

Assay name: UV-metric psKa Analyst: Dorothy Levorse

Assay ID: 17J-12006 Instrument ID: T311053 Filename: C:\Sirius_T3\Mehtap\20171011_exp15_pKa\17J-12006_M07_UV-metric psKa.t3r

Yasuda-Shedlovsky result

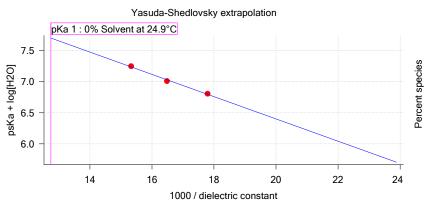
Extrapolation type pKa 0% SD Intercept Slope R² Ionic strength Temperature

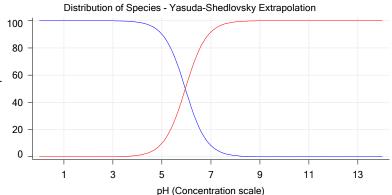
Yasuda-Shedlovsky 5.96 ±0.06 9.98 -179.0283 0.9934 0.167 M 24.9°C

Component assay results

Titration		Direction	Result	Dielectric	[H2O]	Ionic	Temperature		psKa
	weight%		type	constant		strength			1
17J-12006 Points 4 to 63	50.38 %	Up	UV-metric pKa	56.2	24.2 M	0.159 M	24.9°C	<u></u>	5.42
17J-12006 Points 65 to 125	40.75 %	Up	UV-metric pKa	60.7	29.6 M	0.167 M	24.9°C	<u></u>	5.54
17J-12006 Points 127 to 192	30.69 %	Up	UV-metric pKa	65.2	35.5 M	0.173 M	24.9°C	<u></u>	5.70

Graphs







UV-metric psKa Titration 1 of 3 17J-12006 Points 4 to 63

Results

pKa 1 5.42

RMSD 0.001 0.004

Chi squared 0.0113

PCA calculated number of pKas 3

Average ionic strength 0.159 M Average temperature 24.9°C

Analyte concentration range 85.3 µM to 80.3 µM

Methanol weight % 50.4 % Dielectric constant 56.2 Water concentration 24.2 M

Number of pKas source Predicted

Wavelength clipping 230.0 nm to 450.0 nm

Report by: Dorothy Levorse 10/12/2017 5:54:57 PM Page 1 of 16



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Results (continued)

pH clipping 1.476 to 12.535

Warnings and errors

Errors None

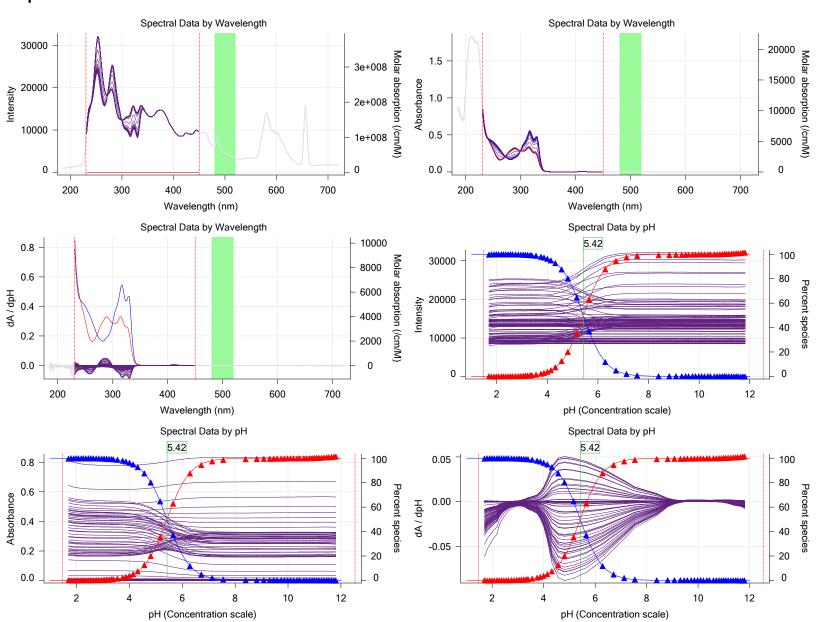
Warnings PCA calculation disagrees with predicted number of pKas

Assay Settings

Setting Value Original Value Date/Time changed Imported from

Buffer in use N **Assay Medium**

Graphs

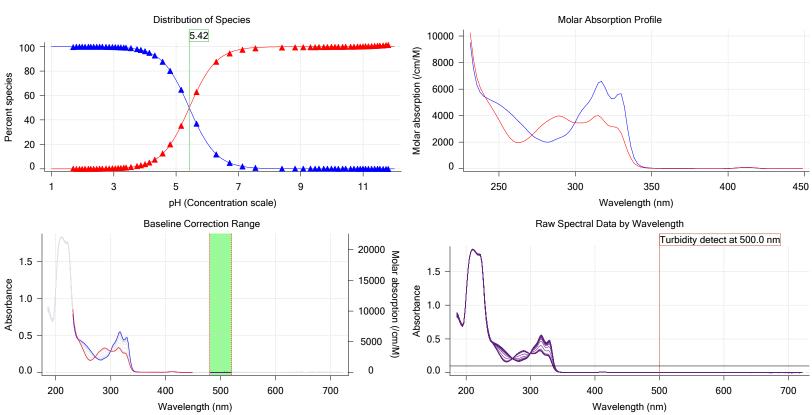




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17J-12006 Instrument ID: Assay ID: T311053 Filename: C:\Sirius_T3\Mehtap\20171011_exp15_pKa\17J-12006_M07_UV-metric psKa.t3r

Graphs (continued)



Titration 2 of 3 17J-12006 Points 65 to 125 UV-metric psKa

Results

pKa 1 5.54 RMSD 0.001 0.005 Chi squared 0.0124 PCA calculated number of pKas

Average ionic strength 0.167 M Average temperature 24.9°C Analyte concentration range 70.0 μM to 66.3 μM

