

Supporting Information for

Comparison Among Pitzer Model and Solvation Models. Calculation of Osmotic and Activity Coefficients and Dilution Enthalpy for Single-Electrolyte Aqueous Solutions

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This document contains Tables comparing the different models (Table S1), parameters for the different models for electrolyte solutions with univalent ions (Table S2) and without univalent ions (Table S3) at 298.15, and parameters for the temperature dependence of the different models (Table S4-S6)

Table S1. Comparison between Pitzer model and solvation models for each aqueous electrolyte system at 298.15 K

Electrolyte	m_{min}	m_{max}	Obs.	Pitzer. ^{4,34}			Ge et al. ^{30,31}			Pazuki et al. ²⁹			Ref.
				AAPD	SD	bias	AAPD	SD	bias	AAPD	SD	bias	
1:1 Electrolytes													
(C ₂ H ₅) ₄ NBr	0.1	12	29	2.56229	0.02212	0.00078	2.84500	0.02769	0.00192	2.68946	0.02608	0.00191	[48]
(C ₂ H ₅) ₄ NCl	0.1	9	26	1.58956	0.03127	0.00040	1.25717	0.02798	0.00018	1.31674	0.02816	0.00014	[48]
(C ₂ H ₅) ₄ NF	0.1	5.5	22	1.00515	0.14579	0.01323	0.83691	0.09272	0.01127	0.80593	0.10498	0.01236	[49]
(C ₂ H ₅) ₄ NNO ₃	0.1	8	30	0.86237	0.00613	0.00057	2.21626	0.01526-0.00088		2.26034	0.01526-0.00049		[50]
(C ₃ H ₇) ₄ NBr	0.1	9	26	1.89844	0.01625	0.00217	6.19123	0.05004	0.00418	6.03273	0.04847	0.00440	[48]
(C ₃ H ₇) ₄ NCl	0.1	18	35	4.37181	0.11337	0.00304	18.60667	0.38135-0.00896		17.71584	0.37328-0.01232		[48]
(C ₄ H ₉) ₄ NBr	0.1	27	38	5.87072	0.03683	0.00034	2.39105	0.01499	0.00017	2.51213	0.01572-0.00002		[48]
(C ₄ H ₉) ₄ NCl	0.1	15	32	3.55878	0.03600-0.00027		3.61458	0.03400-0.00098		3.52525	0.03284-0.00073		[48]
(CH ₃) ₂ NH ₂ ClO ₄	0.1	9	25	0.75129	0.00750	0.00281	1.70537	0.01103	0.00200	1.02302	0.00758	0.00210	[51]
(CH ₃) ₂ NH ₂ NO ₃	0.1	6	23	0.31676	0.00270	0.00040	0.23287	0.00243-0.00052		0.78133	0.00673	0.00035	[52]
(CH ₃) ₃ NHClO ₄	0.1	1.8	14	0.15652	0.00157-0.00002		0.28197	0.00235	0.00015	0.15701	0.00173-0.00028		[51]
(CH ₃) ₃ NHNO ₃	0.1	8.5	28	0.63626	0.00522	0.00050	0.27403	0.00235-0.00015		0.27921	0.00234-0.00028		[52]
(CH ₃) ₄ (Guanadinium)Br	0.1	8.5	28	0.89464	0.00731	0.00097	0.94141	0.00812	0.00053	1.19726	0.01002	0.00035	[53]
(CH ₃) ₄ (Guanadinium)Cl	0.1	6.5	24	0.52438	0.00493	0.00046	0.43305	0.00404	0.00034	0.86861	0.00810	0.00028	[53]
(CH ₃) ₄ NBr	0.1	5.5	22	1.05997	0.00888	0.00125	0.82336	0.00639	0.00085	0.98474	0.00851	0.00116	[48]
(CH ₃) ₄ NCl	0.1	19	36	0.73072	0.00721	0.00087	2.65802	0.03048	0.00307	2.29368	0.02651	0.00276	[48]
(CH ₃) ₄ NF	0.1	7	24	0.37904	0.03300	0.00251	0.42369	0.04143	0.00300	0.44692	0.04379	0.00312	[49]
(CH ₃) ₄ NNO ₃	0.1	12	29	0.38854	0.00318	0.00052	0.26186	0.00220	0.00034	0.22422	0.00186	0.00031	[50]
(CH ₃ NH ₃)ClO ₄	0.1	4	19	0.15875	0.00132	0.00009	0.46465	0.00377	0.00019	0.51443	0.00415	0.00027	[51]
(CH ₃ NH ₃)NO ₃	0.1	9.5	30	0.34560	0.00314	0.00029	0.55298	0.00468	0.00015	0.94910	0.00768	0.00015	[52]
(n-C ₄ H ₉) ₄ NF	0.1	5	21	2.17931	0.43276	0.00685	6.92917	3.56857	0.41674	6.62291	3.53916	0.40863	[49]
(n-C ₄ H ₉) ₄ NBr	0.1	1.6	13	0.41373	0.00955	0.00016	0.30567	0.00897-0.00010		0.31419	0.00895-0.00004		[49]
AgNO ₃	0.001	13	36	1.03824	0.00656-0.00007		1.23575	0.00802-0.00020		1.18788	0.00787-0.00015		[54]
Arginine	0.1	1.4	12	1.86019	0.02236	0.00516	0.56071	0.00578-0.00091		0.55738	0.00576-0.00092		[55]
Arginine-HCl	0.1	5	21	0.47223	0.00367	0.00054	0.23032	0.00188	0.00029	0.22884	0.00187	0.00029	[55]
CCl ₃ COOK	0.1	8	25	1.01997	0.00994-0.00020		3.02381	0.02946-0.00204		2.37699	0.02308-0.00143		[56]
CCl ₃ COONa	0.1	9	26	1.89519	0.02183-0.00038		5.33639	0.06065-0.00537		4.75551	0.05416-0.00510		[56]
CF ₃ COOK	0.1	58	89	7.56451	0.06242-0.00102		3.35465	0.02880-0.00059		2.94554	0.02426-0.00027		[57]
CF ₃ COONa	0.1	47	78	11.05807	0.13211-0.00363		14.83880	0.18611-0.05704		14.83880	0.18611-0.05704		[57]
Citric Acid	0.2	8	22	1.66892	0.02813	0.00437	0.63230	0.01501-0.00114		0.63230	0.01501-0.00114		[58]
Cs acetate	0.001	3.5	24	0.04134	0.00053-0.00002		0.17496	0.00204	0.00015	0.04412	0.00054	0.00007	[54]
CsBr	0.001	5	27	0.12879	0.00122	0.00005	0.10783	0.00104	0.00005	0.23548	0.00212	0.00004	[54]
CsCl	0.001	11	34	0.29715	0.00296-0.00008		0.33271	0.00405	0.00006	0.35036	0.00358	0.00002	[54]
CsF	0.001	3.5	24	0.22227	0.00258-0.00002		0.15386	0.00203	0.00006	0.18997	0.00237	0.00003	[54]
CsI	0.001	3	23	0.03947	0.00040-0.00004		0.14617	0.00140-0.00004		0.03126	0.00028-0.00004		[54]
CsNO ₂	0.001	36	63	1.83926	0.01537	0.00287	0.92292	0.00815	0.00175	0.40698	0.00340	0.00057	[59]
CsNO ₃	0.001	1.5	19	0.07318	0.00059-0.00009		0.34637	0.00312-0.00011		0.45914	0.00416-0.00016		[54]
CsOH	0.001	1.2	17	0.05653	0.00064-0.00013		0.06108	0.00070	0.00006	0.03278	0.00034-0.00004		[54]
GuCl	0.1	12	29	0.86982	0.00633	0.00017	0.51462	0.00449-0.00100		0.51172	0.00449-0.00100		[50]
HBr	0.001	11	34	1.56593	0.62886	0.02654	1.55636	0.63097	0.02702	1.66007	0.63670	0.02678	[54]
HCl	0.001	16	39	1.06069	0.13716	0.00504	1.86149	0.63357	0.05065	1.74942	0.58958	0.04517	[54]
HClO ₄	0.001	16	39	2.28509	6.19486	0.52320	1.75013	5.82621	0.52899	1.91780	6.01236	0.54496	[54]
HI	0.001	10	33	0.91732	0.32952	0.00860	0.83890	0.31217	0.00962	0.78553	0.33267	0.01119	[54]
Histidine-HCl	0.1	0.7	7	0.05693	0.00076-0.00013		0.34119	0.00299	0.00022	0.35019	0.00308	0.00022	[55]
HNO ₃	0.001	28	51	2.08022	0.04411	0.00111	12.19609	0.25032-0.00908		5.91213	0.13795	0.00375	[54]
K acetate	0.001	3.5	24	0.06521	0.00084	0.00000	0.11813	0.00136	0.00009	0.06599	0.00085	0.00003	[54]
K acid adipate	0.001	1	16	0.07297	0.00078	0.00005	0.11027	0.00114	0.00012	0.12152	0.00145	0.00001	[54]
K acid malonate	0.001	5	27	0.38019	0.00333	0.00013	0.53788	0.00564	0.00060	0.87560	0.00799-0.00011		[54]
K acid succinate	0.001	4.5	26	0.24821	0.00236	0.00007	0.29555	0.00274	0.00007	0.40613	0.00390	0.00040	[54]
K <i>p</i> -toluene sulfonate	0.001	3.5	24	0.18942	0.00170	0.00002	0.47355	0.00418-0.00020		0.44848	0.00381-0.00049		[54]
KBr	0.001	5.5	28	0.04544	0.00047	0.00001	0.05595	0.00058	0.00002	0.07766	0.00082	0.00003	[54]
KBrO ₃	0.001	0.5	11	0.03063	0.00030-0.00005		0.03163	0.00032-0.00005		0.02878	0.00029-0.00008		[54]
KClO ₃	0.001	0.7	13	0.02583	0.00028-0.00004		0.02444	0.00025-0.00001		0.02419	0.00025-0.00002		[54]
KCl	0.001	5	28	0.03674	0.00035	0.00000	0.08155	0.00082-0.00001		0.03750	0.00040	0.00002	[54]
KCNS	0.001	5	27	0.06367	0.00061	0.00003	0.09815	0.00100	0.00005	0.03486	0.00033	0.00005	[54]
KF	0.001	17.5	41	1.41815	0.03614-0.00027		1.54034	0.05678	0.00111	1.54607	0.05398	0.00081	[54]
KH ₂ AsO ₄	0.001	1.3	18	0.03478	0.00036-0.00006		0.27995	0.00259-0.00010		0.35044	0.00325-0.00013		[54]
KH ₂ PO ₄	0.001	1.8	20	0.03380	0.00028	0.00003	0.27269	0.00244	0.00002	0.32541	0.00291	0.00001	[54]
KI	0.001	4.5	26	0.04480	0.00051-0.00003		0.14556	0.00152	0.00005	0.03063	0.00029	0.00000	[54]
KNO ₂	0.001	34.12	62	1.28808	0.00990	0.00176	0.73613	0.00574	0.00106	0.34955	0.00263	0.00026	[59]
KNO ₃	0.001	3.5	24	0.06181	0.00054	0.00001	0.36266	0.00319-0.00006		0.52417	0.00449-0.00003		[54]
KOH	0.001	20	43	1.54429	0.47919	0.01453	2.53054	1.20933	0.09040	2.33225	1.15283	0.08279	[54]
KPF ₆	0.001	0.5	11	0.02526	0.00027-0.00005		0.14739	0.00149-0.00032		0.08586	0.00091	0.00004	[54]
Li acetate	0.001	4	25	0.15187	0.00166-0.00001		0.12616	0.00137	0.00013	0.15457	0.00181	0.00003	[54]
Li <i>p</i> -toluene sulfonate	0.001	4.5	26	0.29325	0.00299-0.00010		0.38490	0.00388-0.00009		0.45237	0.00463-0.00009		[54]
LiBr	0.001	20	43	5.28507	17.72312	1.18394	11.64162	59.93142	7.01682	10.90663	59.25707	6.89458	[54]
LiBrO ₃	0.1	5	21	0.10516	0.00116	0.00025	0.08592	0.00094	0.00004	0.08218	0.00090	0.00017	[60]
LiCl	0.001	19.219	43	3.44688	0.92000	0.04048	12.64473	5.49138	0.53058	11.90105	5.44514	0.51490	[54]

Table S1. Cont.

Electrolyte	m_{min}	m_{max}	Obs.	Pitzer, ^{4,34}			Ge et al. ^{30,31}			Pazuki et al. ²⁹			Ref.
				AAPD	SD	bias	AAPD	SD	bias	AAPD	SD	bias	
LiClO ₃	0.1	4.2	20	0.12693	0.00162	0.00016	0.12549	0.00157	0.00000	0.13843	0.00176	0.00018	[60]
LiClO ₄	0.001	4.5	26	0.21778	0.00323	-0.00010	0.08769	0.00160	0.00004	0.09456	0.00217	0.00001	[54]
LiI	0.001	3	23	0.19319	0.00259	-0.00001	0.53387	0.00722	0.00010	0.46271	0.00620	0.00005	[54]
LiNO ₂	0.001	19.9	47	0.86402	0.02200	0.00193	4.23706	0.12194	0.01049	3.80179	0.11342	0.00892	[59]
LiNO ₃	0.001	20	43	0.50683	0.01204	0.00033	10.17426	0.33006	0.00086	3.88249	0.15768	0.00660	[54]
LiOH	0.001	5	26	0.51705	0.00599	0.00072	0.94052	0.00923	0.00088	0.76216	0.00761	0.00087	[54]
Lysine	0.1	5.5	22	2.40488	0.03275	0.00585	2.13816	0.02845	0.00588	2.25629	0.03008	0.00610	[55]
Lysine-HCl	0.1	3.5	18	0.25343	0.00266	0.00021	0.30305	0.00310	0.00009	0.28111	0.00291	0.00011	[55]
Na acetate	0.001	3.5	24	0.06496	0.00078	-0.00004	0.11514	0.00130	0.00006	0.06120	0.00072	-0.00001	[54]
Na acid adipate	0.001	0.7	13	0.02835	0.00034	0.00004	0.08313	0.00094	0.00018	0.05026	0.00060	0.00011	[54]
Na acid malonate	0.001	5	27	0.05155	0.00050	0.00003	0.05693	0.00053	0.00003	0.34748	0.00329	-0.00005	[54]
Na acid succinate	0.001	5	27	0.16838	0.00172	0.00007	0.32051	0.00305	0.00022	0.26079	0.00258	0.00007	[54]
Na butyrate	0.001	3.5	24	0.21740	0.00347	-0.00002	2.74933	0.03719	-0.00076	1.32423	0.01861	0.00041	[54]
Na caprate	0.4	1.8	11	10.19819	0.05275	0.01784	44.08185	0.15814	0.03439	39.77994	0.16203	0.03548	[54]
Na caproate	0.001	4.5	26	3.68590	0.04027	-0.00134	4.81594	0.05115	-0.00365	4.46784	0.04776	-0.00378	[54]
Na caprylate	0.4	3	14	5.82238	0.03962	-0.00450	12.72905	0.07890	0.00003	12.72905	0.07890	0.00003	[54]
Na formate	0.001	3.5	24	0.04715	0.00050	0.00000	0.10453	0.00105	0.00005	0.05835	0.00060	0.00002	[54]
Na heptylate	0.001	5	27	3.95391	0.03758	-0.00169	9.85946	0.08109	-0.00411	10.17019	0.08372	-0.00403	[54]
Na pelargonate	0.3	2.5	14	9.86285	0.05930	0.02287	23.66070	0.10984	0.04564	17.86962	0.09269	0.03806	[54]
Na propionate	0.001	3	23	0.05594	0.00065	-0.00002	0.26682	0.00348	0.00017	0.15204	0.00215	0.00012	[54]
Na <i>p</i> -toluene sulfonate	0.001	4	25	0.31071	0.00295	-0.00010	0.46979	0.00425	-0.00051	0.42927	0.00422	-0.00047	[54]
Na valerate	0.001	3.5	24	0.50172	0.00600	-0.00027	5.30395	0.06819	-0.00349	4.93061	0.06457	-0.00384	[54]
NaBr	0.001	9	32	0.38983	0.00557	-0.00003	0.41824	0.00704	0.00003	0.50721	0.00792	0.00001	[54]
NaBrO ₃	0.001	2.617	23	0.08780	0.00091	-0.00006	0.28267	0.00268	-0.00003	0.41393	0.00385	-0.00005	[54]
NaCF ₃ SO ₃	0.01	5.3735	26	0.10355	0.00119	-0.00010	1.15592	0.01326	-0.00002	0.89469	0.01053	0.00001	[61]
NaClO ₃	0.001	3	23	0.03691	0.00039	-0.00004	0.04963	0.00053	0.00000	0.26546	0.00272	-0.00001	[54]
NaClO ₄	0.001	6	29	0.07888	0.00086	0.00000	0.07121	0.00081	0.00000	0.05918	0.00064	0.00002	[54]
NaCl	0.001	6.144	30	0.07000	0.00078	-0.00004	0.10665	0.00117	-0.00006	0.05892	0.00074	-0.00003	[54]
NaCNS	0.001	18	41	1.82412	0.05195	-0.00120	3.51955	0.13889	0.00306	3.26485	0.13290	0.00238	[54]
NaF	0.001	1	17	0.03050	0.00030	0.00003	0.06525	0.00067	0.00010	0.02974	0.00029	0.00004	[54]
NaH ₂ AsO ₄	0.001	1.3	19	0.05261	0.00055	-0.00004	0.07988	0.00083	-0.00004	0.17532	0.00174	-0.00009	[54]
NaH ₂ PO ₄	0.001	6.5	30	0.52025	0.00433	0.00011	1.66344	0.01367	-0.00083	1.86622	0.01529	-0.00104	[54]
NaI	0.001	12	35	0.50806	0.02531	0.00008	0.58179	0.03239	0.00037	0.67479	0.03418	0.00035	[54]
NaNO ₂	0.001	12.34	40	0.56858	0.00614	0.00121	1.18001	0.01194	0.00327	0.83261	0.00855	0.00221	[59]
NaNO ₃	0.001	10.83	34	2.65890	0.02943	0.00013	1.05420	0.00917	-0.00052	5.84976	0.06336	-0.00415	[54]
NaOH	0.001	29	52	6.02529	0.66859	0.00896	18.80022	5.38571	0.42429	17.80441	5.35534	0.40749	[54]
NH ₄ Br	0.1	6	23	0.11567	0.00108	-0.00003	0.35498	0.00343	-0.00021	0.08699	0.00093	-0.00003	[62]
NH ₄ ClO ₄	0.001	2.1	22	0.03594	0.00032	0.00003	0.03911	0.00036	-0.00002	0.03193	0.00026	0.00002	[54]
NH ₄ Cl	0.001	7.405	31	0.10995	0.00106	-0.00001	0.30946	0.00364	0.00018	0.23566	0.00252	0.00012	[54]
NH ₄ CNS	0.1	10	31	0.34754	0.00294	-0.00001	0.24795	0.00214	-0.00020	0.45548	0.00401	-0.00014	[62]
NH ₄ H ₂ PO ₄	0.1	3.5	18	0.13907	0.00101	0.00008	0.10616	0.00078	-0.00006	0.09176	0.00067	-0.00006	[62]
NH ₄ I	0.1	8	27	0.20558	0.00202	0.00005	0.20823	0.00210	-0.00019	0.03112	0.00029	0.00002	[62]
NH ₄ NO ₃	0.001	25.954	49	0.52811	0.00384	-0.00005	1.47795	0.00993	-0.00086	2.20724	0.01488	-0.00131	[54]
Rb acetate	0.001	3.5	24	0.04415	0.00058	-0.00001	0.09850	0.00114	0.00010	0.03843	0.00046	0.00003	[54]
RbBr	0.001	5	27	0.04715	0.00048	-0.00001	0.06259	0.00061	0.00000	0.03905	0.00035	0.00001	[54]
RbCl	0.001	7.8	32	0.08979	0.00100	-0.00004	0.16260	0.00171	0.00002	0.22285	0.00223	-0.00003	[54]
RbF	0.001	3.5	24	0.19381	0.00220	0.00000	0.56958	0.00601	0.00010	0.41142	0.00431	0.00007	[54]
RbI	0.001	5	27	0.04030	0.00039	0.00002	0.05561	0.00054	0.00002	0.04508	0.00045	0.00003	[54]
RbNO ₂	0.001	62.3	90	2.25338	0.01634	0.00219	1.51467	0.01068	0.00124	1.16477	0.00835	0.00010	[59]
RbNO ₃	0.001	4.5	26	0.22606	0.00185	0.00007	0.71950	0.00562	-0.00005	1.08438	0.00853	-0.00031	[54]
Tl acetate	0.001	6	29	0.30227	0.00276	0.00014	0.31900	0.00280	0.00016	0.36694	0.00357	0.00010	[54]
TlClO ₄	0.001	0.5	11	0.03125	0.00032	0.00006	0.03058	0.00030	0.00005	0.03068	0.00030	0.00005	[54]
TlNO ₂	0.001	1.4	18	0.05173	0.00034	0.00006	8.76871	0.06683	0.01127	9.08530	0.06872	0.00845	[54]
TlNO ₃	0.001	0.4	10	0.02703	0.00032	0.00002	0.02822	0.00031	0.00004	0.02826	0.00031	0.00004	[54]
1:2 Electrolytes													
(CN ₃ H ₆) ₂ CO ₃	0.001	2.613	35	0.27488	0.00178	0.00037	1.22415	0.00816	-0.00051	1.60801	0.01044	-0.00108	[63]
(NH ₄) ₂ B ₁₀ H ₁₀	0.001	3.806	40	0.71955	0.00595	0.00058	1.18411	0.00930	0.00179	0.36158	0.00297	0.00029	[63]
(NH ₄) ₂ HPO ₄	0.001	3.102	37	0.20376	0.00129	-0.00001	0.96367	0.00588	-0.00140	0.03937	0.00036	0.00001	[63]
(TH) ₂ SO ₄	0.2	6	22	0.19789	0.00148	-0.00033	0.55920	0.00438	-0.00048	0.62958	0.00524	-0.00157	[64]
C ₂ H ₆ S ₂ O ₆	0.001	5.5	46	0.48230	0.03038	-0.00051	0.92626	0.05158	0.00400	0.94267	0.03320	0.00239	[63]
C ₆ H ₆ S ₂ O ₆	0.001	1.8	32	0.16969	0.00175	-0.00006	0.41718	0.00417	0.00087	0.25891	0.00265	0.00051	[63]
Cs ₂ S ₂ O ₈	0.001	0.109	20	0.00730	0.00007	0.00001	0.01266	0.00011	0.00002	0.01196	0.00011	0.00002	[63]
Cs ₂ SO ₄	0.001	1.631	31	0.12975	0.00108	0.00025	0.49012	0.00368	0.00095	0.01360	0.00016	0.00004	[63]
H-1,8-diphenyloctanedisulfonic	0.01	2	24	7.09110	0.05675	0.00194	12.79582	0.07638	0.00575	12.37664	0.07415	0.00663	[65]
H 4,4'-bibenzylidene sulfonic	0.01	2	25	5.93499	0.04698	-0.00323	7.45412	0.05316	0.00018	6.96208	0.05076	-0.00001	[65]
H <i>m</i> -benzenedisulfonic acid	0.01	1.6	22	1.08844	0.01266	0.00089	0.64377	0.00857	0.00196	0.68726	0.00952	0.00178	[65]
K ₂ Cr ₂ O ₇	0.001	0.507	24	4.00031	0.04051	-0.01013	0.80683	0.00809	-0.00070	0.75079	0.00758	-0.00062	[63]
K ₂ CrO ₄	0.001	3.372	38	0.31460	0.00248	0.00026	0.21748	0.00165	0.00048	1.51478	0.01206	0.00135	[63]
K ₂ H ₂ P ₂ O ₇	0.001	3.07	37	0.15512	0.00109	-0.00028	1.59811	0.01177	-0.00129	2.42889	0.01731	-0.00264	[63]
K ₂ HAsO ₄	0.001	0.886	27	0.18677	0.00164	-0.00047	0.14911	0.00151	0.00001	0.37018	0.00340	-0.00076	[63]
K ₂ HPO ₄	0.001	0.873	27	0.02771	0.00027	-0.00004	0.10566	0.00087	0.00023	0.18907	0.00158	-0.00037	[63]
K ₂ Pt(CN) ₄	0.001	0.948	28	0.90184	0.00794	-0.00235	0.22208	0.00200	-0.00054	0.67305	0.00575	-0.00174	[63]

Table S1. Cont.

