DataApex
SMART SOLUTION FOR LABORATORIES

Clarity™
advanced chromatography software

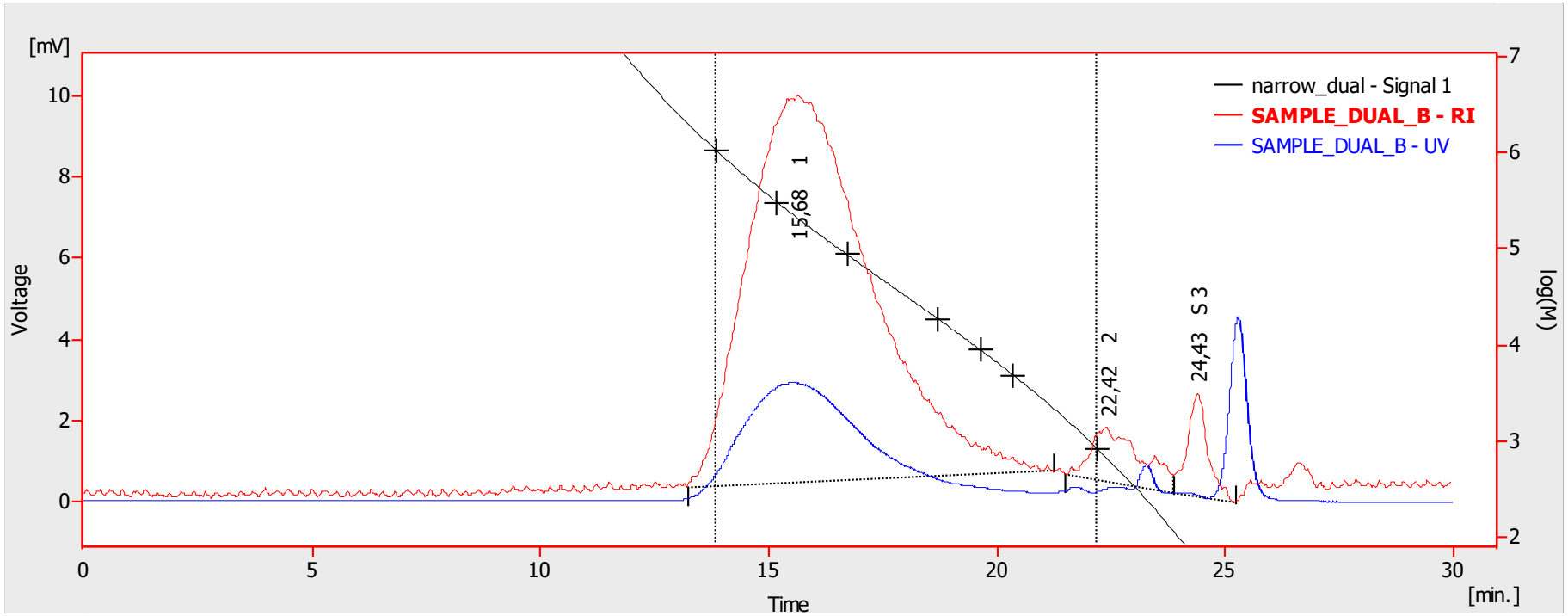
GPC – GEL PERMEATION CH.

