23.0331

Clarity™

ADVANCED CHROMATOGRAPHY SOFTWARE

GPC – GEL PERMEATION CHROMATOGRAPHY

CLARITY EXTENSION

DataApex

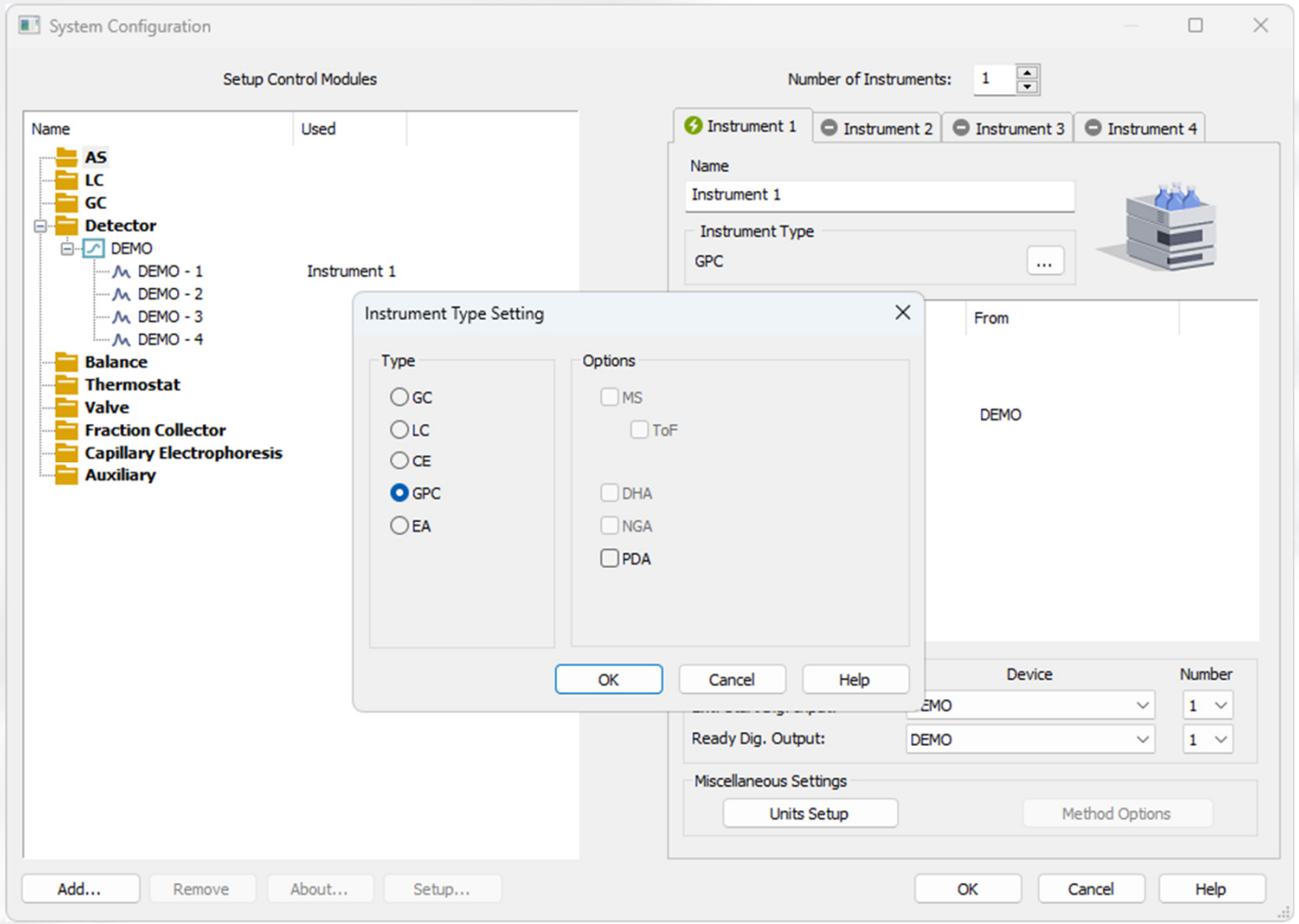
GPC EXTENSION

OVERVIEW

- Extension for SEC/GPC data evaluation
- GPC and normal mode
- Multiple GPC calibration types
- Flow Rate Correction
- Specific GPC Results
- Graphs of MW Distribution and Cumulative MW Distribution
- GPC Slice Table and Ranges