Electrolyte	m_{min}	m_{max}	Obs.	Pitzer, ^{4,34}			Ge et al. ^{30,31}			Pazuki et al. ²⁹			Ref.
				AAPD	SD	bias	AAPD	SD	bias	AAPD	SD	bias	
K ₂ SO ₄	0.001	0.692	25	0.04354	0.00039	0.00006	0.17121	0.00135	0.00040	0.01707	0.00028	0.00000	[63]
Li-1,8-diphenyloctanedisulfonate	0.01	1.2	20	9.44249	0.06717	-0.00151	8.62411	0.06374	-0.00211	8.62386	0.06374	-0.00211	[65]
Li ₂ C ₆ H ₄ S ₂ O ₆	0.001	2.5	34	0.24016	0.00280	-0.00028	0.23576	0.00226	0.00079	0.05746	0.00074	-0.00007	[63]
Li ₂ C ₁₄ H ₁₂ S ₂ O ₆	0.001	1.2	29	0.62290	0.00540	0.00164	0.76599	0.00659	0.00170	0.58745	0.00507	0.00165	[63]
Li ₂ SO ₄	0.001	3.165	38	0.50879	0.00428	0.00041	0.51563	0.00403	0.00077	0.07544	0.00064	-0.00007	[63]
Li 4,4'-bibenzylidisdulfonate	0.01	1.2	21	0.53234	0.00516	0.00112	0.71366	0.00642	0.00118	0.62631	0.00538	0.00061	[65]
Li m-benzenedisulfonic acid	0.01	2.5	25	0.74070	0.00859	0.00056	0.53072	0.00665	0.00112	0.57977	0.00631	0.00084	[65]
Na ₂ B ₁₂ H ₁₂	0.001	1.729	31	0.15407	0.00153	-0.00043	0.25200	0.00289	0.00054	0.09893	0.00122	0.00020	[63]
Na ₂ C ₂ H ₄ S ₂ O ₆	0.001	1.8	32	0.73563	0.00612	0.00162	1.52792	0.01221	0.00344	1.00533	0.00802	0.00238	[63]
Na ₂ C ₄ H ₂ O ₄ (sodium fumarate)	0.001	2.077	33	0.20379	0.00176	0.00024	0.38850	0.00308	0.00087	0.01544	0.00027	-0.00001	[63]
Na ₂ C ₄ H ₂ O ₄ (sodium maleate)	0.001	2.879	36	0.34022	0.00259	0.00044	0.29480	0.00225	0.00064	0.05290	0.00040	0.00009	[63]
Na ₂ C ₆ H ₄ S ₂ O ₆	0.001	3	36	0.24297	0.00220	-0.00053	0.22430	0.00200	0.00059	0.15956	0.00182	-0.00010	[63]
Na ₂ C ₁₄ H ₁₂ S ₂ O ₆	0.001	0.4	22	0.00734	0.00007	0.00002	0.44466	0.00441	0.00019	0.13419	0.00118	0.00031	[63]
Na ₂ C ₁₄ H ₁₂ S ₂ O ₈	0.001	0.4	22	1.11362	0.00946	-0.00190	2.16931	0.01726	-0.00472	2.33258	0.01851	-0.00530	[63]
Na ₂ CO ₃	0.001	3.1115	38	0.32618	0.00274	0.00032	1.13169	0.00942	-0.00037	2.20939	0.01710	-0.00193	[63]
Na ₂ CrO ₄	0.001	4.363	42	0.51508	0.00550	-0.00020	0.32031	0.00408	-0.00025	1.70161	0.01395	-0.00205	[63]
Na ₂ HASO ₄	0.001	1.029	29	0.14753	0.00132	-0.00045	0.14972	0.00127	0.00008	0.40355	0.00335	-0.00080	[63]
Na ₂ HPO ₄	0.001	2.121	33	0.06160	0.00048	-0.00010	0.77282	0.00611	-0.00052	1.43875	0.01053	-0.00174	[63]
Na ₂ MoO ₄	0.3	2.5	23	2.90922	0.02658	0.00829	3.27287	0.03021	0.01042	4.04126	0.03760	0.01419	[66]
Na ₂ S ₂ O ₃	0.001	4.052	41	0.34111	0.00285	0.00020	0.23410	0.00194	0.00017	2.92487	0.02311	-0.00226	[63]
Na ₂ S ₂ O ₆	0.001	0.852	27	0.39704	0.00335	-0.00106	0.44298	0.00357	-0.00110	0.71882	0.00579	-0.00180	[63]
Na ₂ S ₂ O ₈	0.001	0.098	19	0.00377	0.00004	-0.00001	0.03214	0.00030	0.00007	0.00820	0.00008	0.00001	[63]
Na ₂ SO ₃	0.001	2.058	33	0.18768	0.00158	0.00015	0.18482	0.00146	0.00050	0.91133	0.00747	-0.00099	[63]
Na ₂ SO ₄	0.001	4.445	43	0.46162	0.00341	0.00046	0.89945	0.00675	-0.00006	2.90380	0.02124	0.00358	[63]
Na ₂ WO ₄	0.001	2.558	36	0.32797	0.00268	0.00036	0.47886	0.00373	0.00101	0.01258	0.00011	0.00004	[63]
Na 4,4'-bibenzylidisdulfonate	0.01	0.4	14	1.20024	0.01091	-0.00182	0.82955	0.00761	0.00171	0.72183	0.00677	0.00148	[65]
Na m-benzenedisulfonic acid	0.01	3	26	0.96664	0.00984	-0.00015	0.37899	0.00340	0.00055	0.89475	0.00825	0.00032	[65]
Rb ₂ S ₂ O ₈	0.001	0.075	17	0.00749	0.00006	0.00001	0.01387	0.00013	0.00003	0.00626	0.00005	0.00001	[63]
Rb ₂ SO ₄	0.001	1.707	31	0.14065	0.00112	0.00022	0.19917	0.00148	0.00045	0.40036	0.00328	-0.00046	[63]
1:3 Electrolytes													
K ₃ AsO ₄	0.1	0.7	7	1.21958	0.01425	0.00548	0.17096	0.00116	0.00031	1.98106	0.01849	0.00824	[67]
K ₃ Co(CN) ₆	0.01	1.311	15	1.44815	0.02031	-0.00374	1.78508	0.02031	-0.00379	1.32073	0.02018	-0.00397	[68]
K ₃ Fe(CN) ₆	0.1	1.4	12	0.97450	0.00946	-0.00402	0.84551	0.00942	-0.00402	1.43466	0.01289	-0.00341	[67]
K ₃ PO ₄	0.1	0.7	7	1.33709	0.01564	0.00664	0.10462	0.00053	-0.00027	2.89946	0.02382	0.01023	[67]
Na ₃ AsO ₄	0.1	0.7	7	1.66585	0.01684	0.00761	2.39931	0.01836	0.00817	3.75575	0.02790	0.01188	[67]
Na ₃ PO ₄	0.1	0.7	7	1.49399	0.01548	0.00643	2.81306	0.02055	0.00882	4.22338	0.03003	0.01250	[67]
1:4 Electrolytes													
(N(CH ₃) ₄) ₄ Mo(CN) ₈ -2H ₂ O	0.01	1.44	12	2.54727	0.01710	-0.00629	1.86137	0.01688	-0.00843	4.68772	0.02842	-0.00983	[69]
K ₄ ATP	0.1	2.4	24	3.18085	0.02642	0.00448	2.64230	0.02226	-0.00602	5.11111	0.03744	-0.01024	[70]
K ₄ Fe(CN) ₆	0.1	0.9	9	1.76663	0.01213	-0.00427	0.74660	0.00468	-0.00096	1.48901	0.00868	0.00044	[67]
K ₄ Mo(CN) ₈	0.1	1.4	12	2.68483	0.01644	-0.00539	1.72934	0.00980	-0.00119	5.86745	0.03198	0.00984	[67]
K ₄ P ₂ O ₇	0.1	2.3	23	3.46720	0.02747	0.00665	2.48772	0.01692	-0.00156	3.35988	0.02463	-0.00344	[71]
K ₄ W(CN) ₈ -2H ₂ O	0.01	1.5	12	3.95279	0.03150	-0.00922	3.36873	0.03371	-0.01383	6.85766	0.05158	-0.01409	[69]
Na ₄ ATP	0.1	2.8	28	2.86614	0.02557	0.00476	3.63316	0.02607	-0.00771	3.66716	0.03133	-0.00814	[70]
2:1 Electrolytes													
(C ₈ H ₂₂ N ₂)(C ₆ H ₄ O ₆ S ₂) ₂	0.01	1.2	14	0.99719	0.00655	0.00090	0.84024	0.00484	0.00072	0.83755	0.00477	0.00070	[72]
(C ₈ H ₂₂ N ₂)Cl ₂	0.01	4.4	22	1.30639	0.01284	-0.00043	1.08038	0.00976	-0.00174	1.12793	0.00994	-0.00185	[72]
(C ₈ H ₂₂ N ₂)I ₂	0.01	4	20	4.05754	0.02143	0.01004	2.97177	0.01555	0.00878	2.89297	0.01549	0.00865	[72]
(C ₈ H ₂₂ N ₂)-Sulfate	0.01	3.5	20	7.41867	0.05714	-0.01100	16.31357	0.11043	-0.02174	15.84049	0.10691	-0.02118	[72]
(Co(NH ₃) ₅ CH ₃ CH ₂ COO)Br ₂	0.001	1.2	29	0.08497	0.00065	0.00017	0.12425	0.00092	0.00032	0.25709	0.00211	-0.00039	[73]
(Co(NH ₃) ₅ CH ₃ CH ₂ COO)Cl ₂	0.001	2.4	34	0.24642	0.00182	0.00037	0.54104	0.00396	0.00086	0.01757	0.00014	0.00005	[73]
(Co(NH ₃) ₅ CH ₃ CH ₂ COO)I ₂	0.001	0.5	23	0.03202	0.00027	0.00004	0.36063	0.00307	0.00080	0.04571	0.00038	0.00010	[73]
(Co(NH ₃) ₅ CH ₃ CH ₂ COO)(NO ₃) ₂	0.001	0.4	22	0.02208	0.00019	0.00003	0.06005	0.00051	0.00014	0.00719	0.00007	0.00001	[73]
(Co(NH ₃) ₅ CH ₃ COO)(NO ₃) ₂	0.001	0.05	14	0.00523	0.00005	0.00000	0.01133	0.00012	0.00002	0.01377	0.00014	0.00003	[73]
(Co(NH ₃) ₅ CH ₃ COO)Br ₂	0.001	0.6	24	0.03034	0.00024	0.00006	0.10657	0.00085	0.00002	0.01549	0.00014	0.00000	[73]
(Co(NH ₃) ₅ CH ₃ COO)Cl ₂	0.001	0.6	24	0.42143	0.00364	0.00065	0.71607	0.00572	0.00177	0.34233	0.00288	0.00004	[73]
(Co(NH ₃) ₅ CH ₃ COO)I ₂	0.001	0.1	19	0.00551	0.00005	0.00000	0.00907	0.00008	0.00001	0.00479	0.00005	-0.00001	[73]
(Co(NH ₃) ₅ Cl)(ClO ₄) ₂	0.001	0.1	19	0.02907	0.00035	-0.00002	0.13824	0.00135	0.00000	0.24371	0.00219	-0.00048	[73]
[Co(NH ₃) ₅ Cl]Cl ₂	0.001	0.008	8	0.05401	0.00069	0.00009	0.05865	0.00078	0.00012	0.05971	0.00079	0.00012	[73]
(Co(NH ₃) ₅ F)Cl ₂	0.001	1	28	0.04649	0.00037	0.00009	0.06499	0.00050	0.00003	0.19622	0.00157	-0.00035	[73]
[Co(NH ₃) ₅ NO ₂]Cl ₂	0.001	0.1	19	0.34921	0.00322	-0.00064	0.03382	0.00033	0.00001	0.00416	0.00004	0.00000	[73]
Ba(ClO ₄) ₂	0.1	5.5	22	0.94879	0.01341	-0.00133	0.69056	0.01222	-0.00074	0.91019	0.01626	0.00118	[67]
Ba(COOCH ₃) ₂	0.1	3.5	18	1.86451	0.01534	-0.00245	5.13241	0.04056	-0.00966	2.44623	0.02159	0.00344	[67]
BaBr ₂	0.001	2.321	42	0.22476	0.00235	0.00010	0.29441	0.00270	0.00062	0.10474	0.00099	0.00020	[74]
BaCl ₂	0.001	1.785	36	0.11797	0.00116	0.00010	0.31756	0.00267	0.00086	0.00927	0.00009	0.00002	[74]
BaI ₂	0.001	1.998	38	0.17688	0.00180	-0.00038	0.36367	0.00387	0.00077	0.15732	0.00174	0.00031	[74]
C ₈ H ₂₂ N ₂ Cl ₂	0.001	4.4	42	0.36933	0.00333	-0.00008	0.29690	0.00275	-0.00001	0.52856	0.00431	-0.00036	[75]
C ₈ H ₂₂ N ₂ I ₂	0.001	4	40	1.25728	0.00748	-0.00061	0.76051	0.00458	-0.00044	0.76132	0.00522	0.00132	[75]
Ca(ClO ₄) ₂	0.1	6	23	1.22136	0.29540	0.02010	2.06263	0.63680	0.05339	2.37604	0.68665	0.05697	[67]
Ca(NO ₃) ₂	0.005	20	24	2.79223	0.03080	-0.00058	4.56421	0.10416	0.00418	3.78204	0.08831	0.00328	[76]
CaBr ₂	0.001	9.21	62	5.91625	37.87993	3.45564	6.27699	44.39609	4.47009	6.68813	44.76604	4.48880	[74]
CaCl ₂	0.001	10.75	56	5.17391	0.85826	0.03487	10.84209	4.73118	0.57157	10.25762	4.46194	0.52233	[77]

Table S1. Cont.

Electrolyte	m_{min}	m_{max}	Obs.	Pitzer, ^{4,34}			Ge et al. ^{30,31}			Pazuki et al. ²⁹			Ref.
				AAPD	SD	bias	AAPD	SD	bias	AAPD	SD	bias	
CaI ₂	0.001	1.915	38	0.15985	0.00167-0.00033	0.42291	0.00473	0.00086	0.20603	0.00237	0.00040	[74]	
Cd(C ₇ H ₇ O ₃ S) ₂	0.001	0.6	24	0.11884	0.00104-0.00025	0.16017	0.00142	0.00042	0.00875	0.00008	0.00001	[75]	
Cd(ClO ₄) ₂	0.001	1.928	32	0.22517	0.00218-0.00066	0.55191	0.00622	0.00113	0.25712	0.00302	0.00050	[75]	
Cd(NO ₂) ₂	0.001	7.84	56	2.38240	0.01501-0.00150	2.29064	0.01432-0.00020	1.53444	0.00964-0.00020	0.00000	0.00000	[75]	
Cd(NO ₃) ₂	0.001	2.635	35	0.27817	0.00290-0.00001	0.32268	0.00280	0.00094	0.01209	0.00011	0.00003	[75]	
CdBr ₂	0.1	4	19	7.65279	0.05411-0.02599	25.71304	0.12343-0.05455	5.84917	0.03281	0.00923	[67]		
CdCl ₂	0.1	6	23	5.43769	0.03972-0.01744	17.59712	0.08535-0.03492	2.73157	0.01630	0.00343	[67]		
CdI ₂	0.1	2.5	1615.87814	0.08621-0.03700	66.48905	0.21973-0.10229	11.13045	0.06092	0.01950	[67]			
Co(ClO ₄) ₂	0.1	3.5	18	0.30954	0.03452-0.00075	0.54958	0.01920-0.00220	0.32936	0.03426	0.00014	[78]		
Co(NO ₃) ₂	0.001	5.79	49	0.39217	0.00560-0.00022	0.52120	0.01752	0.00081	0.69563	0.02244	0.00034	[79]	
CoBr ₂	0.001	5.672	48	1.52573	0.10916-0.00354	2.04208	0.23702	0.01717	2.89246	0.26110	0.01316	[79]	
CoCl ₂	0.001	4.118	41	0.74140	0.01062-0.00091	1.17256	0.02147-0.00048	1.41997	0.02373-0.00106	[79]			
CoI ₂	0.001	10.1	65	6.82614	0.70969-0.19817	42.26461	76.97358	9.07492	42.26461	76.97358	9.07492	[79]	
Cu(C ₇ H ₇ O ₃ S) ₂	0.001	0.8	26	0.11993	0.00105-0.00029	0.24783	0.00207	0.00072	0.00923	0.00009	0.00001	[73]	
Cu(ClO ₄) ₂	0.001	3.557	39	0.28945	0.01643-0.00004	0.54492	0.01089	0.00018	0.21103	0.01614	0.00083	[73]	
Cu(NO ₃) ₂	0.001	7.84	56	0.22943	0.00369-0.00001	1.60464	0.04905	0.00084	1.92535	0.05522	0.00049	[73]	
CuBr ₂	0.001	3.606	39	0.45090	0.00588-0.00066	2.37420	0.03179	0.00319	1.75216	0.02586	0.00169	[73]	
CuCl ₂	0.001	5.75	47	1.85253	0.01811-0.00157	2.55304	0.02288	0.00332	1.57238	0.01451	0.00172	[73]	
FeCl ₂	0.1	2	15	0.16348	0.00155-0.00018	0.22141	0.00226-0.00054	0.21445	0.00221-0.00005	[67]			
Mg(ClO ₄) ₂	0.1	4	19	0.44483	0.08497-0.00412	0.54979	0.06793	0.00201	0.49402	0.10241	0.00546	[67]	
Mg(COOCH ₃) ₂	0.1	4	19	0.60865	0.00547-0.00076	0.40916	0.00397-0.00059	0.36572	0.00315	0.00063	[67]		
Mg(NO ₃) ₂	0.01	5.123	26	0.90384	0.01391-0.00074	0.52423	0.00576-0.00023	0.31809	0.00507	0.00012	[80]		
MgBr ₂	0.001	5.61	47	0.31338	0.15377-0.00884	0.63487	0.16947	0.01019	0.47743	0.25699	0.01973	[74]	
MgCl ₂	0.1	5.9188	36	0.33843	0.06943-0.00106	0.49487	0.06276	0.00036	0.66271	0.05022	0.00516	[81]	
MgI ₂	0.001	5.01	45	0.26628	0.19587-0.01338	0.66863	0.11070	0.00135	0.34167	0.24611	0.01933	[74]	
Mn(ClO ₄) ₂	0.001	3.456	38	0.56658	0.04710-0.00097	0.63567	0.03644-0.00124	0.25053	0.03934-0.00010	[73]			
MnBr ₂	0.001	5.64	47	0.58537	0.01208-0.00066	2.06261	0.14785	0.01006	1.92227	0.12666	0.00747	[73]	
MnCl ₂	0.1	6	23	0.78171	0.01443-0.00035	2.70460	0.04491-0.00014	2.13182	0.03608	0.00070	[67]		
Ni(ClO ₄) ₂	0.001	3.501	39	0.38949	0.02677-0.00044	0.67039	0.02041-0.00079	0.24558	0.01472	0.00072	[79]		
Ni(NO ₃) ₂	0.001	4.623	43	0.85388	0.01519-0.00028	0.84698	0.01350	0.00090	0.40488	0.00689	0.00033	[79]	
NiBr ₂	0.001	4.693	43	0.74334	0.07275-0.00179	0.85780	0.10629	0.00491	1.15302	0.11998	0.00505	[79]	
NiCl ₂	0.001	5.714	48	1.19860	0.03275-0.00070	1.95437	0.09251	0.00466	1.93397	0.08375	0.00407	[79]	
Pb(ClO ₄) ₂	0.001	10.25	65	0.25798	0.03432-0.00072	2.64295	0.72865	0.07729	2.51782	0.61991	0.06093	[73]	
Pb(NO ₃) ₂	0.001	1.988	33	0.71450	0.00516-0.00070	0.80138	0.00543-0.00056	0.69359	0.00483	0.00069	[73]		
PbCl ₂	0.001	0.039	13	0.49729	0.00479-0.00013	0.33094	0.00337	0.00101	0.31913	0.00323	0.00095	[73]	
Sr(ClO ₄) ₂	0.1	6	23	0.42201	0.02691-0.00140	1.85078	0.16357	0.00951	2.06425	0.17831	0.01080	[67]	
Sr(NO ₃) ₂	0.1	4	19	0.77476	0.00604-0.00102	0.38099	0.00332-0.00091	1.30082	0.01014-0.00221	[67]			
SrBr ₂	0.001	2.123	40	0.14557	0.00148-0.00047	0.38946	0.00367	0.00090	0.08193	0.00076	0.00021	[74]	
SrCl ₂	0.001	4.038	42	0.35811	0.00448-0.00013	0.53967	0.00531	0.00092	0.12260	0.00131	0.00020	[74]	
SrI ₂	0.001	1.97	38	0.22137	0.00219-0.00070	0.38984	0.00403	0.00088	0.11886	0.00120	0.00028	[74]	
UO ₂ (ClO ₄) ₂	0.001	5.5	46	3.02462	31.30770	2.62217	3.28478	40.32609	3.85250	3.60455	40.97596	3.91158	[73]
UO ₂ (NO ₃) ₂	0.001	5.511	47	0.91374	0.03100-0.00132	7.15757	0.17915	0.01078	6.36100	0.16571	0.00849	[73]	
UO ₂ Cl ₂	0.001	3.174	37	0.40435	0.00550-0.00023	0.53411	0.00596	0.00145	0.17564	0.00217-0.00006	[73]		
Zn(C ₇ H ₇ O ₃ S) ₂	0.001	0.3	21	0.05726	0.00055-0.00007	0.17419	0.00154	0.00036	0.00696	0.00006	0.00001	[75]	
Zn(ClO ₄) ₂	0.001	4.311	43	0.79423	0.22156-0.01544	0.63300	0.19577	0.01446	0.70893	0.25625	0.02085	[75]	
Zn(NO ₃) ₂	0.001	7.103	53	0.23486	0.01393-0.00045	1.04775	0.05858	0.00308	1.40414	0.06837	0.00296	[75]	
ZnBr ₂	0.001	20.1	105	4.19865	0.10721-0.00004	7.12932	0.36099	0.01030	7.48546	0.37068	0.01007	[75]	
ZnCl ₂	0.001	23.193	117	4.22010	0.06324-0.00100	8.09029	0.19076	0.00937	7.92370	0.17619	0.00903	[75]	
ZnF ₂	0.001	0.142	20	0.01356	0.00012-0.00003	0.05495	0.00050-0.00003	0.03597	0.00032-0.00002	[75]			
ZnI ₂	0.001	10.75	67	7.65446	0.14054-0.00035	5.94060	0.12063-0.00172	5.45731	0.10647-0.00195	[75]			
2:2 Electrolytes													
BeSO ₄	0.1	4	19	1.53703	0.01035-0.00022	0.69391	0.00588-0.00293	3.78449	0.02426	0.00920	[67]		
CaSO ₄	0.0001	0.02	5	0.93174	0.02112-0.00668	0.99339	0.01815-0.00652	0.99318	0.01822-0.00654	[82]			
CdSO ₄	0.1	3.5	18	1.14697	0.00646-0.00012	1.34549	0.00742	0.00264	6.39797	0.04039-0.01018	[67]		
CoSO ₄	0.0001	0.1	7	0.54774	0.00729-0.00082	0.17869	0.00188-0.00008	0.76966	0.00590	0.00035	[82]		
CuSO ₄	0.1	1.4	12	0.28621	0.00200-0.00071	1.50465	0.00802	0.00278	5.59864	0.03068	0.01211	[67]	
MgSO ₄	0.1	3	17	1.07460	0.00667-0.00022	1.08460	0.00991-0.00476	6.10921	0.04365-0.01080	[67]			
MnSO ₄	0.1	4	19	1.33866	0.00834-0.00017	1.11175	0.00697-0.00078	8.12502	0.05401-0.01509	[67]			
NiSO ₄	0.1	2.5	16	0.64577	0.00359-0.00036	1.11327	0.00622	0.00020	5.40824	0.03632-0.00850	[67]		
UO ₂ SO ₄	0.1	6	23	2.16386	0.01344-0.00048	2.74515	0.01718-0.00507	4.42257	0.02833-0.00863	[67]			
ZnSO ₄	0.1	3.5	18	1.51664	0.00951-0.00016	0.76620	0.00551-0.00067	8.21705	0.05473-0.01479	[67]			
3:1 Electrolytes													
AlCl ₃	0.1	1.8	14	0.91426	0.01274-0.00285	0.97961	0.01290-0.00435	0.44537	0.00693-0.00252	[67]			
CeCl ₃	0.1	2	15	1.36643	0.01378-0.00389	0.96268	0.01080-0.00380	0.48694	0.00598-0.00233	[67]			
Co(en) ₃ Cl ₃	0.1	1	10	1.09667	0.00573-0.00361	1.39216	0.00812	0.00453	2.68281	0.01745	0.00809	[67]	
Co(Ethylenediamine) ₃ (NO ₃) ₃	0.01	0.2749	9	0.26315	0.00176-0.00040	0.42271	0.00296	0.00040	0.23374	0.00149-0.00038	[68]		
Co(Propylenediamine) ₃ (ClO ₄) ₃	0.01	0.2612	9	0.42061	0.00484-0.00161	0.39592	0.00417	0.00143	0.45416	0.00459	0.00161	[68]	
Cr(NO ₃) ₃	0.1	1.4	12	0.63321	0.00644-0.00219	0.54504	0.00698-0.00253	0.33288	0.00477-0.00167	[67]			
CrCl ₃	0.1	1.2	11	0.37891	0.00505-0.00152	0.61276	0.00810-0.00256	0.61491	0.00705-0.00160	[67]			
Dy(C ₂ H ₅ SO ₄) ₃	0.1	1.1	11	0.02834	0.00025-0.00002	0.30313	0.00429-0.00137	0.27958	0.00301-0.00061	[83]			
Dy(ClO ₄) ₃	0.1	4.6042	29	2.15852	9.64460	1.70040	3.87841	20.64790	3.68397	4.44106	22.47439	3.96068	[84]
Dy(NO ₃) ₃	0.1	6.5677	38	4.51334	0.05360-0.00738	1.04580	0.01441	0.00065	1.50610	0.01980	0.00222	[85]	

Table S1. Cont.