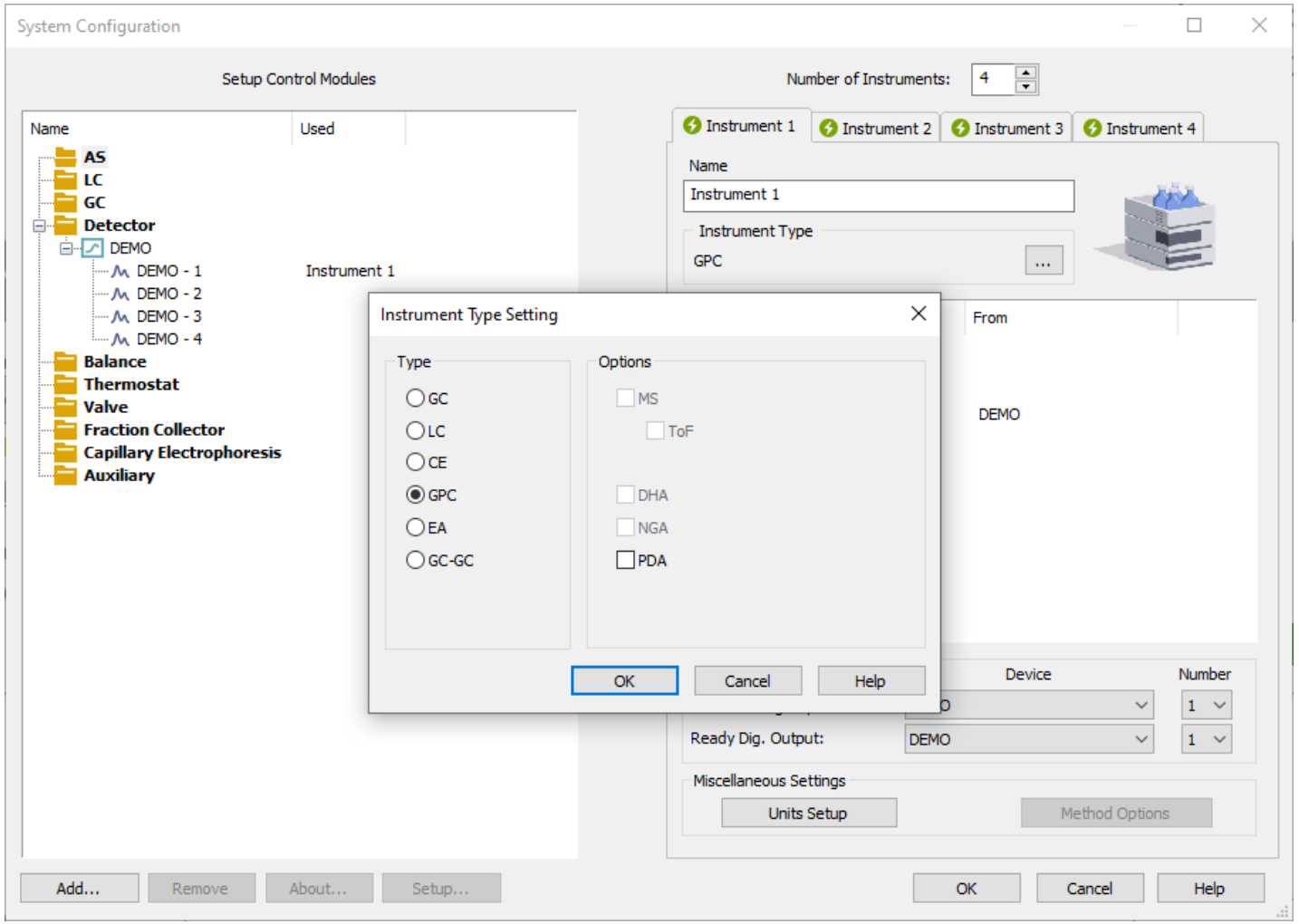
CLARITY EXTENSION

P002/80A 02/2020

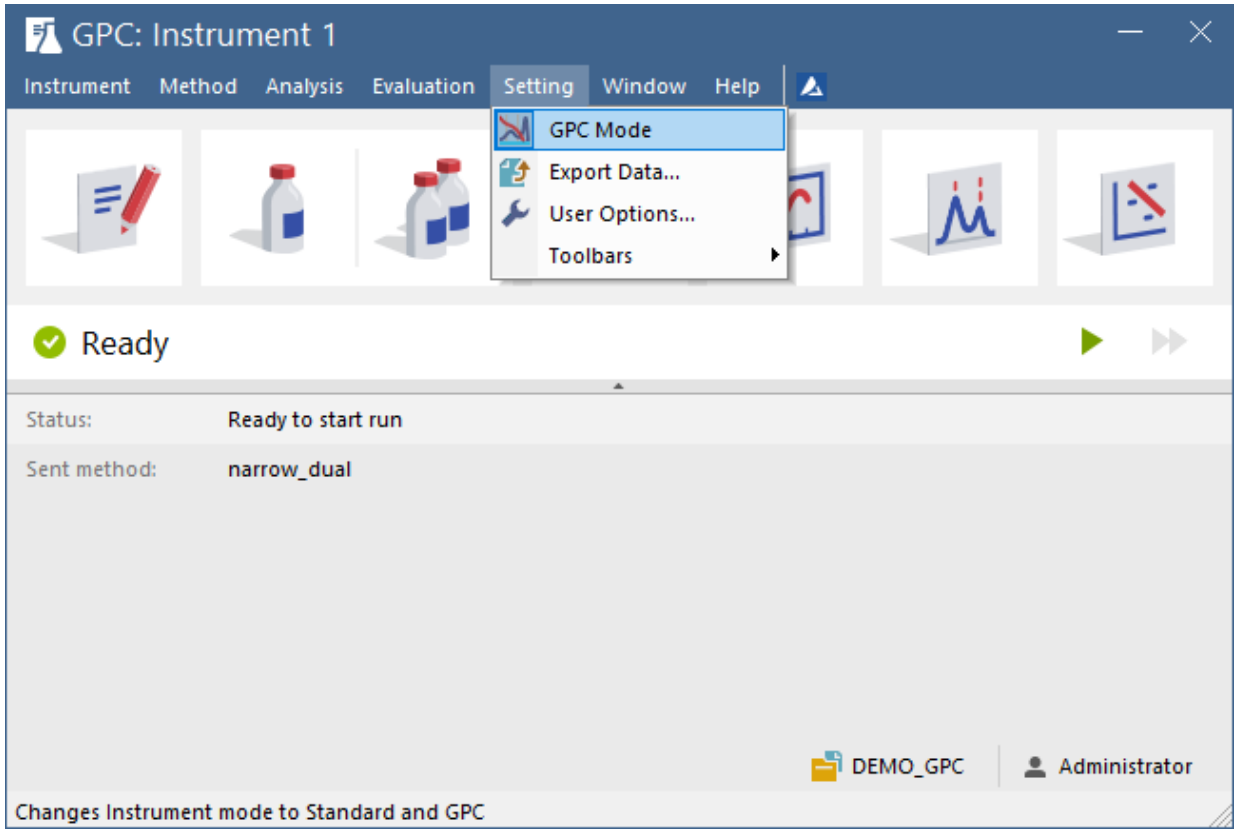
GPC Extension

Optional extension for SEC/GPC data evaluation

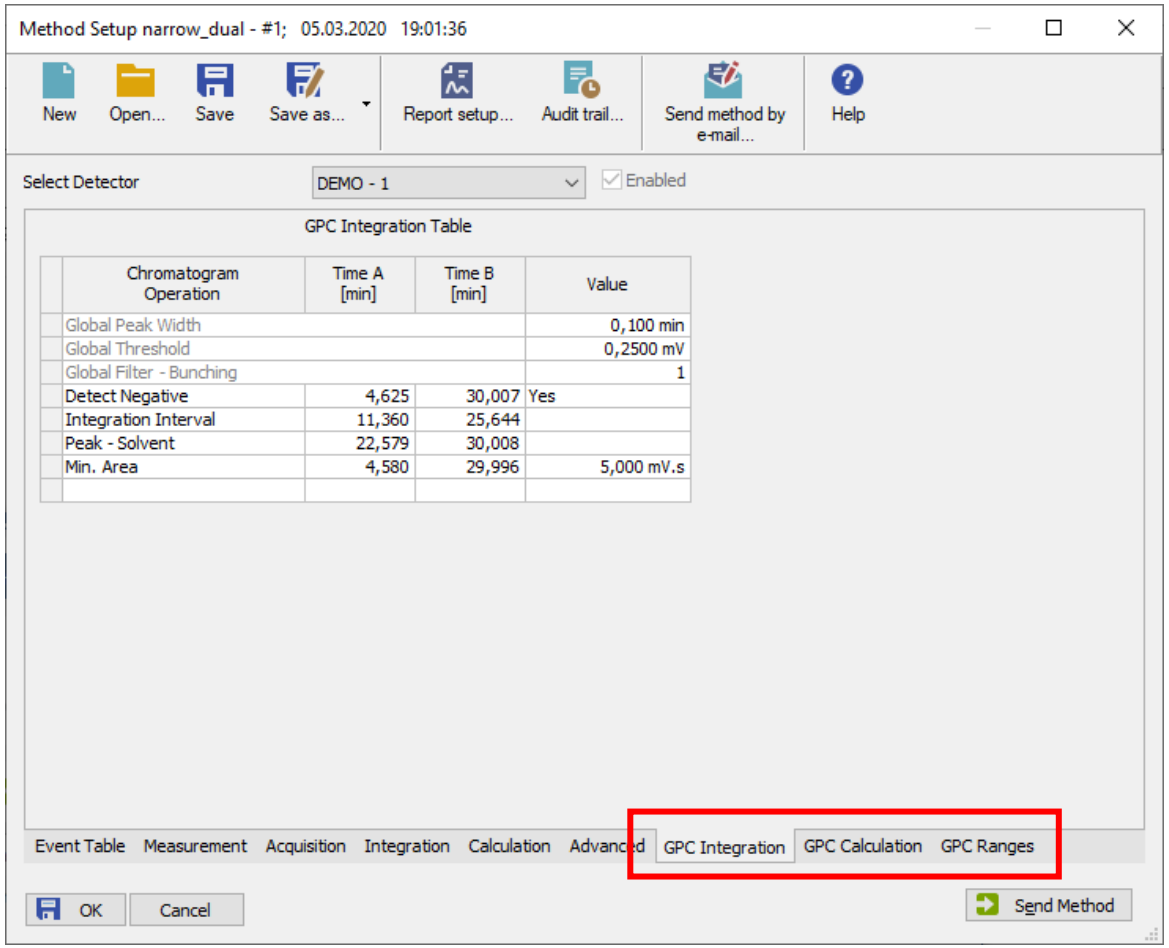




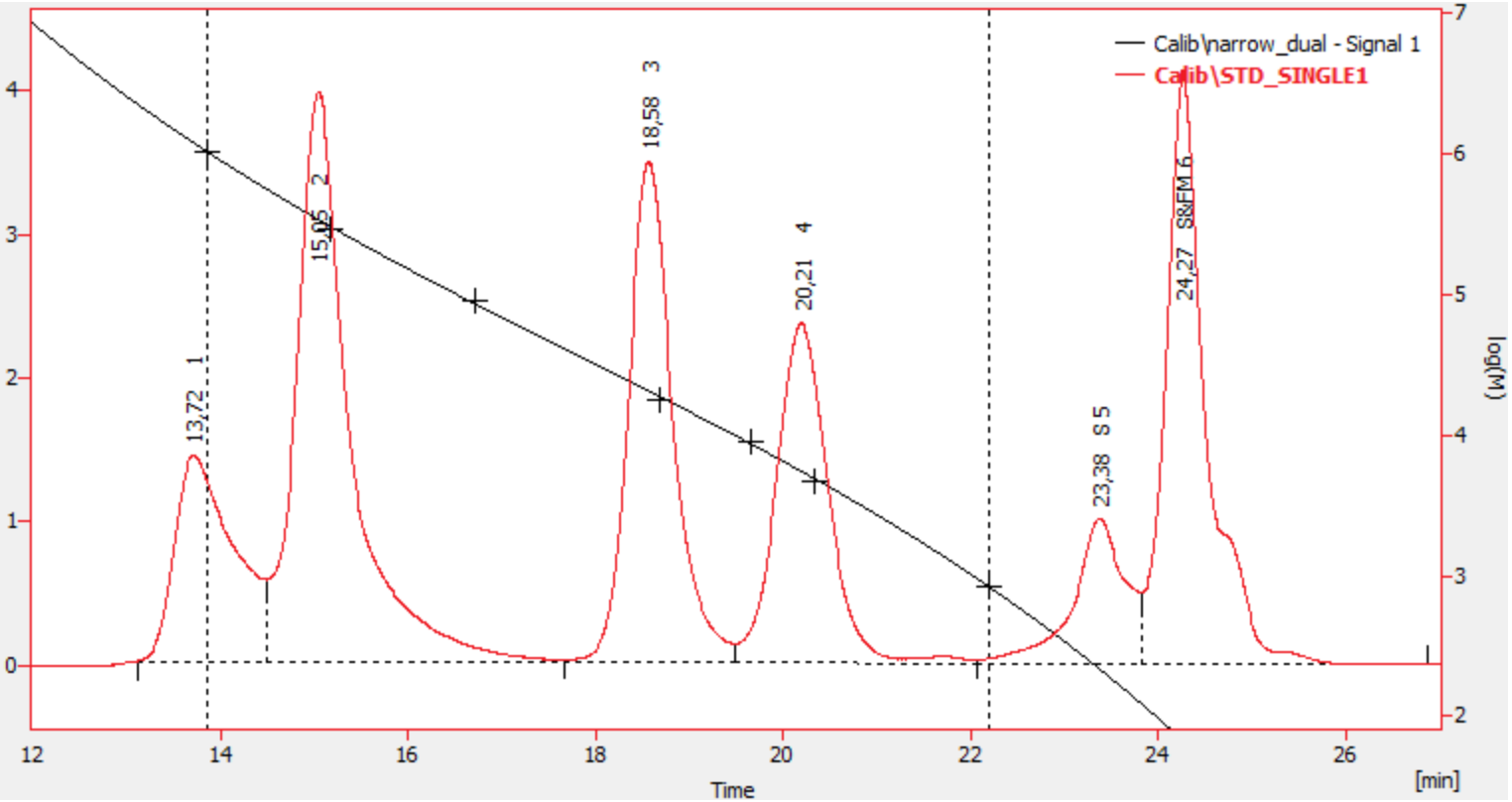
- GPC Instrument is configured in the System Configuration window
- GPC can be enabled on station where p/n A28 is purchased