https://www.dataapex.com/product/extensions-gpc

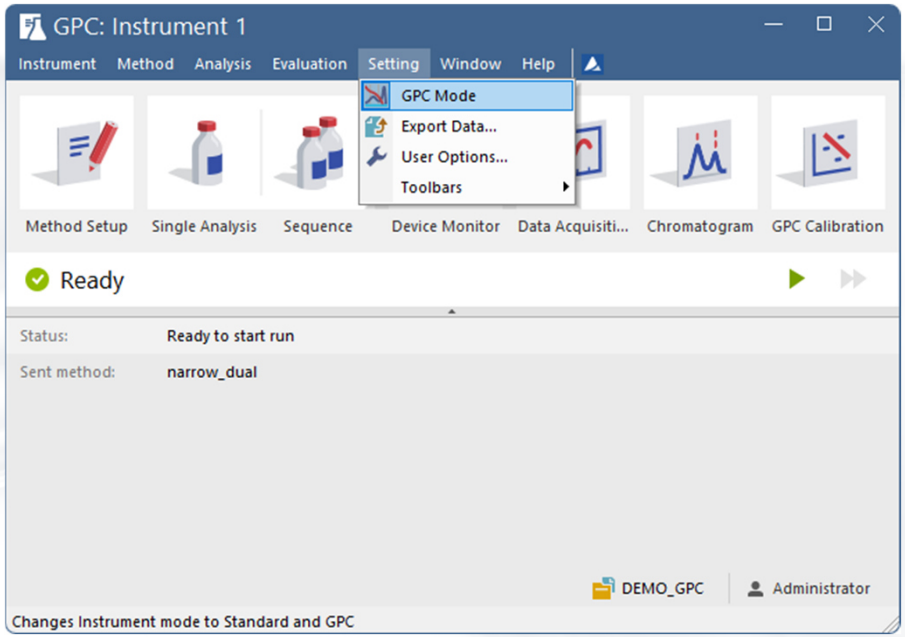
SYSTEM CONFIGURATION



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

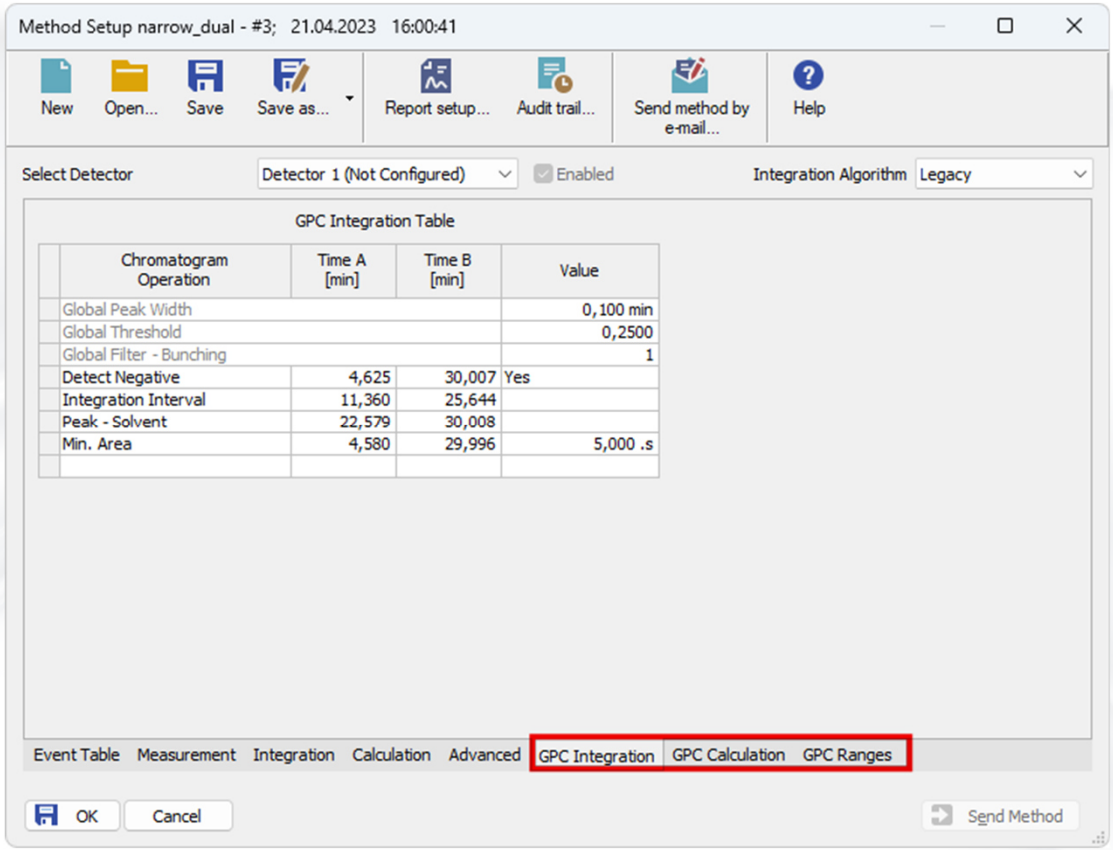
GPC MODE

- 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



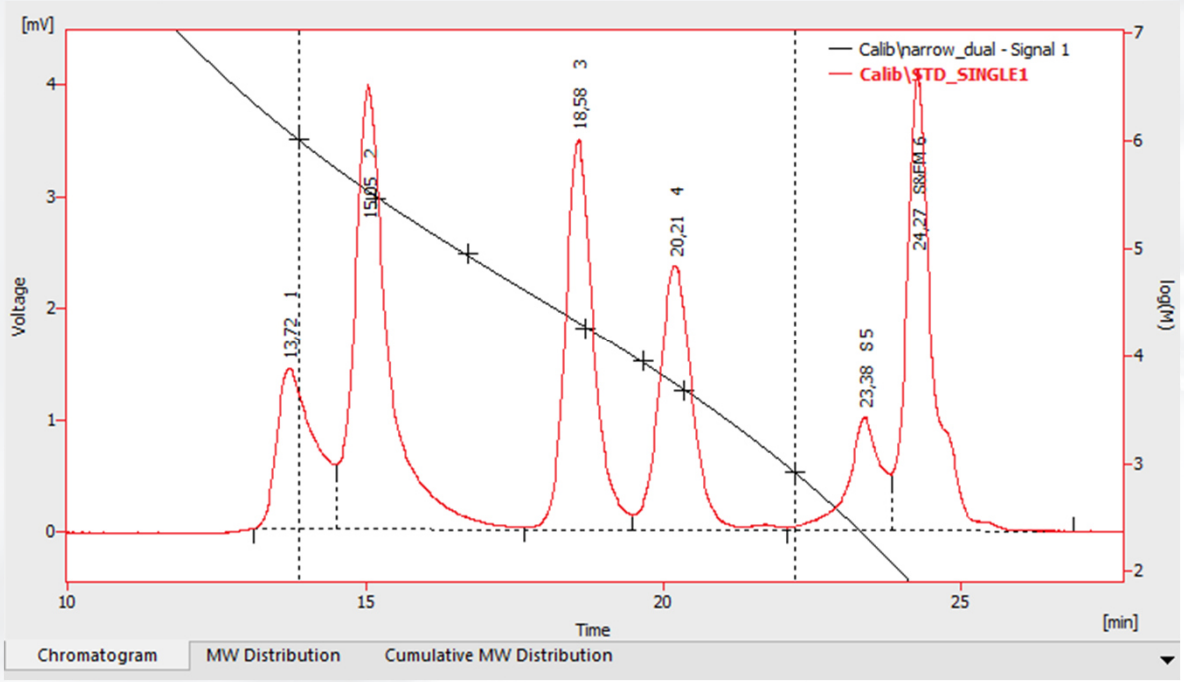
METHOD SETUP

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



GPC CALIBRATION

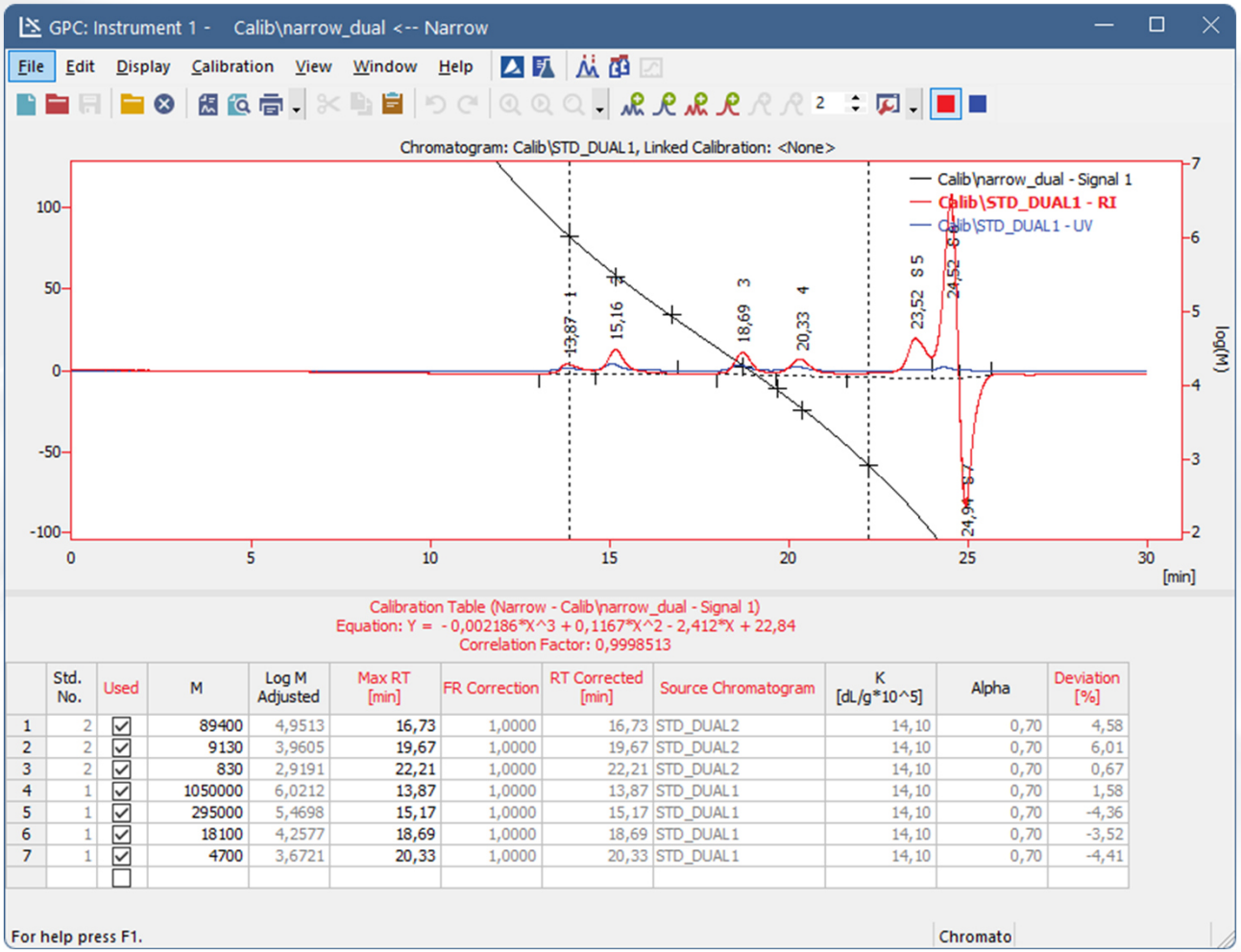
OPTIONS