Electrolyte	m_{min}	m_{max}	Obs.	Pitzer, ^{4,34}			Ge et al. ^{30,31}			Pazuki et al. ²⁹			Ref.
				AAPD	SD	bias	AAPD	SD	bias	AAPD	SD	bias	
DyCl ₃	0.1	3.6302	24	0.75725	0.02902	0.00149	2.19987	0.08798	0.00792	2.77494	0.09856	0.01018	[86]
Er(C ₂ H ₅ SO ₄) ₃	0.1	1.1	11	0.04549	0.00037-0.00003		0.28603	0.00419-0.00137		0.24709	0.00280-0.00057		[83]
Er(ClO ₄) ₃	0.1	4.6221	29	2.25390	11.52494	2.00103	0.27586	0.00388-0.00124		0.91019	0.01160-0.00331		[84]
Er(NO ₃) ₃	0.1	7.2709	42	5.52812	0.08333-0.00898		3.88008	23.30622	4.12709	4.43684	25.31805	4.43219	[87]
ErCl ₃	0.1	3.784	24	0.81086	0.04032	0.00202	1.28789	0.03057-0.00020		1.62112	0.02642	0.00233	[86]
Eu(C ₂ H ₅ SO ₄) ₃	0.1	1.1	11	0.04365	0.00033-0.00001		2.09368	0.11820	0.01025	2.69275	0.13370	0.01298	[83]
Eu(NO ₃) ₃	0.1	6.3858	37	3.48051	0.03551-0.00531		1.45064	0.01567	0.00155	1.41473	0.01624-0.00439		[88]
EuCl ₃	0.1	2	15	1.07298	0.01119-0.00333		0.74507	0.00940-0.00353		0.34680	0.00525-0.00190		[67]
Ga(ClO ₄) ₃	0.1	2	15	0.83906	0.02982	0.00386	0.39223	0.03070	0.00146	0.76104	0.05001	0.00467	[67]
Gd(C ₂ H ₅ SO ₄) ₃	0.1	0.8	8	0.71879	0.01219-0.00239		0.93594	0.01421-0.00395		0.81438	0.01258-0.00336		[83]
Gd(ClO ₄) ₃	0.1	4.6215	29	1.77611	4.83089	0.93063	3.48506	13.02633	2.39296	4.06393	14.53443	6.2186	[84]
Gd(NO ₃) ₃	0.1	4.3701	27	2.69742	0.02504-0.00498		0.67832	0.00656-0.00023		1.15599	0.01089	0.00168	[82]
GdCl ₃	0.1	3.5898	23	0.71276	0.01538-0.00034		1.78063	0.06093	0.00462	2.30411	0.07029	0.00686	[86]
Ho(C ₂ H ₅ SO ₄) ₃	0.2	1.1	11	0.04832	0.00034-0.00007		0.27767	0.00385-0.00126		0.26955	0.00292-0.00052		[83]
Ho(ClO ₄) ₃	0.1	4.6314	29	2.21718	10.12485	1.77291	3.90368	21.32548	3.77844	4.45942	23.16226	4.05378	[84]
Ho(NO ₃) ₃	0.1	6.5471	38	4.87955	0.06058-0.00784		0.89035	0.01222	0.00038	1.34476	0.01815	0.00205	[85]
HoCl ₃	0.1	3.6987	24	0.81329	0.03618	0.00174	2.09777	0.10351	0.00900	2.69223	0.11649	0.01150	[86]
La(C ₂ H ₅ SO ₄) ₃	0.1	1.1	11	0.04923	0.00040-0.00005		0.26241	0.00336-0.00097		0.28862	0.00294-0.00028		[83]
La(ClO ₄) ₃	0.1	4.7759	29	2.17822	6.73459	0.89382	4.28752	14.89496	2.17265	4.83495	15.88723	2.29465	[84]
La(NO ₃) ₃	0.1	6.4739	38	4.63830	0.04251-0.00645		0.48256	0.00450-0.00039		1.10846	0.01027	0.00182	[89]
LaCl ₃	0.1	2	15	1.00446	0.01023-0.00319		0.66140	0.00840-0.00316		0.35859	0.00507-0.00163		[67]
Lu(C ₂ H ₅ SO ₄) ₃	0.1	1.2	12	0.03597	0.00030-0.00008		0.31109	0.00396-0.00120		0.35490	0.00358-0.00042		[83]
Lu(ClO ₄) ₃	0.1	4.6313	29	2.47955	14.00983	2.53572	4.04737	26.96588	4.91800	4.61898	29.37735	5.29054	[77]
Lu(NO ₃) ₃	0.1	7.1806	41	4.80738	0.09670-0.00696		3.55026	0.10392	0.00554	2.55772	0.07028	0.00373	[85]
LuCl ₃	0.1	4.1239	26	0.80530	0.04110	0.00315	2.25879	0.17256	0.01821	2.87107	0.19672	0.02165	[86]
Nd(C ₂ H ₅ SO ₄) ₃	0.1	1.1	11	0.04171	0.00030-0.00002		0.27309	0.00355-0.00118		0.26419	0.00268-0.00040		[83]
Nd(ClO ₄) ₃	0.1	4.6822	29	1.78449	4.19131	0.74743	3.49698	11.05663	1.91514	4.09580	12.38614	2.10771	[77]
Nd(NO ₃) ₃	0.1	6.2598	37	4.17394	0.03907-0.00604		0.70890	0.00675	0.00034	1.30429	0.01225	0.00210	[89]
NdCl ₃	0.1	2	15	0.99668	0.01032-0.00327		0.69366	0.00866-0.00328		0.37431	0.00502-0.00172		[67]
Pr(C ₂ H ₅ SO ₄) ₃	0.1	0.8	8	0.03034	0.00032-0.00012		0.28987	0.00407-0.00149		0.16436	0.00236-0.00090		[83]
Pr(ClO ₄) ₃	0.1	4.7182	29	1.78291	4.61999	0.72747	3.58121	11.66411	1.88889	4.16377	12.88512	2.05783	[77]
Pr(NO ₃) ₃	0.1	6.2861	37	4.38049	0.04081-0.00675		0.51467	0.00501-0.00052		1.06586	0.00998	0.00137	[89]
PrCl ₃	0.1	2	15	0.86309	0.00932-0.00308		0.63958	0.00843-0.00312		0.47622	0.00562-0.00152		[67]
ScCl ₃	0.1	1.8	14	0.69441	0.00802-0.00260		0.55657	0.00790-0.00288		0.41713	0.00529-0.00158		[67]
Sm(C ₂ H ₅ SO ₄) ₃	0.1	0.8	8	0.03612	0.00027-0.00006		0.34717	0.00453-0.00160		0.19127	0.00273-0.00101		[83]
Sm(ClO ₄) ₃	0.1	4.6621	29	1.55395	3.33633	0.63468	3.18126	10.10250	1.79803	3.78044	11.48769	2.00401	[77]
Sm(NO ₃) ₃	0.1	4.2774	27	2.52580	0.02250-0.00444		0.70266	0.00628	0.00021	1.25878	0.01112	0.00209	[82]
SmCl ₃	0.1	2	15	0.98705	0.01050-0.00334		0.68899	0.00896-0.00341		0.38830	0.00535-0.00184		[67]
Tb(C ₂ H ₅ SO ₄) ₃	0.1	1.1	11	0.03699	0.00034-0.00008		0.29348	0.00403-0.00137		0.29228	0.00302-0.00063		[83]
Tb(ClO ₄) ₃	0.1	4.6196	29	2.04456	7.73102	1.36967	3.80092	17.76000	3.15155	4.36112	19.38102	3.39358	[77]
Tb(NO ₃) ₃	0.1	4.532	28	3.20567	0.03075-0.00603		0.59490	0.00594-0.00074		0.92426	0.00918	0.00098	[82]
TbCl ₃	0.1	3.5733	23	0.67841	0.02223	0.00067	1.94813	0.07302	0.00599	2.51378	0.08296	0.00827	[86]
Tm(C ₂ H ₅ SO ₄) ₃	0.1	1.1	11	0.04319	0.00039-0.00015		0.29045	0.00381-0.00134		0.93408	0.01151-0.00343		[83]
Tm(ClO ₄) ₃	0.1	4.6215	29	2.31543	11.51615	2.12622	3.94356	23.75520	4.37170	4.50574	25.91988	4.70511	[77]
Tm(NO ₃) ₃	0.1	5.9526	35	4.48543	0.05939-0.00736		1.37788	0.02448-0.00077		1.06800	0.01421-0.00195		[82]
TmCl ₃	0.1	3.8814	25	0.87704	0.03886	0.00237	2.10492	0.12705	0.01234	2.71818	0.14394	0.01515	[86]
Y(C ₂ H ₅ SO ₄) ₃	0.1	1.2	12	0.03970	0.00032-0.00005		0.30625	0.00381-0.00110		0.34878	0.00354-0.00033		[83]
Y(NO ₃) ₃	0.1	7.2103	42	5.28529	0.08492-0.00863		1.23304	0.03372	0.00062	1.77750	0.03381	0.00328	[88]
Yb(C ₂ H ₅ SO ₄) ₃	0.1	1.2	12	0.03438	0.00027-0.00006		0.31043	0.00398-0.00118		0.34563	0.00358-0.00040		[83]
Yb(ClO ₄) ₃	0.1	4.64	29	2.13879	11.42548	2.05971	3.69983	23.90514	4.31160	4.26547	26.25293	4.67372	[77]
Yb(NO ₃) ₃	0.1	7.9115	45	5.73391	0.12011-0.00807		3.77063	0.11947	0.00714	2.53717	0.07911	0.00463	[82]
YbCl ₃	0.1	4.0018	26	0.85367	0.04428	0.00285	2.24879	0.15385	0.01575	2.85283	0.17360	0.01877	[86]
YCl ₃	0.1	4.0843	27	0.84963	0.04597	0.00424	2.62185	0.16621	0.01844	3.22144	0.18358	0.02094	[88]
3:2 Electrolytes													
(Co(en) ₃) ₂ (CO ₄) ₃	0.01	1.844	17	5.31133	0.01679-0.00074		9.23704	0.02827-0.00991		11.20964	0.03371-0.00392		[68]
Al ₂ (SO ₄) ₃	0.1	1	10	0.49724	0.00298-0.00013		3.98422	0.03359-0.01367		2.53232	0.02111-0.00637		[67]
Cr ₂ (SO ₄) ₃	0.1	1.2	11	1.10250	0.00691	0.00096	1.80644	0.01292-0.00527		3.91707	0.02384	0.00991	[67]
Lu ₂ (SO ₄) ₃	0.050	0.89415	19	1.71311	0.00863	0.00137	9.01690	0.04255-0.02066		4.38702	0.02179-0.00732		[90]
4:1 Electrolytes													
Pt(en) ₃ Cl ₄	0.01	0.33	9	1.01262	0.00630	0.00179	1.59174	0.01023	0.00133	0.86142	0.00525	0.00184	[91]
Th(NO ₃) ₄	0.1	5	21	7.42070	0.06807-0.00385		3.91722	0.04049	0.00518	3.01688	0.03196	0.00185	[67]
ThCl ₄	0.1	1.6	13	1.85067	0.02719	0.00882	1.10235	0.01184-0.00252		1.39741	0.01556-0.00388		[67]

Table S2. Parameters for aqueous electrolytes with univalent ions at 298.15 K. Asymptotic standard error of the parameters is given in parenthesis.

Electrolyte	Pitzer et al. ^{4,54}			Ge et al. ^{30,31}			Pazuki et al. ²⁹		
	$B_{MX}^{(0)}$	$B_{MX}^{(1)}$	$C_{MX}^{(0)}$	b_{MX}	S	n	b_{MX}	S	n
1:1 Electrolytes									
(C ₂ H ₅) ₄ NBr	0.02712 (0.00282)	-0.60772 (0.02621)	0.00131 (0.00015)	0.44670 (0.01652)	43.22308 (1.03050)	0.645 -	0.28260 (0.00908)	20.14647 (0.50342)	1.29 -
(C ₂ H ₅) ₄ NCl	0.08984 (0.00354)	-0.20835 (0.02595)	0.00202 (0.00025)	0.9221 (0.08641)	96.95219 (11.26146)	0.59102 (0.0201)	0.60841 (0.04634)	39.76089 (5.00174)	1.23057 (0.04506)
(C ₂ H ₅) ₄ NF	0.37136 (0.00491)	0.37264 (0.02495)	0.00646 (0.00052)	4.77832 (0.24336)	346.51201 (5.59647)	0.58215 (0.00384)	2.71709 (0.11178)	161.98374 (2.46406)	1.18839 (0.00757)
(C ₂ H ₅) ₂ NNO ₃	-0.04076 (0.0014)	-0.68241 (0.00968)	0.003 (0.00011)	4.3918E-15 (1.6265E-15)	90.95 (3.93E-06)	0.57844 (0.00137)	4.08E-05 (2.07E-05)	45.23608 (1.04685)	1.16154 (0.01224)
(C ₃ H ₇) ₄ NBr	0.07378 (0.00313)	-0.83328 (0.02297)	-0.00189 (0.00022)	0.50816 (0.04416)	42.69725 (3.09037)	0.645 -	0.32441 (0.02520)	19.36488 (1.55373)	1.29 -
(C ₃ H ₇) ₄ NCl	0.17488 (0.00339)	-0.24503 (0.04516)	-0.00364 (0.00012)	9.24605 (2.74966)	29.37568 (1.90865)	0.6458 -	3.56002 (0.80573)	14.31663 (0.85007)	1.29 -
(C ₄ H ₉) ₄ NBr	-0.03968 (0.0017)	-0.56807 (0.03215)	0.00078 (0.00004)	0.08558 (0.03462)	81.59619 (16.39281)	0.43566 (0.00577)	0.17785 (0.01353)	3.81401 (2.40021)	1.25883 (0.15036)
(C ₄ H ₉) ₄ NCl	0.02561 (0.00078)	0.49696 (0.02378)	- (0.26616)	-2.91033 (8.08971)	10.68326 (0.12252)	0.56759 (0.04192)	1.52144 (0.22947)	2.17035 (0.22947)	1.29 -
(CH ₃) ₂ NH ₂ ClO ₄	-0.04888 (0.00151)	-0.06727 (0.01117)	0.00179 (0.00011)	0.69035 (0.01518)	-4.01618 (0.78775)	0.645 -	0.42319 (0.00965)	-3.90215 (0.46101)	1.29 -
(CH ₃) ₂ NH ₂ NO ₃	0.00326 (0.0002)	0.14106 (0.00264)	- (0.14209)	1.30343 (0.14209)	26.18635 (16.70239)	0.11993 (0.0856)	0.90442 (-0.00825)	-4.21148 (-0.2318)	1.29 -
(CH ₃) ₂ NHClO ₄	-0.12077 (0.00356)	-0.12642 (0.00986)	0.00805 (0.00089)	0.46128 (0.00777)	-30.31480 (1.60964)	0.645 -	0.30338 (0.00520)	-18.30177 (0.89668)	1.29 -
(CH ₃) ₃ NHNO ₃	-0.00323 (0.00107)	-0.02352 (0.00761)	0.0006 (0.00008)	0.47276 (0.02043)	119.07613 (5.20738)	0.30596 (0.00106)	0.34607 (0.0118)	49.09371 (2.36405)	0.54487 (0.00478)
(CH ₃) ₄ (Guanadinium)Br	-0.01177 (0.00144)	-0.10664 (0.01026)	0.00178 (0.0001)	0.80298 (0.00894)	14.89646 (0.39225)	0.645 -	0.48688 (0.00619)	5.40969 (0.25370)	1.29 -
(CH ₃) ₄ (Guanadinium)Cl	0.04137 (0.00145)	0.11643 (0.00829)	0.00136 (0.00013)	1.76432 (0.02311)	22.2275 (1.469)	0.71781 (0.01504)	0.93997 (0.00958)	12.71706 (0.23590)	1.29 -
(CH ₃) ₄ NBr	- (0.0717)	-0.13484 (0.00684)	0.00166 (0.00008)	0.21755 (0.08885)	169.58662 (30.28763)	0.3852 (0.0033)	0.54416 (0.02171)	3.91227 (2.54552)	1.51221 (0.30362)
(CH ₃) ₄ NCl	0.0717 (0.00045)	-0.15897 (0.00627)	-0.00066 (0.00002)	0.71889 (0.50797)	144.76457 (98.8304)	0.39542 (0.06642)	0.49757 (0.22136)	60.16031 (35.61023)	0.82024 (0.12343)
(CH ₃) ₄ NF	0.28197 (0.00118)	0.13691 (0.00707)	-0.00107 (0.0001)	1.48835 (0.08566)	336.77608 (8.36283)	0.4854 (0.00421)	1.06972 (0.04585)	147.76896 (3.45839)	1.00416 (0.00861)
(CH ₃) ₄ NNO ₃	0.01024 (0.00083)	-0.17978 (0.00517)	0.00071 (0.00007)	0.56521 (0.05009)	74.48408 (11.2987)	0.42645 (0.01509)	0.3558 (0.01373)	35.65041 (2.69857)	0.8061 (0.01184)
(CH ₃) ₃ NH ₂ ClO ₄	-0.03452 (0.00105)	0.01245 (0.00437)	0.00183 (0.00014)	1.01495 (0.00890)	-10.53370 (0.60313)	0.645 -	0.62275 (0.00688)	-8.79091 (0.42815)	1.29 -
(CH ₃) ₃ NH ₂ NO ₃	-0.00645 (0.00053)	0.14774 (0.00417)	0.00009 (0.00003)	1.84741 (0.39713)	-38.67617 (32.60247)	0.34766 (0.09602)	1.12842 (0.27309)	-29.37643 (20.77436)	0.71655 (0.17951)
(n-C ₃ H ₇) ₄ NF	0.63266 (0.01227)	-0.15703 (0.05847)	-0.01007 (0.00139)	29.06198 (12.88401)	354.87838 (5.79205)	0.645 -	9.89279 (3.29548)	176.90229 (2.61789)	1.29 -
(n-C ₄ H ₉) ₄ NF	0.49726 (0.01448)	0.73579 (0.03803)	0.01667 (0.00396)	4.76968 (0.36085)	613.03839 (9.72453)	0.51431 (0.00626)	3.05982 (0.18235)	286.64309 (4.05458)	1.05962 (0.01274)
AgNO ₃	-0.0716 (0.0008)	-0.04778 (0.00795)	0.00167 (0.00004)	0.08293 (0.03008)	153.05468 (11.95508)	0.28692 (0.01925)	0.05648 (0.01353)	76.20254 (4.06911)	0.56269 (0.03037)
Arginine	-0.72855 (0.07272)	3.01647 (0.18026)	0.17662 (0.02201)	0.14351 (0.05029)	468.13198 (18.74134)	0.18437 (0.00796)	0.09232 (0.02982)	234.41477 (8.7369)	0.36881 (0.01516)
Arginine-HCl	-0.04819 (0.00179)	-0.32615 (0.00854)	0.00466 (0.0002)	0.32175 (0.01862)	34.41529 (5.23858)	0.62538 (0.02649)	0.22155 (9.8164E-03)	13.14725 (2.18166)	1.30475 (0.06004)
CCl ₃ COOK	0.07226 (0.00209)	0.49818 (0.01388)	-0.00387 (0.00016)	5.60019 (0.26928)	-0.27538* (1.06818)	0.645 -	2.65334 (0.08342)	-1.82067 (0.39475)	1.29 -
CCl ₃ COONa	0.11478 (0.00339)	0.57954 (0.02487)	-0.00416 (0.00024)	10.19108 (1.13415)	19.04838 (1.56375)	0.645 -	4.27205 (0.34508)	8.52558 (0.64690)	1.29 -
CF ₃ COOK	0.00977 (0.00069)	1.12994 (0.0316)	-0.00013 (0.00001)	7.75329 (0.31545)	-4.02475 (0.73312)	0.60262 (0.02138)	3.28052 (0.10241)	-3.77226 (0.43662)	1.08053 (0.02737)
CF ₃ COONa	0.03926 (0.00151)	1.43935 (0.05657)	-0.00046 (0.00002)	1.42089E+17 (0.00000)	0.12323* (0.16925)	0.645 -	3.17771E+15 (0.00000)	0.06162* (0.08462)	1.29 -
Citric Acid	0.08498 (0.00498)	1.52491 (0.03579)	0.00088 (0.00037)	1.6486E+17 (4.4841E-15)	72.52152 (1.01011)	0.52352 (0.00366)	4.1431E+15 (1.7524E-17)	36.26076 (0.50506)	1.04703 (0.00732)
Cs acetate	0.17128 (0.00036)	0.32656 (0.0014)	-0.00395 (0.00006)	1.66859 (0.24071)	230.37264 (22.22482)	0.40974 (0.01502)	1.19889 (0.03046)	93.56813 (2.20147)	0.8504 (0.00852)
CsBr	0.02129 (0.00061)	0.07579 (0.00291)	0.00066 (0.00007)	1.51489 (0.0074019)	10.13169 (0.62201)	0.7288 (0.01552)	0.9028 (0.0034791)	0.55891 (0.14235)	2.36212 (0.15044)
CsCl	0.03593 (0.00042)	0.03385 (0.0036)	-0.00044 (0.00002)	0.96772 (0.08815)	84.63255 (13.64317)	0.36578 (0.01546)	0.55571 (0.01885)	44.09656 (2.8627)	0.65689 (0.00937)
CsF	0.12448 (0.00187)	0.30139 (0.00722)	-0.00164 (0.00028)	2.19762 (0.08251)	130.06228 (5.69425)	0.46615 (0.00915)	1.55869 (0.03163)	42.00691 (1.68642)	1.07018 (0.02082)
CsI	0.02251 (0.00042)	0.05868 (0.00149)	-0.00175 (0.00007)	1.51120 (0.00528)	3.21545 (0.30358)	0.645 -	0.92813 (0.0079101)	-5.31683 (0.74743)	1.0209 (0.06222)
CsNO ₂	0.01054 (0.00043)	0.30019 (0.01306)	-0.0002 (0.00001)	2.07148 (0.01593)	-0.20411 (0.0579)	0.96153 (0.03855)	1.08335 (4.8554E-03)	-1.77799 (0.10866)	1.26159 (0.01583)
CsNO ₃	-0.13905 (0.00218)	0.12462 (0.00557)	0.01717 (0.00062)	1.29429 (0.92193)	-112.0542 (109.60657)	0.45979 (0.18652)	0.56340 (0.01213)	-32.39849 (1.55661)	1.29 -
CsOH	0.12346 (0.00285)	0.44236 (0.00657)	0.0026 (0.00097)	2.25791 (0.26319)	169.32169 (17.56204)	0.4296 (0.02368)	1.69502 (0.03141)	56.56848 (1.51147)	0.96364 (0.01859)
GuCl	-0.02795 (0.00085)	0.07575 (0.0079)	0.00093 (0.00005)	0.02209 (0.01175)	264.86091 (4.90969)	0.33051 (0.00479)	0.0146 (0.0070677)	132.47663 (2.21403)	0.66079 (0.00901)
HBr	0.23438 (0.0008)	0.17422 (0.0177)	- (0.2189)	1.9879 (0.2189)	246.58464 (13.56597)	0.51582 (0.00906)	1.2587 (0.1131)	110.45074 (6.04662)	1.05874 (0.0189)
HCl	0.20283 (0.00101)	0.15804 (0.01207)	-0.00181 (0.00004)	0.65597 (0.43172)	384.03422 (90.36356)	0.39695 (0.02233)	0.45749 (0.19356)	180.50303 (33.47296)	0.79606 (0.03707)
HClO ₄	0.21428 (0.0024)	0.0907 (0.02859)	0.00108 (0.0001)	2.35189 (0.14989)	182.7218 (5.80098)	0.57031 (0.00499)	1.3763 (0.07626)	83.19238 (2.73419)	1.16403 (0.01064)
HI	0.23818 (0.00228)	0.39727 (0.01822)	0.00085 (0.00015)	3.92104 (0.19793)	211.97742 (4.9862)	0.55357 (0.00438)	2.23773 (0.09257)	95.92078 (2.19339)	1.13619 (0.00889)

Table S2. Cont.

