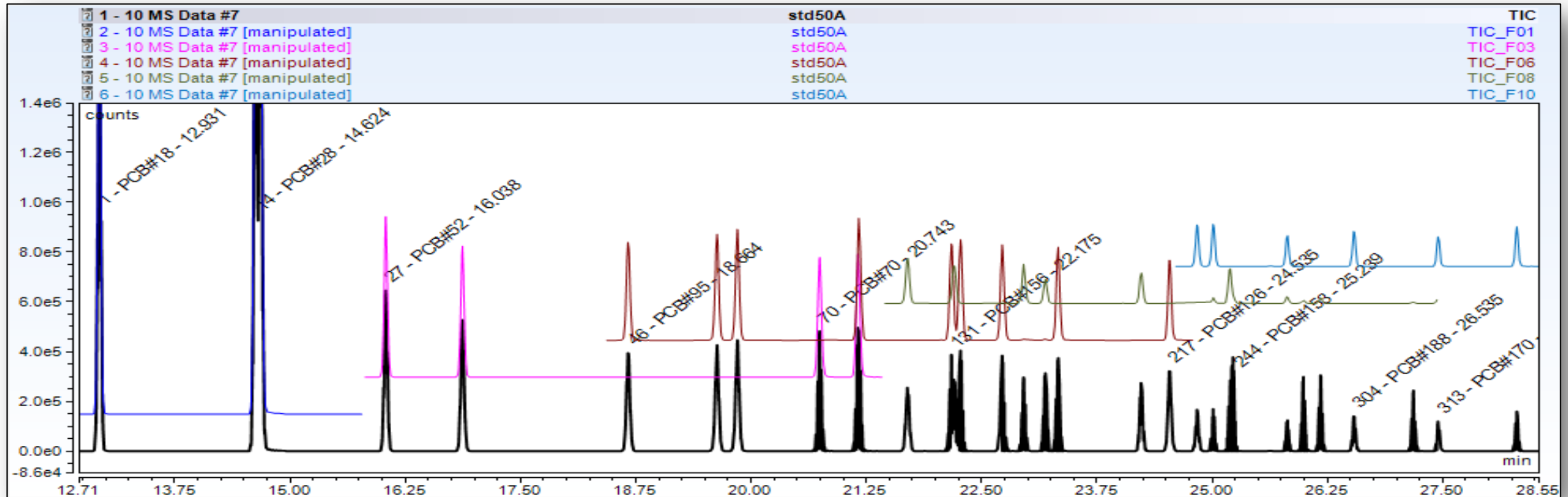
- Extends Chromeleon CDS advantages to routine MS users
 - Control and monitor MS remotely with native drivers
 - View, edit, and manipulate the running sequence
 - Central storage of data with full 21 CFR Part 11 compliance
 - Easily start analyses with eWorkflows™
 - Full suite of data processing tools



- Chromeleon 7.2 CDS provides:
 - MS-specific data organization at component level
 - Visualization of (large-volume) MS data
 - Channel-specific reporting of components
 - NIST format for MS Library searching, creation, and compound data import
- Key benefits:
 - Only need to install, validate and learn one software package
 - Enhanced data security
 - Can use all compliance and processing features of Chromeleon CDS



MS peaks often only appear in certain detection channels (filters) – how do you create a report for your peaks of interest?



Chromeleon CDS Consolidated Report Tables

- Automatically report for the Channel with the highest response

No.	Peak Name	Area counts*min	Channel
TIC	TIC	Highest Response	Highest Response
3	PCB#18	15392	TIC_F01
10	PCB#28	19480	TIC_F01
11	PCB#33	17945	TIC_F01
25	PCB#52	5455	TIC_F03
34	PCB#95	3640	TIC_F06
50	PCB#70	2364	TIC
79	PCB#156	3650	TIC_F06
145	PCB#126	2757	TIC_F06
179	PCB#153	4781	TIC_F07
219	PCB#188	1100	TIC_F10
225	PCB#170	889	TIC_F10

- Useful for reporting large quantities of MS data in a generic, compact table

... can have as many worksheets as required

The image displays three overlapping windows from the Chromleon software interface:

- Sample Analysis Report (Worksheet 1):** Contains sample metadata and a table of peak data.

Peak No.	Component Name	Retention Time	Area mAU*min	Height mAU	Amount mg/ml	Relative Amount %
1	Uracil	0.02	1.314	458.206	100.6447	0.23
2	Methyl	0.03	0.296	101.306	100.6447	0.03
3	Ethyl	0.04	1.064	321.065	101.2757	0.13
4	Propyl	0.06	0.697	189.642	100.0487	0.08
5	Butyl	0.09	0.712	174.914	100.1154	0.09
6	Peak 5	0.10	1.592	386.758	100.8440	0.20
7	Peak 6	0.12	0.561	157.368	100.8434	0.07
8	Peak 7	0.15	0.478	168.429	102.0931	0.06
9	Peak 8	0.16	0.346	141.794	101.1230	0.04
10	Peak 9	0.18	0.263	114.485	100.4457	0.03
- Sample Summary (Worksheet 2):** Provides a high-level overview of the sample and method.