- 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

GPC CALIBRATION

NARROW STANDARD

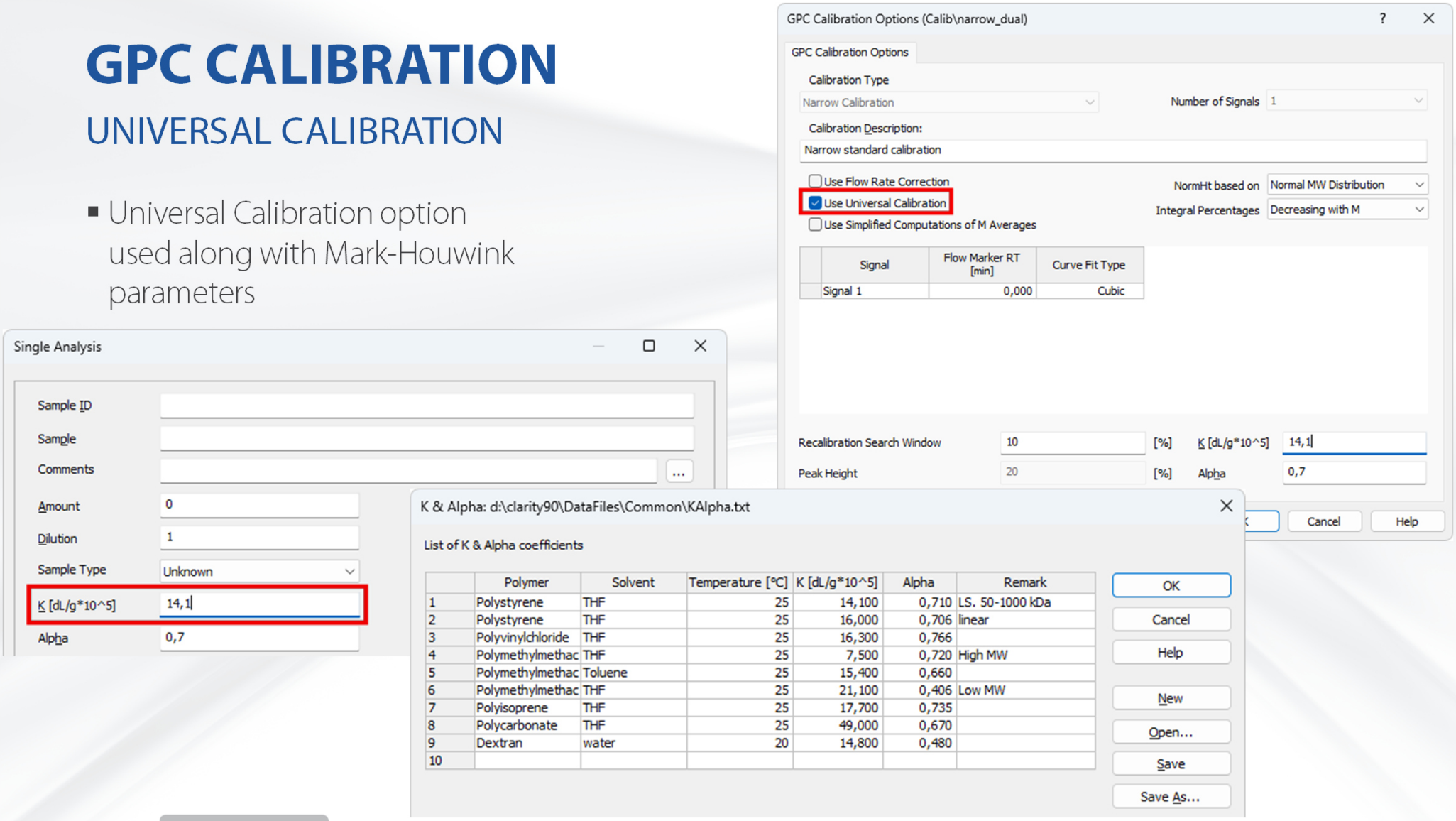


	Std. No.	Used	M	Log M Adjusted	Max RT [min]	FR Correction	RT Corrected [min]	Source Chromatogram	K [dL/g*10^5]	Alpha	Deviation [%]
1	2	☑	89400	4,9513	16,73	1,0000	16,73	STD_DUAL2	14,10	0,70	4,58
2	2	☑	9130	3,9605	19,67	1,0000	19,67	STD_DUAL2	14,10	0,70	6,01
3	2	☑	830	2,9191	22,21	1,0000	22,21	STD_DUAL2	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
		☐									