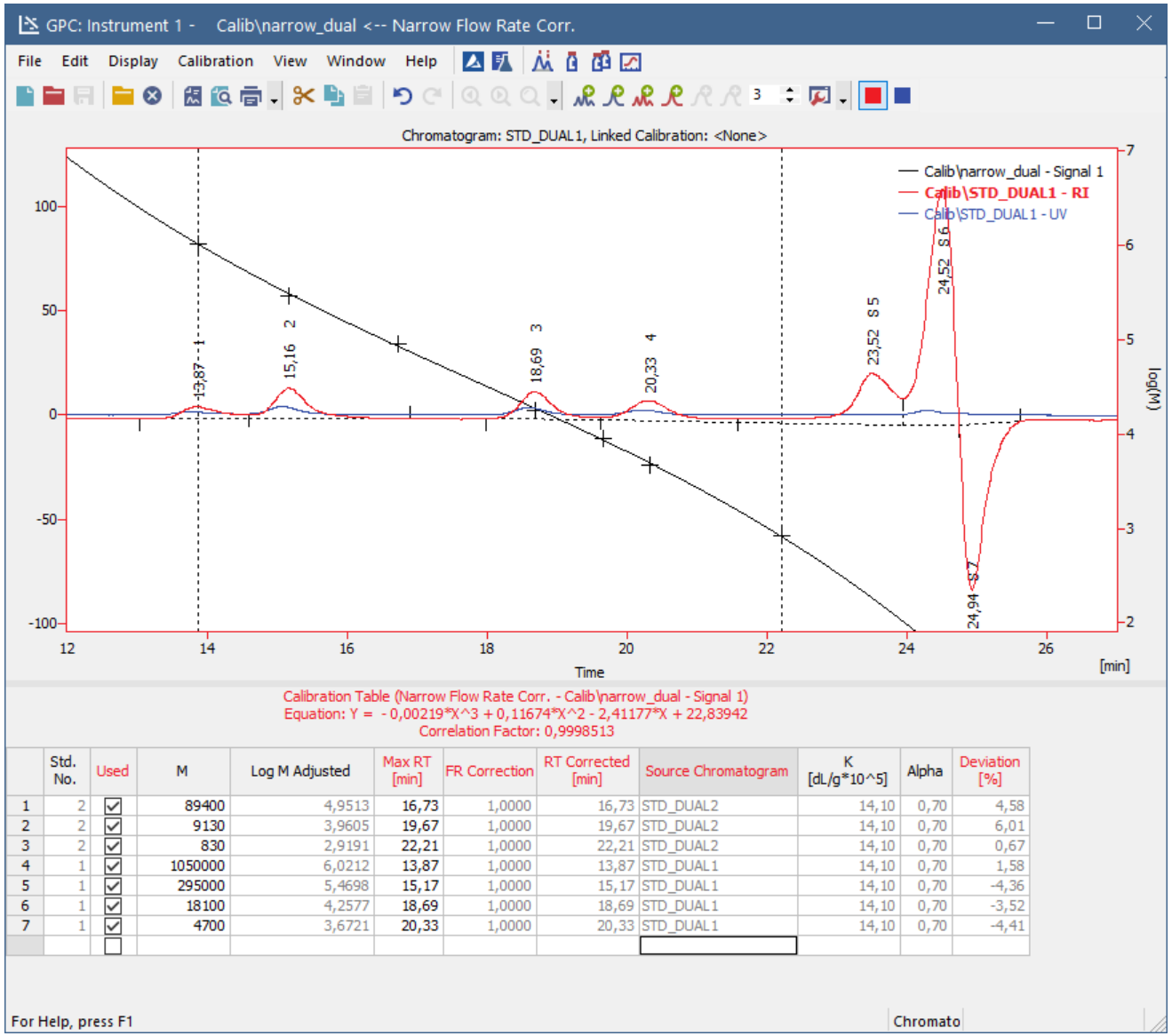
- GPC Mode or Standard Mode can be selected in the Setting menu on the GPC Instrument
- Type of mode is then indicated by GPC inscription in the header of each window



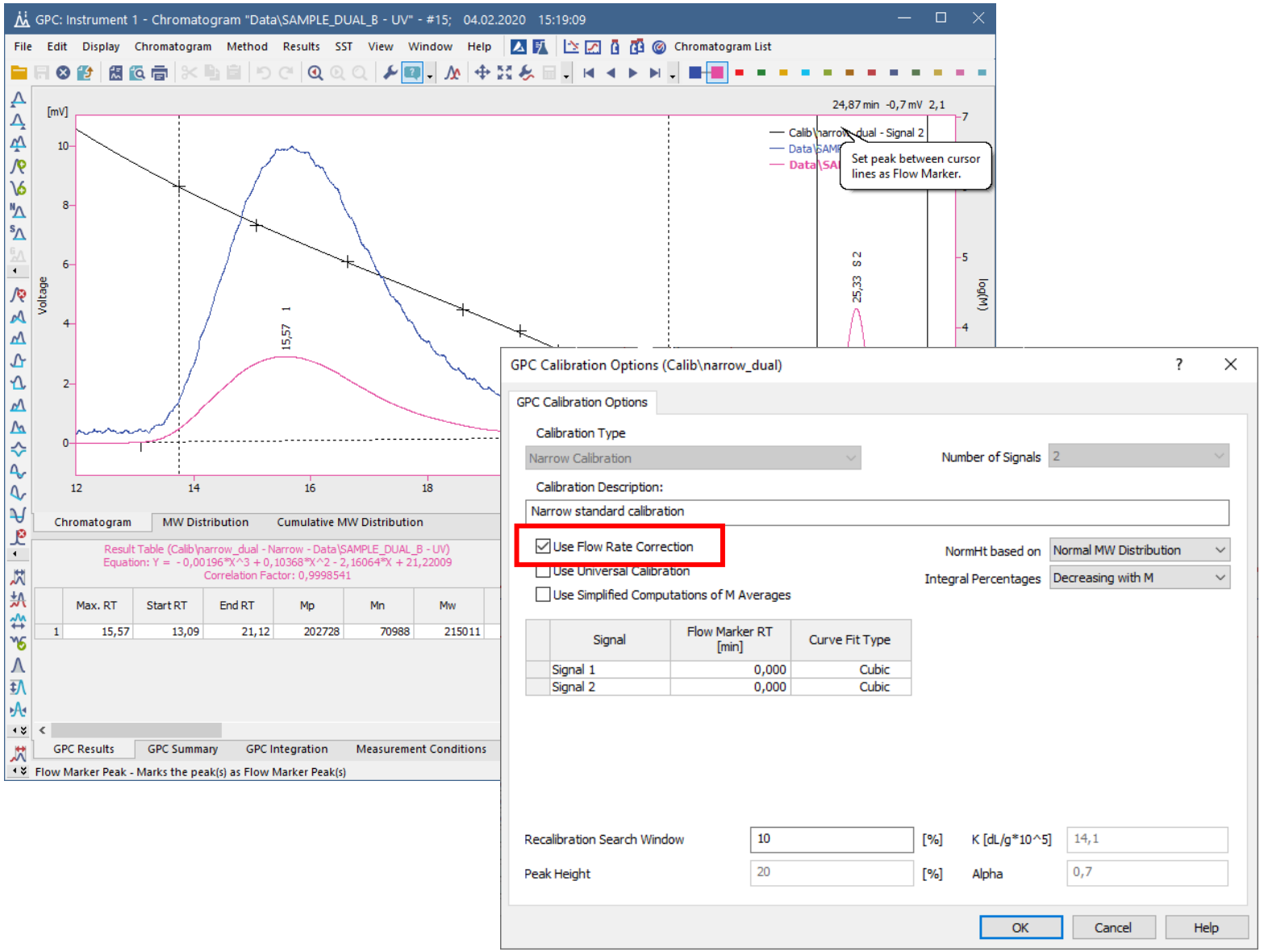
- GPC related tabs in the method
- Chromatograms can be evaluated in GPC or standard mode



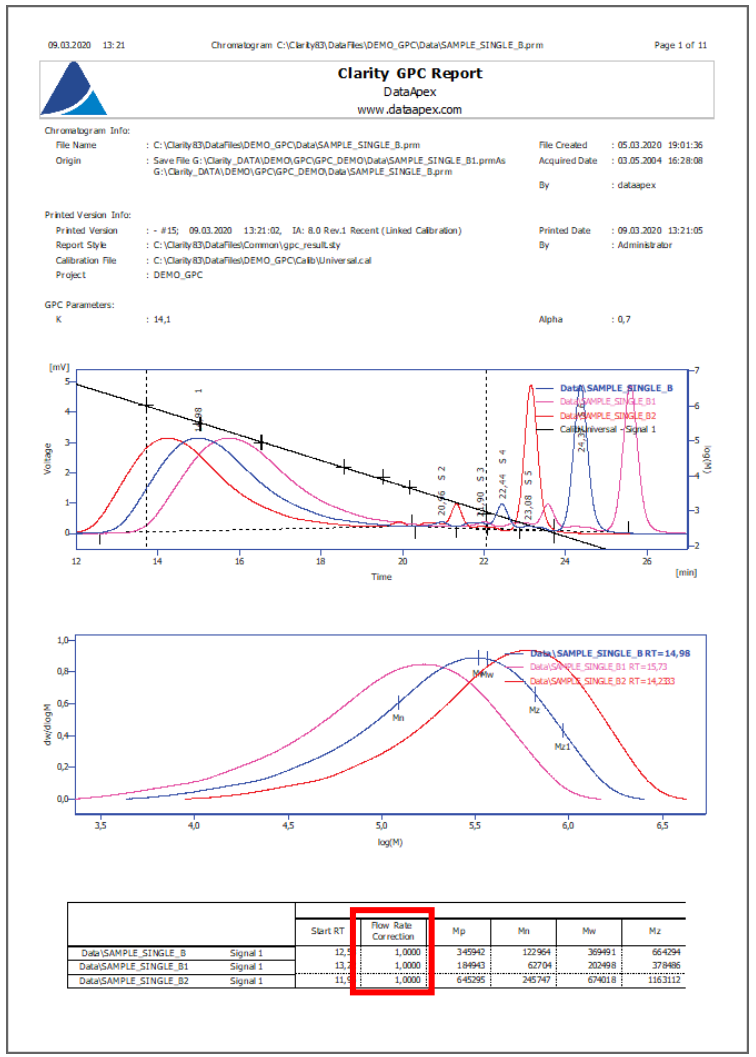
- Molecular weight as a function of elution volume
- Narrow standards
- Flow rate correction
- Universal calibration
- Broad calibration
- Multiple linear (Hamielec) fit
- Multiple integral standard
- Broad on narrow



	Std. No.	Used	M	Log M Adjusted	Max RT [min]	FR Correction	RT Corrected [min]	Source Chromatogram	K [dL/g*10^5]	Alpha	Deviation [%]
1	2	☑	89400	4,9513	16,73	1,0000	16,73	STD_DUAL2	14,10	0,70	4,58
2	2	☑	9130	3,9605	19,67	1,0000	19,67	STD_DUAL2	14,10	0,70	6,01
3	2	☑	830	2,9191	22,21	1,0000	22,21	STD_DUAL2	14,10	0,70	0,67
4	1	☑	1050000	6,0212	13,87	1,0000	13,87	STD_DUAL1	14,10	0,70	1,58
5	1	☑	295000	5,4698	15,17	1,0000	15,17	STD_DUAL1	14,10	0,70	-4,36
6	1	☑	18100	4,2577	18,69	1,0000	18,69	STD_DUAL1	14,10	0,70	-3,52
7	1	☑	4700	3,6721	20,33	1,0000	20,33	STD_DUAL1	14,10	0,70	-4,41
		☐									



- Menu Chromatogram – Peak – Flow Marker Peak
- GPC Calibration must be set to Use Flow Rate Correction



09.03.2020 13:21 Chromatogram C:\Clarity83\DataFiles\DEMO_GPC\Data\SAMPLE_SINGLE_B.prm Page 1 of 11