Electrolyte	Pitzer et al. ^{4,34}			Ge et al. ^{30,31}			Pazuki et al. ²⁹		
	$B_{MX}^{(0)}$	$B_{MX}^{(1)}$	$C_{MX}^{(0)}$	b_{MX}	S	n	b_{MX}	S	n
Histidine-HCl	-0.19774	0.15243	0.07448	0.73015	-15.53342	0.645	0.47945	-14.10460	1.29
(0.01086)	(0.02065)	(0.00529)	(0.03607)	(0.03607)	(9.38372)	-	(0.02358)	(5.13011)	-
HNO ₃	0.09196	0.53753	-0.00122	28.12804	12.21173	0.645	1.19664	96.08001	0.56037
(0.00081)	(0.01679)	(0.00002)	(9.67420)	(0.58411)	-	-	(0.77345)	(57.07958)	(0.11109)
K acetate	0.15445	0.33621	-0.0024	1.90257	195.3655	0.42962	1.49355	67.28039	0.96441
(0.00057)	(0.00219)	(0.00009)	(0.10313)	(8.32095)	(0.00758)	(0.01633)	(0.9218)	(0.00634)	-
K acid adipate	-	0.34424	0.0148	2.29478	15.50579	0.8739	1.35315	-0.84853	1.29
-	(0.0016)	(0.00031)	(0.02745)	(1.65396)	(0.14009)	(0.00959)	(0.73011)	-	-
K acid malonate	-0.01116	0.17647	0.00096	0.98039	59.50174	0.17033	0.89700	-6.70668	0.67867
(0.0016)	(0.00764)	(0.00018)	(0.16463)	(24.73174)	(0.04536)	0.01108	0.37792	(0.00264)	-
K acid succinate	0.00773	0.18837	0.0017	1.76339	0.99898	1.27117	0.51716	53.4399	0.5219
(0.00133)	(0.00592)	(0.00016)	(0.009517)	(0.342)	(0.10916)	(0.03583)	(5.3551)	(0.01028)	-
K <i>p</i> -toluene sulfonate	-0.09409	0.42659	0.00532	7.17021	-242.21306	0.31693	5.82068	-152.16204	0.58129
(0.00136)	(0.00525)	(0.00021)	(1.48345)	(2.194385)	(0.01517)	(0.81214)	(6.26491)	(0.01624)	-
KBr	0.05522	0.23435	-0.00074	2.06597	41.08811	0.49752	1.33059	6.33321	1.36924
(0.00018)	(0.00093)	(0.00002)	(0.01185)	(0.83259)	(0.00394)	(0.0038647)	(0.20259)	(0.01577)	-
KBrO ₃	-0.12163	0.23972	-	1.56852	-129.32761	0.63463	1.58322	-111.8818	0.89576
(0.00106)	(0.00292)	-	(0.03448)	(2.07081)	(0.02065)	(0.09979)	(5.15867)	(0.02722)	-
KClO ₃	-0.09408	0.24562	-	1.70099	-103.96135	0.61037	1.25439	-76.01946	1.04092
(0.00056)	(0.00181)	-	(0.02262)	(1.7105)	(0.01214)	(0.05016)	(3.22684)	(0.03598)	-
KCl	0.04639	0.22102	-0.0002	2.08221	26.72312	0.57199	1.28149	3.07489	1.69166
(0.00016)	(0.0008)	(0.00002)	(0.0113)	(0.76219)	(0.00634)	(0.001258)	(0.059)	(0.01053)	-
KCNS	0.03959	0.23652	-0.00104	1.94977	31.36515	0.4025	1.28328	0.19806	2.45023
(0.00029)	(0.0014)	(0.00003)	(0.07868)	(6.11983)	(0.0299)	(6.87E-04)	(0.01737)	(0.05281)	-
KF	0.09886	0.09312	-0.00074	0.56089	-25.4804	0.37227	0.35711	124.1774	0.73201
(0.00115)	(0.01511)	(0.00004)	(0.15389)	(37.19377)	(0.01148)	(0.06107)	(13.0489)	(0.01582)	-
KH ₂ AsO ₄	-0.13548	0.29308	0.0224	2.1609	-134.88984	0.41568	1.25702	-73.4722	0.89041
(0.00146)	(0.00349)	(0.00046)	(0.86382)	(60.6902)	(0.08991)	(0.62197)	(42.87798)	(0.26565)	-
KH ₂ PO ₄	-0.11249	0.05704	0.01001	1.21812	-101.76481	0.45542	0.74189	-55.006	0.96219
(0.00081)	(0.00223)	(0.0002)	(0.59387)	(74.57048)	(0.12986)	(0.46381)	(53.62535)	(0.3711)	-
KI	0.07301	0.2667	-0.00197	1.85672	85.02782	0.39136	1.35649	18.38809	0.96017
(0.00028)	(0.00123)	(0.00003)	(0.1639)	(13.4823)	(0.02315)	(0.0052453)	(0.32445)	(0.00735)	-
KNO ₂	0.00426	0.14156	-0.00014	1.54862	-0.5959	0.8324	0.87217	-3.67966	1.1102
(0.00031)	(0.00897)	(0.00001)	(0.01025)	(0.11718)	(0.02638)	(0.0048808)	(0.21473)	(0.01461)	-
KNO ₃	-0.0825	0.0795	0.00347	2.03321	-152.61227	0.37548	1.05859	-72.1021	0.82384
(0.00046)	(0.00176)	(0.00007)	(0.44661)	(33.36832)	(0.03131)	(0.30421)	(25.01856)	(0.11219)	-
KOH	0.17279	0.04006	-0.00128	0.59679	339.66585	0.3987	0.4197	158.13909	0.801
(0.0012)	(0.0176)	(0.00004)	(0.49754)	(111.87581)	(0.03039)	(0.2322)	(42.89322)	(0.05292)	-
KPF ₆	-0.33622	0.04976	0.09648	0.22586	-70.34666	0.645	0.0135*	9.63108	0.49805
(0.00592)	(0.01001)	(0.0037)	(0.02363)	(11.15469)	-	(0.01375)	(3.87954)	(0.10157)	-
Li acetate	0.10728	0.26116	-0.00198	1.38076	169.94935	0.38623	1.40346	35.20872	1.02746
(0.00102)	(0.00424)	(0.00014)	(0.08694)	(9.63981)	(0.0071)	(0.02498)	(1.49161)	(0.01967)	-
Li <i>p</i> -toluene sulfonate	0.01812	0.37449	0.00245	2.64831	1.52568	1.31908	1.40203	0.0193	4.72428
(0.00158)	(0.00704)	(0.0002)	(0.01845)	(0.37802)	(0.08018)	(0.0075295)	(0.01719)	(0.59389)	-
LiBr	0.23866	-0.1767	-0.00127	13.54726	89.48994	0.645	4.79463	44.50629	1.29
(0.00427)	(0.06289)	(0.00014)	(4.29002)	(1.38941)	-	(1.15258)	(0.62218)	-	-
LiBrO ₃	0.08928	0.24789	-	2.30864	69.58864	0.55363	1.45673	21.27906	1.27195
(0.0001)	(0.00111)	-	(0.01491)	(0.9079)	(0.0029)	(0.0053599)	(0.27357)	(0.00642)	-
LiCl	0.20411	-	-0.002	17.26120	62.64362	0.645	5.71028	31.15865	1.29
(0.00157)	-	(0.00006)	(6.34041)	(1.37689)	-	(1.55538)	(0.61631)	-	-
LiClO ₃	0.17135	0.23123	-0.00274	1.22472	256.03017	0.41361	1.16001	85.38278	0.93037
(0.00087)	(0.00375)	(0.00011)	(0.16399)	(20.36103)	(0.01087)	(0.03693)	(2.73806)	(0.01246)	-
LiClO ₄	0.19898	0.40888	-	3.15081	195.91534	0.51785	2.00436	81.17183	1.09855
(0.00026)	(0.00261)	-	(0.02589)	(1.12661)	(0.00132)	(0.01467)	(0.54353)	(0.00336)	-
LiI	0.16201	0.57613	0.00816	4.17485	170.96994	0.57267	2.55568	69.56419	1.23735
(0.00211)	(0.0075)	(0.00037)	(0.19641)	(6.2598)	(0.01138)	(0.07569)	(2.13662)	(0.02112)	-
LiNO ₂	0.12298	0.40181	-0.00196	1.76647	237.03551	0.31763	1.09942	105.71348	0.63521
(0.00067)	(0.01092)	(0.00002)	(1.4159)	(120.81385)	(0.04785)	(0.5549)	(43.07184)	(0.08461)	-
LiNO ₃	0.13001	0.34436	-0.00192	15.75132	27.18443	0.645	0.88682	116.67263	0.66193
(0.00033)	(0.0048)	(0.00001)	(3.67605)	(0.92447)	-	(0.55514)	(55.46494)	(0.09717)	-
LiOH	0.04757	-0.11294	-0.00101	1.22175	26.10145	0.645	0.73299	9.70062	1.29
(0.0034)	(0.0161)	(0.00039)	(0.02098)	(1.01388)	-	(0.00963)	(0.43871)	-	-
Lysine	0.13841	0.41748	0.00244	4.33836	89.71117	0.64814	2.35173	37.43982	1.36014
(0.01112)	(0.05649)	(0.00117)	(0.44408)	(10.9424)	(0.0303)	(0.2002)	(4.97714)	(0.06884)	-
Lysine-HCl	0.05951	-0.27739	0.00164	0.45185	135.61991	0.50217	0.33004	58.05793	1.02076
(0.00203)	(0.00788)	(0.00031)	(0.41812)	(105.04544)	(0.10161)	(0.24593)	(48.60678)	(0.22715)	-
Na acetate	0.13765	0.33552	-0.00244	1.89046	176.0346	0.41979	1.48928	57.38409	0.95566
(0.00055)	(0.00211)	(0.00008)	(0.12377)	(10.04785)	(0.00975)	(0.01505)	(0.85263)	(0.0068)	-
Na acid adipate	0.05832	0.29133	-0.00467	2.15916	50.25153	0.45662	1.47451	4.34497	1.29
(0.00393)	(0.00738)	(0.00194)	(0.63395)	(43.20414)	(0.25037)	(0.00562)	(0.51740)	-	-
Na acid malonate	0.02102	0.18616	-0.00038	1.8867	2.4746	0.73808	1.06715	-1.51324	0.78121
(0.00024)	(0.00116)	(0.00003)	(0.003892)	(0.25613)	(0.02683)	0.00527	0.14542	(0.55814)	-
Na acid succinate	0.03239	0.18169	0.00055	0.78028	147.86742	0.32161	1.13151	1.0203	2.19349
(0.0008)	(0.00381)	(0.00009)	(0.0459)	(8.19907)	(0.00217)	(0.0053877)	(0.20042)	(0.11566)	-
Na butyrate	0.25808	0.18759	-0.01644	6.01703	92.32168	0.645	1.22923	113.94944	0.7845
(0.0021)	(0.00812)	(0.00032)	(0.45361)	(3.81341)	-	(0.94072)	(65.94252)	(0.18547)	-
Na caprate	-1.14391	0.86117	0.2205	0.23555*	-510.03932*	0.31592*	0.1779*	-261.9731*	0.63845*
(0.13744)	(0.39447)	(0.03337)	(25.06825)	(8221.77051)	(1.67141)	(15.77973)	(3975.2676)	(3.14725)	-
Na caproate	0.04256	1.01097	-0.00868	11.75292	-8.72717	1.11475	5.05307	-5.77917	2.10188
(0.02048)	(0.09129)	(0.00254)	(1.87741)	(6.68467)	(0.24983)	(0.64488)	(3.47241)	(0.39395)	-
Na caprylate	-0.74333	2.43328	0.09249	2.2759E+16	-506.18913	0.35425	1.251E+15	-253.09457	0.7085
(0.04589)	(0.16799)	(0.00777)	(7.50E-13)	(18.28984)	(0.02056)	(1.5642E-14)	(9.14492)	(0.04112)	-
Na formate	0.07172	0.31943	-0.00117	2.17548	74.02734	0.42664	1.55855	13.25315	1.17773
(0.00038)	(0.00148)	(0.00006)	(0.08077)	(5.6332)	(0.01401)	(0.0064935)	(0.34222)	(0.0145)	-
Na heptylate	-0.30321	1.78454	0.02417	4.40068	-81.11089	0.645	2.24213	-43.43070	1.29
(0.01656)	(0.07883)	(0.00188)	(0.69896)	(6.20694)	-	(0.31122)	(3.06935)	-	-
Na pelargonate	-0.81001	1.00539	0.12495	1.99046E-15*	-101.15827	0.645	0.10875*	-117.71106*	0.69956*
(0.07998)	(0.26208)	(0.0158)	(3.13936E-15)	(5.43609E-32)	-	(11.3163)	(3221.78647)	(5.40204)	-
Na propionate	0.18508	0.29516	-0.006	1.63983	237.26848	0.40893	1.12222	101.49347	0.82859
(0.00058)	(0.00205)	(0.0001)	(0.43848)	(41.24505)	(0.0271)	(0.13561)	(10.51618)	(0.03528)	-

Table S2. Cont.

Electrolyte	Pitzer et al. ^{4,34}			Ge et al. ^{30,31}			Pazuki et al. ²⁹		
	$B_{MX}^{(0)}$	$B_{MX}^{(1)}$	$C_{MX}^{(0)}$	b_{MX}	S	n	b_{MX}	S	n
Na <i>p</i> -toluene sulfonate	-0.03058 (0.00194)	0.35623 (0.00807)	0.00169 (0.00026)	5.53296 (1.20156)	-161.76504 (25.33597)	0.28153 (0.01938)	2.93133 (0.45321)	-88.31168 (10.21619)	0.59172 (0.03561)
Na valerate	0.33869 (0.00118)	- (0.00028)	-0.04027 (0.00028)	9.81743 (1.73627)	41.06688 (6.99984)	0.645 -	4.45488 (0.61554)	17.83465 (3.11891)	1.29 -
NaBr	0.10921 (0.00077)	0.2275 (0.00567)	-0.00063 (0.00005)	2.0566 (0.06095)	105.12353 (3.91455)	0.50155 (0.00641)	1.32693 (0.03024)	38.07188 (1.58463)	1.08736 (0.01559)
NaBrO ₃	-0.02623 (0.0011)	0.21859 (0.00367)	0.00386 (0.00021)	1.90504 (0.44003)	-38.22636 (35.40377)	0.39575 (0.14579)	1.19187 (0.34191)	-29.96116 (24.90912)	0.83311 (0.29795)
NaCF ₃ SO ₃	0.131 (0.00042)	0.41339 (0.0021)	-0.00553 (0.00004)	2.31204 (1.38436)	155.60075 (89.14258)	0.3476 (0.07316)	1.49748 (0.48711)	61.80758 (27.05072)	0.70173 (0.12586)
NaClO ₃	0.0176 (0.00039)	0.29113 (0.0014)	0.00112 (0.00007)	2.26323 (0.0024854)	0.54067 (0.08887)	1.48048 (0.07143)	1.26874 (0.00836)	-2.79973 (0.30880)	0.781 (0.5171)
NaClO ₄	0.05377 (0.00027)	0.28748 (0.00147)	-0.00044 (0.00003)	2.37853 (0.01129)	31.97713 (0.64087)	0.54783 (0.00418)	1.45386 (0.0024371)	4.95708 (0.101)	1.49438 (0.0101)
NaCl	0.07631 (0.00023)	0.27246 (0.00127)	0.00062 (0.00002)	2.49006 (0.01226)	49.80942 (0.61174)	0.60763 (0.00268)	1.49656 (0.0029473)	14.87704 (0.12332)	1.39114 (0.00392)
NaCNS	0.12196 (0.00152)	0.20271 (0.02018)	-0.00185 (0.00006)	1.11302 (1.03008)	239.61917 (142.86529)	0.34324 (0.0547)	0.72763 (0.42182)	107.77178 (51.37281)	0.68458 (0.09439)
NaF	0.0232 (0.00182)	0.21703 (0.00393)	-0.00174 (0.00068)	1.99814 (0.00696)	2.50136 (0.60799)	0.645 -	1.26012 (0.02682)	-11.26566 (1.81514)	1.03937 (0.11724)
NaH ₂ AsO ₄	-0.09796 (0.00218)	0.43907 (0.00522)	0.01592 (0.00069)	3.62198 (0.32414)	-139.36649 (12.19191)	0.36577 (0.01696)	2.0243 (0.33267)	-77.72971 (12.78118)	0.79033 (0.07815)
NaH ₂ PO ₄	-0.05158 (0.00137)	0.05831 (0.00784)	0.0037 (0.00012)	0.83802 (0.01998)	0.76397* (1.06340)	0.645 -	0.51117 (0.01247)	-2.01897 (0.61431)	1.29 -
NaI	0.13382 (0.00086)	0.25995 (0.008)	-0.00053 (0.00005)	-2.16078 (0.08606)	135.14165 (4.82665)	0.50054 (0.00569)	1.36933 (0.04296)	(54.03562) (2.00494)	1.05649 (0.0126)
NaNO ₂	0.05023 (0.00078)	0.15869 (0.0078)	-0.00124 (0.00004)	1.6951 (0.49185)	56.51977 (43.56053)	0.34852 (0.0833)	1.07962 (0.16234)	15.52926 (12.72045)	0.70573 (0.19498)
NaNO ₃	-0.04197 (0.0042)	0.42516 (0.03601)	0.00409 (0.00025)	1.58951 (0.01126)	1.82E-05 (9.71E-06)	3.54881 (0.11253)	0.66301 (0.04151)	6.73759 (1.02665)	1.29 -
NaOH	0.15899 (0.0024)	-0.30744 (0.05183)	-0.00153 (0.00006)	15.25597 (6.47977)	35.09336 (1.07202)	0.645 -	4.84920 (1.50398)	17.46028 (0.48018)	1.29 -
NH ₄ Br	0.05895 (0.00038)	0.25393 (0.00205)	-0.00192 (0.00004)	1.87745 (0.41931)	64.5417 (34.02747)	0.36112 (0.0661)	1.21387 (0.0473)	18.15219 (3.34875)	0.72762 (0.05076)
NH ₄ ClO ₄	-0.00515 (0.00064)	-0.07177 (0.00192)	-0.00072 (0.00014)	1.11922 (0.01398)	-15.5042 (1.84932)	0.30534 (0.0035)	0.68956 (0.02296)	-12.14755 (2.80962)	0.92286 (0.07498)
NH ₄ Cl	0.05124 (0.00026)	0.20408 (0.00164)	-0.00144 (0.00002)	1.6431 (0.21432)	64.57584 (19.98324)	0.35457 (0.03528)	0.97916 (0.03186)	26.32091 (2.84664)	0.62774 (0.02052)
NH ₄ CNS	0.02247 (0.00044)	0.28596 (0.00368)	-0.00052 (0.00003)	2.24849 (0.01887)	1.97507 (0.96024)	0.55355 (0.08572)	1.35736 (0.14006)	-10.18776 (8.75567)	0.62983 (0.19936)
NH ₄ H ₂ PO ₄	-0.08306 (0.00095)	-0.30698 (0.00367)	0.00496 (0.00014)	0.27373 (0.00134)	13.32823 (0.26179)	0.645 -	0.18140 (0.00077)	5.06660 (0.12253)	1.29 -
NH ₄ I	0.05258 (0.00041)	0.35003 (0.00279)	-0.00128 (0.00003)	2.13347 (0.21766)	62.28361 (15.27828)	0.34528 (0.02935)	1.5279 (0.0024527)	7.17493 (0.11764)	0.98758 (0.00607)
NH ₄ NO ₃	-0.01564 (0.00017)	0.07701 (0.00332)	0.00016 (4.44E-06)	1.82414 (0.3432)	-74.13006 (29.10049)	0.29656 (0.03395)	1.08213 (0.02149)	-47.17419 (17.2615)	0.60784 (0.07209)
Rb acetate	0.16331 (0.00038)	0.32517 (0.00148)	-0.00284 (0.00006)	1.7634 (0.11178)	214.00902 (9.76244)	0.42269 (0.00769)	1.41647 (0.01047)	75.26159 (6.62879)	0.93892 (0.00369)
RbBr	0.03948 (0.00022)	0.15378 (0.00105)	-0.0007 (0.00003)	1.68955 (0.01978)	32.65026 (1.77162)	0.46244 (0.00962)	1.11861 (0.0011881)	1.69339 (0.06618)	1.68672 (0.02149)
RbCl	0.04625 (0.00021)	0.1431 (0.00144)	-0.00079 (0.00002)	1.29791 (0.07595)	78.58538 (8.93978)	0.37055 (0.01271)	1.07637 (0.01037)	7.58039 (0.69595)	1.3752 (0.03521)
RbF	0.1187 (0.00165)	0.25251 (0.00636)	-0.00586 (0.00025)	1.9039 (0.80392)	124.54531 (64.58696)	0.39043 (0.07791)	1.27531 (0.29489)	45.54324 (19.8729)	0.79921 (0.14715)
RbI	0.03926 (0.00018)	0.14022 (0.00087)	-0.00051 (0.00002)	1.68831 (0.01157)	29.34481 (1.02278)	0.50255 (0.00678)	1.09197 (0.0013964)	2.09049 (0.0805)	1.67515 (0.02108)
RbNO ₂	-0.00179 (0.00021)	0.18205 (0.01131)	-0.00002 (2.15E-06)	1.5716 (0.03148)	-7.99992 (1.54505)	0.46274 (0.01979)	1.226 (0.06227)	-35.33993 (4.04585)	0.57277 (0.02038)
RbNO ₃	-0.08574 (0.0011)	0.02518 (0.00489)	0.00361 (0.00014)	1.29701 (0.58165)	-103.15531 (68.42156)	0.41219 (0.092)	0.47678 (0.00912)	-16.47952 (0.65734)	1.29 -
Tl acetate	0.00552 (0.00095)	0.04977 (0.00515)	-0.00042 (0.00009)	1.37340 (0.00586)	-1.74781 (0.19578)	0.645 -	0.88196 (0.1026)	-11.30472 (9.95248)	0.87723 (0.27447)
TlClO ₄	-0.10886 (0.00117)	0.0599 (0.00324)	- -	1.10095 (0.04181)	-105.49362 (4.25462)	0.6197 (0.03163)	0.78997 (0.07093)	-70.08895 (6.85551)	1.3242 (0.08852)
TlNO ₂	-0.64576 (0.0018)	-0.12311 (0.00443)	0.18754 (0.00055)	4.60510E-14* (8.40242E-13)	-131.22886 (19.93034)	0.645 -	0.00011* (0.00015)	-66.02597 (9.89886)	1.29 -
TlNO ₃	-0.13128 (0.00147)	-0.26999 (0.0037)	- -	0.18885 (0.00601)	-8.43316 (3.17809)	0.645 -	0.12658 (0.00404)	-5.40869 (1.65275)	1.29 -
1:2 Electrolytes									
(CN) ₂ H ₆ CO ₂	-0.07069 (0.00107)	0.17113 (0.00746)	0.0044 (0.00012)	1.12090 (0.00763)	-9.17765 (0.73515)	0.645 -	0.77499 (0.1474)	-16.16927 (16.05903)	0.82473 (0.2626)
(NH ₄) ₂ B ₁₀ H ₁₀	0.1593 (0.00196)	1.26609 (0.01887)	-0.00613 (0.00016)	2.14855 (0.2852)	79.23316 (58.59025)	0.33346 (0.08106)	1.33667 (0.00228)	0.09748 (0.01824)	1.29 -
(NH ₄) ₂ HPO ₄	-0.04263 (0.00061)	-0.67584 (0.00491)	0.00184 (0.00006)	0.98318 (0.05665)	-45.71886 (26.1762)	0.14201 (0.07077)	0.55746 (0.0016301)	-6.12113 (0.23934)	0.78315 (0.00821)
(TH) ₂ SO ₄	0.09344 (0.00033)	0.57115 (0.00453)	-0.0015 (0.00002)	1.0687 (0.04387)	219.80772 (20.02572)	0.30196 (0.00663)	0.58791 (0.01105)	41.88231 (1.79359)	0.48655 (0.00355)
C ₂ H ₆ S ₂ O ₆	0.42967 (0.00107)	1.92618 (0.01435)	-0.00706 (0.00006)	1.212 (0.11231)	649.0323 (42.56024)	0.34682 (0.00628)	0.64884 (0.0242)	112.8489 (3.31058)	0.6623 (0.00524)
C ₆ H ₆ S ₂ O ₆	0.41278 (0.00151)	2.01529 (0.00813)	-0.00715 (0.00023)	2.79073 (0.06262)	275.77944 (9.50507)	0.45189 (0.00649)	1.89148 (0.01281)	25.33742 (0.48735)	1.08391 (0.00879)
Cs ₂ S ₂ O ₈	0.19119 (0.00524)	-0.74341 (0.00789)	-0.09742 (0.00674)	0.82187 (0.20132)	153.18256 (98.4503)	0.54079 (0.18852)	0.58758 (0.00066)	11.25935 (0.19793)	1.29 -
Cs ₂ SO ₄	0.14649 (0.00128)	0.63114 (0.00633)	-0.01028 (0.00022)	1.71476 (0.18415)	53.21449 (48.96662)	0.39171 (0.12823)	1.08109 (6.8310E-04)	-1.74217 (0.05217)	1.07553 (0.01277)
H-1,8-diphenyloctanedisulfonic	- (0.11291)	-3.82448 (0.00161)	0.01485 (0.00161)	0.03312* (0.03711)	255.29744 (29.46185)	0.645 -	6.9105E-05 (5.2251E-05)	50.76615 (3.15327)	1.24332 (0.03816)
H 4,4'-bibenzylidenedisulfonic	0.33659 (0.04305)	-1.73313 (0.24255)	-0.01895 (0.0063)	0.97272 (0.06158)	101.29409 (9.02693)	0.645 -	0.59514 (0.03244)	13.91693 (1.46488)	1.29 -
H <i>m</i> -benzenedisulfonic acid	0.36226 (0.00147)	2.5401 (0.0037)	- -	3.98944 (0.00601)	179.33166 (3.17809)	0.52725 -	2.38435 (0.00404)	16.53943 (1.65275)	1.26653 -