GPC CALIBRATION

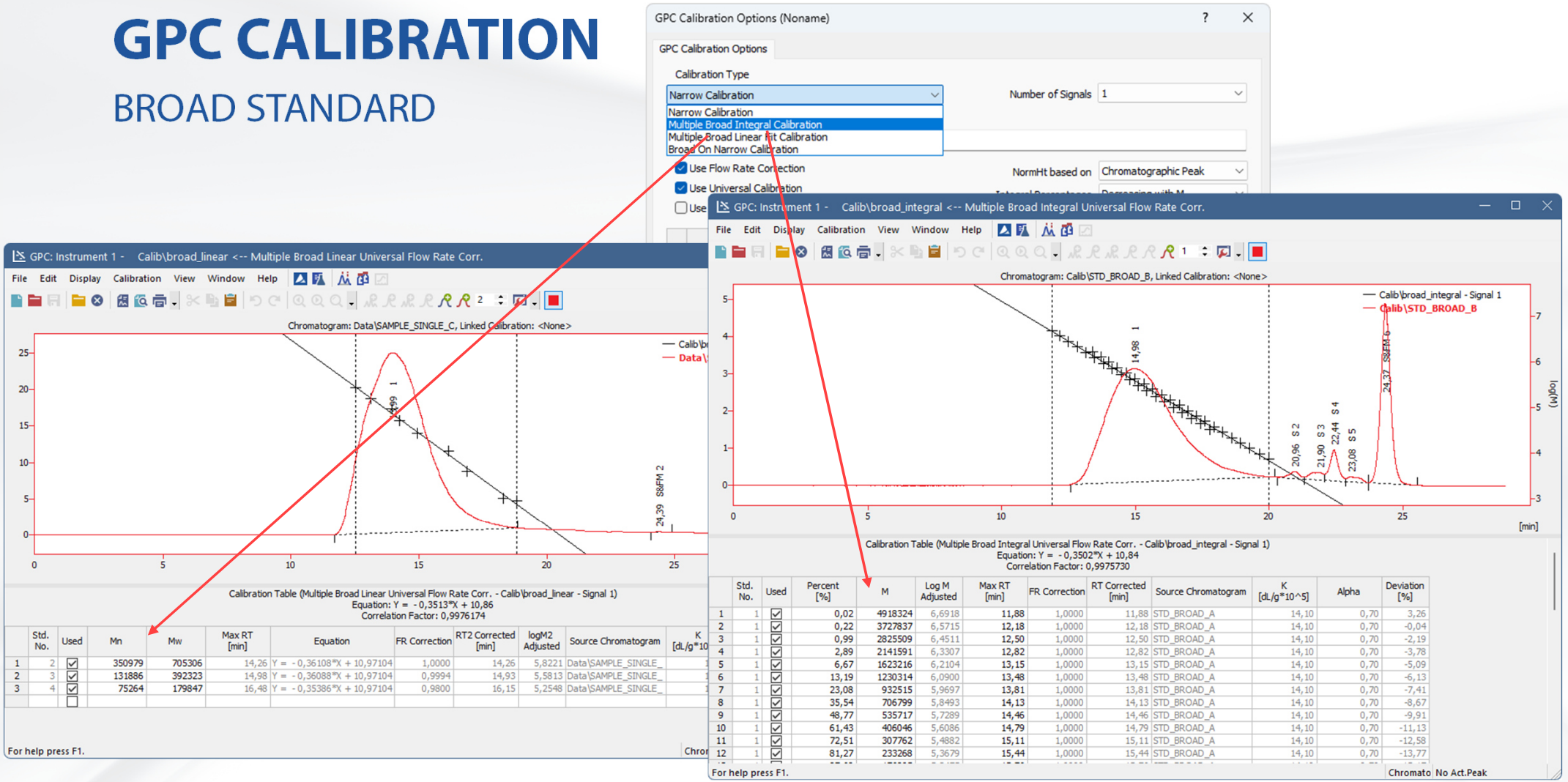
UNIVERSAL CALIBRATION

- Universal Calibration option used along with Mark-Houwink parameters



GPC CALIBRATION

BROAD STANDARD

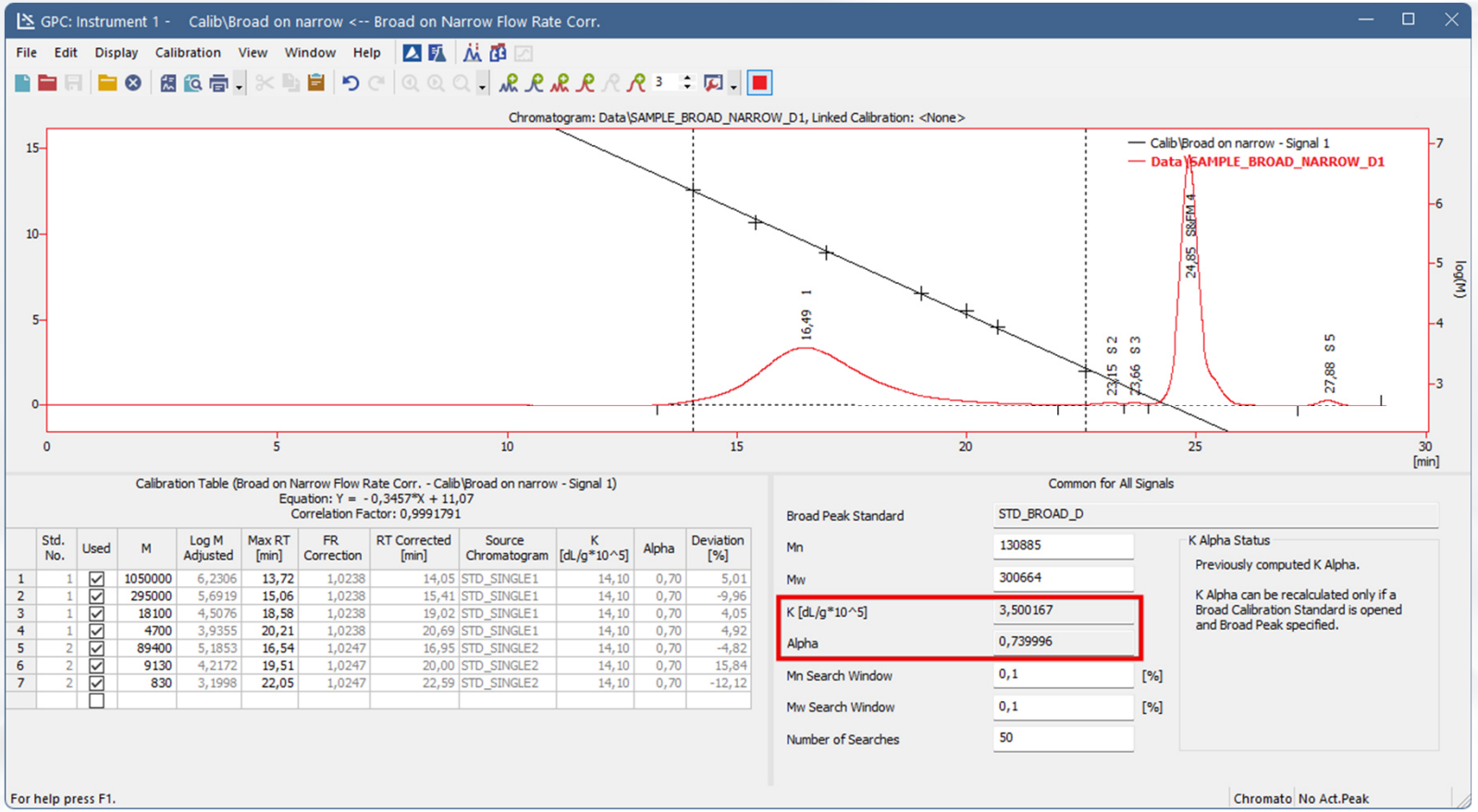


Std. No.	Used	Mn	Mw	Max RT [min]	Equation	FR Correction	RT2 Corrected [min]	logM2 Adjusted	Source Chromatogram	K [dL/g*10
1	2	☑	350979	705306	14,26	Y = -0,36108*X + 10,97104	1,0000	14,26	5,8221	Data\SAMPLE_SINGLE_
2	3	☑	131886	392323	14,98	Y = -0,36088*X + 10,97104	0,9994	14,93	5,5813	Data\SAMPLE_SINGLE_
3	4	☑	75264	179847	16,48	Y = -0,35386*X + 10,97104	0,9800	16,15	5,2548	Data\SAMPLE_SINGLE_