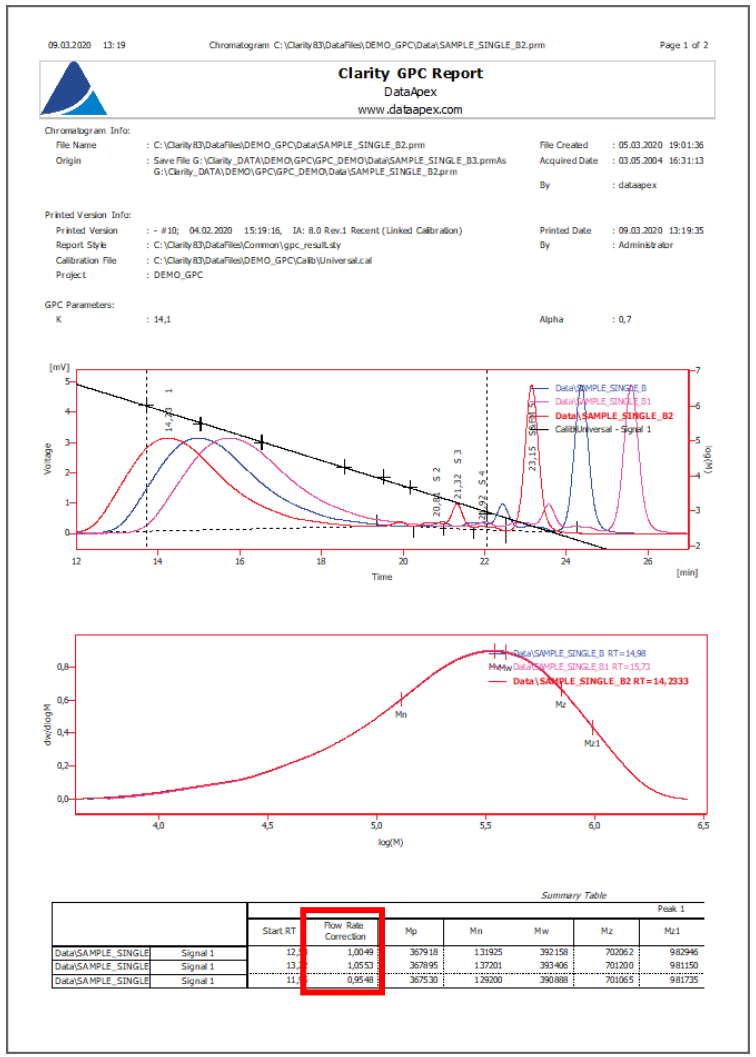
Clarity GPC Report
DataApex
www.dataapex.com

Chromatogram Info:
File Name : C:\Clarity83\DataFiles\DEMO_GPC\Data\SAMPLE_SINGLE_B.prm
Origin : Save File G:\Clarity_DATA\DEMO\GPC\GPC_DEMO\Data\SAMPLE_SINGLE_B1.prmAs G:\Clarity_DATA\DEMO\GPC\GPC_DEMO\Data\SAMPLE_SINGLE_B.prm
File Created : 05.03.2020 19:01:36
Acquired Date : 03.05.2004 16:28:08
By : dataapex

Printed Version Info:
Printed Version : - #15; 09.03.2020 13:21:02, IA: 8.0 Rev.1 Recent (Linked Calibration)
Report Style : C:\Clarity83\DataFiles\Common\gpc_result.sty
Calibration File : C:\Clarity83\DataFiles\DEMO_GPC\Calib\Universal.cal
Project : DEMO_GPC
Printed Date : 09.03.2020 13:21:05
By : Administrator

GPC Parameters:
K : 14,1
Alpha : 0,7

		Start RT	Flow Rate Correction	Mp	Mn	Mw	Mz
Data\SAMPLE_SINGLE_B	Signal 1	12,5	1,0000	345942	122964	369491	664294
Data\SAMPLE_SINGLE_B1	Signal 1	13,7	1,0000	184943	62704	202498	378486
Data\SAMPLE_SINGLE_B2	Signal 1	11,[illegible]	1,0000	645295	245747	674018	1163112



09.03.2020 13:19 Chromatogram C:\Clarity83\DataFiles\DEMO_GPC\Data\SAMPLE_SINGLE_B2.prm Page 1 of 2

Clarity GPC Report
DataApex
www.dataapex.com

Chromatogram Info:
File Name : C:\Clarity83\DataFiles\DEMO_GPC\Data\SAMPLE_SINGLE_B2.prm
Origin : Save File G:\Clarity_DATA\DEMO\GPC\GPC_DEMO\Data\SAMPLE_SINGLE_B3.prmAs G:\Clarity_DATA\DEMO\GPC\GPC_DEMO\Data\SAMPLE_SINGLE_B2.prm
File Created : 05.03.2020 19:01:36
Acquired Date : 03.05.2004 16:31:13
By : dataapex

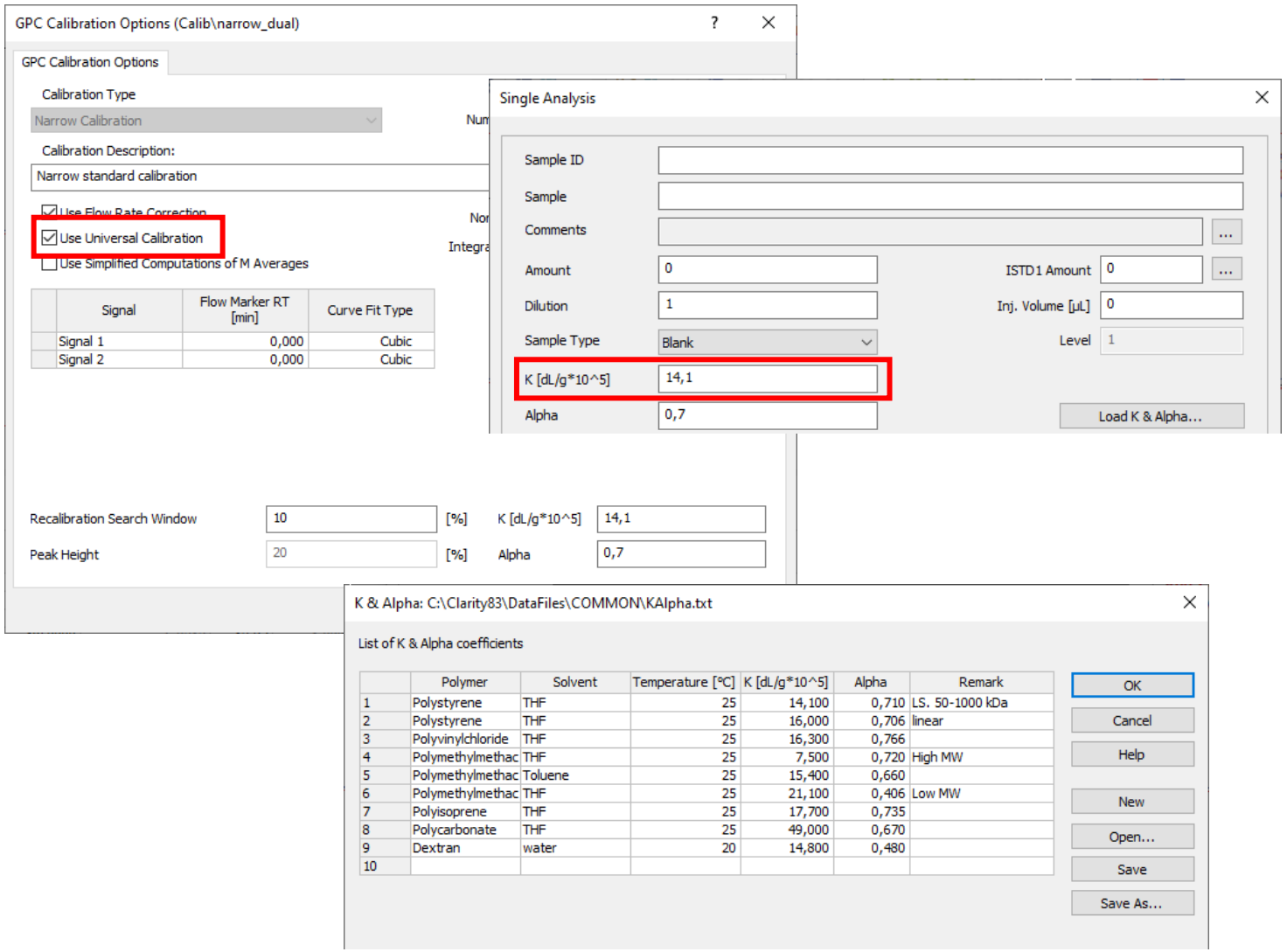
Printed Version Info:
Printed Version : - #10; 04.02.2020 15:19:16, IA: 8.0 Rev.1 Recent (Linked Calibration)
Report Style : C:\Clarity83\DataFiles\Common\gpc_result.sty
Calibration File : C:\Clarity83\DataFiles\DEMO_GPC\Calib\Universal.cal
Project : DEMO_GPC
Printed Date : 09.03.2020 13:19:35
By : Administrator