No.	Name	Ret. Time min	Area mAU*min	Height mAU	Amount mg/ml	Concentration mg/ml*pl
1	Linearity 1	0.02	0.135	48.150	17.6340	17.6340
2	Linearity 1	0.02	0.136	47.769	17.7379	17.7379
3	Linearity 1	0.02	0.134	46.889	17.4315	17.4315
4	Linearity 2	0.02	0.653	226.659	86.5056	86.5056
5	Linearity 2	0.02	0.652	229.133	86.4766	86.4766
6	Linearity 2	0.02	0.650	228.062	86.0961	86.0961
7	Linearity 3	0.02	0.977	340.562	129.6806	129.6806
8	Linearity 3	0.02	0.976	341.458	129.5394	129.5394
9	Linearity 3	0.02	0.967	339.627	128.3388	128.3388
10	Linearity 4	0.02	1.303	459.044	173.1122	173.1122
11	Linearity 4	0.02	1.314	458.206	174.4748	174.4748
12	Linearity 4	0.02	1.322	455.387	175.5596	175.5596
13	Linearity 5	0.02	1.967	682.192	261.4003	261.4003
14	Linearity 5	0.02	1.951	678.913	259.2850	259.2850
15	Linearity 5	0.02	1.946	681.872	258.6277	258.6277
16	Sample 1	0.02	0.976	341.458	129.5394	129.5394
17	Sample 2	0.02	0.976	341.458	129.5394	129.5394
18	Sample 3	0.02	0.976	341.458	129.5394	129.5394
- Chromatogram (Worksheet 3):** A plot of mAU vs. time (min) showing peaks labeled 1 through 10. A red '1' is placed next to the plot.

Many

... can include result tables

Peak No.	Component Name	Retention Time	Area mAU*min	Height mAU	Amount mg/ml	Relative Amount %
1	Uracil	0.02	1.303	459.044	n.a.	n.a.
2	Methyl	0.03	0.289	100.10	10.90	
3	Ethyl	0.04	1.057	318.78	11.16	
4	Propyl	0.06	0.693	187.379	99.4445	11.03
5	Butyl	0.09	0.705	173.300	99.0898	10.99
6	Peak 5	0.10	1.597	289.292	100.2906	11.15
7	Peak 6					
8	Peak 7					
9	Peak 8					
10	Peak 9					