Methanol weight % 40.7 % 60.7

Dielectric constant Water concentration 29.6 M

Number of pKas source **Predicted** Wavelength clipping

230.0 nm to 450.0 nm pH clipping 1.499 to 12.519

Warnings and errors

Errors

Warnings PCA calculation disagrees with predicted number of pKas

Assay Settings

Setting Value Original Value Date/Time changed Imported from

Buffer in use No

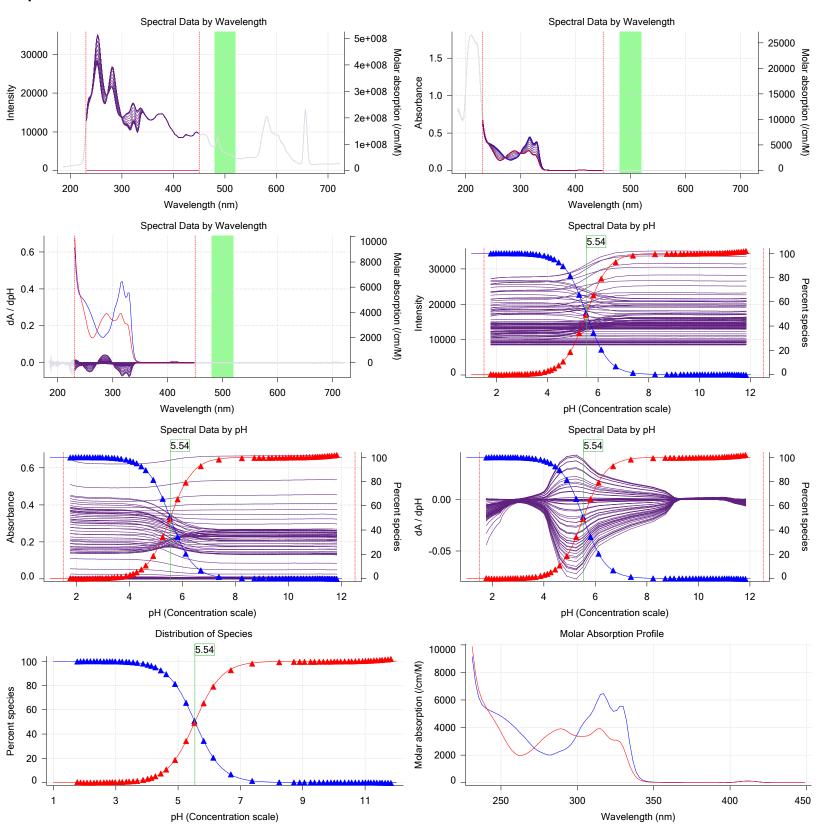
Assay Medium



Assay name: UV-metric psKa Analyst: Dorothy Levorse

Assay ID: 17J-12006 Instrument ID: T311053
Filename: C:\Sirius_T3\Mehtap\20171011_exp15_pKa\17J-12006_M07_UV-metric psKa.t3r

Graphs

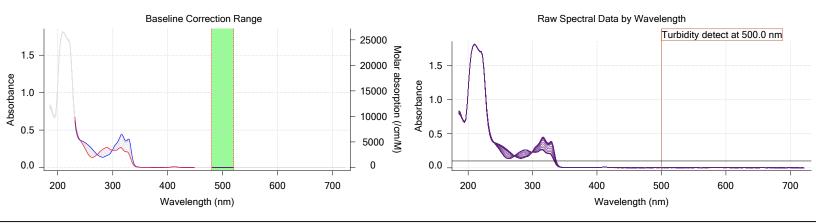




Assay name: UV-metric psKa Analyst: Dorothy Levorse

Assay ID: 17J-12006 Instrument ID: T311053 Filename: C:\Sirius_T3\Mehtap\20171011_exp15_pKa\17J-12006_M07_UV-metric psKa.t3r

Graphs (continued)



UV-metric psKa Titration 3 of 3 17J-12006 Points 127 to 192

Results

pKa 1 5.70

RMSD 0.002 0.007
Chi squared 0.0173

PCA calculated number of pKas 3

Average ionic strength

Average temperature

0.173 M

24.9°C

Analyte concentration range 53.9 µM to 51.1 µM

Methanol weight % 30.7 % Dielectric constant 65.2 Water concentration 35.5 M

Number of pKas source

Wavelength clipping 230.0 nm to 450.0 nm

pH clipping 1.501 to 12.516

Warnings and errors

Errors None

Warnings PCA calculation disagrees with predicted number of pKas

Predicted

Assay Settings

Setting Value Original Value Date/Time changed Imported from

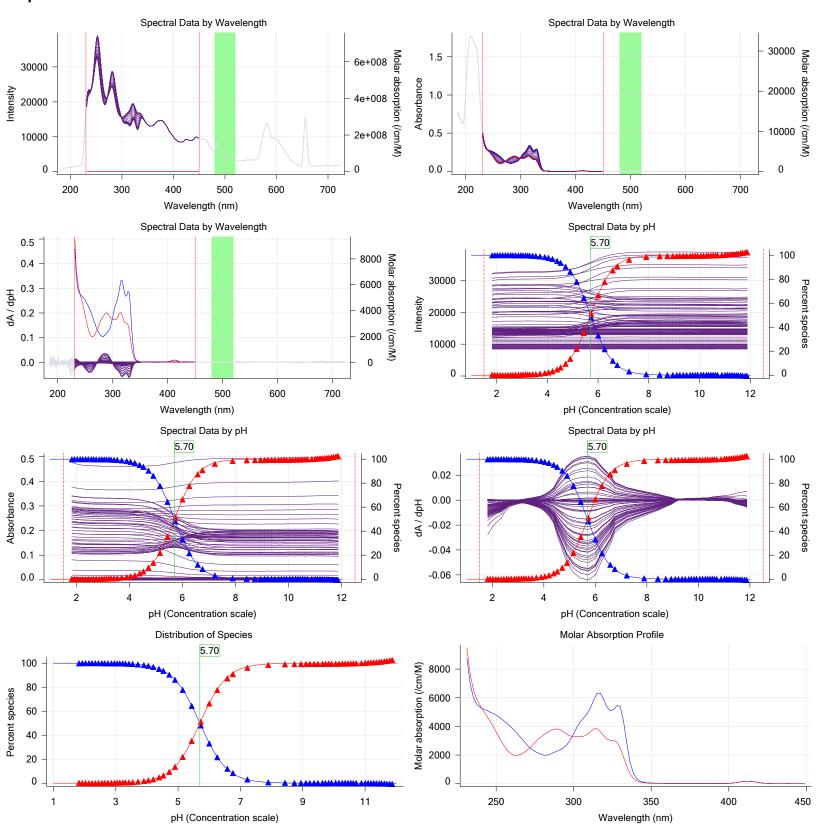
Buffer in use No Assay Medium



Assay name: UV-metric psKa Analyst: Dorothy Levorse

Assay ID: 17J-12006 Instrument ID: T311053
Filename: C:\Sirius_T3\Mehtap\20171011_exp15_pKa\17J-12006_M07_UV-metric psKa.t3r