GPC Parameters:
K : 14,1
Alpha : 0,7

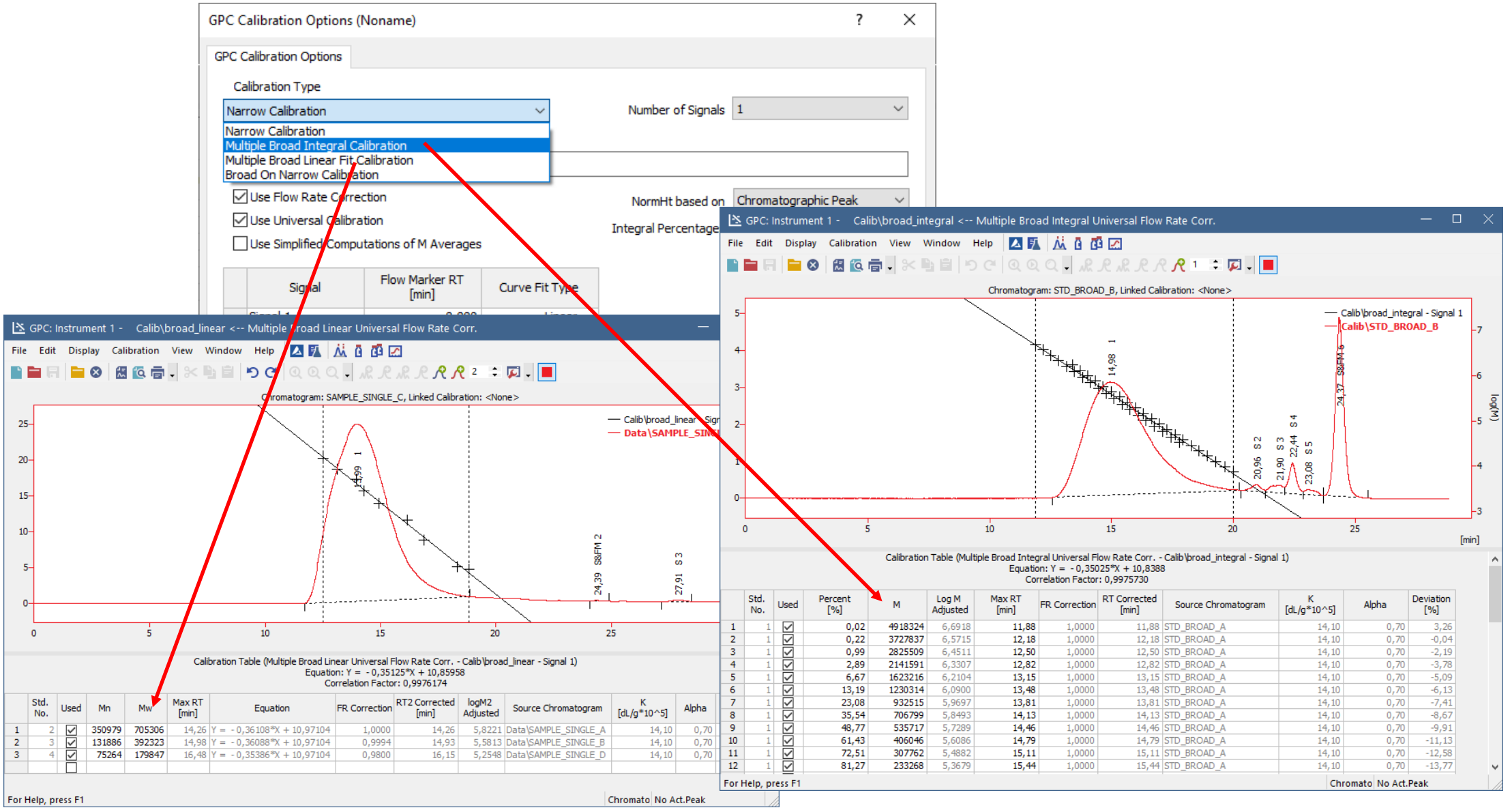
Summary Table

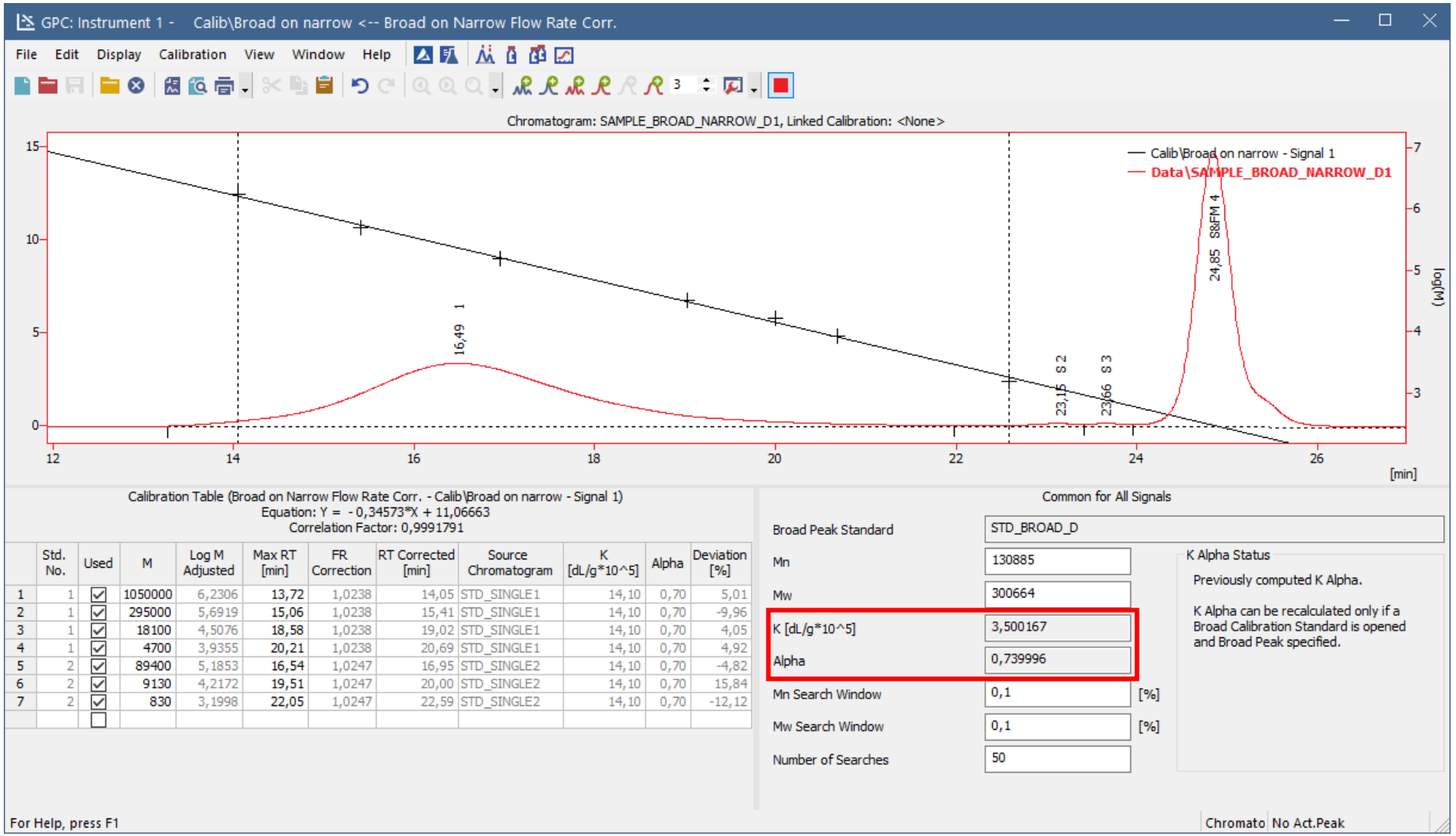
		Peak 1						
		Start RT	Flow Rate Correction	Mp	Mn	Mw	Mz	Mz1
Data\SAMPLE_SINGLE	Signal 1	12,[illegible]	1,0049	367918	131925	392158	702062	982946
Data\SAMPLE_SINGLE	Signal 1	13,[illegible]	1,0553	367895	137201	393406	701200	981150
Data\SAMPLE_SINGLE	Signal 1	11,[illegible]	0,9548	367530	129200	390888	701065	981735

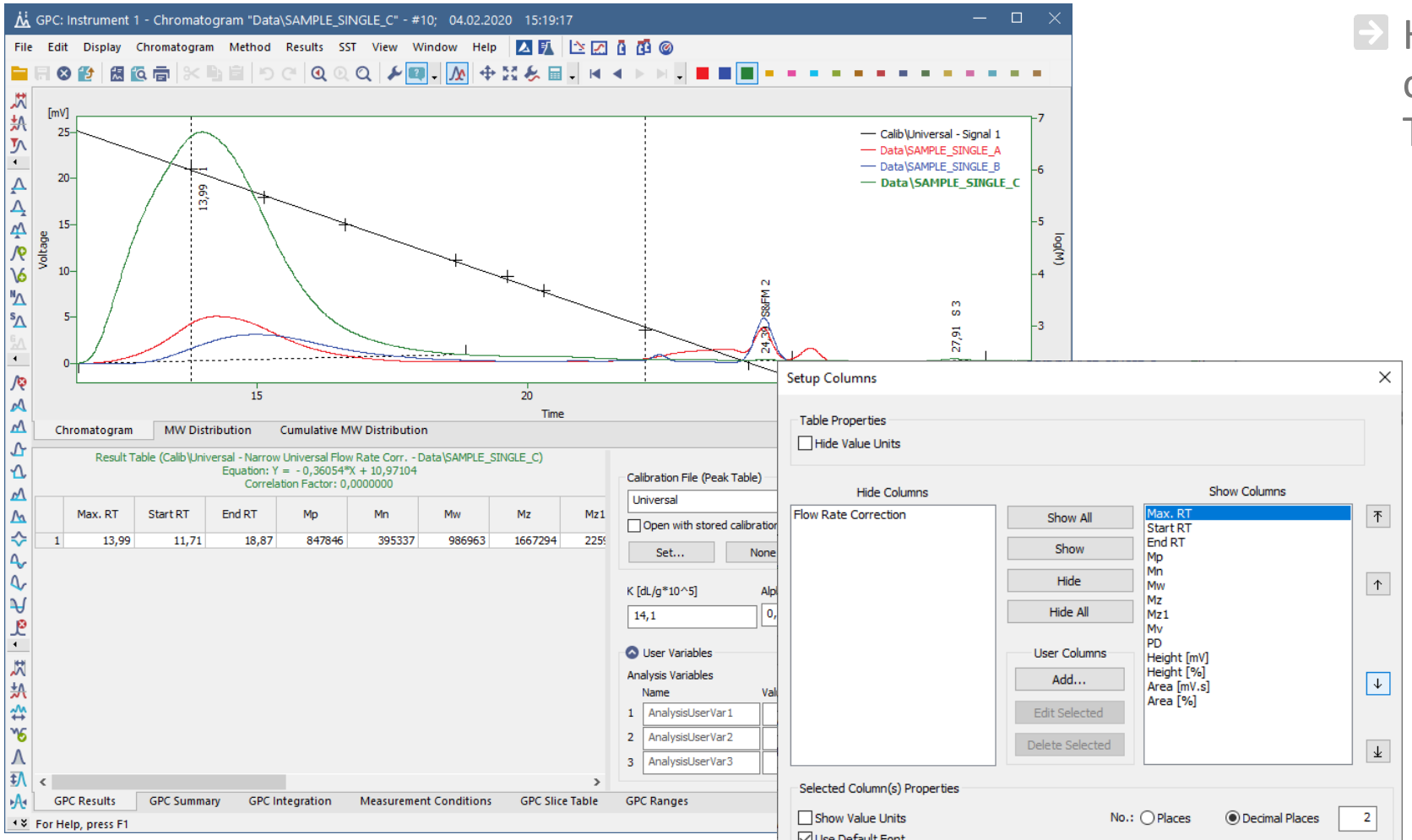
- Flow rate correction applied in the second chromatogram