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

GPC CALIBRATION

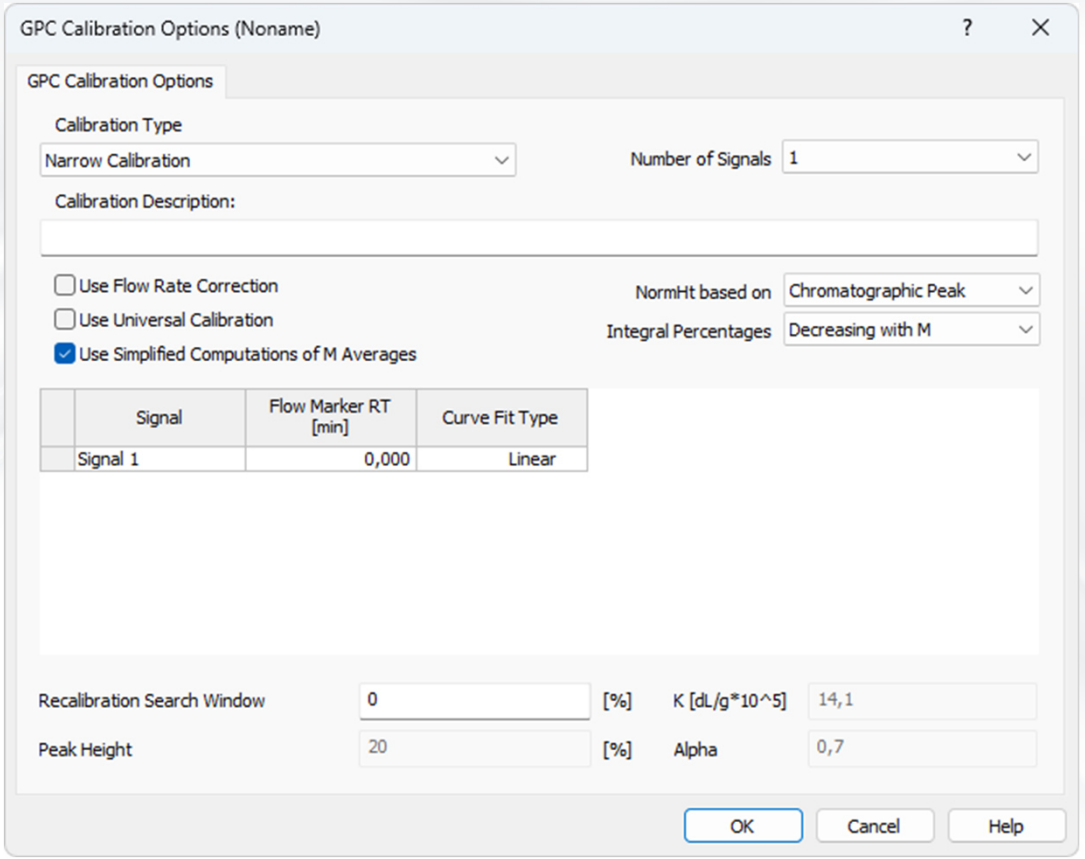
BROAD ON NARROW



GPC CALIBRATION

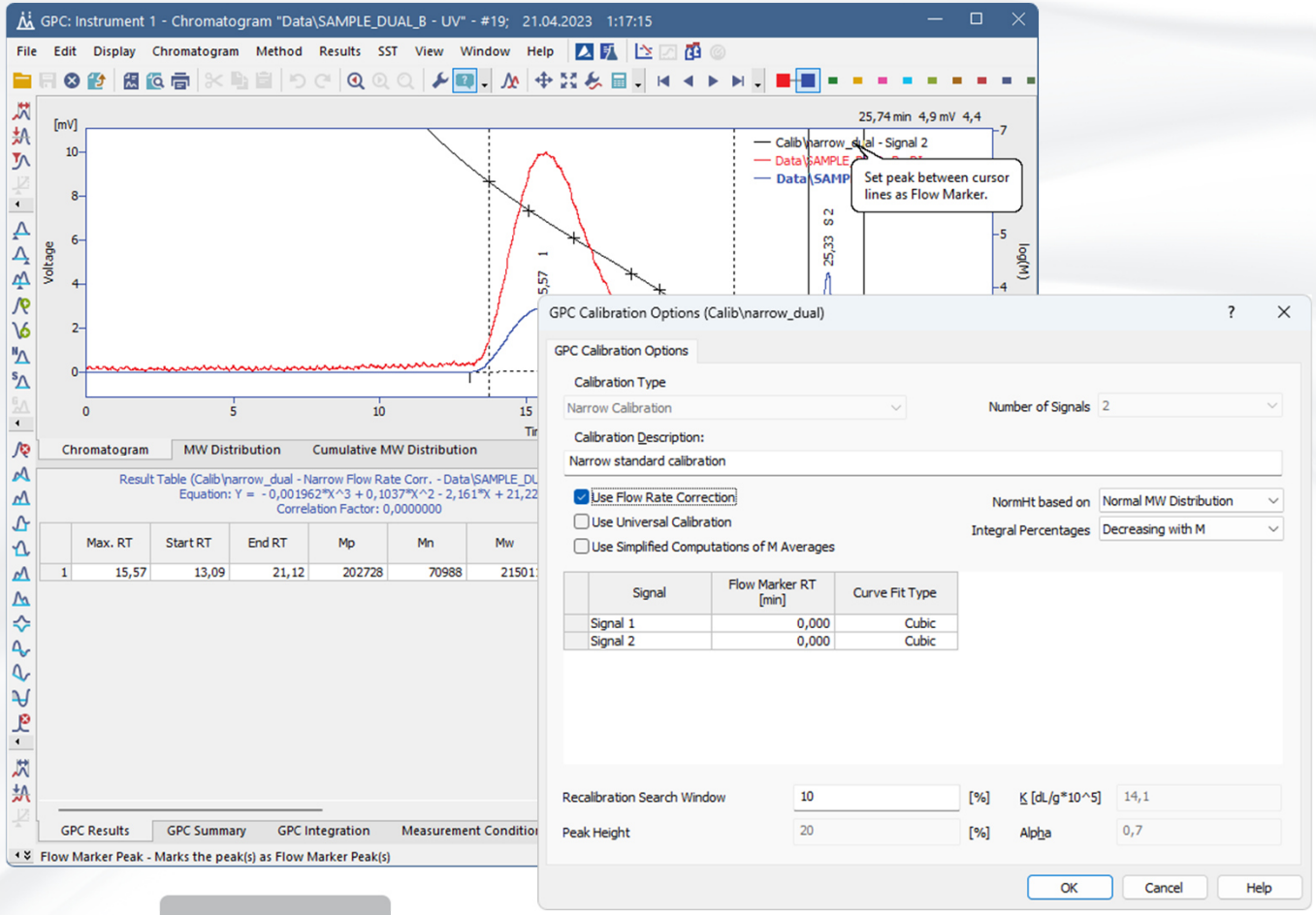
SIMLIFIED CALCULATIONS

- 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



FLOW RATE CORRECTION

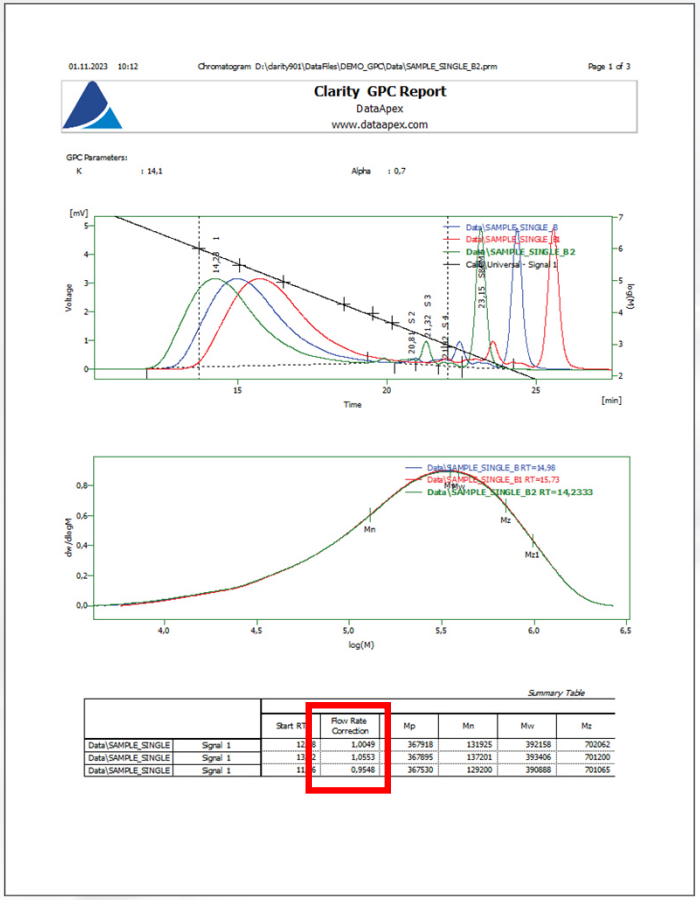
CHROMATOGRAM

