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Parameters of the Buffers for the Different Mobile Phase Compositions

		0% MeOH		40% MeOH			60% MeOH			80% MeOH		
Aqueous buffer		pH cal.	pH meas.	pH	<i>I</i>	<i>y</i>	pH	<i>I</i>	<i>y</i>	pH	<i>I</i>	<i>y</i>
A	0.01 M H ₃ PO ₄	2.26	2.25	2.71	2.19x10 ⁻³	0.895	3.01	1.09x10 ⁻³	0.901	3.52	3.23x10 ⁻⁴	0.932
B	0.005 M H ₃ Cit/0.005 M KH ₂ Cit	3.18	3.17	3.74	3.29x10 ⁻³	0.876	4.16	2.13x10 ⁻³	0.869	4.72	1.04x10 ⁻³	0.886
C	0.001 M H ₃ PO ₄ /0.009 M KH ₂ PO ₄	3.34	3.28	3.98	5.53x10 ⁻³	0.847	4.41	3.65x10 ⁻³	0.838	5.17	1.81x10 ⁻³	0.856
D	0.01 M HAc	3.39	3.39	3.79	1.69x10 ⁻⁴	0.967	4.10	8.27x10 ⁻⁵	0.970	4.59	2.66x10 ⁻⁵	0.980
E	0.009 M HAc/0.001 M NaAc	3.86	3.86	4.39	6.43x10 ⁻⁴	0.939	4.82	4.16x10 ⁻⁴	0.936	5.49	2.03x10 ⁻⁴	0.945
F	0.005 M KH ₂ Cit/0.005 M KNaHCit	4.59	4.53	5.19	1.22x10 ⁻²	0.795	5.64	8.10x10 ⁻³	0.781	6.27	4.04x10 ⁻³	0.803
G	0.005 M HAc/0.005 M NaAc	4.74	4.72	5.29	3.01x10 ⁻³	0.880	5.73	2.00x10 ⁻³	0.872	6.41	1.00x10 ⁻³	0.888
H	0.001 M HAc/0.009 M NaAc	5.68	5.69	6.22	5.40x10 ⁻³	0.849	6.66	3.60x10 ⁻³	0.838	7.35	1.80x10 ⁻³	0.857
I	0.005 M KNaHCit/0.005 M Na ₃ Cit	6.00	6.07	6.67	2.71x10 ⁻²	0.733	7.19	1.80x10 ⁻³	0.715	7.95	9.02x10 ⁻³	0.738
J	0.009 M KH ₂ PO ₄ /0.001 M Na ₂ HPO ₄	6.09	6.12	6.76	7.20x10 ⁻³	0.831	7.38	4.80x10 ⁻³	0.819	8.44	2.40x10 ⁻³	0.839
K	0.005 M KH ₂ PO ₄ /0.005 M Na ₂ HPO ₄	7.01	7.05	7.66	1.20x10 ⁻²	0.796	8.28	8.00x10 ⁻³	0.782	9.34	4.00x10 ⁻³	0.804

y is the activity coefficient for a monocharged ion

Retention Time (Minutes) of Hold-up Time Markers in Different Buffers and Mobile Phases

Buffer	KBr			MeOH		
	40%	60%	80%	40%	60%	80%
	MeOH	MeOH	MeOH	MeOH	MeOH	MeOH
A	1.83	1.74	1.46	2.19	2.33	2.31
B	1.86	1.85	1.66	2.24	2.28	2.25
C	1.95	1.95	1.86	2.22	2.30	2.27
D	1.48	1.44	1.46	2.17	2.30	2.25
E	1.54	1.53	1.50	2.20	2.30	2.29
F	2.18	2.04	1.84	2.13	2.31	2.34
G	1.79	1.78	1.64	2.20	2.27	2.22
H	1.88	1.86	1.78	2.17	2.22	2.24
I	2.01	2.01	1.81	2.16	2.23	2.22
J	1.93	1.88	1.83	2.14	2.22	2.28
K	1.95	1.85	1.72	2.21	2.27	2.29

Retention Time (Minutes) of Solutes in Different Buffers and Mobile Phases

Buffer	Benzoic acid			2-Nitrobenzoic acid			3-Nitrobenzoic acid			4-Nitrobenzoic acid		
	40% MeOH	60% MeOH	80% MeOH	40% MeOH	60% MeOH	80% MeOH	40% MeOH	60% MeOH	80% MeOH	40% MeOH	60% MeOH	80% MeOH
A	13.45	4.93	2.86	5.64	3.16	2.48	14.46	5.20	3.10	16.28	5.56	3.21
B	13.33	4.72	2.87	3.00	2.25	1.92	11.32	4.34	2.65	12.15	4.52	2.70
C	12.70	4.62	2.82	2.90	2.20	1.87	9.86	3.96	2.32	10.50	4.04	2.33
D	12.52	4.83	2.88	2.42	2.05	1.91	10.40	4.32	2.65	11.25	4.41	2.72
E	11.24	4.26	2.71	1.93	1.66	1.49	6.31	2.95	1.89	6.50	2.78	1.91
F	6.10	3.16	2.18	2.41	2.12	1.86	3.91	2.50	1.93	3.97	2.51	1.95
G	6.12	2.93	2.18	2.00	1.82	1.64	3.33	2.08	1.75	3.36	2.08	1.75
H	3.08	2.09	1.88	2.14	1.90	1.78	2.84	2.04	1.83	2.86	2.04	1.85
I	2.96	2.25	1.87	2.49	2.14	1.82	3.40	2.24	1.86	3.48	2.37	1.87
J	2.67	2.07	1.87	2.20	1.93	1.83	2.98	2.12	1.88	3.02	2.11	1.89
K	2.52	1.96	1.72	2.21	1.90	1.72	2.98	2.06	1.74	3.05	2.06	1.75