Graphs

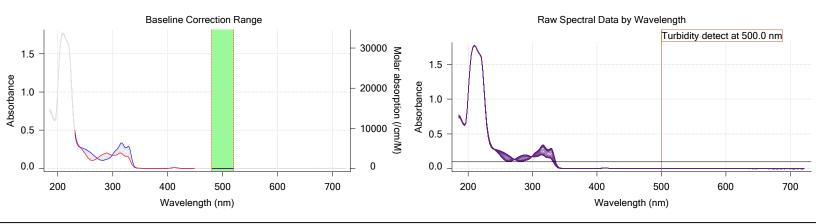




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Graphs (continued)



Assay Model

Value	Date/Time changed	Imported from
M07	10/11/2017 4:12:48 PM	User entered value
Volume		Default value
0.0025 mL	10/11/2017 4:11:34 PM	User entered value
DMSO		Default value
0.053600 M	10/11/2017 4:13:02 PM	User entered value
Unknown		Default value
328.16	9/18/2017 4:02:12 PM	User entered value
No		Default value
1	10/11/2017 4:13:13 PM	User entered value
Base	10/11/2017 4:13:17 PM	User entered value
5.70	10/11/2017 4:13:26 PM	User entered value
-10.00		Default value
-10.00	9/18/2017 4:02:02 PM	User entered value
	M07 Volume 0.0025 mL DMSO 0.053600 M Unknown 328.16 No 1 Base 5.70 -10.00	M07 10/11/2017 4:12:48 PM Volume 0.0025 mL 10/11/2017 4:11:34 PM DMSO 0.053600 M 10/11/2017 4:13:02 PM Unknown 328.16 9/18/2017 4:02:12 PM No 1 10/11/2017 4:13:13 PM Base 10/11/2017 4:13:17 PM 5.70 10/11/2017 4:13:26 PM -10.00

Events

⊏vents	•								
Time	Event	Water	Acid	Base	Methanol	рН	dpH/dt	pH R-squared	pH SD
3:33.0	Dark spectrum						-		-
3:34.4	Reference spectrum								
4:02.0	Volume reset due to vial change								
7:50.1	Initial pH = 5.69								
8:31.0	Data point 4	0.34995 mL	0.06785 mL	0.00000 mL	1.15005 mL	1.976	-0.02005	0.94403	0.0010
8:59.4	Data point 5	0.34995 mL	0.06785 mL	0.01449 mL	1.15005 mL	2.077	-0.00541	0.09897	0.0008
9:26.7	Data point 6	0.34995 mL	0.06785 mL	0.02505 mL	1.15005 mL	2.176	0.00216	0.27344	0.0002
9:43.6	Data point 7	0.34995 mL	0.06785 mL	0.03325 mL	1.15005 mL	2.265	0.00790	0.76179	0.0004
10:00.4		0.34995 mL	0.06785 mL	0.03993 mL	1.15005 mL	2.355	0.00573	0.62925	0.0003
10:17.2	Data point 9	0.34995 mL	0.06785 mL	0.04539 mL	1.15005 mL	2.462	-0.00405	0.31626	0.0003
	•	0.34995 mL	0.06785 mL	0.04972 mL	1.15005 mL	2.542	0.00416	0.40077	0.0003
10:55.6	Data point 11	0.34995 mL	0.06785 mL	0.05270 mL	1.15005 mL	2.635	0.00857	0.77004	0.0004
11:22.6	Data point 12	0.34995 mL	0.06785 mL		1.15005 mL	2.732	0.00150	0.10561	0.0002
11:39.2		0.34995 mL	0.06785 mL	0.05800 mL	1.15005 mL	2.822	0.00482	0.49566	0.0003
11:55.8	Data point 14	0.34995 mL	0.06785 mL	0.05988 mL	1.15005 mL	2.911	0.00448	0.64911	0.0002
12:12.4		0.34995 mL	0.06785 mL	0.06141 mL	1.15005 mL	3.024	0.00485	0.64078	0.0003
12:29.0	Data point 16	0.34995 mL	0.06785 mL	0.06258 mL	1.15005 mL	3.127	0.00817	0.83243	0.0004
12:45.5		0.34995 mL	0.06785 mL	0.06352 mL	1.15005 mL	3.232	0.01204	0.94947	0.0006
		0.34995 mL	0.06785 mL	0.06425 mL	1.15005 mL	3.324	0.01558	0.92717	0.0008
13:18.5		0.34995 mL	0.06785 mL	0.06484 mL	1.15005 mL	3.412	0.01645	0.95658	0.0008
13:35.1	Data point 20	0.34995 mL	0.06785 mL	0.06533 mL	1.15005 mL			0.97716	0.0009
13:51.7	Data point 21	0.34995 mL	0.06785 mL	0.06573 mL	1.15005 mL	3.593	0.02415	0.95559	0.0012

0.34995 mL 0.06785 mL 0.06604 mL 1.15005 mL 3.665 0.02895

 $0.34995 \; mL \; 0.06785 \; mL \; 0.06651 \; mL \; 1.15005 \; mL \; 3.825 \; 0.03755$

14:08.2 Data point 22

14:29.9 Data point 23

0.0014

0.0018

0.98744

0.99024



Experiment start time: 10/12/2017 6:46:12 AM Sample name: M07

Assay name: **UV-metric psKa** Analyst: **Dorothy Levorse**

Instrument ID: Assay ID: 17J-12006 T311053 Filename: C:\Sirius_T3\Mehtap\20171011_exp15_pKa\17J-12006_M07_UV-metric psKa.t3r

Events (continued)