Peak Tables

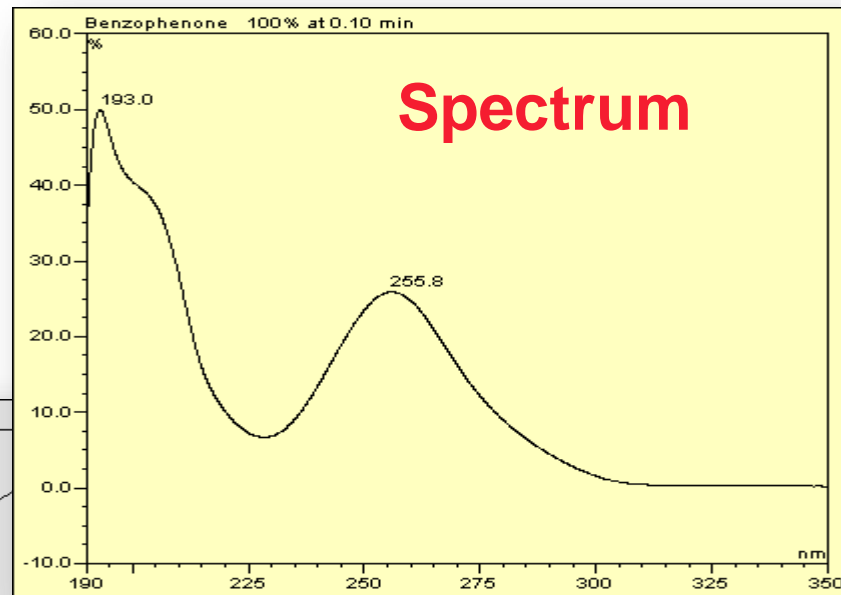
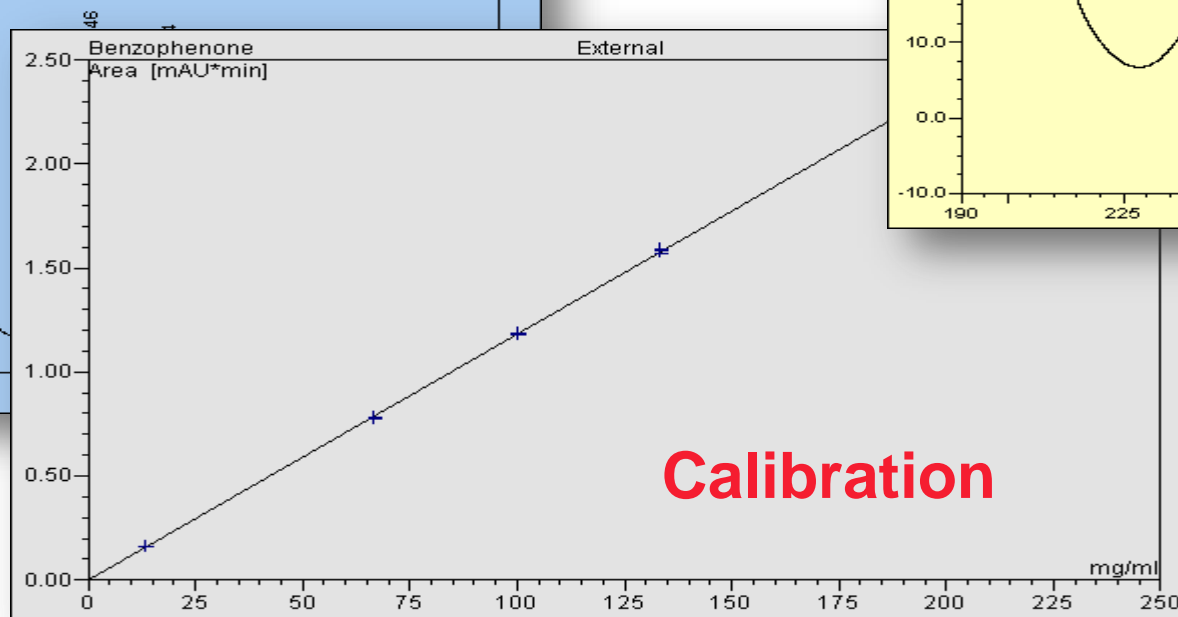
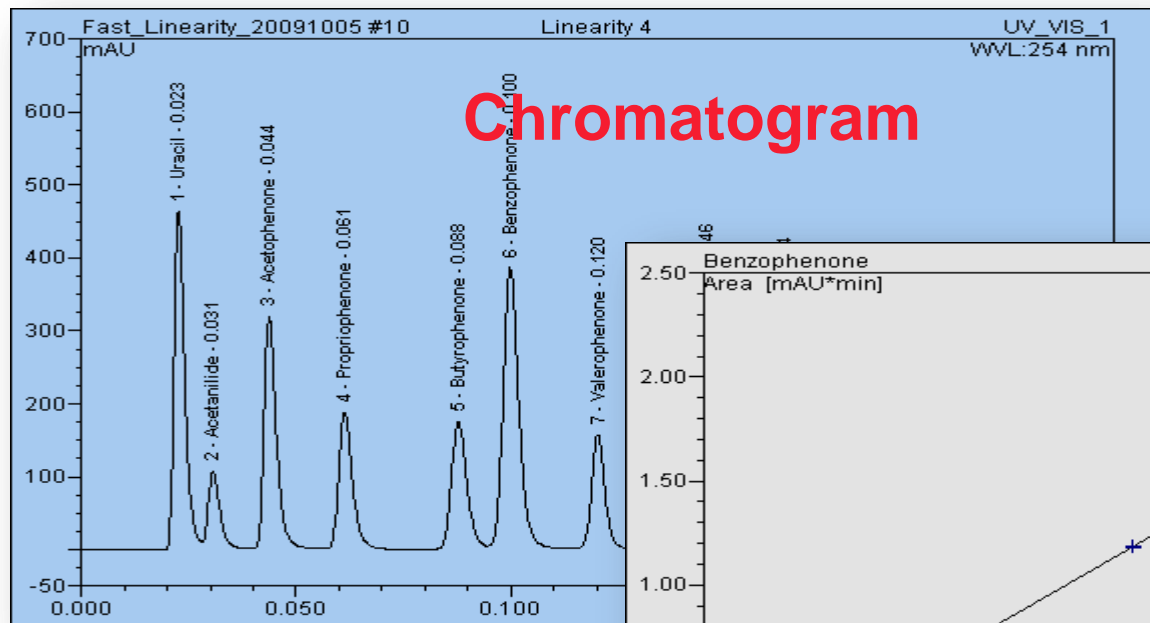
No.	Name	Ret.Time min Benzophenone UV_VIS_1	Area mAU*min Benzophenone UV_VIS_1	Height mAU Benzophenone UV_VIS_1	Amount mg/ml Benzophenone UV_VIS_1
1	Linearity 1	0.10	0.161	40.625	13.581
2	Linearity 1	0.10	0.161	40.073	13.630
3	Linearity 1	0.10	0.162	39.759	13.675
4	Linearity 2	0.10	0.776	191.967	65.613
5	Linearity 2	0.10	0.779	192.297	65.907
6	Linearity 2	0.10	0.784	192.225	66.317
7	Linearity 3	0.10	1.182	289.564	99.965
8	Linearity 3	0.10	1.186	289.292	100.291
9	Linearity 3	0.10	1.179	285.307	99.706
10	Linearity 4	0.10	1.587	382.335	134.13
11	Linearity 4	0.10	1.592	386.758	134.58
12	Linearity 4	0.10	1.572	381.628	132.90
13	Linearity 5	0.10	2.361	566.797	199.6193
14	Linearity 5	0.10	2.359	563.997	199.4263
15	Linearity 5	0.10	2.359	567.937	200.5406
16	Sample 1	0.10	1.186	289.292	100.2906
17	Sample 2	0.10	1.186	289.292	100.2906
18	Sample 3	0.10	1.186	289.292	100.2906