Table S2. Cont.

Electrolyte	Pitzer et al. ^{4,34}			Ge et al. ^{30,31}			Pazuki et al. ²⁹		
	$B_{MX}^{(0)}$	$B_{MX}^{(1)}$	$C_{MX}^{(0)}$	b_{MX}	S	n	b_{MX}	S	n
$K_2Cr_2O_7$	(0.00309)	(0.03528)	-	(0.10432)	(10.01181)	(0.01333)	(0.04188)	(1.12473)	(0.0371)
	-2.36317	10.35885	0.84407	100.38438	-533.91257	0.285	49.53916	-94.0175	0.5508
K_2CrO_4	(0.26287)	(0.61505)	(0.11459)	(25.41176)	(15.66931)	(0.00978)	(9.16385)	(1.44584)	(0.01347)
	0.07776	1.14303	-0.00041	2.07668	0.90752	1.15923	0.85809	20.42921	0.37738
$K_2H_2P_2O_7$	(0.00103)	(0.00879)	(0.00009)	(0.0028593)	(0.09092)	(0.021)	(0.03474)	(3.36551)	(0.01796)
	-0.00707	1.29586	0.00194	2.22085	-86.64074	0.32841	1.33148	-24.60979	0.68987
	(0.00052)	(0.00415)	(0.00005)	(0.37177)	(73.96153)	(0.09364)	(0.26189)	(16.32347)	(0.16887)
$K_2HA_5O_4$	0.04891	2.00427	0.01541	2.95764	-15.86005	0.20843	1.83033	-16.07609	0.74339
	(0.00468)	(0.01499)	(0.00135)	(0.04556)	(6.26735)	(0.01344)	(0.14364)	(6.26232)	(0.14139)
K_2HPO_4	0.06041	1.07477	-0.00232	2.01421	-9.15224	0.72857	1.36191	-19.24783	0.81402
	(0.00074)	(0.00234)	(0.00021)	(0.0055885)	(1.3396)	(0.05466)	(0.0652)	(4.08129)	(0.07761)
$K_2Pt(CN)_4$	-0.06279	3.03822	0.03368	4.66559	-101.74122	0.32211	2.79595	-30.78779	0.67423
	(0.01988)	(0.06727)	(0.00534)	(0.27764)	(22.4169)	(0.03363)	(0.33701)	(8.27547)	(0.10192)
K_2SO_4	0.12723	0.24259	-0.01676	1.42164	48.22386	0.4472	0.93012	-3.39383	1.11579
	(0.00182)	(0.00498)	(0.00064)	(0.1324)	(43.27149)	(0.16336)	(0.0036972)	(0.36278)	(0.06198)
Li-1,8-diphenyloctanedisulfonate	-0.37266	-1.44728	0.09471	0.08430	268.63497	0.645	0.05655	44.42704	1.29
	(0.12667)	(0.4995)	(0.02893)	(0.06078)	(50.34647)	-	(0.04072)	(8.76198)	-
$Li_2C_6H_4S_2O_6$	0.40756	1.92285	-0.01137	-2.17186	367.18779	0.38097	1.68218	31.34075	0.92203
	(0.00146)	(0.0097)	(0.00017)	(0.07381)	(14.98726)	(0.00563)	(0.0039075)	(0.17323)	(0.00203)
$Li_2C_{14}H_{12}S_2O_6$	0.1808	1.03214	-	1.94381	96.1876	0.48598	1.28752	0.51828	2.75613
	(0.0022)	(0.02022)	-	(0.12076)	(28.91885)	(0.06501)	(0.0075971)	(0.20696)	(0.29874)
Li_2SO_4	0.14368	1.18004	-0.002	2.18012	34.92987	0.59544	1.26521	0.22111	2.3213
	(0.00187)	(0.01546)	(0.00017)	(0.01835)	(2.6896)	(0.014)	(0.00058525)	(0.00607)	(0.01178)
Li 4,4'-bibenzylidysulfonate	0.13332	1.33138	0.00911	2.35046	29.17231	0.77931	1.34979	0.07483	4.10295
	(0.00856)	(0.03312)	(0.00197)	(0.03153)	(5.4387)	(0.06106)	(0.006095)	(0.04974)	(0.51222)
Li m-benzenedisulfonic acid	0.38775	2.22877	-0.00931	3.04314	255.32728	0.43013	0.72446	107.77204	0.59042
	(0.00489)	(0.0327)	(0.0006)	(0.09147)	(12.11066)	(0.00809)	(0.02139)	(2.49371)	(0.00268)
$Na_2B_{12}H_{12}$	0.50588	1.8678	-0.00464	2.81533	323.35746	0.48925	1.85277	35.53071	1.11084
	(0.00147)	(0.00754)	(0.00024)	(0.03075)	(4.59881)	(0.00297)	(0.0049427)	(0.19551)	(0.00263)
$Na_2C_2H_4S_2O_6$	0.31091	0.96802	-0.02023	1.96578	175.44487	0.37779	1.27281	15.02816	0.78106
	(0.00623)	(0.03349)	(0.00096)	(0.60723)	(139.34018)	(0.1084)	(0.1983)	(13.14025)	(0.2689)
$Na_2C_4H_4O_4$ (sodium fumarate)	0.24454	0.76506	-0.00881	1.58252	193.17162	0.39542	1.12824	11.51613	0.98845
	(0.00146)	(0.00865)	(0.0002)	(0.12469)	(35.76927)	(0.02487)	(0.0011987)	(0.08595)	(0.00277)
$Na_2C_4H_2O_4$ (sodium maleate)	0.14169	0.34546	-0.00337	1.32123	126.72625	0.40778	0.93299	3.02313	1.2719
	(0.00141)	(0.01057)	(0.00015)	(0.06119)	(20.67864)	(0.02095)	(0.00076681)	(0.05127)	(0.00649)
$Na_2C_6H_4S_2O_6$	0.25054	2.06338	-0.00733	2.71651	166.78871	0.37869	1.86348	6.43815	1.13697
	(0.00101)	(0.00771)	(0.0001)	(0.04809)	(7.39966)	(0.00622)	(0.0059334)	(0.18689)	(0.01137)
$Na_2C_{14}H_{12}S_2O_6$	0.39253	0.59978	-0.186	3.11666	-172.24713	0.2572	1.25558	-6.36262	3.49699
	(0.00079)	(0.00164)	(0.00042)	(0.22866)	(31.86543)	(0.00683)	(2.5654E-03)	(0.25795)	(0.15861)
$Na_2C_{14}H_{12}S_2O_8$	-1.57844	3.65525	0.56305	1.89041	-363.73429	0.645	1.15817	-69.61236	1.29
	(0.10856)	(0.22582)	(0.05801)	(0.08097)	(22.34813)	-	(0.04900)	(4.13390)	-
Na_2CO_3	0.05102	1.23707	0.00062	1.95861	5.26635	0.645	1.06551	-1.01419	1.29
	(0.00127)	(0.01022)	(0.00012)	(0.01314)	(0.51453)	-	(0.01136)	(0.15395)	-
Na_2CrO_4	0.06425	1.54907	0.00322	2.33019	1.08821	1.23386	1.18769	0.00594	3.67035
	(0.00133)	(0.01434)	(0.00009)	(0.0051174)	(0.06757)	(0.01185)	(0.0075643)	(0.00302)	(0.1977)
Na_2HASO_4	-	1.80881	0.00702	3.46869	-165.18106	0.30445	1.92374	-33.66993	0.72102
	-	(0.00342)	(0.00014)	(0.07064)	(8.21163)	(0.00569)	(0.13365)	(5.44415)	(0.05619)
Na_2HPO_4	-0.02314	1.25596	0.00274	2.50614	-147.03204	0.32985	1.4794	-33.62455	0.70418
	(0.00037)	(0.0022)	(0.00005)	(0.2534)	(43.95008)	(0.03502)	(0.22238)	(12.31869)	(0.10242)
Na_2MoO_4	0.14031	2.23879	-	3.59744	2.76238	1.13478	1.63886	2.07150	1.29
	(0.00272)	(0.05436)	-	(0.0935)	(2.08899)	(0.18023)	(0.03815)	(0.33437)	-
$Na_2S_2O_3$	0.0634	1.24006	0.00168	2.0853	0.92804	1.21024	1.01648	1.54610	4.54699
	(0.00085)	(0.00869)	(0.00006)	(0.0026988)	(0.05114)	(0.01075)	0.01260	0.14084	(0.46164)
$Na_2S_2O_6$	-	1.65197	0.02201	2.37046	-8.53510	0.645	1.56739	-18.44114	0.80042
	-	(0.00998)	(0.00059)	(0.01384)	(1.41348)	-	(0.26944)	(14.35528)	(0.29938)
$Na_2S_2O_8$	0.2813	0.98739	0.01806	1.83432	229.42292	0.50264	1.2593	15.42217	1.03786
	(0.00332)	(0.00487)	(0.00458)	(0.27559)	(57.3194)	(0.11861)	(0.04869)	(2.66086)	(0.19235)
Na_2SO_3	0.08114	1.13737	-0.00162	2.09271	0.00313	2.60311	1.25531	-9.37971	0.73492
	(0.00135)	(0.00796)	(0.00019)	(0.0020772)	(0.0025)	(0.21883)	(0.13859)	(9.29848)	(0.27514)
Na_2SO_4	0.02137	1.02371	0.00183	1.73457	0.00884	1.95773	0.59615	37.57067	0.38836
	(0.0009)	(0.01002)	(0.00006)	(0.0056405)	(0.005)	(0.10937)	(0.04108)	(5.75883)	(0.01997)
Na_2WO_4	0.20495	0.77448	-0.007	1.60011	161.08943	0.38407	1.11207	7.89605	0.98697
	(0.00163)	(0.01144)	(0.00018)	(0.12791)	(36.09596)	(0.02825)	(0.00048748)	(0.03397)	(0.00149)
Na 4,4'-bibenzylidysulfonate	0.85835	-0.75928	-0.39375	6.23411	-472.15312	0.19294	3.56986	-92.30751	0.4374
	(0.1307)	(0.27752)	(0.06902)	(1.35889)	(74.61033)	(0.00448)	(0.48555)	(8.38703)	(0.01283)
Na m-benzenedisulfonic acid	0.23574	2.35453	-0.006	1.51099	464.20443	0.26695	2.11177	3.23754	1.3876
	(0.00461)	(0.03551)	(0.00048)	(0.03195)	(9.65223)	(0.00109)	(0.0225)	(0.45984)	(0.06026)
$Rb_2S_2O_8$	0.30686	-0.43707	-0.13136	1.12621	168.43085	0.645	0.72509	14.73261	1.09982
	(0.0098)	(0.01359)	(0.01615)	(0.00187)	(2.18126)	-	(0.09806)	(9.97633)	(0.54916)
Rb_2SO_4	0.09122	0.74156	-0.0043	1.75729	19.09849	0.42331	1.11887	-8.58295	0.78273
	(0.00129)	(0.00656)	(0.00022)	(0.0487)	(12.61719)	(0.10502)	(0.0707)	(5.40108)	(0.1849)
1:3 Electrolytes									
K_3AsO_4	0.32259	6.20154	-	1.95137	533.09687	0.19619	1.83731	-2.17793	1.29
	(0.00827)	(0.09897)	-	(0.04951)	(23.21494)	(0.00094)	(0.03103)	(0.40359)	-
$K_3Co(CN)_6$	0.39638	3.43668	-0.0204	2.44269	25.08918	0.645	1.30949	0.02057*	1.29
	(0.02158)	(0.14431)	(0.00309)	(0.02766)	(1.74848)	-	(0.01153)	(0.12713)	-
$K_3Fe(CN)_6$	0.35737	3.88901	-0.01571	2.44189	46.06785	0.50009	1.15638	12.83498	0.26047
	(0.00924)	(0.0769)	(0.00129)	(0.06514)	(19.29608)	(0.07193)	(0.08676)	(6.71433)	(0.05737)
K_3PO_4	0.24412	5.69115	-	1.82677	484.73755	0.16325	1.66898	-3.97870	1.29
	(0.00874)	(0.10456)	-	(0.0348)	(17.48519)	(0.00197)	(0.03721)	(0.55845)	-
Na_3AsO_4	0.15672	5.43305	-	2.93800	-36.12220	0.645	1.56790	-6.15033	1.29
	(0.00972)	(0.11629)	-	(0.05838)	(5.40204)	-	(0.04141)	(0.68088)	-
Na_3PO_4	-	5.82137	0.02194	2.86434	-57.97812	0.645	1.53404	-7.98657	1.29
	-	(0.07259)	(0.00217)	(0.06336)	(6.07105)	-	(0.04337)	(0.73595)	-
1:4 Electrolytes									
$(N(CH_3)_4)_4Mo(CN)_8 \cdot 2H_2O$	0.57284	8.73004	-0.02452	2.47957	29.73067	0.55116	1.29034	-0.40218	1.29
	(0.01688)	(0.20052)	(0.00182)	(0.04619)	(17.80909)	(0.09466)	(0.01621)	(0.09887)	-
K_4ATP	0.29027	18.98783	-0.00359	0.51938	3351.02151	0.1904	0.34217	164.74416	0.3038
	(0.00684)	(0.17721)	(0.00038)	(0.03303)	(93.08995)	(0.00233)	(0.02574)	(6.17028)	(0.0108)
$K_4Fe(CN)_6$	0.64638	8.85091	-0.04428	3.17207	-288.61912	0.12299	1.67033	-17.52495	0.53863

Table S2. Cont.