Time	Event	Water	Acid	Base	Methanol	рН	dpH/dt	pH R-squared	pH SD	dpH/dt time
15:01.7	1						0.04281	0.97404	0.00214	10.0 s
15:23.3							0.08228	0.97233	0.00411	10.0 s
	Data point 26						0.10056		0.00499	
16:19.2							0.09477	0.90367	0.00492	14.0 s
16:50.0	Data point 28	0.34995 mL	0.06785 mL	0.06804 mL	1.15005 mL	4.585	0.09848	0.96992	0.00493	22.5 s
17:29.3							0.09850	0.98731	0.00489	39.0 s
18:25.0	Data point 30	0.34995 mL	0.06785 mL	0.06820 mL	1.15005 mL	5.076	0.10055	0.99406	0.00498	48.0 s
19:29.9	Data point 31	0.34995 mL	0.06785 mL	0.06827 mL	1.15005 mL	5.427	0.08396	0.79301	0.00465	49.5 s
20:35.9	Data point 32	0.34995 mL	0.06785 mL	0.06834 mL	1.15005 mL	5.915	0.09646	0.96687	0.00484	52.0 s
21:44.6	Data point 33	0.34995 mL	0.06785 mL	0.06841 mL	1.15005 mL	6.547	0.16250	0.99501	0.00804	Timed out at
										59.5 s
22:56.0	Data point 34	0.34995 mL	0.06785 mL	0.06846 mL	1.15005 mL	6.972	0.10759	0.99439	0.00532	Timed out at
										59.5 s
	Data point 35						0.09990		0.00494	59.0 s
	1						0.09286		0.00474	
26:25.4							0.09097	0.93006	0.00466	
27:26.1							0.09854		0.00495	
28:14.5							0.07302	0.71688		19.5 s
28:50.7	1						0.09819	0.97051	0.00492	
29:28.9							0.09928	0.97400	0.00496	16.5 s
30:02.0	Data point 42	0.34995 mL	0.06785 mL	0.06898 mL	1.15005 mL	9.825	0.09896	0.99027	0.00491	14.0 s
30:32.8	Data point 43	0.34995 mL	0.06785 mL	0.06907 mL	1.15005 mL	9.975	0.09437	0.97442	0.00472	11.0 s
31:00.5	Data point 44	0.34995 mL	0.06785 mL	0.06917 mL	1.15005 mL	10.095	0.09268	0.97685	0.00463	10.0 s
31:22.1	Data point 45	0.34995 mL	0.06785 mL	0.06928 mL	1.15005 mL	10.220	0.06602	0.98233	0.00329	10.0 s
31:48.8	Data point 46	0.34995 mL	0.06785 mL	0.06943 mL	1.15005 mL	10.334	0.04233	0.94487	0.00215	10.0 s
32:10.5	Data point 47	0.34995 mL	0.06785 mL	0.06959 mL	1.15005 mL	10.444	0.03117	0.97206	0.00156	10.0 s
32:32.1	Data point 48	0.34995 mL	0.06785 mL	0.06978 mL	1.15005 mL	10.578	0.02074	0.94808	0.00105	10.0 s
32:53.8	Data point 49					10.677	0.01104	0.84098	0.00059	10.0 s
33:10.4	Data point 50					10.833	0.00686	0.86102	0.00036	10.0 s



Sample name: M07 Experiment start time: 10/12/2017 6:46:12 AM

Assay name: **UV-metric psKa** Analyst: **Dorothy Levorse**

Assay ID: 17J-12006 Instrument ID: T311053 Filename: C:\Sirius_T3\Mehtap\20171011_exp15_pKa\17J-12006_M07_UV-metric psKa.t3r

Events (continued)

Time	Event	Water	Acid	Base	Methanol	pН	dpH/dt	pH R-squared	pH SD	dpH/dt time
33:32.0	Data point 51	0.34995 mL	0.06785 mL	0.07072 mL	1.15005 mL	10.942	0.00090	0.08593	0.00015	10.0 s
33:48.4	Data point 52	0.34995 mL	0.06785 mL	0.07124 mL	1.15005 mL	11.053	-0.00449	0.45584	0.00033	10.0 s
34:05.0	Data point 53	0.34995 mL	0.06785 mL	0.07190 mL	1.15005 mL	11.143	-0.00140	0.16210	0.00017	10.0 s
34:21.7	Data point 54	0.34995 mL	0.06785 mL	0.07270 mL	1.15005 mL	11.229	-0.00520	0.65238	0.00032	10.0 s
34:38.4	Data point 55	0.34995 mL			1.15005 mL		-0.00623	0.75370	0.00035	10.0 s
35:05.4	Data point 56	0.34995 mL			1.15005 mL	11.404	-0.00591	0.71459	0.00035	10.0 s
35:32.3	Data point 57	0.34995 mL			1.15005 mL		-0.00452	0.58313	0.00029	10.0 s
35:59.1	Data point 58	0.34995 mL	0.06785 mL	0.07942 mL	1.15005 mL	11.599	-0.00740	0.68557	0.00044	10.0 s
36:15.7	Data point 59	0.34995 mL			1.15005 mL		-0.00542	0.47103	0.00039	10.0 s
36:32.4	Data point 60	0.34995 mL			1.15005 mL		-0.00310	0.32569	0.00027	
36:59.3	Data point 61				1.15005 mL		-0.00793	0.66513	0.00048	10.0 s
37:26.3	Data point 62	0.34995 mL			1.15005 mL		-0.00816	0.66475	0.00049	10.0 s
37:48.1	Data point 63	0.34995 mL	0.06785 mL	0.09925 mL	1.15005 mL	12.035	-0.00473	0.38766	0.00037	10.0 s
39:29.5	Reference spectrum									
40:33.3	Data point 65				1.15005 mL		-0.05445	0.91099	0.00281	
41:00.5	Data point 66				1.15005 mL		0.00694	0.38799	0.00055	10.0 s
41:17.2	Data point 67				1.15005 mL		0.02043	0.79514	0.00113	10.0 s
41:33.9	Data point 68				1.15005 mL		0.00329	0.05690	0.00068	10.0 s
41:50.6	Data point 69				1.15005 mL		0.01528	0.77111	0.00086	
42:07.3	Data point 70				1.15005 mL		0.01374	0.88560	0.00072	
42:24.0	Data point 71				1.15005 mL		0.01445	0.89726	0.00075	
42:40.7	Data point 72				1.15005 mL		0.01168	0.82651	0.00063	10.0 s
42:57.4	Data point 73				1.15005 mL		0.01291	0.90682	0.00067	10.0 s
43:14.2	Data point 74				1.15005 mL		0.01235	0.92662	0.00063	10.0 s
43:30.8	Data point 75				1.15005 mL		0.01311	0.91877	0.00068	10.0 s
43:47.5	Data point 76				1.15005 mL		0.01436	0.87065	0.00076	10.0 s
44:14.3	Data point 77				1.15005 mL		0.01143	0.85103	0.00061	10.0 s
44:30.9 44:57.7	Data point 78 Data point 79				1.15005 mL 1.15005 mL		0.01435 0.01330	0.93006 0.83790	0.00073 0.00072	10.0 s
74.51.1	Data point 19	0.50000 IIIL	0.10231 IIIL	U. IJBUT IIIL	1. 13003 IIIL	J. 4 J1	0.01330	0.031 80	0.00072	10.0 3



Sample name: M07 Experiment start time: 10/12/2017 6:46:12 AM

Assay name: UV-metric psKa Analyst: Dorothy Levorse

1:02:41.1 Data point 107 0.50000 mL 0.16251 mL 0.16359 mL 1.15005 mL 10.212 0.03560 0.92231