Summary Tables

10 Linearity 4		Audit Trail	
Sample Name:	Linearity 4	Injection Volume:	1.0
Vial Number:	RB2	Channel:	UV_VIS_1
Sample Type:	standard	Wavelength:	254.0
Control Program:	Linearity 4 run 1	Bandwidth:	1
Quantif. Method:	Linearity-1	Dilution Factor:	1.0000
Recording Time:	10/5/2009 13:35	Sample Weight:	1.0000
Run Time (min):	0.24	Sample Amount:	1.0000
Day Time	Ret.Time	Command/Message	
13:35:29		Audit trail of sample SMP:\Demodata\SoftwareFeatureDemos\RS\LC\Fast_Linearity	
13:35:29		Start of sample 10 "Linearity 4", using program "Linearity 4 run 1".	
13:35:29	0.000	ColumnOven.Temperature.Nominal = 100.0	
13:35:29	0.000	Cooler.Temperature.Nominal = 20.0	
13:35:29	0.000	Pressure.LowerLimit = 0	
13:35:29	0.000	Pressure.UpperLimit = 800	
13:35:29	0.000	%A.Equate = "%A"	
13:35:29	0.000	%B.Equate = "%B"	
13:35:29	0.000	Data.Collection.Rate = 100.0	
13:35:29	0.000	ResponseTime = 0.025	
13:35:29	0.000	SlitWidth = Narrow	
13:35:29	0.000	UV_VIS_1.Wavelength = 254.0	
13:35:29	0.000	UV_VIS_1.Bandwidth = 1	
13:35:29	0.000	UV_VIS_1.RefWavelength = 225.0	
13:35:29	0.000	UV_VIS_1.RefBandwidth = 1	
13:35:29	0.000	3DFIELD.RefWavelength = 800.0	
13:35:29	0.000	3DFIELD.RefBandwidth = 1	
13:35:29	0.000	Data.Collection.Rate = 100.0	
13:35:29	0.000	ResponseTime = 0.025	
13:35:29	0.000	SlitWidth = Narrow	
13:35:29	0.000	UV_VIS_1.Wavelength = 254.0	
13:35:29	0.000	UV_VIS_1.Bandwidth = 1	
13:35:29	0.000	UV_VIS_1.RefWavelength = 225.0	
13:35:29	0.000	UV_VIS_1.RefBandwidth = 1	
13:35:29	0.000	3DFIELD.RefWavelength = 800.0	
13:35:29	0.000	3DFIELD.RefBandwidth = 1	
13:35:29	0.000	3DFIELD.MinWavelength = 100.0	
13:35:29	0.000	3DFIELD.MaxWavelength = 800.0	
13:35:29	0.000	3DFIELD.BunchWidth = 1	
13:35:29	0.000	Autozero	
13:35:29	0.000	Flow = 3.700	