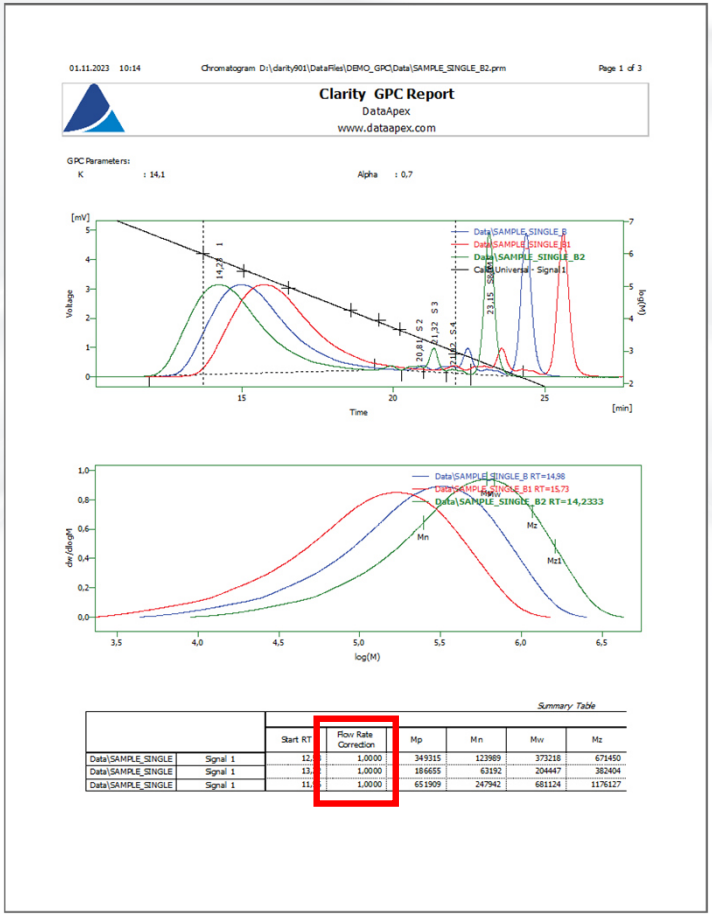


- Menu Chromatogram – Peak – Flow Marker Peak
- GPC Calibration must be set to Use Flow Rate Correction

FLOW RATE CORRECTION

REPORT SETUP



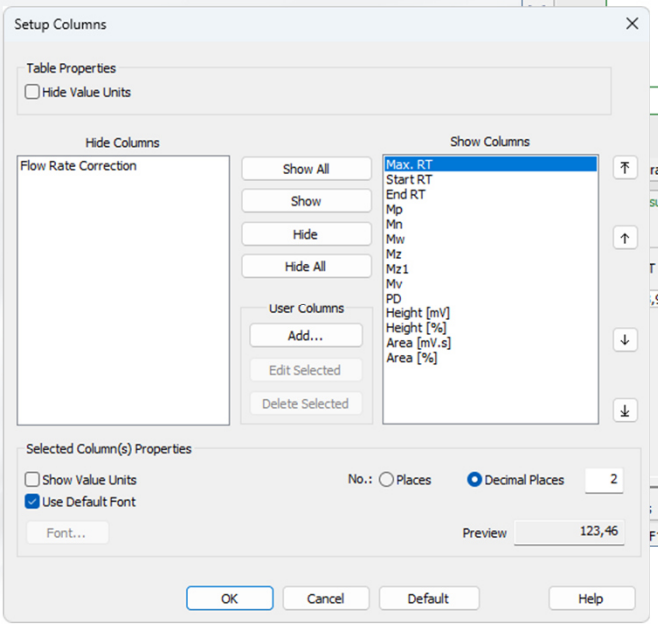


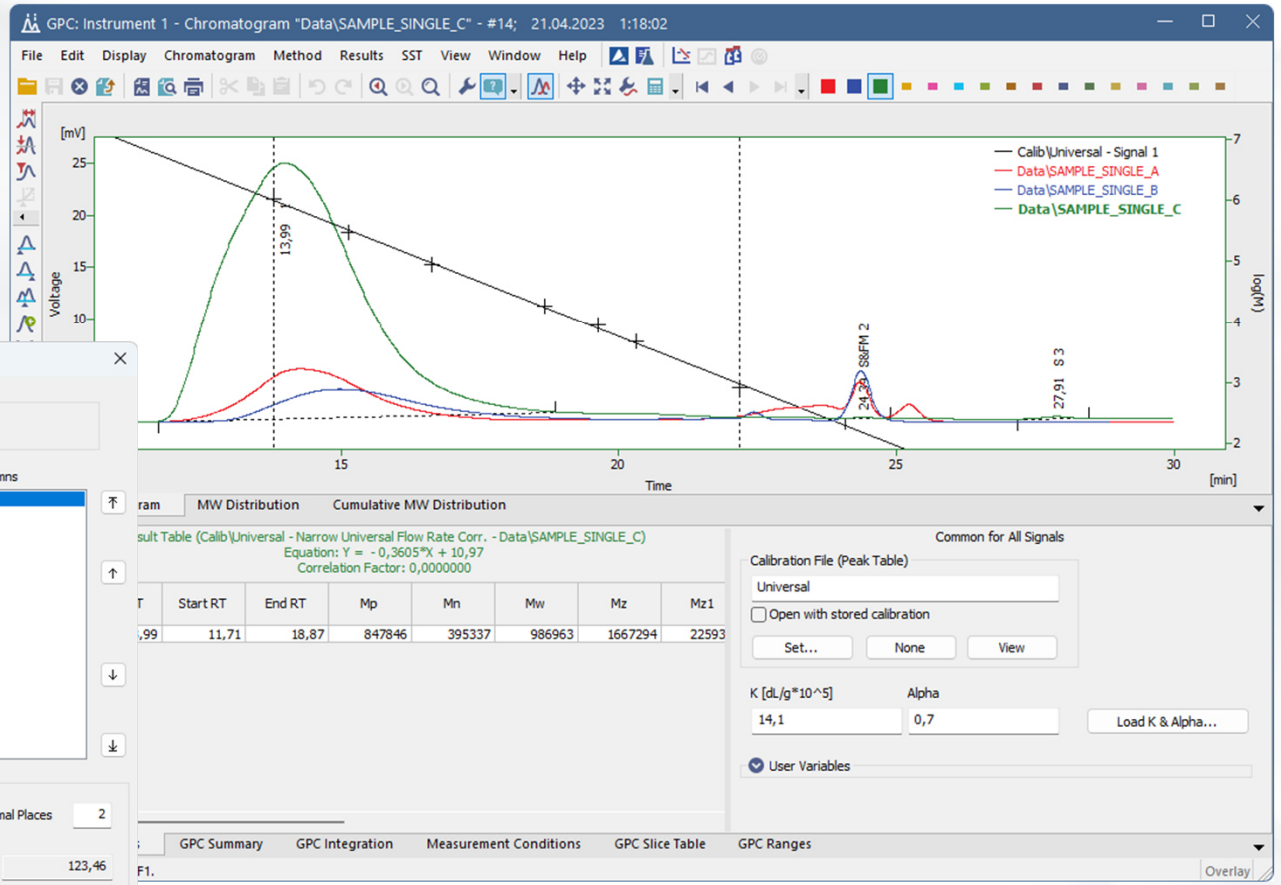
- Flow Rate Correction is applied in the first chromatogram report