Assay ID: 17J-12006 Instrument ID: T311053
Filename: C:\Sirius_T3\Mehtap\20171011_exp15_pKa\17J-12006_M07_UV-metric psKa.t3r

Events (continued)

Time	Event	Water	Acid	Base	Methanol	рН	dpH/dt	pH R-squared	pH SD	dpH/dt time
45:14.3	Data point 80	0.50000 mL	0.16251 mL	0.16030 mL	1.15005 mL	3.561	0.02604	0.93601	0.00133	10.0 s
45:41.2	Data point 81	0.50000 mL	0.16251 mL	0.16068 mL	1.15005 mL	3.657	0.01883	0.92087	0.00097	10.0 s
45:57.7	Data point 82	0.50000 mL	0.16251 mL	0.16098 mL	1.15005 mL	3.781	0.03435	0.97586	0.00172	10.0 s
46:19.3	Data point 83	0.50000 mL	0.16251 mL	0.16129 mL	1.15005 mL	3.914	0.03835	0.97574	0.00192	10.0 s
46:41.0	Data point 84	0.50000 mL	0.16251 mL	0.16157 mL	1.15005 mL	4.098	0.07002	0.98005	0.00349	10.0 s
47:02.7	Data point 85	0.50000 mL	0.16251 mL	0.16176 mL	1.15005 mL	4.246	0.07969	0.98693	0.00396	10.0 s
47:24.3	Data point 86	0.50000 mL	0.16251 mL	0.16190 mL	1.15005 mL	4.364	0.09773	0.98297	0.00486	12.0 s
47:47.9	Data point 87	0.50000 mL	0.16251 mL	0.16199 mL	1.15005 mL	4.493	0.09830	0.97524	0.00491	18.5 s
48:23.1	Data point 88			0.16209 mL			0.09980	0.99125	0.00495	24.0 s
48:58.9	Data point 89	0.50000 mL	0.16251 mL	0.16216 mL	1.15005 mL	4.841	0.09806	0.98918	0.00487	29.0 s
49:44.6	Data point 90	0.50000 mL	0.16251 mL	0.16223 mL	1.15005 mL	5.121	0.09552	0.95420	0.00483	34.5 s
50:36.0	Data point 91	0.50000 mL	0.16251 mL	0.16230 mL	1.15005 mL	5.474	0.10058	0.99436	0.00498	41.5 s
51:29.1	Data point 92	0.50000 mL	0.16251 mL	0.16235 mL	1.15005 mL	5.741	0.09883	0.95655	0.00499	39.5 s
52:20.4	Data point 93	0.50000 mL	0.16251 mL	0.16239 mL	1.15005 mL	6.036	0.09811	0.99172	0.00486	47.5 s
53:19.6	Data point 94	0.50000 mL	0.16251 mL	0.16244 mL	1.15005 mL	6.343	0.10007	0.99499	0.00495	51.5 s
54:22.7	Data point 95	0.50000 mL	0.16251 mL	0.16251 mL	1.15005 mL	6.905	0.09836	0.98297	0.00490	54.0 s
55:33.5	Data point 96	0.50000 mL	0.16251 mL	0.16258 mL	1.15005 mL	7.589	0.09858	0.97894	0.00492	55.5 s
56:45.7	Data point 97	0.50000 mL	0.16251 mL	0.16265 mL	1.15005 mL	8.453	0.07907	0.83578	0.00427	41.5 s
57:43.8	Data point 98	0.50000 mL	0.16251 mL	0.16272 mL	1.15005 mL	8.921	0.09543	0.94859	0.00483	32.0 s
58:27.4	Data point 99			0.16277 mL			0.09595	0.97351	0.00480	23.5 s
59:02.5	Data point 100	0.50000 mL	0.16251 mL	0.16282 mL	1.15005 mL	9.260	0.09637	0.97179	0.00483	20.5 s
59:39.7	Data point 101	0.50000 mL	0.16251 mL	0.16289 mL	1.15005 mL	9.456	0.09748	0.98700	0.00484	18.0 s
1:00:14.5	Data point 102	0.50000 mL	0.16251 mL	0.16296 mL	1.15005 mL	9.584	0.10013	0.98134	0.00499	13.5 s
1:00:49.9	Data point 103	0.50000 mL	0.16251 mL	0.16305 mL	1.15005 mL	9.728	0.09475	0.96389	0.00476	12.5 s
1:01:19.3	Data point 104	0.50000 mL	0.16251 mL	0.16317 mL	1.15005 mL	9.864	0.09994	0.98646	0.00496	11.5 s
1:01:47.6	Data point 105	0.50000 mL	0.16251 mL	0.16329 mL	1.15005 mL	9.988	0.07459	0.98956	0.00370	10.0 s
1:02:14.3	Data point 106	0.50000 mL	0.16251 mL	0.16343 mL	1.15005 mL	10.103	0.05300	0.96969	0.00266	10.0 s

0.00183 10.0 s



1:04:51.2 Data point 113

1:05:23.2 Data point 114

1:05:55.2 Data point 115

1:06:21.9 Data point 116

1:06:38.5 Data point 117

1:06:55.1 Data point 118

1:07:22.0 Data point 119

1:07:48.9 Data point 120

1:08:16.0 Data point 121

1:08:32.6 Data point 122

1:08:59.6 Data point 123

1:09:26.8 Data point 124

1:09:54.0 Data point 125

1:13:29.3 Data point 128

1:13:46.2 Data point 129

1:14:03.1 Data point 130

1:14:20.0 Data point 131

1:14:36.8 Data point 132

1:14:53.6 Data point 133

1:15:10.4 Data point 134

1:15:27.1 Data point 135

1:15:43.7 Data point 136

Report by: Dorothy Levorse 10/12/2017 5:54:57 PM

1:11:38.7 Reference spectrum 1:13:01.9 Data point 127

Sample name: M07 Experiment start time: 10/12/2017 6:46:12 AM Analyst: Assay name: **UV-metric psKa Dorothy Levorse**

Assay ID: 17J-12006 Instrument ID: T311053

Filename: C:\Sirius_T3\Mehtap\20171011_exp15_pKa\17J-12006_M07_UV-metric psKa.t3r