Audit Trails

... can include various plot types

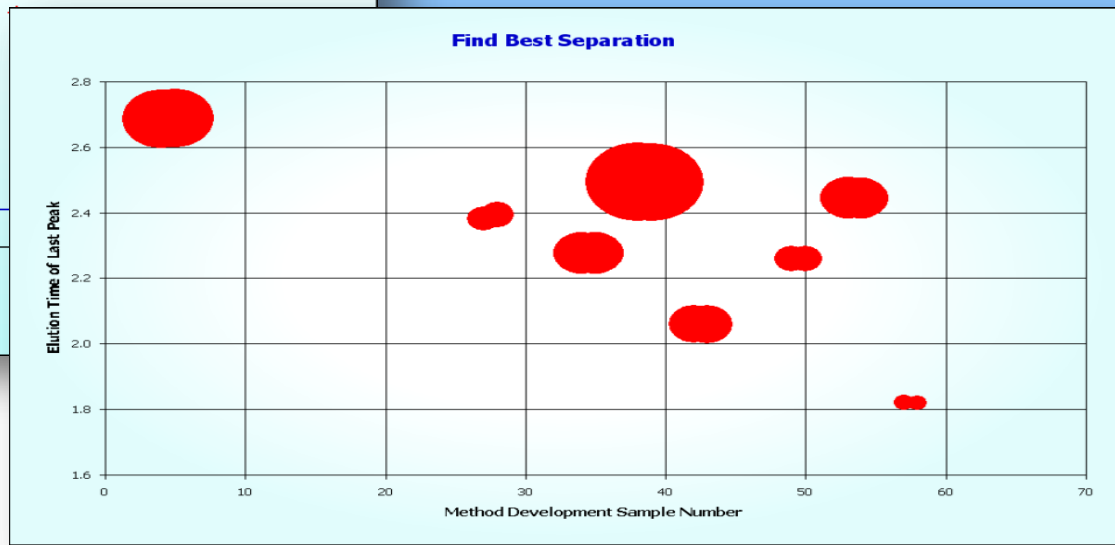
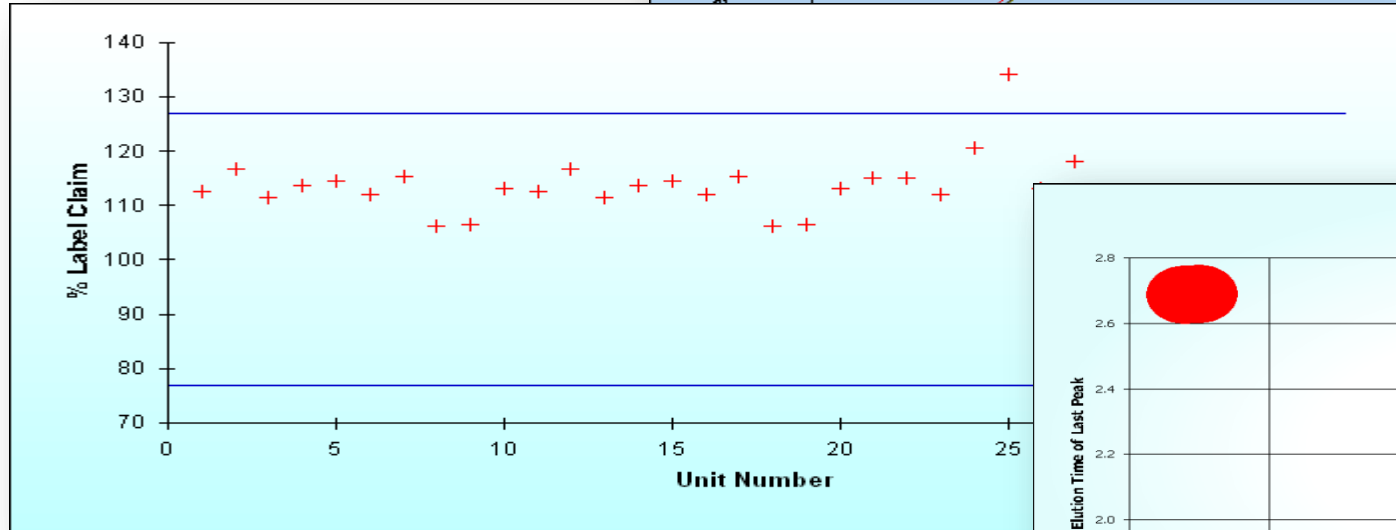
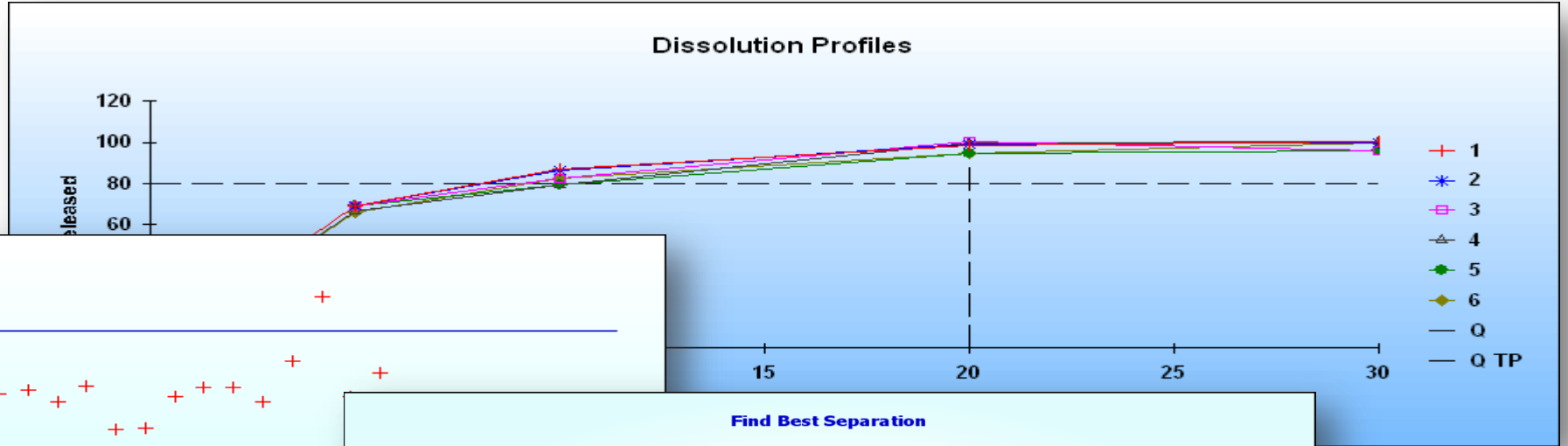


... and can even include custom equations...