Electrolyte	Pitzer et al. ^{4,34}			Ge et al. ^{30,31}			Pazuki et al. ²⁹		
	$B_{MX}^{(0)}$	$B_{MX}^{(1)}$	$C_{MX}^{(0)}$	b_{MX}	S	n	b_{MX}	S	n
$K_4Mo(CN)_8$	(0.02247)	(0.20401)	(0.00355)	(0.18279)	(82.95472)	(0.00951)	(0.29136)	(14.44977)	(0.17285)
	0.5087	10.41122	-0.02421	2.69375	1.20758	0.645	1.33932	-1.06558	1.29
$K_4P_2O_7$	(0.01656)	(0.22009)	(0.00181)	(0.01267)	(0.73652)	-	(0.01672)	(0.11102)	-
	0.47275	17.6428	-0.01091	0.7058	2799.94831	0.18444	0.55539	120.33307	0.27631
$K_4W(CN)_8 \cdot 2H_2O$	(0.01072)	(0.22938)	(0.00072)	(0.0377)	(87.65376)	(0.0017)	(0.02938)	(5.22881)	(0.00706)
	0.55955	11.84834	-0.02538	2.63516	232.37815	0.16341	1.53110	-1.03948	1.29
	(0.0316)	(0.39194)	(0.00332)	(0.34192)	(187.99459)	(0.01925)	(0.03261)	(0.14919)	-
Na_4ATP	0.4289	18.95419	-0.00838	0.3409	3810.62375	0.19978	0.44789	145.10036	0.29302
	(0.00852)	(0.18997)	(0.00055)	(0.02869)	(97.99382)	(0.00347)	(0.02789)	(5.74813)	(0.00822)
2:1 Electrolytes									
$(C_8H_{22}N_2)(C_6H_4O_6S_2)_2$	0.1082	-	0.00222*	0.65342	350.62824	0.35225	0.44699	50.12331	0.65831
	(0.00544)	-	(0.00181)	(0.10591)	(63.83409)	(0.00727)	(0.05621)	(9.2736)	(0.00969)
$(C_8H_{22}N_2)Cl_2$	0.09276	0.19062	0.00133	0.3501	591.87059	0.32424	0.24924	92.26145	0.622
	(0.0051)	(0.05267)	(0.00036)	(0.03484)	(32.80323)	(0.00131)	(0.01983)	(4.97148)	(0.00305)
$(C_8H_{22}N_2)I_2$	-0.0592	-0.47207	0.00374	0.42155	306.92081	0.29856	0.31789	39.71071	0.5056
	(0.00852)	(0.08238)	(0.00067)	(0.05924)	(50.15533)	(0.00451)	(0.03621)	(7.86659)	(0.02593)
$(C_8H_{22}N_2)$ -Sulfate	0.3449	-4.08932	-0.0077	0.53769	131.27996	0.645	0.33911	20.07970	1.29
	(0.02776)	(0.24072)	(0.00245)	(0.05784)	(10.25053)	-	(0.03250)	(1.71490)	-
$(Co(NH_3)_5CH_3CH_2COO)Br_2$	0.05824	0.43403	-0.0031	1.53776	3.48779	0.645	0.99287	-10.69708	0.84559
	(0.00124)	(0.00489)	(0.00028)	(0.00202)	(0.27167)	-	(0.06288)	(5.47757)	(0.16575)
$(Co(NH_3)_5CH_3CH_2COO)Cl_2$	0.11598	0.24693	-0.00525	1.36702	76.20396	0.3979	0.88454	1.38101	0.88873
	(0.00133)	(0.00863)	(0.00016)	(0.13489)	(44.60994)	(0.07464)	(0.0017105)	(0.16169)	(0.03587)
$(Co(NH_3)_5CH_3CH_2COO)I_2$	0.21018	-	-0.07721	1.46763	3.48310	0.645	0.88225	-2.83197	2.8151
	(0.00046)	-	(0.00035)	(0.01178)	(3.38830)	-	(0.00069952)	(0.08535)	(0.05853)
$(Co(NH_3)_5CH_3CH_2COO)(NO_3)_2$	0.07478	0.22722	-0.04204	1.41713	-11.22706	1.56859	0.90375	-11.71011	1.35455
	(0.00225)	(0.00467)	(0.0012)	(0.0016634)	(0.74079)	(0.11705)	(0.0006229)	(0.06274)	(0.0061)
$(Co(NH_3)_5CH_3COO)(NO_3)_2$	0.67994	-0.84735	-0.49417	0.98468	346.64384	0.54578	0.73798	39.78897	1.29
	(0.01392)	(0.0179)	(0.0303)	(0.71967)	(268.94258)	(0.32891)	(0.00191)	(0.77927)	-
$(Co(NH_3)_5CH_3COO)Br_2$	0.10228	0.32869	-0.02021	1.63445	-23.09339	0.20787	1.0418	-14.72502	0.83309
	(0.00146)	(0.00368)	(0.00058)	(0.03204)	(8.88343)	(0.02713)	(0.00399)	(0.33122)	(0.00714)
$(Co(NH_3)_5CH_3COO)Cl_2$	0.27542	-0.36108	-0.0703	1.31226	46.16054	0.645	1.08083	-22.13664	0.53661
	(0.02163)	(0.05433)	(0.00857)	(0.01860)	(5.08776)	-	(0.03966)	(3.09518)	(0.01019)
$(Co(NH_3)_5CH_3COO)I_2$	0.0834	0.23884	0.37468	1.39827	302.62576	0.88284	0.90854	60.628	2.50468
	(0.00441)	(0.00649)	(0.00602)	(0.0017552)	(3.59598)	(0.00749)	(0.00033773)	(1.19156)	(0.01918)
$(Co(NH_3)_5Cl)(ClO_4)_2$	-1.41877	3.12289	1.65512	1.26544	151.88245	0.28323	1.27586	-46.31357	1.29
	(0.02966)	(0.04372)	(0.04053)	(0.26898)	(112.17611)	(0.04859)	(0.01866)	(3.71997)	-
$[Co(NH_3)_5Cl]Cl_2$	-9.62318	13.23132	62.45759	2.56882	1182.28856	0.645	1.70814	137.32552	1.29
	(4.07986)	(4.54345)	(24.09373)	(0.12025)	(311.48165)	-	(0.07916)	(55.56259)	-
$(Co(NH_3)_5F)Cl_2$	0.04404	0.61489	-0.00455	1.89587	-74.46325	0.31114	1.11954	-17.98594	0.84093
	(0.00094)	(0.00328)	(0.00025)	(0.01157)	(2.69042)	(0.00268)	(0.05649)	(4.37092)	(0.08403)
$[Co(NH_3)_5NO_2]Cl_2$	-7.81381	14.90752	5.73786	8.4644	-1655.4743	0.54672	5.75128	-289.48131	1.00128
	(0.259)	(0.03817)	(0.35385)	(0.04194)	(3.17186)	(0.00153)	(0.0040881)	(0.0566)	(0.00036)
$Ba(ClO_4)_2$	0.31726	1.82963	-0.00538	1.1141	577.32617	0.32176	1.35261	32.24504	0.86117
	(0.00204)	(0.02576)	(0.00012)	(0.09131)	(39.10987)	(0.00563)	(0.04167)	(2.13022)	(0.01853)
$Ba(COOCH_3)_2$	0.23541	1.14217	-0.01252	3.04279	9.17312	0.645	2.66433	-46.98306	0.18666
	(0.00648)	(0.05831)	(0.00057)	(0.09742)	(2.15603)	-	(0.50426)	(13.06617)	(0.0165)
$BaBr_2$	0.31606	1.51802	-0.00574	2.40754	182.07191	0.47359	1.57352	13.84014	1.17474
	(0.00124)	(0.00857)	(0.00015)	(0.02547)	(4.2659)	(0.00412)	(0.0029019)	(0.11713)	(0.00353)
$BaCl_2$	0.2927	1.21123	-0.01109	1.87745	224.49988	0.38819	1.36304	13.84508	0.99266
	(0.00105)	(0.00572)	(0.00017)	(0.12281)	(29.59868)	(0.01855)	(0.0005257)	(0.03097)	(0.00091)
BaI_2	0.39862	1.95798	-0.00284	3.06967	215.49797	0.51492	1.91978	21.14215	1.20163
	(0.0012)	(0.00718)	(0.00017)	(0.0334)	(4.17997)	(0.00398)	(0.00571)	(0.18857)	(0.00413)
$C_8H_{22}N_2Cl_2$	0.10271	-0.03807	0.00067	1.22074	68.57917	0.54432	0.77341	3.2976	1.4002
	(0.0009)	(0.00972)	(0.00006)	(0.0083811)	(2.34903)	(0.00518)	(0.0039989)	(0.22473)	(0.0233)
$C_8H_{22}N_2I_2$	-0.07552	-0.59726	0.00443	0.83298	1.26061	0.99231	0.3618	23.23946	0.50314
	(0.00247)	(0.02431)	(0.00019)	(0.0036199)	(0.45061)	(0.06736)	(0.0089188)	(1.77599)	(0.00889)
$Ca(ClO_4)_2$	0.46385	1.71913	-0.0025	2.6689	286.87098	0.50549	1.56488	37.90245	1.06517
	(0.00276)	(0.03748)	(0.00015)	(0.13361)	(14.47227)	(0.0073)	(0.06517)	(2.06598)	(0.01662)
$Ca(NO_3)_2$	0.1399	2.03281	-0.00112	1.30414	385.06332	0.28343	0.73168	60.18461	0.53735
	(0.00143)	(0.0586)	(0.00002)	(0.48249)	(184.65296)	(0.03507)	(0.11895)	(16.47856)	(0.04178)
$CaBr_2$	0.42517	1.01415	-0.00074	1.93973	278.1937	0.51308	1.13864	38.3243	1.06543
	(0.00668)	(0.15286)	(0.00024)	(0.20652)	(26.92057)	(0.01237)	(0.09725)	(3.72743)	(0.02588)
$CaCl_2$	0.40811	0.54928	-0.00496	0.81199	736.0003	0.33629	0.53041	111.6399	0.53041
	(0.00391)	(0.10541)	(0.00012)	(0.75088)	(433.20684)	(0.04734)	(0.31076)	(53.23597)	(0.08259)
CaI_2	0.42893	1.89163	0.00073	3.10854	224.85671	0.54492	1.9128	23.94003	1.24067
	(0.00112)	(0.00659)	(0.00016)	(0.03478)	(4.17738)	(0.00397)	(0.0071119)	(0.23189)	(0.00457)
$Cd(C_2H_2O_5)_2$	0.06773	1.80305	-	2.67836	-3.75347	1.66606	1.66679	-14.38221	1.01451
	(0.00105)	(0.00571)	-	(0.0060118)	(1.0095)	(0.21228)	(0.0016223)	(0.08496)	(0.00399)
$Cd(ClO_4)_2$	0.37832	1.25444	0.00907	3.54224	172.74608	0.60847	2.08828	17.78019	1.3974
	(0.00184)	(0.01024)	(0.00027)	(0.04355)	(4.25679)	(0.00577)	(0.0087386)	(0.23644)	(0.00672)
$Cd(NO_3)_2$	-	-1.71362	0.0012	0.52899	123.98589	0.42088	0.35705	12.64684	0.86591
	-	(0.0194)	(0.00002)	(0.10914)	(77.58024)	(0.05968)	(0.04087)	(8.03875)	(0.12845)
$Cd(NO_3)_2$	0.28551	1.6527	-0.00883	2.14614	232.38988	0.3722	1.57821	13.0577	0.99685
	(0.0016)	(0.01115)	(0.00018)	(0.1021)	(20.99177)	(0.01191)	(0.0005372)	(0.0244)	(0.0007)
$CdBr_2$	0.01609	-4.76838	-	0.21404	81.50700	0.645	0.72539	-142.95631	0.14122
	(0.00445)	(0.10704)	-	(0.03717)	(12.30504)	-	(0.2654)	(32.37948)	(0.09058)
$CdCl_2$	-0.01064*	-3.41068	0.00066*	0.44350	29.71503	0.645	0.6117	-93.19411	0.13388
	(0.00768)	(0.10439)	(0.00041)	(0.02488)	(3.37818)	-	(0.07088)	(10.0708)	(0.05084)
CdI_2	0.2594	-9.68269	-0.02517	6.68721E-16	155.34070	0.645	0.90515*	-261.62507	0.14919
	(0.05876)	(0.4125)	(0.00705)	(5.47757E-16)	(2.74273E-33)	-	(0.90726)	(88.88483)	(0.11288)
$Co(ClO_4)_2$	0.5035	2.04812	0.00468	4.02458	217.96771	0.60718	2.18789	29.20262	1.28005
	(0.0017)	(0.01532)	(0.00015)	(0.05386)	(3.22541)	(0.00275)	(0.01577)	(0.29952)	(0.00396)
$Co(NO_3)_2$	0.30727	1.66378	-0.00237	2.48226	179.65663	0.4973	1.49581	19.19335	1.0999
	(0.00066)	(0.00957)	(0.00003)	(0.02709)	(3.24958)	(0.00258)	(0.0144)	(0.45104)	(0.00719)
$CoBr_2$	0.46408	1.55204	-0.00554	0.48095	1000.71019	0.34153	1.19188	55.69259	0.89767
	(0.00271)	(0.03826)	(0.00015)	(0.05237)	(43.12126)	(0.00241)	(0.08502)	(4.82791)	(0.02409)
$CoCl_2$	0.37125	1.50533	-0.00623	2.07709	291.97743	0.43021	1.42303	29.09324	0.97978
	(0.00209)	(0.02139)	(0.00016)	(0.11501)	(22.13018)	(0.01064)	(0.04614)	(2.11908)	(0.02344)
CoI_2	0.6882	-	-0.01265	5.82033E+15	71.98796	0.645	0.86711*	156.20766	0.60267
	(0.00368)	-	(0.00014)	(4.30039E-16)	(1.93672)	-	(0.98422)	(103.78881)	(0.12133)

Table S2. Cont.

Electrolyte	Pitzer et al. ^{4,34}			Ge et al. ^{30,31}			Pazuki et al. ²⁹		
	$B_{MX}^{(0)}$	$B_{MX}^{(1)}$	$C_{MX}^{(0)}$	b_{MX}	S	n	b_{MX}	S	n
Cu(C ₂ H ₃ O ₃) ₂	0.11367 (0.00355)	1.70794 (0.01062)	-0.00925 (0.00112)	2.70967 (0.0072496)	-0.4641 (0.39586)	2.22 (0.47793)	1.63915 (0.0011514)	-11.0959 (0.06165)	1.01904 (0.00331)
Cu(ClO ₄) ₂	0.48771 (0.00102)	2.01754 (0.00925)	0.00313 (0.00009)	3.64061 (0.03339)	227.90088 (2.45264)	0.58629 (0.00195)	2.07745 (0.0065283)	29.09092 (0.14056)	1.25253 (0.00183)
Cu(NO ₃) ₂	0.28086 (0.00024)	1.6751 (0.00472)	-0.00297 (0.00001)	1.72466 (0.10288)	306.62968 (23.22349)	0.39713 (0.00863)	1.22719 (0.03933)	29.3811 (1.91995)	0.90359 (0.01709)
CuBr ₂	0.4109 (0.00163)	1.73375 (0.01484)	-0.01493 (0.00014)	2.00827 (0.63587)	405.96157 (141.59608)	0.33129 (0.03726)	1.24057 (0.19617)	55.75959 (13.34171)	0.65631 (0.05542)
CuCl ₂	0.23376 (0.00301)	1.71712 (0.04209)	-0.00602 (0.00017)	2.06693 (0.47874)	243.62867 (102.82254)	0.31725 (0.04175)	1.25635 (0.12041)	28.419 (8.03487)	0.63344 (0.06174)
FeCl ₂	0.33355 (0.0015)	1.55937 (0.00906)	-0.00281 (0.00021)	2.75892 (0.02542)	148.87977 (3.39579)	0.54772 (0.00469)	1.66562 (0.0089529)	13.26829 (0.32458)	1.29745 (0.01131)
Mg(ClO ₄) ₂	0.49797 (0.0019)	2.05386 (0.01878)	0.0032 (0.00015)	3.98785 (0.04996)	217.61623 (2.91024)	0.59826 (0.00236)	2.15956 (0.0211)	29.35845 (0.391)	1.25753 (0.00489)
Mg(COOCH ₃) ₂	0.2101 (0.00189)	0.93818 (0.01872)	-0.00471 (0.00015)	1.42907 (0.17198)	241.70952 (55.23437)	0.35919 (0.02479)	1.11192 (0.01256)	12.12441 (0.80961)	0.95558 (0.02067)
Mg(NO ₃) ₂	0.33288 (0.00202)	1.67971 (0.02496)	-0.00244 (0.00012)	2.59073 (0.03127)	186.05959 (3.63388)	0.50817 (0.0029)	1.55045 (0.0071668)	20.36197 (0.2242)	1.12011 (0.0035)
MgBr ₂	0.43389 (0.00075)	1.73031 (0.01037)	0.00101 (0.00004)	3.08566 (0.02808)	205.80082 (2.09152)	0.57251 (0.00158)	1.74422 (0.01292)	26.84678 (0.28327)	1.20852 (0.0034)
MgCl ₂	0.35605 (0.00065)	1.59552 (0.0101)	0.00183 (0.00003)	2.98192 (0.02001)	142.41622 (1.29646)	0.60615 (0.00139)	1.62239 (0.01135)	18.35705 (0.22558)	1.2779 (0.00389)
MgI ₂	0.4916 (0.00071)	1.80237 (0.00893)	0.00273 (0.00004)	3.37707 (0.03137)	228.20684 (2.09572)	0.58744 (0.00149)	1.89214 (0.0095301)	30.70399 (0.19137)	1.23289 (0.00209)
Mn(ClO ₄) ₂	0.50251 (0.00216)	2.42701 (0.01874)	0.00472 (0.00019)	4.45441 (0.04819)	227.4828 (2.69192)	0.59746 (0.00223)	2.47271 (0.0098902)	29.58067 (0.16638)	1.27236 (0.00221)
MnBr ₂	0.44516 (0.00101)	1.56747 (0.01405)	-0.00792 (0.00006)	1.09323 (0.22467)	675.11173 (94.66463)	0.34435 (0.01283)	0.65695 (0.06864)	107.98875 (9.25995)	0.67313 (0.01586)
MnCl ₂	0.31918 (0.00181)	1.62295 (0.02464)	-0.0068 (0.0001)	1.40949 (0.70287)	471.77334 (236.50113)	0.32033 (0.04534)	0.86481 (0.18055)	69.35637 (19.18086)	0.62609 (0.05299)
Ni(ClO ₄) ₂	0.48954 (0.00139)	2.14967 (0.01246)	0.00621 (0.00012)	4.01603 (0.0426)	213.42058 (2.584)	0.61359 (0.00225)	2.23808 (0.0071028)	27.72646 (0.12937)	1.30428 (0.0018)
Ni(NO ₃) ₂	0.3096 (0.00212)	1.8752 (0.02419)	-0.00138 (0.00014)	2.97428 (0.04081)	140.48567 (3.78627)	0.54826 (0.00435)	1.73698 (0.0081085)	14.22501 (0.1971)	1.232 (0.00477)
NiBr ₂	0.44462 (0.00207)	1.64192 (0.02375)	-0.00226 (0.00014)	2.73622 (0.06104)	251.35314 (6.72195)	0.52176 (0.0042)	1.63301 (0.03209)	31.29314 (0.99068)	1.11777 (0.01053)
NiCl ₂	0.39249 (0.00214)	1.31623 (0.02994)	-0.00584 (0.00012)	0.78416 (0.09937)	722.40937 (57.05159)	0.34051 (0.00615)	0.46817 (0.03519)	119.93849 (6.40165)	0.65958 (0.00782)
Pb(ClO ₄) ₂	0.33533 (0.00021)	1.60456 (0.00535)	-0.00322 (0.00001)	0.78965 (0.12572)	708.55813 (74.08232)	0.33545 (0.00826)	0.46373 (0.0378)	117.32841 (7.3819)	0.65304 (0.00989)
Pb(NO ₃) ₂	0.01635 (0.00489)	-0.42098 (0.02783)	-0.0044 (0.00007)	1.37334 (0.04826)	-115.70295 (15.33428)	0.23114 (0.00502)	0.62614 (0.0058687)	-1.08687 (0.48768)	1.70124 (0.21338)
PbCl ₂	27.3549 (1.99025)	-40.8037 (2.47493)	-54.54459 (5.04271)	2.80518 (1.52648)	-1116.5179 (348.4317)	0.28081 (0.01485)	2.1724 (0.74836)	-223.79421 (43.19447)	0.58791 (0.01523)
Sr(ClO ₄) ₂	0.43055 (0.001)	1.49362 (0.01357)	-0.00485 (0.00005)	1.58699 (0.16454)	443.64428 (42.10575)	0.41346 (0.0116)	1.15449 (0.06863)	51.04427 (4.05134)	0.90325 (0.02196)
Sr(NO ₃) ₂	0.10499 (0.00215)	1.51092 (0.02133)	-0.00277 (0.00017)	2.4816 (0.0096936)	2.24593 (0.57776)	0.83356 (0.04855)	1.07016 (0.09558)	16.75366 (7.97485)	0.14702 (0.12473)
SrBr ₂	0.31932 (0.00096)	1.86062 (0.00612)	0.00182 (0.00013)	3.13617 (0.02417)	129.69709 (2.59191)	0.59298 (0.0043)	1.85394 (0.0020351)	11.34545 (0.05681)	1.41174 (0.00236)
SrCl ₂	0.27937 (0.00023)	1.53952 (0.0067)	- (-)	-2.69979 (0.02171)	108.02608 (2.19042)	0.59108 (0.00347)	1.56889 (0.0019865)	10.09092 (0.05153)	1.34894 (0.00185)
SrI ₂	0.38573 (0.00164)	2.05558 (0.0097)	0.00277 (0.00024)	3.40159 (0.03003)	180.86203 (3.10548)	0.57199 (0.0038)	2.03117 (0.0037564)	18.34852 (0.10597)	1.31837 (0.0028)
UO ₂ (ClO ₄) ₂	0.73364 (0.00718)	1.2747 (0.09587)	-0.00323 (0.00042)	2.23258 (0.19779)	515.6011 (28.20309)	0.49782 (0.00794)	1.36733 (0.09954)	74.38749 (4.09518)	1.02855 (0.01677)
UO ₂ (NO ₃) ₂	0.47665 (0.00216)	1.55021 (0.02974)	-0.01391 (0.00012)	1.89582 (1.33854)	540.17575 (319.26874)	0.31483 (0.05657)	1.1677 (0.49597)	77.58919 (36.36686)	0.6274 (0.09919)
UO ₂ Cl ₂	0.41203 (0.00188)	1.62013 (0.01522)	-0.01071 (0.00018)	1.73128 (0.14746)	428.3565 (38.24034)	0.36991 (0.01077)	1.25157 (0.01693)	48.04098 (1.0978)	0.80276 (0.00668)
Zn(C ₂ H ₃ O ₃) ₂	- (-)	1.95527 (0.00276)	0.0674 (0.00107)	2.65422 (0.01039)	28.17014 (2.69394)	0.645 (-)	1.62625 (0.0018002)	-8.68086 (0.08613)	1.11903 (0.012)
Zn(ClO ₄) ₂	0.52149 (0.00229)	1.71042 (0.02524)	0.00278 (0.00016)	3.28478 (0.0394)	250.30665 (2.99091)	0.58236 (0.002)	1.8672 (0.02146)	33.61608 (0.48644)	1.22462 (0.00504)
Zn(NO ₃) ₂	0.32487 (0.00032)	1.88234 (0.00555)	-0.00292 (0.00001)	2.3709 (0.05497)	241.20333 (7.33319)	0.45539 (0.00397)	1.46747 (0.02825)	27.2788 (0.97436)	0.99444 (0.01009)
ZnBr ₂	0.15096 (0.00111)	3.57389 (0.05804)	-0.00097 (0.00002)	2.59084 (0.33675)	215.78412 (40.56224)	0.35528 (0.01787)	1.60555 (0.11711)	19.99475 (3.14339)	0.80726 (0.03343)
ZnCl ₂	0.12219 (0.00093)	1.53022 (0.05608)	-0.00066 (0.00001)	0.61613 (0.08168)	622.49656 (71.9038)	0.27566 (0.00634)	0.35602 (0.02709)	107.25749 (8.35023)	0.51724 (0.00831)
ZnF ₂	0.31454 (0.006)	-0.69832 (0.00964)	-0.28261 (0.00648)	1.23412 (0.08019)	-40.43224 (32.65493)	0.26207 (0.05937)	0.879 (0.01431)	-24.7562 (1.66708)	0.75906 (0.00376)
ZnI ₂	0.18791 (0.00532)	5.01923 (0.14292)	-0.0018 (0.00016)	6.90447 (0.80574)	139.4746 (23.30015)	0.40254 (0.02021)	3.78998 (0.26969)	12.95444 (1.8427)	0.93262 (0.0378)
3:1 Electrolytes									
AlCl ₃	0.70775 (0.00166)	5.22148 (0.04197)	- (-)	3.42199 (0.0542)	148.37257 (6.96092)	0.64035 (0.00855)	1.85183 (0.01049)	6.83616 (0.18396)	1.46154 (0.01036)
CeCl ₃	0.60775 (0.0086)	4.84689 (0.09491)	-0.00832 (0.00087)	2.94771 (0.05028)	150.02125 (9.00958)	0.56733 (0.01005)	1.66099 (0.0088683)	5.3192 (0.1916)	1.37629 (0.01312)
Co(en) ₃ Cl ₃	0.17073 (0.01756)	2.59778 (0.112)	-0.0091 (0.0032)	1.90397 (0.01356)	-5.33603 (1.62542)	0.645 (-)	1.05598 (0.01201)	-2.99076 (0.24623)	1.29 (-)
Co(Ethylenediamine) ₃ (NO ₃) ₃	0.41764 (0.03193)	1.61595 (0.08346)	-0.14086 (0.01686)	2.60175 (0.1486)	-320.94981 (49.71414)	0.24408 (0.0047)	1.0854 (0.0072084)	-5.67775 (0.63732)	1.64457 (0.12412)
Co(Propylenediamine) ₃ (ClO ₄) ₃	0.12966 (0.00926)	2.6866 (0.05041)	- (-)	1.93325 (0.01548)	-14.38882 (8.55906)	1.11093 (0.45571)	1.17787 (0.00781)	-9.83044 (0.45421)	1.29 (-)
Cr(NO ₃) ₃	0.71637 (0.00671)	4.6409 (0.05586)	-0.01844 (0.00094)	2.77076 (0.05675)	244.03166 (14.45236)	0.49318 (0.01021)	1.67407 (0.035405)	8.4791 (0.35405)	1.23289 (0.01663)
CrCl ₃	0.75944 (0.00634)	4.7619 (0.04643)	-0.01649 (0.00101)	2.97244 (0.06832)	229.2837 (15.77041)	0.52909 (0.01305)	1.75214 (0.02019)	8.63631 (0.60131)	1.29916 (0.03)
Dy(C ₂ H ₃ O ₃) ₃	0.85114	5.86892	-0.02674	3.40979	305.3394	0.47259	2.05919	11.97269	1.16565

Table S2. Cont.