	_	•		-		-				
Events ((continued)									
Time	Event	Water	Acid	Base	Methanol	рН	dpH/dt	pH R-squared	pH SD	dpH/c time
1:03:02.7	Data point 108	0.50000 mL	0.16251 mL	0.16378 mL	1.15005 mL	10.309	0.02665	0.94983	0.00135	
1:03:24.3	Data point 109	0.50000 mL	0.16251 mL	0.16399 mL	1.15005 mL	10.416	0.01858	0.91191	0.00096	_
1:03:46.1	Data point 110	0.50000 mL	0.16251 mL	0.16432 mL	1.15005 mL	10.543	0.00906	0.71583	0.00053	10.0
1:04:07.8	Data point 111	0.50000 mL	0.16251 mL	0.16479 mL	1.15005 mL	10.669	0.00387	0.44036	0.00029	10.0
1:04:29.5	Data point 112	0.50000 mL	0.16251 mL	0.16550 mL	1.15005 mL	10.767	-0.00053	0.00774	0.00030	10.0

0.50000 mL 0.16251 mL 0.16550 mL 1.15005 mL 10.767 -0.00053 0.00774

0.50000 mL 0.16251 mL 0.16623 mL 1.15005 mL 10.885 -0.00582 0.70799

0.50000 mL 0.16251 mL 0.16717 mL 1.15005 mL 10.999 -0.00305 0.23034 0.50000 mL 0.16251 mL 0.16820 mL 1.15005 mL 11.114 -0.00359 0.36695 0.50000 mL 0.16251 mL 0.16919 mL 1.15005 mL 11.209 -0.00891 0.80635

0.50000 mL 0.16251 mL 0.19675 mL 1.15005 mL 11.927

0.83996 mL 0.28918 mL 0.20546 mL 1.15005 mL 2.001

0.83996 mL 0.28918 mL 0.22079 mL 1.15005 mL 2.101

0.83996 mL 0.28918 mL 0.23276 mL 1.15005 mL 2.204

0.83996 mL 0.28918 mL 0.24262 mL 1.15005 mL 2.315

0.83996 mL 0.28918 mL 0.24993 mL 1.15005 mL 2.413

0.83996 mL 0.28918 mL 0.25593 mL 1.15005 mL 2.519

0.83996 mL 0.28918 mL 0.26056 mL 1.15005 mL 2.624

0.83996 mL 0.28918 mL 0.26421 mL 1.15005 mL 2.730

0.83996 mL 0.28918 mL 0.26710 mL 1.15005 mL 2.819

0.83996 mL 0.28918 mL 0.26945 mL 1.15005 mL 2.918

0.50000 mL 0.16251 mL 0.17046 mL 1.15005 mL 11.299 -0.00842 0.86560 0.50000 mL 0.16251 mL 0.17204 mL 1.15005 mL 11.382 -0.00960 0.76837

0.50000 mL 0.16251 mL 0.20543 mL 1.15005 mL 12.019 -0.00268 0.26932

0.50000 mL 0.16251 mL 0.17446 mL 1.15005 mL 11.475 -0.00724 0.51657

0.50000 mL 0.16251 mL 0.17747 mL 1.15005 mL 11.571 -0.00775 0.64609

0.50000 mL 0.16251 mL 0.18079 mL 1.15005 mL 11.665 0.50000 mL 0.16251 mL 0.18443 mL 1.15005 mL 11.736

-0.00866 0.76633 -0.00613 0.67310 0.50000 mL 0.16251 mL 0.18972 mL 1.15005 mL 11.832 -0.00603 0.68737

-0.00536 0.69822

-0.02888 0.94963

0.38893

0.36893

0.89587

0.01497

0.78968

0.63687

0.02875

0.28752

0.00047

0.00818

0.00459

0.02411

0.00105

0.00927

0.00776

0.00114

0.00344

0.00013

0.00034

0.00031

0.00029

0.00049

0.00045

0.00054

0.00050

0.00048

0.00049

0.00037

0.00036

0.00032

0.00025

0.00065

0.00037

0.00126

0.00042

0.00051

0.00048

0.00033

0.00032

0.00029

0.00146 10.0

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Experiment start time: 10/12/2017 6:46:12 AM Sample name: M07

Assay name: **UV-metric** psKa Analyst: **Dorothy Levorse**

Assay ID: 17J-12006 Instrument ID: T311053 Filename:

C:\Sirius_T3\Mehtap\20171011_exp15_pKa\17J-12006_M07_UV-metric psKa.t3r

Events (continued)