CHROMATOGRAM

GPC RESULTS

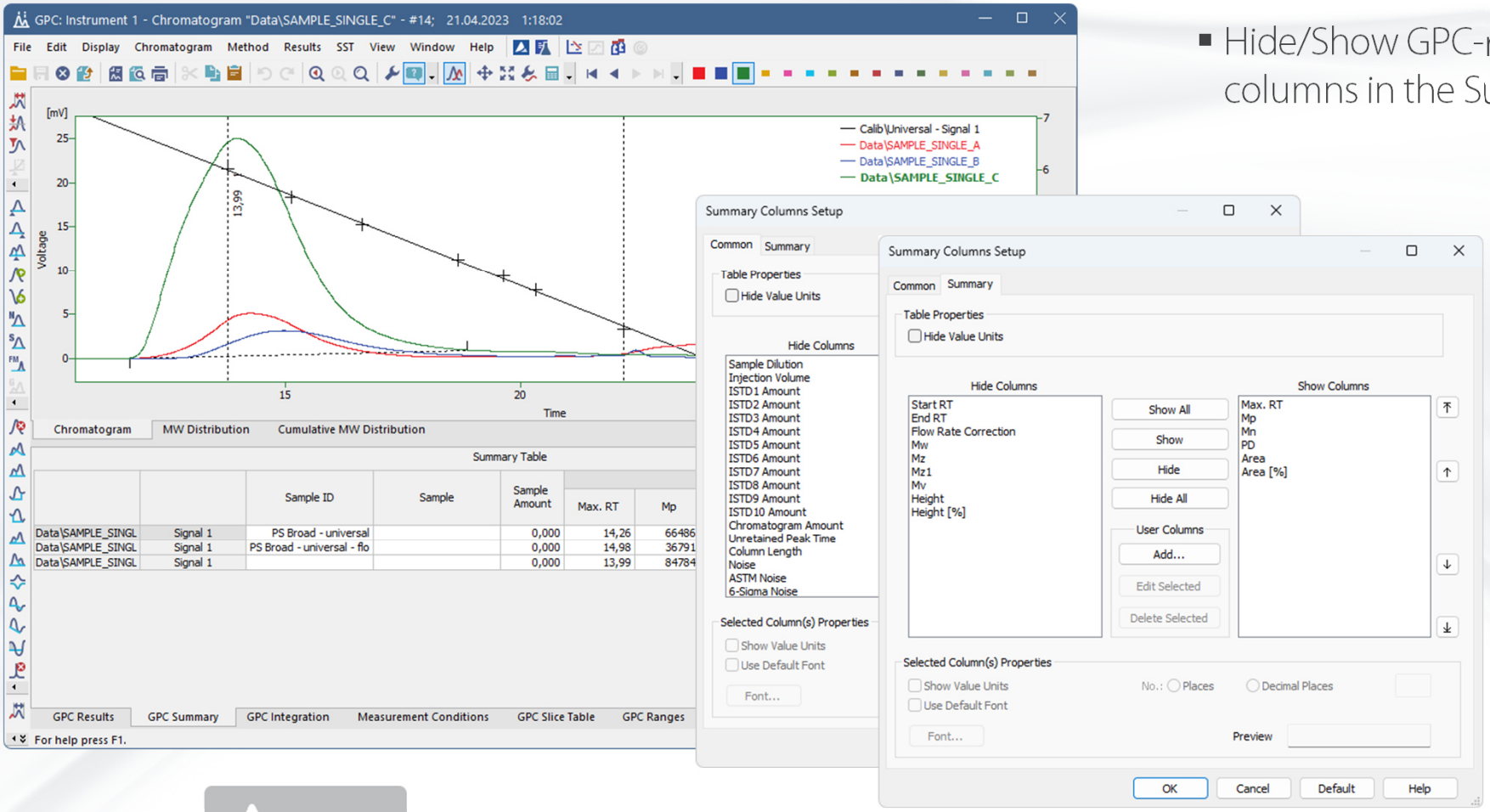
- Hide/Show GPC-related columns in the Result Table