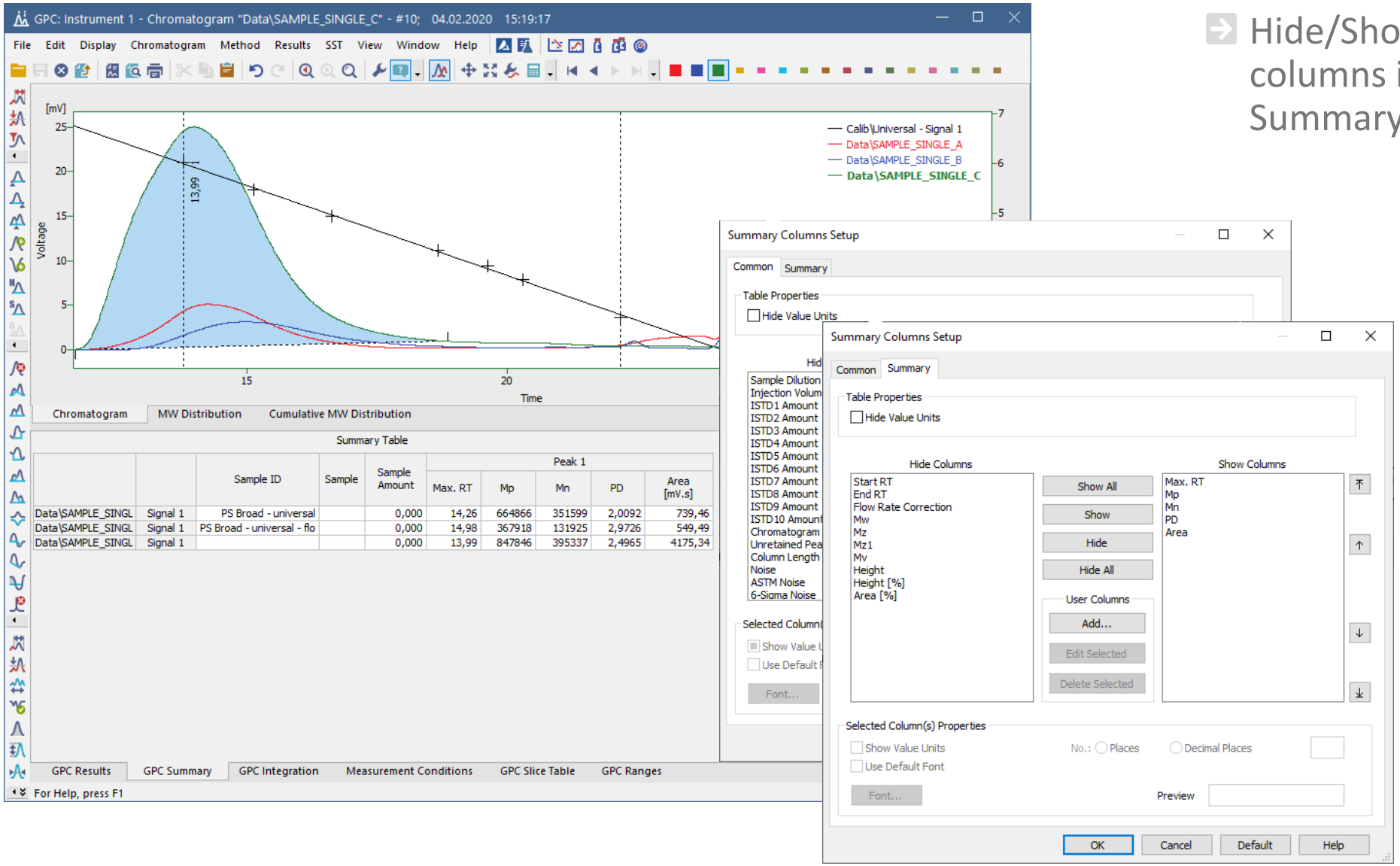
- Universal Calibration option used along with Mark-Houwink parameters


GPC Calibration Options (Noname)
GPC Calibration Options
Calibration Type
Narrow Calibration
Narrow Calibration
Multiple Broad Integral Calibration
Multiple Broad Linear Fit Calibration
Broad On Narrow Calibration
Number of Signals
1
Use Flow Rate Correction
Use Universal Calibration
Use Simplified Computations of M Averages
NormHt based on
Chromatographic Peak
Integral Percentage
Signal
Flow Marker RT [min]
Curve Fit Type
GPC: Instrument 1 - Calib\broad_linear <-- Multiple Broad Linear Universal Flow Rate Corr.
File Edit Display Calibration View Window Help
Chromatogram: SAMPLE_SINGLE_C, Linked Calibration: <None>
Calib\broad_linear - Sig
Data\SAMPLE_SING
Calibration Table (Multiple Broad Linear Universal Flow Rate Corr. - Calib\broad_linear - Signal 1)
Equation: Y = -0,35125*X + 10,85958
Correlation Factor: 0,9976174
Std. No. | Used | Mn | Mw | Max RT [min] | Equation | FR Correction | RT2 Corrected [min] | logM2 Adjusted | Source Chromatogram | K [dL/g*10^5] | Alpha
1 | 2 | 350979 | 705306 | 14,26 | Y = -0,36108*X + 10,97104 | 1,0000 | 14,26 | 5,8221 | Data\SAMPLE_SINGLE_A | 14,10 | 0,70
2 | 3 | 131886 | 392323 | 14,98 | Y = -0,36088*X + 10,97104 | 0,9994 | 14,93 | 5,5813 | Data\SAMPLE_SINGLE_B | 14,10 | 0,70
3 | 4 | 75264 | 179847 | 16,48 | Y = -0,35386*X + 10,97104 | 0,9800 | 16,15 | 5,2548 | Data\SAMPLE_SINGLE_D | 14,10 | 0,70
For Help, press F1
Chromato
No Act.Peak
GPC: Instrument 1 - Calib\broad_integral <-- Multiple Broad Integral Universal Flow Rate Corr.
File Edit Display Calibration View Window Help
Chromatogram: STD_BROAD_B, Linked Calibration: <None>
Calib\broad_integral - Signal 1
Calib\STD_BROAD_B
[min]
log(M)
Calibration Table (Multiple Broad Integral Universal Flow Rate Corr. - Calib\broad_integral - Signal 1)
Equation: Y = -0,35025*X + 10,8388
Correlation Factor: 0,9975730
Std. No. | Used | Percent [%] | M | Log M Adjusted | Max RT [min] | FR Correction | RT Corrected [min] | Source Chromatogram | K [dL/g*10^5] | Alpha | Deviation [%]
1 | 1 | 0,02 | 4918324 | 6,6918 | 11,88 | 1,0000 | 11,88 | STD_BROAD_A | 14,10 | 0,70 | 3,26
2 | 1 | 0,22 | 3727837 | 6,5715 | 12,18 | 1,0000 | 12,18 | STD_BROAD_A | 14,10 | 0,70 | -0,04
3 | 1 | 0,99 | 2825509 | 6,4511 | 12,50 | 1,0000 | 12,50 | STD_BROAD_A | 14,10 | 0,70 | -2,19
4 | 1 | 2,89 | 2141591 | 6,3307 | 12,82 | 1,0000 | 12,82 | STD_BROAD_A | 14,10 | 0,70 | -3,78
5 | 1 | 6,67 | 1623216 | 6,2104 | 13,15 | 1,0000 | 13,15 | STD_BROAD_A | 14,10 | 0,70 | -5,09
6 | 1 | 13,19 | 1230314 | 6,0900 | 13,48 | 1,0000 | 13,48 | STD_BROAD_A | 14,10 | 0,70 | -6,13
7 | 1 | 23,08 | 932515 | 5,9697 | 13,81 | 1,0000 | 13,81 | STD_BROAD_A | 14,10 | 0,70 | -7,41
8 | 1 | 35,54 | 706799 | 5,8493 | 14,13 | 1,0000 | 14,13 | STD_BROAD_A | 14,10 | 0,70 | -8,67
9 | 1 | 48,77 | 535717 | 5,7289 | 14,46 | 1,0000 | 14,46 | STD_BROAD_A | 14,10 | 0,70 | -9,91
10 | 1 | 61,43 | 406046 | 5,6086 | 14,79 | 1,0000 | 14,79 | STD_BROAD_A | 14,10 | 0,70 | -11,13
11 | 1 | 72,51 | 307762 | 5,4882 | 15,11 | 1,0000 | 15,11 | STD_BROAD_A | 14,10 | 0,70 | -12,58
12 | 1 | 81,27 | 233268 | 5,3679 | 15,44 | 1,0000 | 15,44 | STD_BROAD_A | 14,10 | 0,70 | -13,77
For Help, press F1
Chromato
No Act.Peak