Events ((continued)									
Time	Event	Water	Acid	Base	Methanol	рН	dpH/dt	pH R-squared	pH SD	dpH/dt time
1:16:00.3	Data point 137				1.15005 mL		0.00335	0.26964	0.00032	10.0 s
	Data point 138				1.15005 mL		0.00621	0.53123	0.00042	
	Data point 139				1.15005 mL		0.00806	0.69241	0.00048	
	Data point 140				1.15005 mL		0.00598	0.55949	0.00039	
	Data point 141				1.15005 mL		0.00634	0.68263	0.00038	10.0 s
1:17:23.0 1:17:44.7	Data point 142				1.15005 mL		0.00922 0.01156	0.68359	0.00055	
1:17:44.7	Data point 143 Data point 144		0.28918 mL		1.15005 mL 1.15005 mL		0.01136	0.82755 0.89255	0.00063 0.00072	
1:18:28.1	Data point 145				1.15005 mL		0.01505	0.80571	0.00072	
1:18:49.8	Data point 146				1.15005 mL		0.03525	0.96078	0.00178	
1:19:11.5	Data point 147				1.15005 mL		0.04960	0.98422	0.00247	
	Data point 148				1.15005 mL		0.07352	0.98886	0.00365	
1:19:54.8	Data point 149				1.15005 mL		0.09934	0.97705	0.00496	
1:20:17.5	Data point 150				1.15005 mL		0.09673	0.98778	0.00480	
1:20:51.2	Data point 151	0.83996 mL	0.28918 mL	0.27888 mL	1.15005 mL	4.888	0.09915	0.99209	0.00491	21.5 s
	Data point 152	0.83996 mL	0.28918 mL	0.27893 mL	1.15005 mL	5.069	0.09767	0.98738	0.00485	
1:22:01.0	Data point 153	0.83996 mL	0.28918 mL	0.27897 mL	1.15005 mL	5.318	0.09998	0.97788	0.00499	31.5 s
1:22:44.2	Data point 154	0.83996 mL	0.28918 mL	0.27902 mL	1.15005 mL	5.604	0.09928	0.99498	0.00491	
	Data point 155				1.15005 mL		0.09979	0.98873	0.00495	
	Data point 156				1.15005 mL		0.10018	0.98788	0.00498	
	Data point 157				1.15005 mL		0.09885	0.98815	0.00491	
1:25:35.1	Data point 158				1.15005 mL		0.10032	0.99521	0.00496	
1:26:14.3	Data point 159				1.15005 mL		0.10014	0.99325	0.00496	
1:27:02.2	Data point 160				1.15005 mL		0.10020	0.98459	0.00498	
	Data point 161				1.15005 mL		0.08919	0.91796	0.00459	
1:28:49.6 1:29:30.7	•				1.15005 mL 1.15005 mL		0.09390 0.09854	0.92582 0.95146	0.00482 0.00499	
	Data point 164				1.15005 mL		0.09668	0.98334	0.00499	
1:30:34.9	Data point 165				1.15005 mL		0.09813	0.97059	0.00492	
	Data point 166				1.15005 mL		0.09600	0.97891	0.00479	14.0 s
1:31:33.1	Data point 167				1.15005 mL		0.09373	0.92865	0.00480	
1:31:59.8	Data point 168		0.28918 mL		1.15005 mL		0.08349	0.97193	0.00418	
1:32:21.4					1.15005 mL		0.04758	0.96580	0.00239	
1:32:48.0					1.15005 mL		0.04704	0.96694	0.00236	10.0 s
1:33:14.7	Data point 171	0.83996 mL	0.28918 mL	0.28001 mL	1.15005 mL	9.986	0.02581	0.89591	0.00135	10.0 s
	Data point 172				1.15005 mL		0.01575	0.77079	0.00088	
	Data point 173							0.35699	0.00027	
	Data point 174				1.15005 mL				0.00025	
1:34:31.1	•				1.15005 mL				0.00041	
1:34:47.7					1.15005 mL				0.00041	
	Data point 177				1.15005 mL				0.00054	
	Data point 178				1.15005 mL				0.00043	
	Data point 179 Data point 180				1.15005 mL 1.15005 mL				0.00073 0.00061	
	Data point 181				1.15005 mL				0.00061	
	Data point 182				1.15005 mL				0.00059	
	Data point 183				1.15005 mL				0.00059	
	Data point 184				1.15005 mL				0.00073	
1:38:14.1					1.15005 mL				0.00068	
	Data point 186				1.15005 mL				0.00061	
	Data point 187				1.15005 mL				0.00048	
	Data point 188				1.15005 mL				0.00064	
	Data point 189				1.15005 mL				0.00042	
	Data point 190				1.15005 mL				0.00064	
	Data point 191				1.15005 mL				0.00046	
					1.15005 mL	12.016	-0.00639	0.56993	0.00042	10.0 s
1:42:52.1	Assay volumes	1.08996 mL	0.42620 mL	0.34221 mL	1.15005 mL					
	_	_	_	_	_		_	_	_	_



Assay name: **UV-metric psKa** Analyst: **Dorothy Levorse**

Assay ID: 17J-12006 Instrument ID: T311053 Filename:

C:\Sirius_T3\Mehtap\20171011_exp15_pKa\17J-12006_M07_UV-metric psKa.t3r

Assay Settings

Setting Value	Original Value Date/Time changed Imported from	ı
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General Settings Analyst name **Dorothy Levorse**

Separate reference vial Yes

Standard Experiment Settings

Number of titrations Minimum pH 2.000 Maximum pH 12.000

pH step between points of 0.100 Minimum titrant addition 0.00002 mL 0.10000 mL Maximum titrant addition

Argon flow rate 100%

Start titration using Cautious pH adjust

Advanced General Settings

Detect turbidity using Spectrometer Monitor at a wavelength of 500.0 nm

Absorbance threshold of 0.100 Collect turbidity sensor data No

Stir after titrant addition for 5 seconds For titrant addition, stir at 15%

Titrant Pre-Dose

Titrant pre-dose None

Assay Medium

Cosolvent in use Yes

Cosolvent type Methanol Cosolvent volume 1.15 mL

Cosolvent added Automatic ISA water volume 0.35 mL Water added Automatic

Buffer in use No After medium addition, stir for 5 seconds

Sample Sonication

Sonicate Yes Adjust pH for sonication

No Sonicate for 120 seconds After sonication stir for 30 seconds

Sample Dissolution

Perform a dissolution stage No

Carbonate purge

No

Perform a carbonate purge

Temperature Control Wait for temperature Yes

25.0°C Required start temperature Acceptable deviation 0.5°C Time to wait 60 seconds

Stir speed of 15%

Titration 1

Titrate from Low to high pH Yes

Adjust to start pH After pH adjust stir for 10 seconds

Titration 2

Titrate from Low to high pH

Additional cosolvent volume 0.00 mL Add additional water 0.15 mL Additional water added Automatic After pH adjust stir for 10 seconds

Titration 3

Low to high pH Titrate from

Additional cosolvent volume 0.00 mL



Assay name: UV-metric psKa Analyst: Dorothy Levorse

Assay ID: 17J-12006 Instrument ID: T311053
Filename: C:\Sirius_T3\Mehtap\20171011_exp15_pKa\17J-12006_M07_UV-metric psKa.t3r

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Assay Settings (continued)

Setting	value	Original value	Date/Time changed	imported from
Add additional water	0.34 mL	_	_	•
Additional water added	Automatic			
After pH adjust stir for	10 seconds			

Data Point Stability

Stir during data point collection
For point collection, stir at
Delay before data point collection
Number of points to average
Time interval between points
Required maximum standard deviation
Stability timeout after

Adjust pH to cleanup
Adjust pH to cleanup

Experiment cleanupTo start pHAdjust pH to cleanupTo start pHAnd then stir for60 secondsFor cleaning, stir at20%Then add water volume0.25 mLAnd then stir for30 seconds

Calibration Settings

Setting	Value	Date/Time changed	Imported from
Four-Plus alpha	0.109	10/12/2017 6:46:11 AM	C:\Sirius_T3\17J-11006_Blank standardisation.t3r
Four-Plus S	1.0007	10/12/2017 6:46:11 AM	C:\Sirius_T3\17J-11006_Blank standardisation.t3r
Four-Plus jH	0.3	10/12/2017 6:46:11 AM	C:\Sirius_T3\17J-11006_Blank standardisation.t3r
Four-Plus jOH	-0.2	10/12/2017 6:46:11 AM	C:\Sirius_T3\17J-11006_Blank standardisation.t3r
Base concentration factor	1.011	10/12/2017 6:46:12 AM	C:\Sirius_T3\KOH17I22.t3r
Acid concentration factor	0 995	10/12/2017 6:46:11 AM	C:\Sirius T3\17.I-11005 Blank standardisation t3r