	Time	Area	Height	Amount	Conc.
AVERAGE:	0.023	1.000	349.351	132.807	132.807
STANDARD DEVIATION:	0.000	0.576	200.423	76.664	76.664
maximum value:	0.023	1.967	682.192	261.400	261.400
minimum value:	0.022	0.134	46.889	17.431	17.431

Area
=IF(ISERROR(AVERAGE(E14:E31)),"n.a.",AVERAGE(E14:E31))
=IF(ISERROR(STDEV(E14:E31)),"n.a.",STDEV(E14:E31))
=MAX(E14:E31)
=MIN(E14:E31)

... and charts



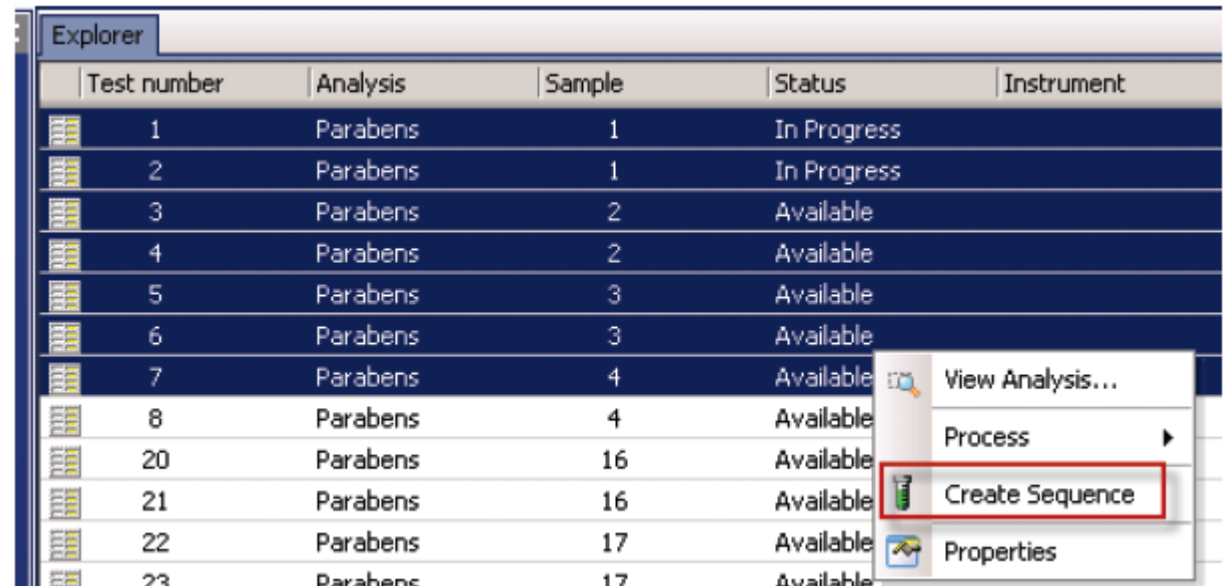


ThermoFisher
S C I E N T I F I C

Chromeleon and Samplemanager

Interfacing

- Create a sequence from SampleManager
 - Select samples in SampleManager
 - In the context menu Create Sequence



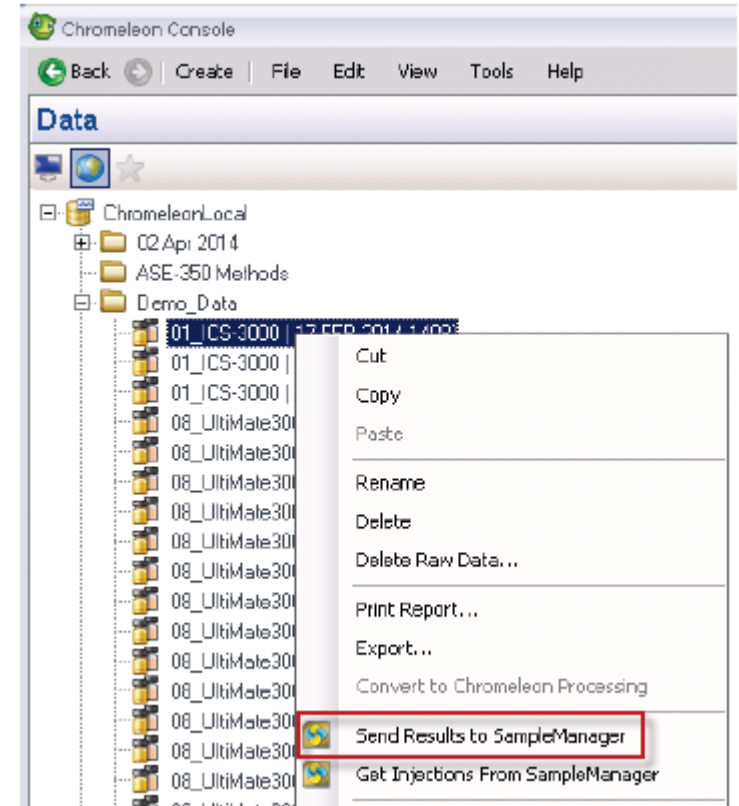
The screenshot shows the 'Explorer' window in SampleManager. It contains a table with the following columns: Test number, Analysis, Sample, Status, and Instrument. The table lists 13 test entries. A context menu is open over the table, with the 'Create Sequence' option highlighted by a red rectangle.