Electrolyte	Pitzer et al. ^{4,34}			Ge et al. ^{30,31}			Pazuki et al. ²⁹		
	$B_{MX}^{(0)}$	$B_{MX}^{(1)}$	$C_{MX}^{(0)}$	b_{MX}	S	n	b_{MX}	S	n
Dy(ClO ₄) ₃	(0.00051)	(0.00349)	(0.00009)	(0.06059)	(12.77242)	(0.00761)	(0.0138)	(0.37925)	(0.01355)
	0.85809	5.7161	-0.00219	3.09396	323.24614	0.54	1.65651	21.24299	1.13226
Dy(NO ₃) ₃	(0.00482)	(0.11444)	(0.00022)	(0.14026)	(16.98176)	(0.00691)	(0.06462)	(1.21756)	(0.01566)
	0.38285	6.91606	-0.0046	2.1825	362.75116	0.35651	1.42626	11.90223	0.87779
DyCl ₃	(0.00482)	(0.16071)	(0.00016)	(0.05094)	(17.07838)	(0.00472)	(0.01927)	(0.642)	(0.01267)
	0.62566	5.56761	-0.00544	2.98727	205.96632	0.5308	1.63472	10.69819	1.17055
Er(C ₂ H ₅ SO ₄) ₃	(0.00218)	(0.04114)	(0.00012)	(0.08768)	(13.00345)	(0.00873)	(0.04049)	(0.8414)	(0.02298)
	0.85238	5.54769	-0.02706	3.20874	315.89528	0.46933	0.62084	109.07955	0.54687
Er(ClO ₄) ₃	(0.00075)	(0.00513)	(0.00013)	(0.0526)	(12.05999)	(0.00686)	(0.04575)	(6.39618)	(0.00423)
	0.86058	5.59107	-0.00202	3.04332	324.43158	0.54093	1.63287	21.33785	1.13393
Er(NO ₃) ₃	(0.00505)	(0.12024)	(0.00023)	(0.13825)	(17.07016)	(0.00692)	(0.06375)	(1.22346)	(0.01566)
	0.39736	7.31779	-0.00469	1.37037	839.62964	0.28268	1.19721	26.87465	0.70183
ErCl ₃	(0.00513)	(0.19201)	(0.00015)	(0.13669)	(100.18106)	(0.00892)	(0.03206)	(1.86107)	(0.01436)
	0.62282	5.56854	-0.00455	3.02017	195.49404	0.54275	1.63829	10.30924	1.19168
Eu(C ₂ H ₅ SO ₄) ₃	(0.00224)	(0.04302)	(0.00013)	(0.08174)	(11.38406)	(0.00809)	(0.0384)	(0.75738)	(0.02149)
	0.80348	5.69351	-0.02507	3.34871	270.2489	0.48114	2.00782	9.74666	1.21145
Eu(NO ₃) ₃	(0.00008)	(0.00552)	(0.00014)	(0.05409)	(11.56776)	(0.00787)	(0.01116)	(0.30684)	(0.01366)
	0.35563	6.12253	-0.00423	2.17884	276.6854	0.37985	0.45001	109.19406	0.46786
EuCl ₃	(0.00376)	(0.1216)	(0.00013)	(0.05579)	(17.5172)	(0.00662)	(0.0095985)	(2.26762)	(0.00172)
	0.62283	5.01259	-0.00732	3.07534	146.27523	0.58192	1.71008	5.54297	1.38851
Ga(ClO ₄) ₃	(0.0067)	(0.07392)	(0.00067)	(0.04112)	(6.71483)	(0.00778)	(0.0077685)	(0.15803)	(0.01042)
	0.80225	7.51748	0.01219	5.50332	144.90284	0.69855	2.69537	8.58203	1.50311
Gd(C ₂ H ₅ SO ₄) ₃	(0.00691)	(0.07621)	(0.0007)	(0.03651)	(1.88861)	(0.00239)	(0.02727)	(0.2307)	(0.01018)
	0.80869	5.68491	-0.01711	3.38377	265.67422	0.50598	2.04077	8.99527	1.32142
Gd(ClO ₄) ₃	(0.03308)	(0.17847)	(0.00724)	(0.23737)	(52.66826)	(0.0418)	(0.05869)	(1.70043)	(0.09678)
	0.83296	5.86154	-0.00196	3.18479	302.29658	0.54514	1.69268	19.74189	1.14427
Gd(NO ₃) ₃	(0.00392)	(0.09329)	(0.00018)	(0.12657)	(14.40078)	(0.00629)	(0.05906)	(1.04926)	(0.01457)
	0.40236	5.78232	-0.00617	2.64806	163.19731	0.44857	1.52028	4.54941	1.13209
GdCl ₃	(0.00504)	(0.11122)	(0.00025)	(0.02612)	(5.60401)	(0.00426)	(0.01262)	(0.28585)	(0.01743)
	0.61408	5.35289	-0.00576	2.87708	205.47019	0.5265	1.5923	10.29092	1.17085
Ho(C ₂ H ₅ SO ₄) ₃	(0.00196)	(0.03575)	(0.00012)	(0.07177)	(11.58183)	(0.00784)	(0.03372)	(0.74573)	(0.02137)
	0.84421	5.54546	-0.02713	3.20351	312.04962	0.46804	1.95986	12.00503	1.1592
Ho(ClO ₄) ₃	(0.00087)	(0.00596)	(0.00015)	(0.05249)	(12.07818)	(0.00694)	(0.01297)	(0.38466)	(0.01361)
	0.85806	5.60685	-0.00223	3.02976	327.02485	0.53845	1.6286	21.465	1.12928
Ho(NO ₃) ₃	(0.00495)	(0.11784)	(0.00022)	(0.13899)	(17.43179)	(0.007)	(0.06407)	(1.2458)	(0.01583)
	0.39478	7.02965	-0.0049	1.90804	497.17982	0.32632	1.39394	14.92664	0.82742
HoCl ₃	(0.00525)	(0.17467)	(0.00017)	(0.06369)	(27.89508)	(0.00519)	(0.01959)	(0.74607)	(0.01149)
	0.62524	5.70544	-0.00498	3.08289	196.68604	0.53956	1.67057	10.32003	1.18659
La(C ₂ H ₅ SO ₄) ₃	(0.00226)	(0.04288)	(0.00013)	(0.08519)	(11.69877)	(0.00827)	(0.03973)	(0.77213)	(0.02193)
	0.80766	5.24575	-0.0303	2.90939	332.81915	0.4358	1.8545	11.23178	1.12061
La(ClO ₄) ₃	(0.00087)	(0.006)	(0.00015)	(0.05515)	(14.85943)	(0.00747)	(0.01379)	(0.45508)	(0.01684)
	0.82808	5.64558	-0.00361	2.88763	342.74058	0.51997	1.57638	22.07561	1.09525
La(NO ₃) ₃	(0.00471)	(0.11336)	(0.00021)	(0.15191)	(21.77638)	(0.00822)	(0.06925)	(1.50693)	(0.01842)
	0.29519	7.12207	-0.00339	2.94511	104.11813	0.45713	1.58898	2.31747	1.18168
LaCl ₃	(0.00465)	(0.15439)	(0.00015)	(0.01356)	(2.08469)	(0.00231)	(0.0085773)	(0.123)	(0.0135)
	0.61032	4.88791	-0.00905	2.96625	151.86566	0.56232	1.66978	5.41516	1.36262
Lu(C ₂ H ₅ SO ₄) ₃	(0.00626)	(0.06905)	(0.00063)	(0.03776)	(6.78949)	(0.00746)	(0.0076004)	(0.16608)	(0.01115)
	0.8613	5.66503	-0.02645	3.26177	322.15524	0.46937	1.98019	13.25827	1.1376
Lu(ClO ₄) ₃	(0.00059)	(0.00436)	(0.00009)	(0.05062)	(11.13339)	(0.00607)	(0.01592)	(0.45574)	(0.01406)
	0.85882	5.6389	-0.00145	3.12567	310.91322	0.5488	1.66279	20.53882	1.14906
Lu(NO ₃) ₃	(0.00553)	(0.13163)	(0.00025)	(0.14375)	(16.56554)	(0.00704)	(0.06597)	(1.19307)	(0.01592)
	0.44481	6.93473	-0.00571	1.33423	907.39731	0.28234	0.72227	75.69618	0.5283
LuCl ₃	(0.0047)	(0.17155)	(0.00014)	(0.03538)	(267.74505)	(0.02189)	(0.05302)	(7.66238)	(0.0152)
	0.61984	5.53373	-0.00391	2.93387	204.74474	0.53863	1.59275	11.11989	1.17417
Nd(C ₂ H ₅ SO ₄) ₃	(0.00185)	(0.03881)	(0.00009)	(0.07883)	(11.06388)	(0.00731)	(0.03745)	(0.74959)	(0.01915)
	0.78803	5.38964	-0.0262	3.13945	276.1869	0.47023	1.91342	9.47031	1.19957
Nd(ClO ₄) ₃	(0.00078)	(0.00537)	(0.00013)	(0.04758)	(11.21497)	(0.00729)	(0.01128)	(0.33551)	(0.01524)
	0.80794	5.8497	-0.00166	3.19618	283.93543	0.55019	1.69204	18.41881	1.15604
Nd(NO ₃) ₃	(0.00391)	(0.09337)	(0.00018)	(0.12386)	(13.71973)	(0.00639)	(0.05786)	(1.00153)	(0.01493)
	0.32394	6.38073	-0.00394	2.43707	195.0147	0.40018	1.4403	5.02361	1.02288
NdCl ₃	(0.00443)	(0.14224)	(0.00015)	(0.02439)	(6.13774)	(0.00342)	(0.01185)	(0.29195)	(0.01438)
	0.61184	4.78652	-0.00805	2.93314	150.41333	0.57059	1.64921	5.9429	1.37363
Pr(C ₂ H ₅ SO ₄) ₃	(0.00631)	(0.0696)	(0.00064)	(0.03834)	(6.86334)	(0.00765)	(0.0074125)	(0.16243)	(0.01076)
	0.81232	5.34719	-0.02907	3.04879	309.5353	0.45287	1.93064	9.55314	1.2153
Pr(ClO ₄) ₃	(0.00095)	(0.00514)	(0.00021)	(0.0897)	(23.62104)	(0.01446)	(0.01188)	(0.39517)	(0.02024)
	0.8118	5.73237	-0.00221	3.07623	299.78428	0.5412	1.6454	19.37819	1.13827
Pr(NO ₃) ₃	(0.00391)	(0.09382)	(0.00018)	(0.12571)	(15.21711)	(0.00667)	(0.05859)	(1.09695)	(0.01546)
	0.31479	6.54854	-0.00373	2.60738	153.79055	0.42393	1.48497	3.81514	1.08484
PrCl ₃	(0.00464)	(0.14932)	(0.00016)	(0.01582)	(3.32517)	(0.00242)	(0.008698)	(0.18348)	(0.01208)
	0.6053	4.82042	-0.00829	2.94934	146.25676	0.57095	1.65452	5.24268	1.37972
ScCl ₃	(0.00559)	(0.06163)	(0.00056)	(0.03689)	(6.54856)	(0.00751)	(0.0087587)	(0.1894)	(0.01317)
	0.70643	4.74185	-0.00992	2.93135	203.63503	0.55007	1.68021	8.56326	1.29203
Sm(C ₂ H ₅ SO ₄) ₃	(0.00538)	(0.05464)	(0.0006)	(0.03999)	(7.83039)	(0.00655)	(0.0098125)	(0.24852)	(0.01077)
	0.84522	5.71183	-0.02936	3.22229	328.4221	0.45099	2.03434	10.96368	1.18643
Sm(ClO ₄) ₃	(0.00113)	(0.00608)	(0.00025)	(0.10621)	(26.08586)	(0.01512)	(0.01542)	(0.48412)	(0.02146)
	0.8108	5.83641	-0.00159	3.19387	284.91796	0.55065	1.69175	18.49045	1.15693
Sm(NO ₃) ₃	(0.00344)	(0.08205)	(0.00015)	(0.11346)	(12.56744)	(0.00584)	(0.05369)	(0.92868)	(0.01379)
	0.38571	5.47881	-0.0062	2.50814	165.96928	0.43662	1.46178	4.09816	1.12948
SmCl ₃	(0.00466)	(0.10198)	(0.00023)	(0.027)	(6.48831)	(0.00477)	(0.0129)	(0.31209)	(0.02111)
	0.62286	4.8924	-0.00805	2.99283	153.28959	0.57131	1.67809	5.75515	1.36747
Tb(C ₂ H ₅ SO ₄) ₃	(0.00631)	(0.06964)	(0.00064)	(0.03993)	(6.94346)	(0.00761)	(0.0081264)	(0.1751)	(0.01107)
	0.85047	5.74777	-0.02785	3.30043	316.20848	0.46413	2.01662	12.2211	1.14965
Tb(ClO ₄) ₃	(0.00069)	(0.00473)	(0.00012)	(0.05925)	(13.16486)	(0.00744)	(0.01421)	(0.40739)	(0.01415)
	0.85221	5.72422	-0.00239	3.07446	324.26248	0.53758	1.6496	21.23729	1.12806
Tb(NO ₃) ₃	(0.00455)	(0.1082)	(0.00021)	(0.13737)	(16.93094)	(0.00686)	(0.06345)	(1.21278)	(0.01559)
	0.4122	6.07194	-0.00634	2.63527	196.78231	0.42635	1.54554	5.77227	1.06848
TbCl ₃	(0.00571)	(0.13121)	(0.00027)	(0.02511)	(5.73232)	(0.00349)	(0.01122)	(0.27219)	(0.01277)
	0.62267	5.46622	-0.00568	2.95556	203.38369	0.53093	1.6243	10.3528	1.17645
Tm(C ₂ H ₅ SO ₄) ₃	(0.002)	(0.0363)	(0.00012)	(0.08014)	(12.28803)	(0.00844)	(0.03742)	(0.79616)	(0.02274)
	0.84117	5.49215	-0.02644	3.19328	306.43642	0.47255	0.61786	108.34614	0.54629

Table S2. Cont.

Electrolyte	Pitzer et al. ^{4,34}			Ge et al. ^{30,31}			Pazuki et al. ²⁹		
	$B_{MX}^{(0)}$	$B_{MX}^{(1)}$	$C_{MX}^{(0)}$	b_{MX}	S	n	b_{MX}	S	n
Tm(ClO ₄) ₃	(0.00072)	(0.00496)	(0.00012)	(0.05184)	(11.91885)	(0.00702)	(0.04582)	(6.43142)	(0.00421)
	0.86136	5.59528	-0.0018	3.06779	320.27351	0.54378	1.64139	21.10654	1.13931
Tm(NO ₃) ₃	(0.00519)	(0.12352)	(0.00023)	(0.13944)	(16.83554)	(0.00692)	(0.06428)	(1.21041)	(0.01568)
	0.44479	6.71405	-0.00635	1.39867	827.90263	0.2873	0.64822	85.46393	0.50362
TmCl ₃	(0.00562)	(0.16951)	(0.0002)	(0.16619)	(118.08618)	(0.01099)	(0.01503)	(2.46953)	(0.00379)
	0.6233	5.45867	-0.00433	2.93012	203.95111	0.53832	1.59734	10.88274	1.17869
Y(C ₂ H ₅ SO ₄) ₃	(0.00218)	(0.04339)	(0.00012)	(0.07785)	(11.25449)	(0.00756)	(0.03683)	(0.7533)	(0.01995)
	0.84987	5.57302	-0.02687	3.18685	322.83888	0.46422	1.94867	12.93774	1.13332
Y(NO ₃) ₃	(0.00065)	(0.00476)	(0.0001)	(0.0502)	(11.45798)	(0.00617)	(0.01549)	(0.45543)	(0.01435)
	0.40458	7.31706	-0.0047	1.2789	905.75184	0.28061	1.22527	25.40339	0.72382
Yb(C ₂ H ₅ SO ₄) ₃	(0.00494)	(0.18419)	(0.00015)	(0.10276)	(82.06007)	(0.00659)	(0.03227)	(1.74294)	(0.01448)
	0.85826	5.64444	-0.02612	3.25954	318.40895	0.47138	1.97563	13.07791	1.14277
Yb(ClO ₄) ₃	(0.00057)	(0.0042)	(0.00009)	(0.04977)	(10.93031)	(0.00605)	(0.01548)	(0.44287)	(0.01388)
	0.85877	5.63824	-0.00166	3.09877	315.89434	0.5457	1.6541	20.82022	1.14326
Yb(NO ₃) ₃	(0.00481)	(0.11449)	(0.00022)	(0.13237)	(15.62687)	(0.00652)	(0.06135)	(1.13138)	(0.01488)
	0.4187	7.3366	-0.00497	1.36677	897.00294	0.27885	0.75044	72.48326	0.52652
YbCl ₃	(0.00481)	(0.19536)	(0.00013)	(0.37683)	(279.10214)	(0.02283)	(0.05805)	(8.05939)	(0.01693)
	0.62203	5.45244	-0.00411	2.89273	208.96596	0.53553	1.57802	11.29102	1.16905
YCl ₃	(0.00202)	(0.04193)	(0.0001)	(0.07896)	(11.48708)	(0.00743)	(0.0373)	(0.76977)	(0.01938)
	0.62867	5.58428	-0.00465	2.90135	222.46605	0.52476	1.58742	12.11471	1.14432
Pt(en) ₃ Cl ₄	(0.00202)	(0.04269)	(0.0001)	(0.09414)	(13.9965)	(0.0084)	(0.04338)	(0.91646)	(0.02126)
	0.84694	5.39256	-0.09988	2.11919	48.37435	0.645	1.31886	-8.65116	0.68432
Th(NO ₃) ₄	(0.06874)	(0.24697)	(0.02632)	(0.01979)	(5.85932)	-	(0.12183)	(7.79252)	(0.23044)
	0.61014	20.6993	-0.00989	1.05639	2354.97301	0.19936	0.60923	120.69024	0.33956
ThCl ₄	(0.01185)	(0.4444)	(0.00039)	(0.08015)	(147.32463)	(0.0019)	(0.02209)	(4.29128)	(0.00231)
	1.05974	17.5081	-0.02504	0.37274	3857.03323	0.24618	0.29842	179.38893	0.45558
	(0.01648)	(0.24599)	(0.00159)	(0.02117)	(67.15519)	(0.00122)	(0.01541)	(3.75524)	(0.0032)

* Statistically not valid parameters.

Table S3. Parameters for aqueous electrolytes without univalent ions at 298.15 K. (Asymptotic standard error of the parameters is given in parenthesis).

Electrolyte	Pitzer et al. ^{4,34}			Ge et al. ^{30,31}			Pazuki et al. ²⁹			
	$B_{MX}^{(0)}$	$B_{MX}^{(1)}$	$B_{MX}^{(2)}$	$C_{MX}^{(0)}$	b_{MX}	S	n	b_{MX}	S	n
2:2 Electrolytes										
BeSO ₄	0.21624 (0.0026)	4.06737 (0.08694)	-4.37191* (5.26693)	-0.00118 (0.0001)	2.54433 (0.0059272)	10.23434 (0.50159)	0.74552 (0.00672)	1.24694 (0.0072639)	0.0063098 (0.0040037)	2.67069 (0.18278)
CaSO ₄	2.48067 (0.17146)	-	-	-	1.63977 (0.25761)	1178.96723 (757.49712)	0.645 (-)	1.07434 (0.16316)	52.05868 (50.43819)	1.29 (-)
CdSO ₄	0.16309 (0.00205)	3.70019 (0.05937)	16.4028 (3.48271)	-0.00107 (0.00009)	2.4452 (0.005993)	0.39555 (0.08944)	1.13476 (0.03346)	0.60097 (0.04253)	71.05802 (7.20624)	0.29184 (0.01251)
CoSO ₄	-0.14696* (0.11662)	4.85857 (0.34207)	19.00824 (2.1851)	-	2.52465 (0.01844)	51.97752 (7.36402)	0.03615 (0.0139)	1.12514 (0.14491)	20.09237 (11.27039)	0.32698 (0.10981)
CuSO ₄	0.19751 (0.00302)	3.34286 (0.03353)	28.90056 (1.38616)	-0.00336 (0.00028)	2.45158 (0.00967)	3.88662 (0.64704)	0.645 (-)	1.25807 (0.01546)	-1.19317 (0.14326)	1.29 (-)
MgSO ₄	0.19104 (0.00264)	4.18552 (0.06495)	-8.2143 (3.65416)	-0.00104 (0.00013)	2.56797 (0.008266)	1.97207 (0.33391)	0.95893 (0.02592)	0.64525 (0.05323)	65.18702 (8.3858)	0.31981 (0.01159)
MnSO ₄	0.16135 (0.00222)	4.11821 (0.07402)	-1.82746* (4.48388)	-0.00054 (0.00009)	2.49666 (0.00518)	0.79173 (0.09814)	1.04846 (0.0176)	0.4949 (0.03968)	89.32206 (8.13583)	0.33544 (0.00949)
NiSO ₄	0.16102 (0.00194)	3.85145 (0.03892)	10.70847 (2.06025)	-0.00041 (0.00012)	2.48496 (0.0049409)	0.07789 (0.02545)	1.45283 (0.05421)	0.75842 (0.07087)	49.91632 (9.13672)	0.23765 (0.03035)
UO ₂ SO ₄	0.18966 (0.00185)	3.37865 (0.0978)	28.47133 (6.43875)	-0.00163 (0.00005)	0.77167 (0.0223)	1453.59981 (43.24387)	0.21297 (0.00079998)	0.48622 (0.01473)	88.97766 (3.38802)	0.34628 (0.002654)
ZnSO ₄	0.15972 (0.00068)	3.99641 (0.06373)	2.49868 (4.41205)	-	2.48312 (0.00404)	0.48925 (0.05341)	1.15385 (0.01617)	0.47315 (0.04327)	92.11952 (8.90435)	0.34795 (0.01096)
3:2 Electrolytes										
(Co(en) ₃) ₂ (CO ₃) ₃	0.42245 (0.00955)	7.62062 (0.1923)	-42.4934 (9.4705)	-0.0094 (0.00053)	2.15398 (0.02007)	41.77999 (2.35061)	0.645 (-)	1.06962 (0.00712)	-0.27355 (0.03048)	1.29 (-)
Al ₂ (SO ₄) ₃	0.59407 (0.00076)	10.09547 (0.04933)	-97.1032 (3.24316)	-	2.39784 (0.05695)	68.1231 (24.18194)	0.6312 (0.05638)	1.26973 (0.0060253)	0.01191 (0.0076642)	2.87653 (0.23403)
Cr ₂ (SO ₄) ₃	0.60379 (0.00738)	10.44182 (0.15872)	9.22014* (8.63361)	-0.00386 (0.00058)	2.90558 (0.01661)	16.84002 (2.46812)	0.81294 (0.02375)	1.41326 (0.007514)	0.0011108 (0.0010962)	3.52452 (0.34005)
Lu ₂ (SO ₄) ₃	0.60357 (0.01107)	8.30243 (0.15541)	-118.34846 (7.12665)	-0.01554 (0.00111)	1.79109 (0.55339)	385.8709 (700.76001)	0.33499 (0.18917)	1.11175 (0.00421)	0.14643 (0.03603)	1.29 (-)

* Statistically not valid parameters

Table S4.a Temperature dependence parameters of aqueous electrolytes with univalent ions for the Pitzer model. (Asymptotic standard error of the parameters is given in parenthesis).