Instrument Settings

Setting	Value	Batch Id	Install date
Instrument owner	Merck		
Instrument ID	T311053		
Instrument type	T3 Simulator		
Software version	1.1.3.0		
Dispenser module		T3DM1100253	3/31/2009 6:24:52 AM
Dispenser 0	Water		3/31/2009 6:25:05 AM
Syringe volume	2.5 mL		
Firmware version	1.2.1(r2)		
Titrant	Water (0.15 M KCI)	10-10-2017	10/10/2017 10:48:53 AM
Dispenser 2	Acid		3/31/2009 6:25:11 AM
Syringe volume	0.5 mL		
Firmware version	1.2.1(r2)		
Titrant	Acid (0.5 M HCI)	166940 and 172875	10/6/2017 2:55:40 PM
Dispenser 1	Base		3/31/2009 6:25:21 AM
Syringe volume	0.5 mL		
Firmware version	1.2.1(r2)		
Titrant	Base (0.5 M KOH)	9-22-17	9/22/2017 4:02:42 PM
Dispenser 5	Cosolvent		3/31/2009 6:26:24 AM
Syringe volume	2.5 mL		
Firmware version	1.2.1(r2)		
Distribution valve 5	Distribution Valve		3/31/2009 6:28:19 AM
Firmware version	1.1.3		
Port A	Methanol (80%, 0.15 M KCl)	9-26-17	10/5/2017 5:02:03 PM
Port B	Cyclohexane		9/19/2017 2:15:02 PM
Port C	MeCN (50%, 0.15 M KCI)	10-2-17	10/2/2017 11:28:55 AM
Dispenser 3	Buffer		8/3/2010 6:05:16 AM
Syringe volume	0.5 mL		



Assay name: UV-metric psKa Analyst: Dorothy Levorse

Assay ID: 17J-12006 Instrument ID: T311053
Filename: C:\Sirius_T3\Mehtap\20171011_exp15_pKa\17J-12006_M07_UV-metric psKa.t3r

Instrument Settings (continued)

Setting Firmware version	Value 1.2.1(r2)	Batch Id	Install date
Titrant	Phosphate Buffer		10/10/2017 9:57:33 AM
Dispenser 6	Octanol		10/22/2010 11:52:43 AM
Syringe volume Firmware version	0.5 mL 1.2.1(r2)		
Titrant	Octanol	9-14-17	9/14/2017 10:30:38 AM
Titrator	Colarior		3/31/2009 6:24:17 AM
Horizontal axis firmware version	1.17 Al1Dl2DO2 Stepper 2		
Vertical axis firmware version	1.17 Al1Dl2DO2 Stepper 2		
Chassis I/O firmware version	1.11 Al1Dl0DO4 Norgren I/O		
Probe I/O firmware version Electrode	1.1.1 T3 Electrode	T3E0769	8/15/2017 10:21:54 AM
E0 calibration	-8.33 mV	130109	10/12/2017 10:21:34 AM
Filling solution	3M KCI	KCL095	10/10/2017 9:58:43 AM
Liquids			
Wash 1	50% IPA:50% Water		10/11/2017 8:31:15 AM
Wash 2	0.5% Trition X-100 in H20		10/11/2017 8:31:17 AM
Buffer position 1	pH7 Wash pH 7		10/11/2017 8:31:21 AM 10/11/2017 8:31:23 AM
Buffer position 2 Storage position	рп 7		10/11/2017 8:31:25 AM
Wash water	4.5e+003 mL	10-6-17	10/6/2017 3:04:25 PM
Waste	5.6e+003 mL		10/6/2017 3:04:33 PM
Temperature controller			8/5/2010 7:35:13 AM
Turbidity detector			3/31/2009 6:24:45 AM
Spectrometer		072390	11/23/2010 12:22:28 PM
Dip probe Wavelength coefficient A0	185.563	11086	
Wavelength coefficient A1	2.17439		
Wavelength coefficient A2	-0.000285622		
Total lamp lit time	419:28:33		11/23/2010 12:22:28 PM
Calibrated on	10/11/2017 8:30:19 AM		
Integration time	10		
Scans averaged	10	T2AL 4400227	11/10/2015 10:34:13 AM
Autoloader Left-right axis firmware version	1.17 AI1DI2DO2 Stepper 2	13AL1100237	11/10/2015 10.34.13 AW
Front-back axis firmware version	1.17 Al1Dl2DO2 Stepper 2		
Vertical axis firmware version	1.17 Al1Dl2DO2 Stepper 2		
Chassis I/O firmware version	1.11 Al1DI0DO4 Norgren I/O		
Configuration	_		
Alternate titration position	Titration position		
Alternate reference position Maximum standard vial volume	Reference position 3.50 mL		
Maximum standard vial volume	25.00 mL		
Automatic action idle period	5 minute(s)		
Titrant tube volume	1.3 mL		
Syringe flush count	3.50		
Flowing wash pump volume	20.0 mL		
Flowing wash stir duration Flowing wash stir speed	5 s 30%		
Solvent wash stir duration	5 s		
Solvent wash stir speed	30%		
Surfactant wash stir duration	5 s		
Surfactant wash stir speed	30%		
E0 calibration minimum number of points	10		
E0 calibration maximum standard deviation E0 calibration timeout period	0.01500 60 s		
E0 calibration stir duration	5 s		
E0 calibration preparation stir speed	30%		



Assay name: UV-metric psKa Analyst: Dorothy Levorse

Assay ID: 17J-12006 Instrument ID: T311053
Filename: C:\Sirius_T3\Mehtap\20171011_exp15_pKa\17J-12006_M07_UV-metric psKa.t3r

Instrument Settings (continued)

Setting	Value	Batch Id	d Install date
E0 calibration buffer wash stir duration	5 s		
E0 calibration buffer wash stir speed	30%		
E0 calibration reading stir speed	0%		
Spectrometer calibration stir duration	5 s		
Spectrometer calibration stir speed	30%		
Spectrometer calibration wash pump volume	20.0 mL		
Spectrometer calibration wash stir duration	5 s		
Spectrometer calibration wash stir speed	30%		
Overhead dispense height	10000		
, ,			

Refinement Settings

Setting	Value	Default value
Turbidity detection method	Spectrometer	Spectrometer
Turbidity wavelength to assess	500.0 nm	500.0 nm
Turbidity maximum absorbance	0.100	0.100
Turbidity probe threshold	50.00	50.00
Exclude turbid points	Yes	Yes
Low intensity warning threshold	100	100
Minimum absorbance change threshold	0.100	0.100
Eigenvector autocorrelation threshold	0.80	0.80
Maximum RMSD severe warning	0.250	0.250
Maximum RMSD warning	0.050	0.050

Tray Information

Title

Location C1