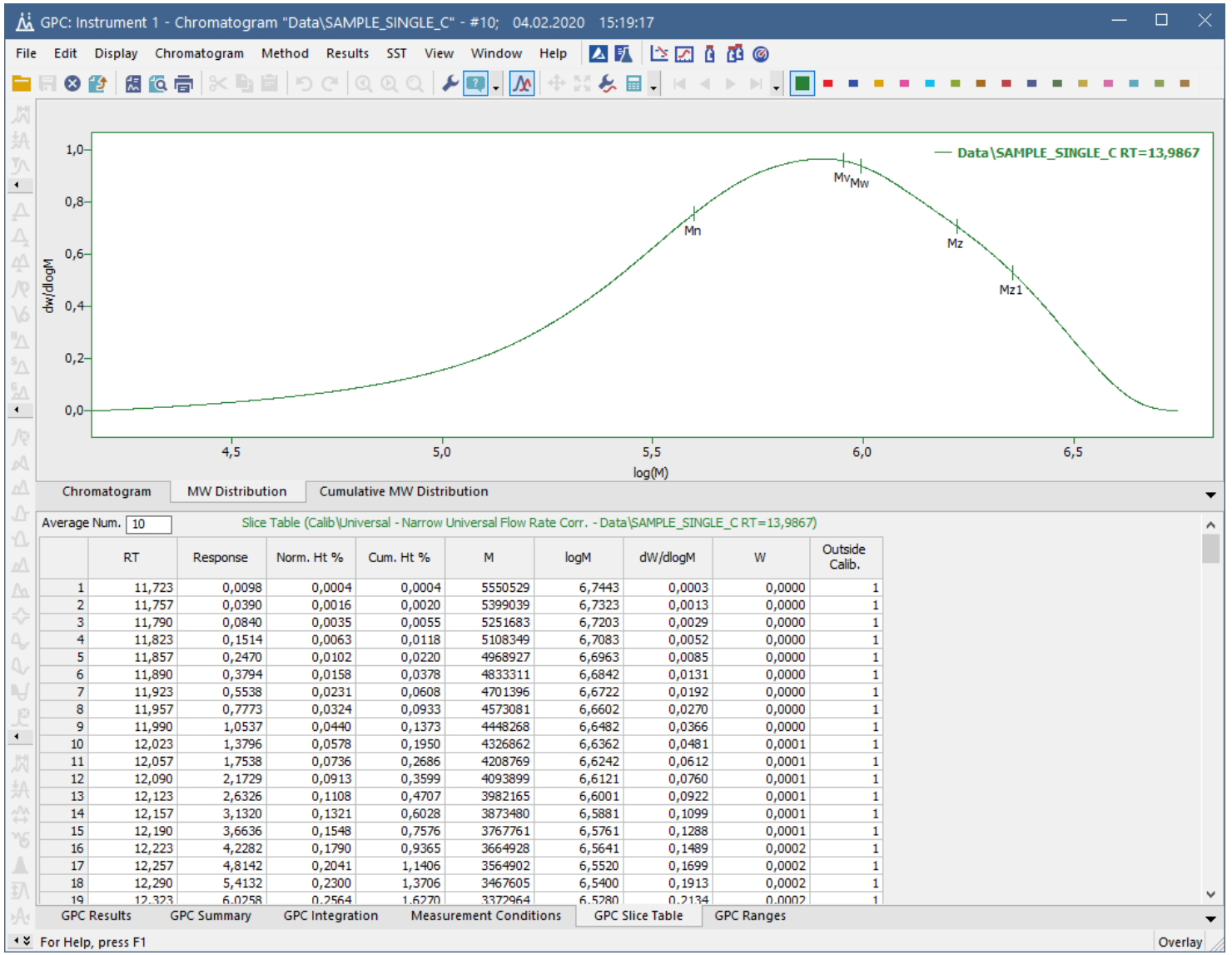

GPC: Instrument 1 - Calib\Broad on narrow <-- Broad on Narrow Flow Rate Corr.
File Edit Display Calibration View Window Help
Chromatogram: SAMPLE_BROAD_NARROW_D1, Linked Calibration: <None>
Calib\Broad on narrow - Signal 1
Data\SAMPLE_BROAD_NARROW_D1
16,49 1
23,15 S2
23,66 S3
24,85 S&FM 4
log(M)
[min]
Calibration Table (Broad on Narrow Flow Rate Corr. - Calib\Broad on narrow - Signal 1)
Equation: Y = -0,34573*X + 11,06663
Correlation Factor: 0,9991791
Std. No. | Used | M | Log M Adjusted | Max RT [min] | FR Correction | RT Corrected [min] | Source Chromatogram | K [dL/g*10^5] | Alpha | Deviation [%]
1 | 1 | 1050000 | 6,2306 | 13,72 | 1,0238 | 14,05 | STD_SINGLE1 | 14,10 | 0,70 | 5,01
2 | 1 | 295000 | 5,6919 | 15,06 | 1,0238 | 15,41 | STD_SINGLE1 | 14,10 | 0,70 | -9,96
3 | 1 | 18100 | 4,5076 | 18,58 | 1,0238 | 19,02 | STD_SINGLE1 | 14,10 | 0,70 | 4,05
4 | 1 | 4700 | 3,9355 | 20,21 | 1,0238 | 20,69 | STD_SINGLE1 | 14,10 | 0,70 | 4,92
5 | 2 | 89400 | 5,1853 | 16,54 | 1,0247 | 16,95 | STD_SINGLE2 | 14,10 | 0,70 | -4,82
6 | 2 | 9130 | 4,2172 | 19,51 | 1,0247 | 20,00 | STD_SINGLE2 | 14,10 | 0,70 | 15,84
7 | 2 | 830 | 3,1998 | 22,05 | 1,0247 | 22,59 | STD_SINGLE2 | 14,10 | 0,70 | -12,12
Common for All Signals
Broad Peak Standard STD_BROAD_D
Mn 130885
Mw 300664
K [dL/g*10^5] 3,500167
Alpha 0,739996
Mn Search Window 0,1 [%]
Mw Search Window 0,1 [%]
Number of Searches 50
K Alpha Status
Previously computed K Alpha.
K Alpha can be recalculated only if a Broad Calibration Standard is opened and Broad Peak specified.
For Help, press F1
Chromato No Act.Peak