CHROMATOGRAM

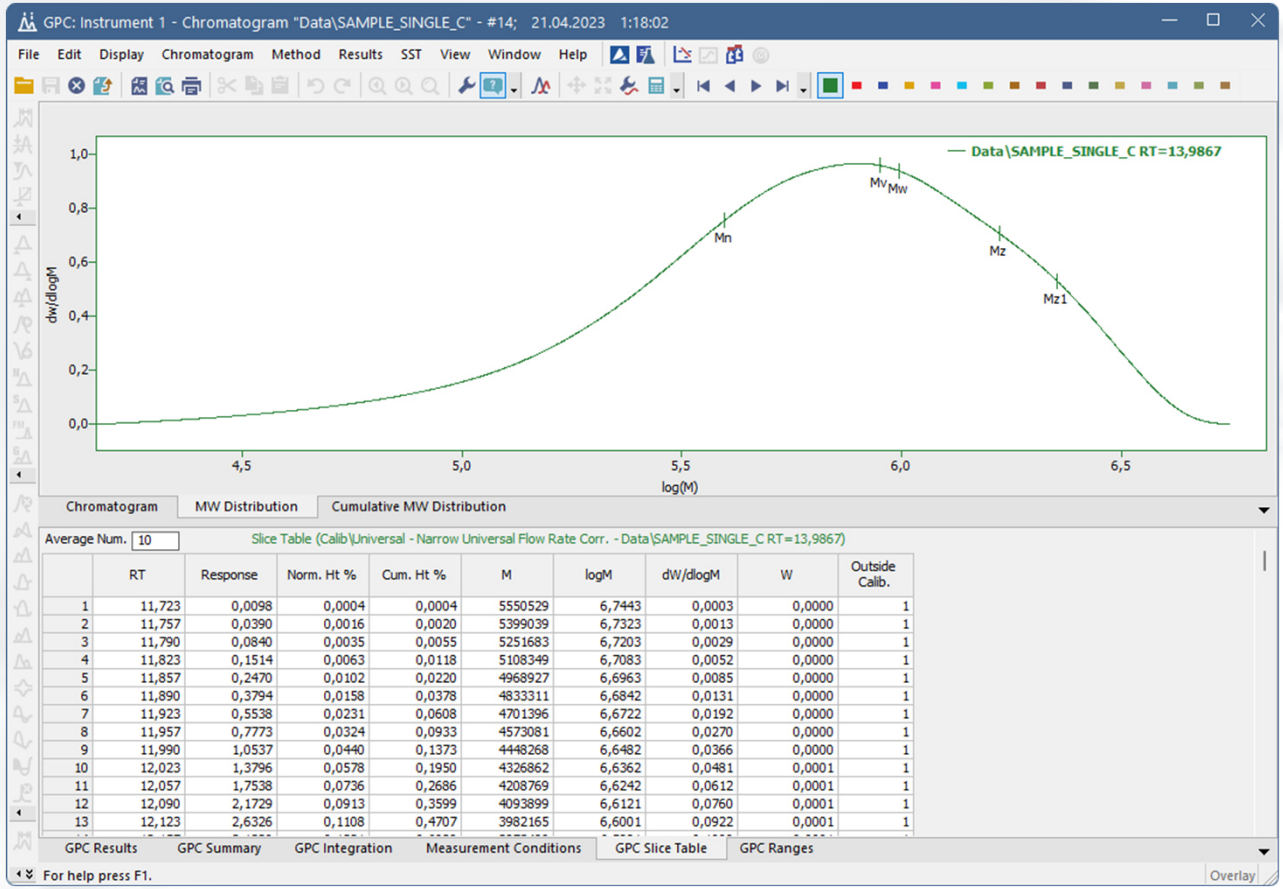
GPC SUMMARY



- Hide/Show GPC-related columns in the Summary Table

CHROMATOGRAM

GPC SLICE TABLE

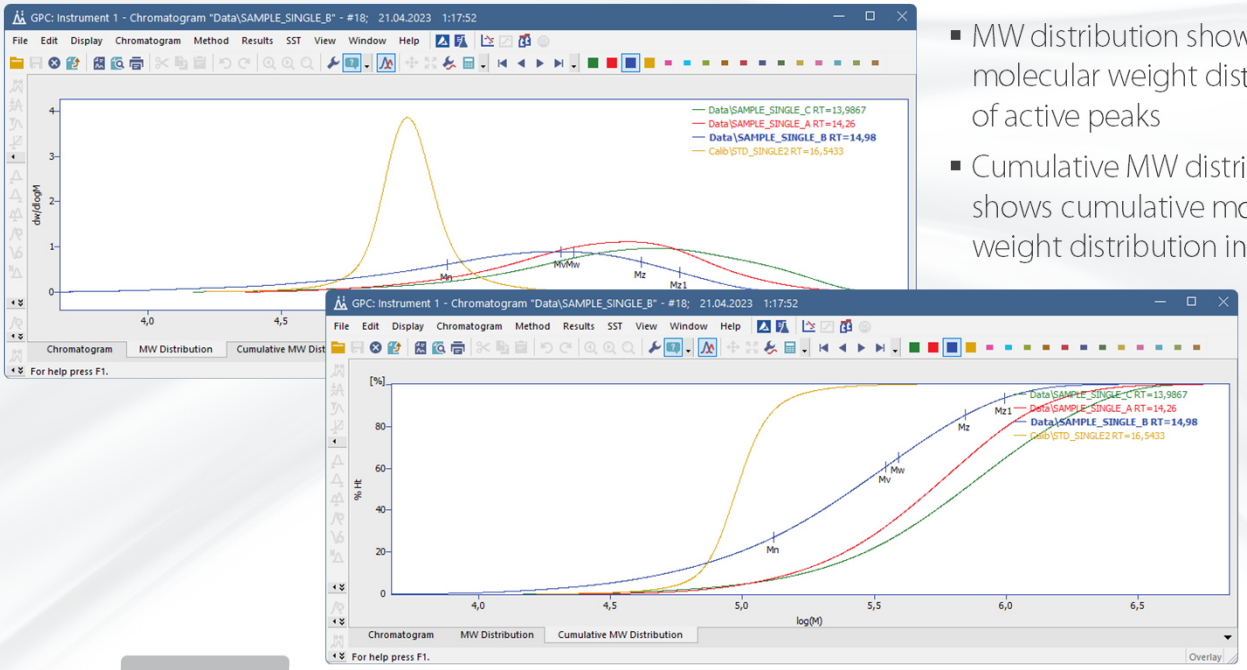


	RT	Response	Norm. Ht %	Cum. Ht %	M	logM	dW/dlogM	W	Outside Calib.
1	11,723	0,0098	0,0004	0,0004	5550529	6,7443	0,0003	0,0000	1
2	11,757	0,0390	0,0016	0,0020	5399039	6,7323	0,0013	0,0000	1
3	11,790	0,0840	0,0035	0,0055	5251683	6,7203	0,0029	0,0000	1
4	11,823	0,1514	0,0063	0,0118	5108349	6,7083	0,0052	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

- GPC Slice Table shows cumulative molecular weight distribution

CHROMATOGRAM

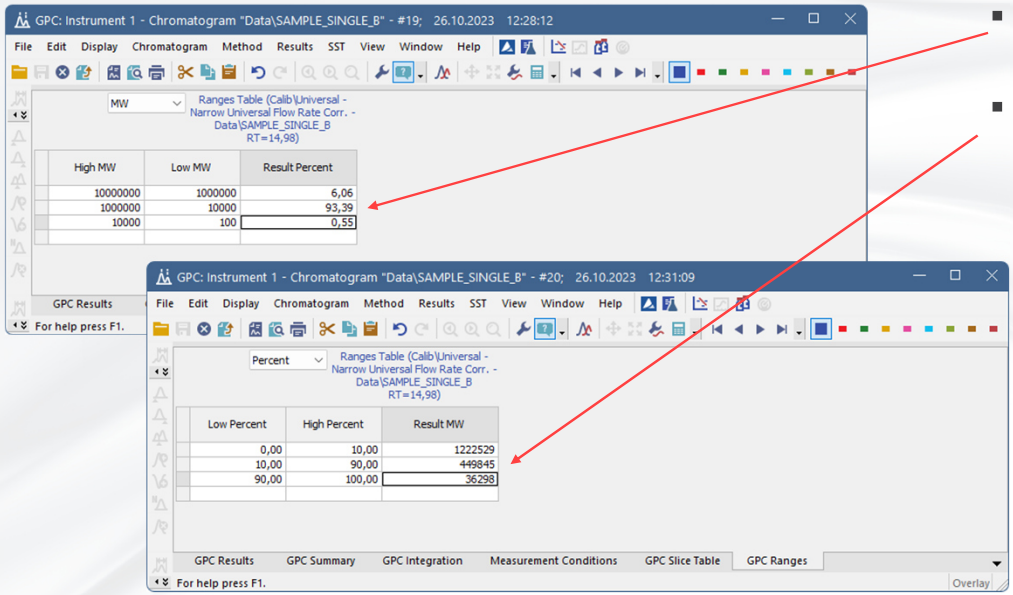
MW DISTRIBUTION, CUMULATIVE MW DISTRIBUTION



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

CHROMATOGRAM

GPC RANGES



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

23.0331

Clarity™

ADVANCED CHROMATOGRAPHY SOFTWARE

...

THANK YOU FOR YOUR ATTENTION