Test number	Analysis	Sample	Status	Instrument
1	Parabens	1	In Progress	
2	Parabens	1	In Progress	
3	Parabens	2	Available	
4	Parabens	2	Available	
5	Parabens	3	Available	
6	Parabens	3	Available	
7	Parabens	4	Available	
8	Parabens	4	Available	
20	Parabens	16	Available	
21	Parabens	16	Available	
22	Parabens	17	Available	
23	Parabens	17	Available	

Context menu options:

- View Analysis...
- Process
- Create Sequence**
- Properties

- Upload results to SampleManager
 - Results ready in Chromeleon
 - Select sequence
 - Send Results to SampleManager



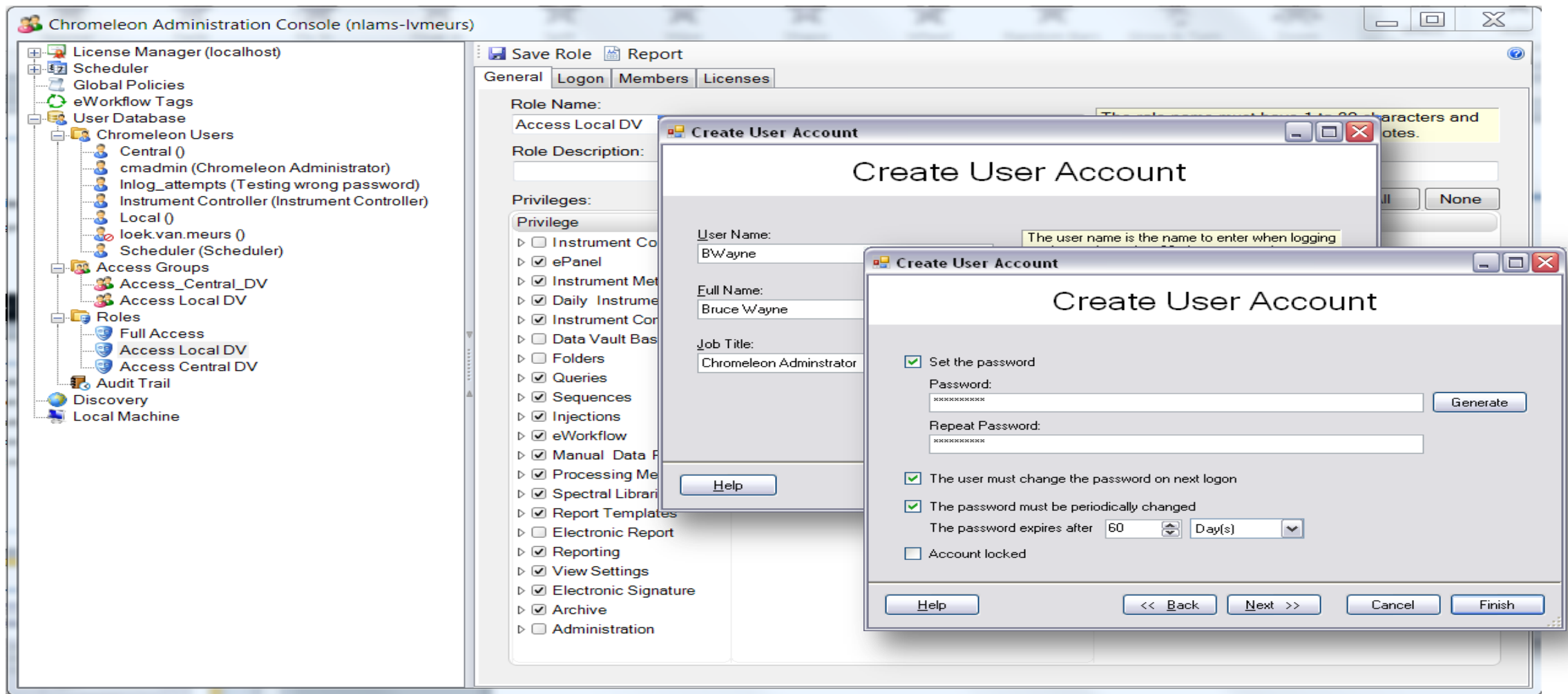


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S C I E N T I F I C

Compliance

User management and Audit Trails

- Ensure Compliance in your laboratory using:
 - Comprehensive user management tools
 - Fully automated hardware and software validation
 - Audit Trails to trace all actions done in the software
 - History views of objects to track changes and easily revert to prior versions