- Hide/Show GPC related columns in the Result Table

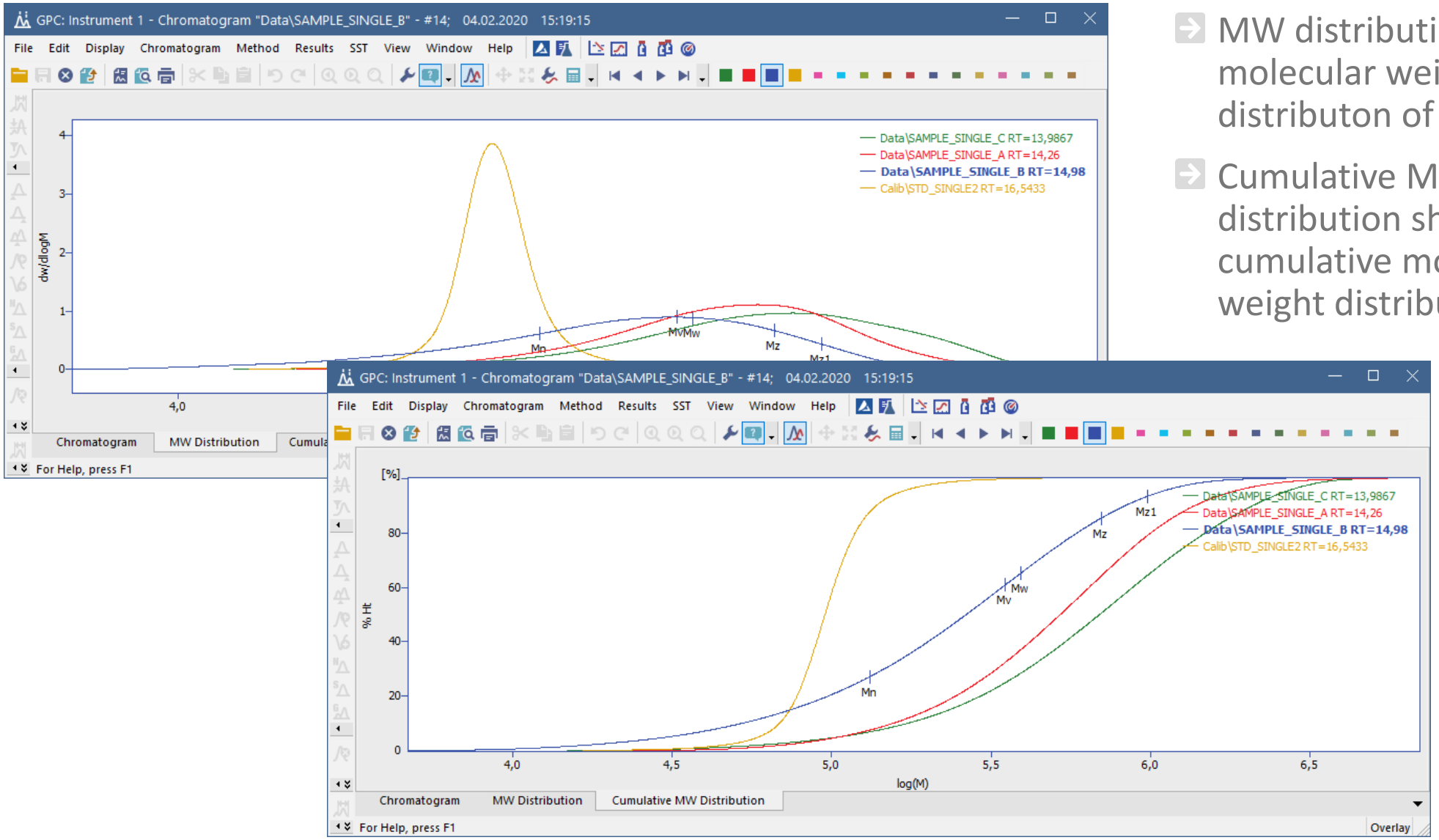


Hide/Show GPC related columns in the Summary Table



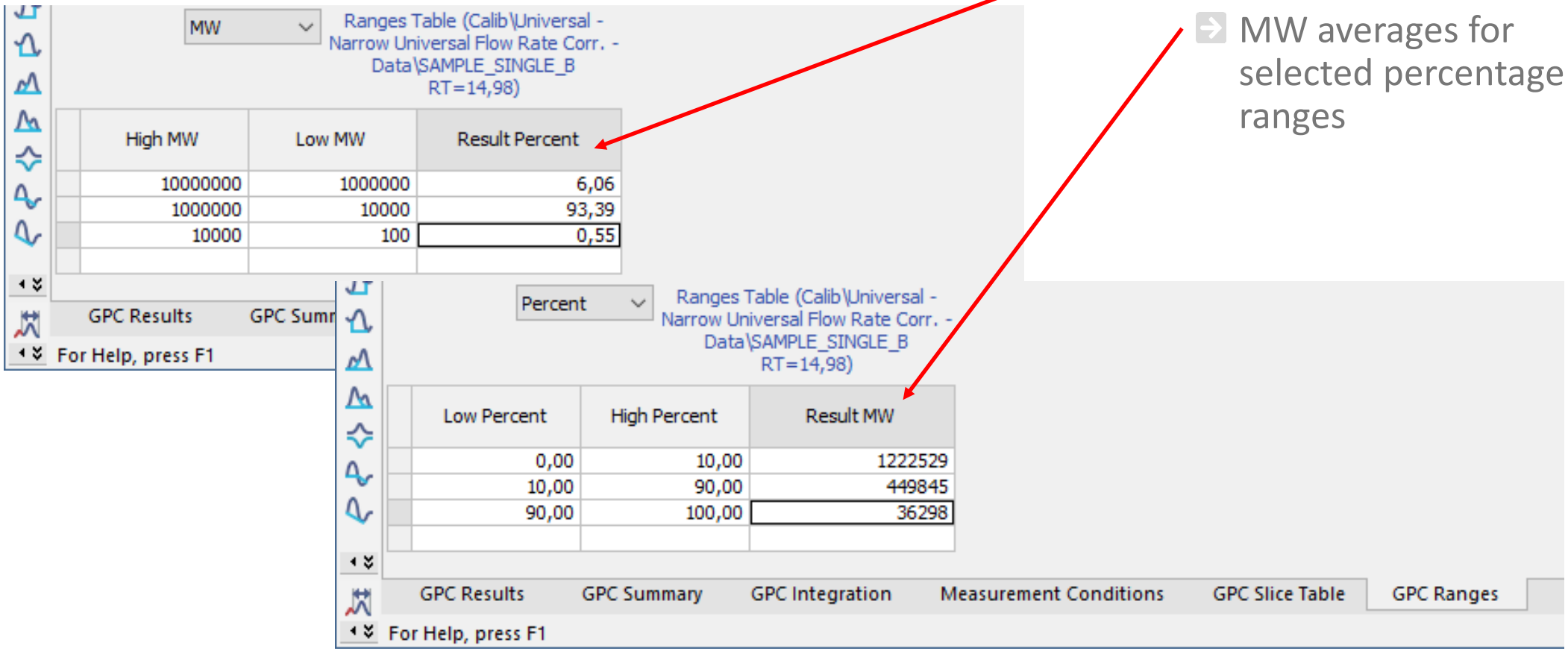
	RT	Response	Norm. Ht %	Cum. Ht %	M	logM	dW/dlogM	W	Outside Calib.
1	11,723	0,0098	0,0004	0,0004	5550529	6,7443	0,0003	0,0000	1
2	11,757	0,0390	0,0016	0,0020	5399039	6,7323	0,0013	0,0000	1
3	11,790	0,0840	0,0035	0,0055	5251683	6,7203	0,0029	0,0000	1
4	11,823	0,1514	0,0063	0,0118	5108349	6,7083	0,0052	0,0000	1
5	11,857	0,2470	0,0102	0,0220	4968927	6,6963	0,0085	0,0000	1
6	11,890	0,3794	0,0158	0,0378	4833311	6,6842	0,0131	0,0000	1
7	11,923	0,5538	0,0231	0,0608	4701396	6,6722	0,0192	0,0000	1
8	11,957	0,7773	0,0324	0,0933	4573081	6,6602	0,0270	0,0000	1
9	11,990	1,0537	0,0440	0,1373	4448268	6,6482	0,0366	0,0000	1
10	12,023	1,3796	0,0578	0,1950	4326862	6,6362	0,0481	0,0001	1
11	12,057	1,7538	0,0736	0,2686	4208769	6,6242	0,0612	0,0001	1
12	12,090	2,1729	0,0913	0,3599	4093899	6,6121	0,0760	0,0001	1
13	12,123	2,6326	0,1108	0,4707	3982165	6,6001	0,0922	0,0001	1
14	12,157	3,1320	0,1321	0,6028	3873480	6,5881	0,1099	0,0001	1
15	12,190	3,6636	0,1548	0,7576	3767761	6,5761	0,1288	0,0001	1
16	12,223	4,2282	0,1790	0,9365	3664928	6,5641	0,1489	0,0002	1
17	12,257	4,8142	0,2041	1,1406	3564902	6,5520	0,1699	0,0002	1
18	12,290	5,4132	0,2300	1,3706	3467605	6,5400	0,1913	0,0002	1
19	12,323	6,0258	0,2564	1,6270	3372964	6,5280	0,2134	0,0002	1

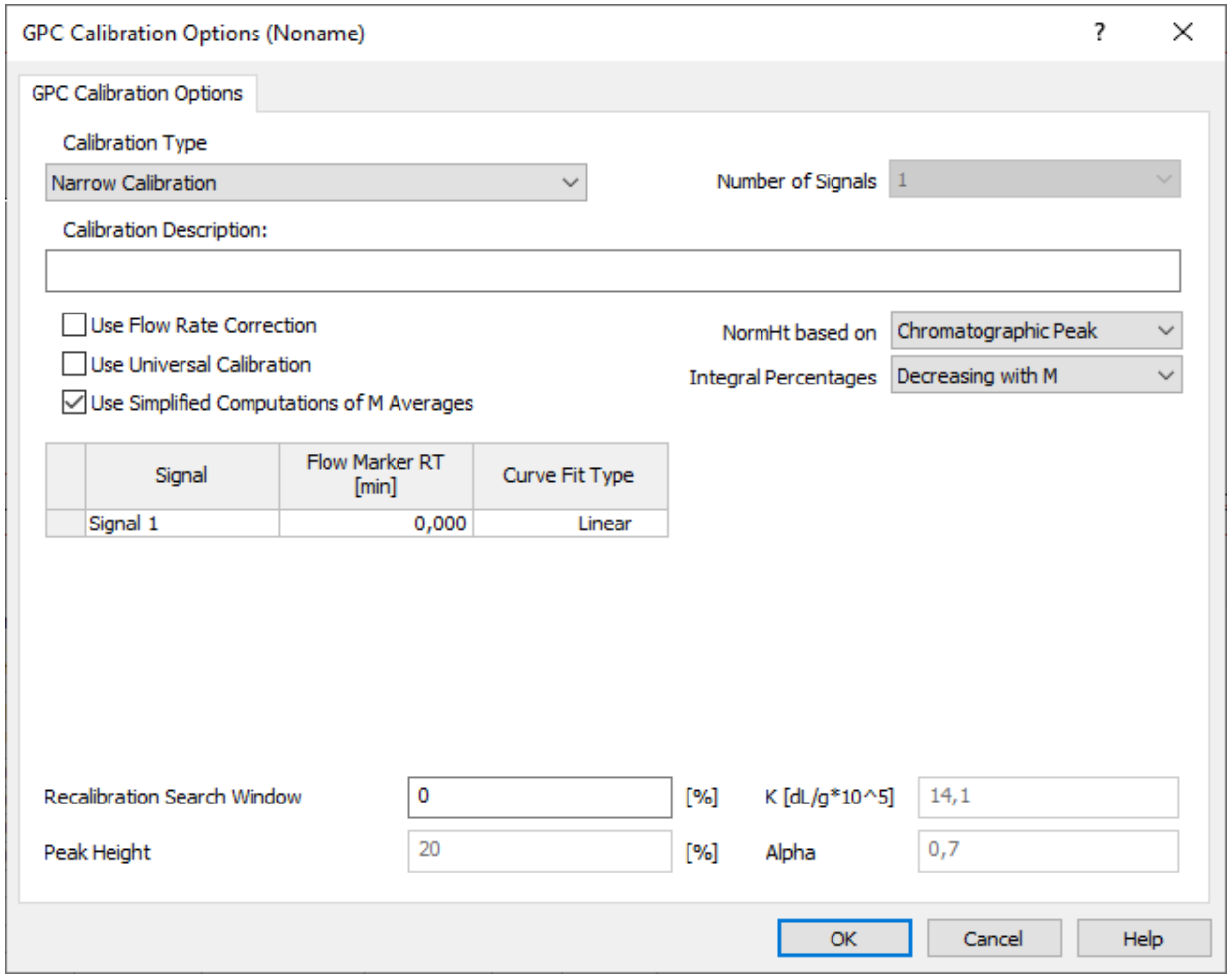
- GPC Slice Table shows cumulative molecular weight distribution



- MW distribution shows molecular weight distributon of active peaks
- Cumulative MW distribution shows cumulative molecular weight distribution in %

- Percentages for selected MW ranges
- MW averages for selected percentage ranges





- Standard Calculations
- Averaging is per fixed MW interval
- Used in PL Cirrus
- Simplified Calculations
- Averaging is per fixed time (volume) interval
- Used in EzChrom
- Equations listed in manual/help

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...THANK YOU FOR YOUR TIME

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