Control what users can access and change

Instrument Audit Trail - 20090216

Date	Time	Retention Time	Device	Message
	7:38 PM	0.144	PumpModule.Pump	PumpModule.Pump.%B.Value = 40.0
	7:38 PM	0.144	PumpModule.Pump	PumpModule.Pump.Flow.Nominal = 3.704
	7:38 PM	0.144	PumpModule.Pump	PumpModule.Pump.%B.Value = 40.0
	7:43 PM	0.240	PumpModule.Pump	PumpModule.Pump.Flow.Nominal = 3.704
	7:43 PM	0.240	PumpModule.Pump	PumpModule.Pump.%B.Value = 40.0
	7:43 PM	0.240	UV.UV_VIS_1.AcqOff	
16/02/2009	03:47:43 PM	0.240	UV.3DFIELD	AcqOff
16/02/2009	03:47:44 PM			End of injection "Linearity 1".
16/02/2009	03:47:44 PM			Start of injection 4 "Linearity 1", using instrument method "Linearity 1 Run 3".
16/02/2009	03:47:44 PM	0.000	UV.3DFIELD	UV.3DFIELD.MinWavelength = 190.0
16/02/2009	03:47:44 PM	0.000	UV.3DFIELD	UV.3DFIELD.MaxWavelength = 400.0
16/02/2009	03:47:44 PM	0.000	UV.3DFIELD	UV.3DFIELD.BunchWidth = 2
16/02/2009	03:47:44 PM	0.000	UV	UV.ResponseTime = 0.025
16/02/2009	03:47:44 PM	0.000	UV	UV.Data_Collection_Rate = 100.0
16/02/2009	03:47:44 PM	0.000	ColumnOven	ColumnOven.Temperature.Nominal = 100.0
16/02/2009	03:47:44 PM	0.000	Sampler	Sampler.Temperature.Nominal = 20.0
16/02/2009	03:47:44 PM	0.000	Sampler	Log TempCtrl: On
16/02/2009	03:47:44 PM	0.000	Sampler	Sampler.Temperature.LowerLimit = 4.0
16/02/2009	03:47:44 PM	0.000	Sampler	Sampler.Temperature.UpperLimit = 45.0
16/02/2009	03:47:44 PM	0.000	PumpModule.Pump	PumpModule.Pump.%A.Equate = "Water"
16/02/2009	03:47:44 PM	0.000	PumpModule.Pump	PumpModule.Pump.%B.Equate = "Acetonitrile"

1287 audit trail messages.

Object Audit Trails:
Displays complete change history of object

Restore Previous Version

RSLC Alkylphenone Linearity Sequence Audit Trail (ChromleonData/Demo_Data/RSLC Alkylphenone Linearity.seq)

Nr	Name	Type	Version	Operator	Operation	Comment	Date / Time
13	RSLC Alkylphenone Linearity	Sequence	11	JBond	Changed Injection	Changed 2 µL to 5 µL Changed 2 µL to 5 µL	17/02/2009 03:12
12	RSLC Alkylphenone Linearity	Sequence	10	JBond	Changed Injection	Corrected Injection Volume, as this was a 5 µL full loop Corrected Inj	17/02/2009 03:11
11	RSLC Alkylphenone Linearity	Sequence	9	HSolo	Changed	Changed width of first Column Changed width of first Column	17/02/2009 03:01
10	RSLC Linearity.procmeth	Processing Method	8	HSolo	Changed	Updated Heptanophenone retention time and changed title Updated	17/02/2009 03:00
9	360.smp/UV_VIS_1.channel	Chromatogram	7	HSolo	Changed	Removed manual integration, as automatic integration is correct. R	17/02/2009 02:57
8	RSLC Linearity.procmeth	Processing Method	6	MRiggs	Changed	Updated Uracil retention time Updated Uracil retention time	17/02/2009 02:55
7	360.smp/UV_VIS_1.channel	Chromatogram	5	MRiggs	Changed	Manually adjusted hexanophenone peak Manually adjusted hexanop	17/02/2009 02:54
6	RSLC Linearity.layout	Data Presentation	4	MRiggs	Changed	Changed Resolution form USP to EP Changed Resolution form USP	17/02/2009 02:53
5	RSLC Linearity.report	Report Template	3	MRiggs	Changed	Updated the report to show associated reports Updated the report to	17/02/2009 02:50
4	RSLC Alkylphenone Linearity	Sequence	2	JTKirk	Changed	Optimized column heights and widths Optimized column heights and	16/02/2009 03:55
3	RSLC Alkylphenone Linearity	Sequence	1	SYSTEM	Finished Run		16/02/2009 03:54
2	RSLC Alkylphenone Linearity	Sequence	1	SYSTEM	Started Run		16/02/2009 03:45
1	RSLC Alkylphenone Linearity	Sequence	1	JTKirk	Created		16/02/2009 03:44

chrom://cm_bvc/ChromleonData/Demo_Data/RSLC%20Alkylphenone%20Linearity.seq?transaction=2881944649167000

Instrument Audit Trails

All Audit Trails can be searched, grouped and filtered



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S C I E N T I F I C

Summary

- Uses Operational Simplicity™ to minimize the steps and time needed to generate the result!
- Offers state-of-the-art technology:
 - User Interface with “Ribbon”
 - Integration wizards
 - eWorkflows – THE framework for Operational Simplicity
 - MS integration
 - Enhanced reporting functionality
 - Advanced features to ensure compliance
 - All data centralized in a secure environment

All chromatography data centralized in one software



Thank you