Electrolyte	$q_{1,2}$	$q_{1,3}$	$q_{1,4}$	$q_{1,5}$	$q_{2,2}$	$q_{2,3}$	$q_{4,2}$	$q_{4,3}$	$q_{4,4}$
Citric-acid	1.0978145172E+07 (3.5573442173)	1.0491353978E+05 (4.8135009929E+02)	-3.3399534127E+02 (3.1291439338)	1.7710060002E-01 (2.5421823353E-03)	-9.7976400208E-01 (2.5725911500E-01)	1.5801831098E-03 (4.1968549548E-04)	-3.3471547140E+04 (1.4573971766E+04)	-2.1817456546E+02 (9.4762759446E+01)	3.5542241152E-01 (1.5400327446E-01)
CsBr	2.8960958930E+02 (9.2865729011E+01)	3.0311991613 (7.4296382189E-01)	-9.0791245618E-03 (1.9951876583E-03)	4.4204502657E-06 (8.9479258002E-07)	7.6165469831E-03 (4.0562731863E-04)	-7.4652007702E-06 (5.2652717542E-07)	4.2478856194E+01 (5.868158314)	2.040554996E-01 (3.0724221257E-02)	-2.509729762E-04 (3.9634247756E-05)
CsCl	-5.1741246210E+05 (2.4240066480E+04)	-1.3831146938E+03 (9.5726969308E+01)	2.7932673473E-01 (1.3027765222E-01)	5.0061166201E-04 (3.4786588834E-05)	-3.0918442652E-01 (2.7169616690E-02)	2.4591628673E-04 (2.1476048581E-05)	2.3905883160E+03 (4.0545366607E+02)	-	-
CsI	-5.8087567689E+06 (4.1693351831E+05)	-5.3200754264E+04 (3.9041146862E+03)	1.6227696970E+02 (1.2191823072E+01)	-8.2434226990E-02 (6.3487651201E-03)	2.9679699214E-02 (8.7968105771E-03)	-	5.7200899445E+04 (1.1197030921E+04)	3.5342143660E+02 (7.0252024242E+01)	-5.4478373710E-01 (1.1004239689E-01)
CsOH	-8.7255501550E+01 (4.73514864909)	-	-7.5126388350E-04 (3.9004061513E-05)	-	-	-1.5028299350E-06 (6.5629673578E-08)	-3.0728718684E-01 (3.3007009580)	-2.0749708208E-01 (1.6698253903E-02)	3.1096578439E-04 (2.1799759820E-05)
HBr	-	1.8751095995E+01 (2.165386026)	-6.2206049668E-02 (1.0359704743E-02)	-	-2.3614494725E-01 (5.4193502303E-02)	3.9238930636E-04 (8.690428513E-05)	6.1140511908E+02 (9.8629015291E+01)	2.0193941975 (3.1909061058E-01)	-
HCl	1.4504375075E+04 (2.7689696694E+03)	1.2110198993E+02 (2.1491675529E+01)	-3.2620254044E-01 (5.3588679049E-02)	1.3940884523E-04 (2.1165990426E-05)	-	-6.2762976436E-06 (3.4384193596E-06)	-8.758540725E-02 (2.8243508767E-02)	-5.2323949368 (1.8902859301)	8.6778535501E-03 (1.630467548E-03)
KBr	1.669411772E+03 (1.3696030052E+02)	1.6163084709E+01 (1.0777874404)	-4.4693377113E-02 (2.8638456103E-03)	2.0085536807E-05 (2.1970871590E-06)	5.5960441275E-03 (6.2676466848E-04)	-5.1237532362E-06 (8.1300115517E-07)	7.5561246903E+01 (9.7275792345E+00)	3.7826054539E-01 (5.1149858805E-02)	-4.7209284161E-04 (6.6012492739E-05)
KCl	2.1855798732E+04 (2.9255676659E+03)	1.8848081066E-02 (2.0705279206E+01)	-5.1878127831E-01 (4.6959296508E-02)	2.2419629267E-04 (1.7662936916E-05)	-8.3425680811E-04 (1.6890802376E-03)	-	-3.1757400574E-00 (1.4941273435E-02)	-6.4656122185E-02 (5.2553596616E-01)	-
KF	-1.7459763085E+04 (4.6251198119E+03)	-1.0928115757E-02 (2.9949949410E+01)	1.7046855728E-01 (4.8086434577E-02)	-	-	1.1259879458E+03 (2.4925740709E-02)	7.082677963 (1.6046840682)	-1.1116181669E-02 (2.5764162197E-03)	-
KH ₂ PO ₄	5.2330002757E+03 (7.0318731314E+02)	4.2252793528E+01 (5.2310217042)	-1.0930111907E-01 (1.2816927619E-02)	4.5779134686E-05 (5.1796495948E-06)	-4.7006716768E-03 (8.6206540210E-07)	4.4642032264E-06 (1.1039663706E-06)	1.5315824557E+02 (6.1951693936E+00)	6.6339886683E-01 (3.187519568E-02)	-1.7517859633E-04 (3.8896242516E-05)
KI	2.9583287456E+06 (4.6371380534E+05)	2.6465075943E-04 (4.3484307947E+03)	-7.8675859514E-01 (1.3591212801E+01)	3.8859132529E-02 (7.0795614467E-03)	-1.0093116178 (2.4252283859E-01)	1.5479478432E-03 (3.8283615938E-04)	5.6821037644E+04 (4.4592584281E+03)	-2.2946149878E-02 (2.8006174923E+01)	3.5687286375E-01 (4.3931334675E-02)
KOH	-6.8108755206E+01 (1.3966453234E+02)	-2.6310490713E-01 (7.2816695984E-01)	-2.8436910794E-04 (9.6121132491E-04)	-	2.5961193733E-03 (4.8050139312E-04)	-	6.4362439328 (2.2164789122)	2.0660568393E-02 (6.2606201885E-03)	-
LiBr	-3.945885509E+03 (1.200776474E+03)	-3.5318573851E+01 (9.0932642753)	9.983316251E-02 (2.3495329443E-02)	-4.5474211793E-05 (1.0390627755E-05)	1.8105197226E-02 (5.9341242668E-03)	-1.8836950507E-05 (7.6879158958E-06)	-2.3990789580E-02 (5.1724239057E-01)	-1.1991928471 (1.5724239057E-01)	1.4645612905E-03 (6.752991077E-04)
LiCl	3.9899515714E+03 (6.6848857026E+02)	3.5697214186E+01 (5.7504932872)	-1.0692304026E-01 (1.6389356990E-02)	5.2868519612E-05 (7.7788561185E-06)	1.8338520794E-02 (3.0719317076E-03)	-3.2390014070E-05 (4.4584242487E-06)	1.3083234692E-01 (1.4842508482E-01)	-	-
LiOH	-2.0852835230E+04 (5.3109330140E+03)	-1.6250618174E+02 (4.6138519022E+01)	4.1697394119E-01 (1.3323824468E-01)	-1.7573863926E-04 (6.3902000999E-05)	-1.0905444438E-02 (4.3124106730E-04)	-	3.2736627968E-02 (1.5556040924E+02)	1.8173653114 (8.8438138133E-01)	-2.5610501363E-03 (1.2477509129E-03)
NaBF ₄	-5.2547905757E+03 (1.1685519539E-08)	-1.159058180E+01 (2.3211263167E-06)	-7.0249046549E-02 (3.4585918938E-04)	8.5736823900E-05 (5.7994021923E-07)	-7.333559563E-01 (2.5334306456E-03)	1.2535102677E-03 (4.2479867100E-06)	-1.4220425459E-02 (4.8703295234E-05)	-1.7266365783 (7.2563175749E-03)	4.135136222E-03 (2.4350914169E-05)
NaBr	-1.1937708947E+03 (1.2510913327E+02)	-6.5906440673 (9.7981025872E-01)	1.0839130836E-02 (1.1079318908E-06)	-2.3424866238E-06 (5.9334072542E-04)	-3.2366244189E-03 (7.7116286851E-07)	6.8414831577E-06 (5.5896154291)	5.7243490647E+01 (3.1765128891E-02)	2.8608672808E-01 (3.1765128891E-02)	-3.5891537000E-04 (6.593009524E-05)
NaCF ₃ SO ₃	-2.5314895944E+00 (4.7930647658E-16)	-1.4350184960E-02 (1.4873594332E-13)	3.1535084949E-05 (4.6179873074E-11)	-2.5973795563E-07 (2.8691555141E-08)	1.0694043910E-03 (2.0328733844E-10)	8.1420913083E-07 (1.2630242337E-07)	-1.9743069715 (2.345787531E-11)	1.2710832508E-03 (2.792305649E-09)	-1.8746538760E-05 (2.90099610E-06)
NaCl	-1.9322300299E+03 (5.3472439530E+01)	-1.3577001180E+01 (4.4309653643E-01)	3.2452157853E-02 (1.2214993342E-03)	-1.3316795870E-05 (5.6091152121E-07)	-9.6871464641E-04 (2.0847465443E-04)	3.4693715313E-06 (2.8316817081E-07)	3.9614346057E-04 (2.3133481272)	-2.6005124007 (1.3053732221E-02)	-1.9605912802E-04 (1.8348957245E-05)
NaH ₂ PO ₄	1.4807003015E+03 (6.0593135747E+02)	1.2801607180E+01 (4.5191583652)	-3.5063775059E-02 (1.1105062221E-02)	1.5369309746E-05 (4.5017583268E-06)	3.6769963521E-03 (7.6381577178E-04)	-3.658794425E-06 (9.7631850725E-07)	1.657188039E-01 (5.855395916)	-1.7820170873E-01 (2.8146953198E-02)	-1.8992033299E-04 (3.4678736735E-05)
NaI	1.2125245199E+05 (3.8913243302E+04)	1.1110106806E+03 (3.7323565326E+02)	-3.3610424904 (1.191981068)	1.6826230812E-03 (6.3379030935E-04)	-2.606577058E-01 (6.9211954569E-02)	3.9614346057E-04 (1.0903606692E-04)	-8.4132508106E-02 (2.0729617342E-02)	-5.5615240067 (1.3351120400)	9.1064798337E-03 (2.1469246469E-03)
NaOH	-1.0456588967E+03 (1.2053669519E+02)	-5.4702712320 (6.3469776105E-01)	6.3744064056E-03 (8.3192734454E-04)	-	4.0652788155E-03 (3.5895764407E-04)	-	4.4892001374E+01 (6.4408414568)	2.2953772887E-01 (3.429648787E-02)	-2.8018803468E-04 (4.5252591670E-05)
RbCl	-1.7440682197E+06 (1.9987097230E+05)	-1.6431717029E+04 (1.8734360500E+03)	5.1523066579E+01 (8.5329297910)	-2.688308847E-02 (3.048997114E-03)	-7.0955781607E-04 (1.4989191037E-02)	-6.404052717E+03 (2.3661294624E-04)	-6.404052717E+03 (1.6681615953E+03)	-3.9081071095E+01 (1.0473944372E+01)	5.9493882001E-02 (1.6423344602E-02)
(NH ₄) ₂ SO ₄	-	-0.300340187 (4.9259056104E-01)	8.6860904395E-03 (3.1223594981E-03)	-7.9578252693E-06 (2.4691537243E-06)	8.321712332E-02 (3.1759494090E-03)	-1.2475961861E-04 (4.8474103059E-06)	-3.3514392710E+01 (1.0493395999E+01)	-1.2475961861E-04 (6.7060792341E-02)	-1.6830306098E-04 (1.0672761280E-04)
Cs ₂ SO ₄	-1.7464208356E+02 (8.4416793039E-16)	2.3717552077E-01 (2.6195761965E-13)	2.4946519972E-04 (8.1333196049E-11)	-2.7852244864E-05 (5.0532314706E-08)	2.5449369481E-02 (7.6400506608E-10)	-3.0393722839E-05 (4.7467634755E-07)	-5.1162216988E+01 (2.7860134960E-11)	-5.1134211599E-02 (8.6454058816E-09)	-4.7538968219E-05 (6.6842452288E-06)
K ₂ HPO ₄	-1.5749760084E+03 (9.6143071225E+01)	-7.5066503806 (4.8890228481E-01)	8.8786445599E-03 (6.0774400540E-04)	-	-1.9105212605E-02 (2.4841922023E-03)	3.0472559835E-05 (3.1848017421E-06)	-	9.0217505656E-04 (1.4275211001E-04)	-
Na ₂ HPO ₄	-	4.056568254E-02 (4.2155082823E-01)	-1.8621149965E-02 (2.0980582450E-03)	1.0626075148E-05 (1.2771156644E-06)	-1.6717573881E-02 (2.6907000962E-03)	5.6234997614E+01 (3.4268179891E-06)	5.6234997614E+01 (6.8736479081)	2.4132254103E-01 (3.4261388268E-02)	-2.5635851150E-04 (4.1670241166E-05)
Na ₂ SO ₄	1.7958449122E+01 (1.5292306437E-14)	-1.0902582494E-02 (4.4041903361E-12)	1.1189956689E-03 (1.2572535309E-09)	3.4735548415E-06 (7.1826910666E-07)	1.3367775524E-03 (9.9863078877E-09)	1.4589191875E-05 (5.7051777248E-06)	2.1650776297 (6.9922651354E-05)	-4.6791746127E-02 (1.9947897215E-02)	-
Rb ₂ SO ₄	1.0065553348E+01 (1.2422859467E-05)	2.4947570007E-01 (3.8549943346E-03)	-	-	3.9743418706E-03 (6.879233051E-10)	2.9743861320E-06 (4.2740676904E-07)	-	-	-
BaBr ₂	-3.0810821531E+06 (4.4827580648E+05)	-2.7788139362E+04 (4.2047156568E+03)	8.3263450680E+01 (1.3144034446E-01)	-4.1434991294E-02 (6.8469816275E-03)	2.9549361460 (6.9403459772E-01)	-4.6573582327E-03 (1.0955732723E-03)	2.8431344251E+04 (3.5751252748E-03)	1.7951374075E+02 (2.2450237477E-03)	-2.8300499731E-01 (3.5209035655E-02)
BaCl ₂	-2.7455478964E+06 (4.1214288193E+04)	-6.8982952267E+03 (1.0646045924E+02)	-	3.2124145481E-03 (5.4422971480E-05)	-2.2506438070E+00 (1.2934264903E-01)	1.9840317419E-03 (1.0984086371E-04)	1.4722409706E+06 (3.9282918015E+04)	4.9073914039E+03 (1.3437385489E+02)	-4.0814499081 (1.1550190426E-01)
Ca(NO ₃) ₂	3.8659453215E+02 (6.2365538659E+01)	1.9552343096 (2.8194078543E-01)	-	-3.2499058576E-06 (4.1833628138E-07)	3.5753315346E-02 (9.6048359558E-03)	-3.8233931728E-05 (1.3646498252E-05)	-	-	-
CaBr ₂	3.6087946902E+03 (1.1467863587E+03)	1.1045451864E-01 (3.6451151274)	-	-	3.7166803165* (1.9172653984)	-5.8071795474E-03* (3.0249561051E-03)	-	-1.7100107691E-02* (1.8988921338E-02)	-
CaCl ₂	5.2758589690E+03 (1.1046351490E+03)	5.1374448682E+01 (9.3059071019)	-1.5892136510E-01 (2.5459104306E-02)	7.6876048346E-05 (1.1266002080E-05)	-1.4889966080E-02 (7.012461766E-03)	4.2738639824E-05 (1.0309163600E-05)	-	-1.2179394236E-01 (1.4089171602E-02)	3.6988689795E-04 (4.3218221115E-05)
CaI ₂	8.1436880472E+06 (8.3378496297E+05)	7.6023942975E+04 (7.8142079494E+03)	-2.3657990073E+02 (2.4414964037E+01)	1.2270662091E-01 (1.2716055370E-02)	4.5868831038 (1.7811056637)	-7.1874774035E-03 (2.8115770691E-03)	1.8711		

Table S4.a. Cont.

Electrolyte	$q_{1,2}$	$q_{1,3}$	$q_{1,4}$	$q_{1,5}$	$q_{2,2}$	$q_{2,3}$	$q_{4,2}$	$q_{4,3}$	$q_{4,4}$
NiCl ₂	-	1.4160847137E+01 (3.1990283534)	-9.1876006993E-02 (2.0792989196E-02)	7.2903917156E-05 (1.6829535954E-05)	-	1.6374515856E-05 (1.6278154778E-06)	1.3199546093 (3.8826667325E-01)	-	-
SrBr ₂	-3.1247105198E+06 (1.2427865110E+06)	-2.7770924542E+04 (1.1652885341E+04)	8.1773802213E+01 (3.6419341762E+01)	-3.9860975812E-02 (1.8970162148E-02)	7.1313378097 (1.4051720401)	-1.1098165112E-02 (2.2181443621E-03)	4.0437224542E+04 (1.0641064027E+04)	2.5711812624E+02 (6.6804520195E+01)	-4.0809083658E-01 (1.0473313162E-01)
SrCl ₂	-2.4577066733E+06 (1.0453993162E+06)	-2.2820882451E+04 (9.8224523394E+03)	7.0586581206E+01 (3.0737227191E+01)	-3.6363348713E-02 (1.6017199676E-02)	-	-	9.6621130958 (2.7604462176)	-	-
SrI ₂	2.2305788642E+06 (3.4742179177E+05)	2.1519796697E+04 (3.2579103497E+03)	-6.9132927929E+01 (1.0182754082E+01)	3.6975159142E-02 (5.3041204246E-03)	4.1405098041 (5.3276354006E-01)	-6.4442325748E-03 (8.4099769215E-04)	2.0062952489E+04 (2.2931714002E+03)	1.2541452304E+02 (1.4396249780E+01)	-1.9580721719E-01 (2.2569207635E-02)
ZnCl ₂	-2.6723471305E+07 (7.2344691647E+06)	-2.6934175230E+05 (7.2880557246E+04)	9.0350033590E+02 (2.4463698927E+02)	-5.0435645533E-01 (1.3680700587E-01)	3.5539988566 (4.2612509803E-01)	-5.9596597103E-03 (7.1440933148E-04)	-	6.9913113131E+01 (9.9567051839)	-2.3545211676E-01 (3.3430307644E-02)
ZnI ₂	1.0692325596E+04 (2.6608899434E+03)	-	-	2.0501328235E-04 (5.2301507568E-05)	2.8842348399E+00 (6.4479194314E-01)	-4.8621517094E-03 (1.0944051054E-03)	-	-	-

* Statistically not valid parameters

Table S4.b Temperature dependence parameters of the aqueous MgSO₄ system for the Pitzer Model. (Asymptotic standard error of the parameters is given in parenthesis).

Parameters	$q_{i,2}$	$q_{i,3}$	$q_{i,4}$	$q_{i,5}$
$i = 1$	5.2855296401E+05 (5.2321477447E-08)	4.5007850076E+03 (1.0896711109E-05)	-1.2497302377E+01 (1.7105320001E-03)	5.6396126680E-03 (2.5140635300E-06)
$i = 2$	-1.8468933977E-01 (3.5170895377E-02)	3.4247207921E-04 (5.2594575536E-05)	-	-
$i = 3$	1.6359225692E+08 (4.3472355077E-04)	-2.8635082637E+05 (2.4835756737E-01)	-	-
$i = 4$	-1.2428311673E+03 (1.5322845533E-04)	-8.0110290503E+00 (2.3996942568E-02)	1.2764866998E-02 (7.0858394207E-05)	-

Table S5. Temperature dependence parameters for the Ge et al. model (asymptotic standard error of the parameters is given in parenthesis).

Electrolyte	$b_{1,2}$	$b_{1,3}$	$b_{1,4}$	$b_{1,5}$	$S_{2,2}$	$S_{2,3}$	$S_{2,4}$	$S_{2,5}$
Citric-acid	-8.7421470820E-09 (6.3649547394E-01)	1.2239005941E+09 (1.9397812956E+01)	6.9937176903E-07 (1.6455060946)	1.3987435392E+06 (4.2002039351E-02)	-3.2027528832 (5.6673909848E-01)	4.7814504691E-01 (1.4684616014E-01)	-2.6461396358E-02 (1.1839910787E-02)	5.0497535976E-04 (2.9591771824E-04)
CsBr	1.4299673673E-02 (6.0743821672E-04)	-3.9222880171E-05 (5.4569186601E-06)	-	-1.8988171512E-10 (5.9394369004E-11)	-1.2986269370E-01 (2.3063916803E-02)	3.1156913666E-03 (4.0714112210E-04)	-2.2325003416E-05 (2.6814743813E-06)	5.7659424994E-08 (6.580187778E-09)
CsCl	-1.656889675E-03 (4.5011226391E-04)	1.0018314933E-03 (1.7356477815E-04)	-2.4926421213E-06 (4.5536275319E-07)	-	-1.0595326883E-03 (4.0640967757E-04)	-	-	-
CsI	-8.2835499865E+07 (1.0004350541E-02)	1.7931561558E+07 (4.9469877983E-02)	-2.6230667327E+05 (2.2251502726E-01)	-2.1170233774E+03 (4.9711970278E-03)	-3.5024462873 (3.3740744815E-01)	2.4409197236E-01 (3.7924164738E-02)	-6.8305758456E-03 (1.3352328384E-03)	6.6132769644E-05 (1.4939011656E-05)
CsOH	-	-9.424411822E-05 (3.6474483881E-06)	2.3613774687E-07 (1.6584007106E-08)	-	1.6151145743E-01 (1.6800757666E-02)	-2.5494705633E-03 (2.7052563099E-04)	8.3422718235E-06 (1.0749332447E-06)	-
HBr	-	6.5559390815E-03 (1.1415987296E-03)	-1.3123712829E-04 (2.7207437795E-05)	-	3.7519028739E-01 (1.3747953812E-01)	-	-	-
HCl	-7.0334641964E-04 (2.5373673008E-05)	-	-	-	-	-	-	-
KBr	1.8402789934E-02 (6.1704682220E-04)	-7.5500835634E-05 (3.1795830782E-06)	-	-	-	3.1907014670E-03 (2.2880811124E-04)	-3.0730767306E-05 (2.8098850045E-06)	8.4045714386E-08 (8.7547300891E-09)
KCl	-2.1426622676E-04 (2.5018412960E-05)	1.4128674143E-04 (2.5018412960E-05)	-2.6732763893E-07 (6.4658519281E-08)	-	3.5246461706E-02 (4.9825203366E-03)	-2.0427766299E-02 (1.2022266311E-03)	-5.4066220642E-05 (1.4143447629E-05)	-
KF	-1.9741062863E+01 (2.2018546343E-05)	-1.3225476412E-01 (3.3141592729E-03)	6.3337563475E-02 (1.7187560143E-04)	-1.0556905490E-03 (3.9036881060E-06)	-2.9408352648 (1.1155295587)	-	8.7090841691E-03 (3.3528127693E-03)	-1.5065571541E-04 (5.8217246159E-05)
KH ₂ PO ₄	-6.9518240540E-03 (1.8179985615E-03)	9.6060363550E-05 (3.5546874672E-05)	-9.548717043E-07 (2.220382775E-07)	9.0932160160E-10 (4.4687850299E-10)	1.3917092509 (1.1483945984E-01)	-1.5176343571E-02 (2.2574746062E-03)	7.0538995291E-05 (1.4223464320E-05)	-1.1715134436E-07 (2.889463904E-08)
KI	-7.8724043486E-01 (2.0143177386E-02)	7.1153475233E-02 (2.4198188922E-03)	-2.2354058271E-03 (1.0206848880E-04)	2.2970748576E-05 (1.3352239869E-06)	1.3902240125E+01 (1.8564314889)	-1.3511057105 (1.9217472507E-01)	4.4139994102E-02 (6.604204298E-03)	-4.6207660755E-04 (7.4205939832E-05)
KOH	7.9409095842E-05 (9.1246912331E-06)	-1.6214897797E-04 (9.5775881584E-06)	2.3612704790E-07 (4.1011759031E-08)	-	-1.3497503719E-02 (4.0781838675E-03)	7.1784314449E-04 (3.2805933940E-04)	-7.0509876083E-06 (1.9834565624E-06)	-
LiBr	-1.9457070677E-01 (2.2763826272E-02)	1.2134775392E-03 (2.5102517133E-04)	-2.5152587522E-06 (6.6831361626E-07)	-	5.0716732368E-01 (1.1696051550E-01)	-1.9286408528E-03 (7.1503585717E-04)	-	-
LiCl	-5.0384945533E-04 (2.4967848442E-049)	-	-1.1362955767E-07* (7.7737929813E-08)	-	1.1997347310E-02* (6.4888799329E-03)	2.3278173398E-03 (7.9181083802E-04)	-5.9678766431E-05 (1.2041102263E-05)	-
LiOH	-1.5343391826E-01 (4.7641972185E-03)	1.0189450603E-03 (1.0410076703E-04)	-2.1175442104E-06 (5.2098373653E-07)	-	2.1575986609E-01 (9.3879521434E-02)	-1.8774445160E-02 (4.9245080706E-03)	3.1944629917E-04 (7.5984724511E-05)	-1.3867109641E-06 (3.3153033249E-07)
NaBF ₄	2.2029807151E-01 (2.5985727181E-07)	-6.7700503780E-03 (2.5985727181E-08)	-2.2345061721E-03 (2.5985727181E-05)	9.8234942573E-05 (2.5985727181E-06)	1.6519791988E+01 (4.8294454599E-06)	3.564375241E-02 (4.8294454599E-07)	-1.6650759808E-01 (4.8294454599E-04)	-4.1303286745E-04 (8.294454599E-05)
NaBr	2.4590279363E-02 (2.3210288590E-03)	-3.448943855E-04 (5.6023827774E-05)	1.9624984684E-06 (4.9994082470E-07)	-3.9701405661E-09 (1.2887585863E-09)	1.9977156647E-01 (2.920426414E-02)	1.7873613093E-03 (7.7491696295E-04)	-2.4503978336E-05 (7.2001784866E-06)	6.5098962217E-08 (1.9786434744E-08)
NaCF ₃ SO ₃	8.6513609959E-02 (3.5458134553E-11)	3.1921511536E-03 (8.863786382E-10)	-1.6603687816E-04 (2.1159459095E-08)	-5.6349264901E-06 (5.5398647739E-07)	1.2865563071 (3.3514550483E-10)	-2.3164361232E-02 (8.3786376208E-09)	-1.6431227058E-03 (2.0946594052E-07)	4.0699630463E-05 (5.2366485130E-06)
NaCl	1.5814098133E-02 (5.6520027800E-04)	-1.7720792220E-04 (1.2483875715E-05)	1.0300189319E-06 (1.2524093748E-07)	-2.6206800977E-09 (4.1034717322E-10)	1.8205976163E-01 (1.1048989803E-02)	-1.6587130496E-03 (1.9709970792E-04)	2.5367528928E-06 (8.6332865922E-07)	-
NaH ₂ PO ₄	1.9458248741E-03 (4.0216682866E-04)	-2.439655921E-05 (4.3208472713E-06)	6.5991391406E-08 (1.1660985707E-08)	-	-3.0814254798E-02 (9.0742595745E-03)	1.8313300152E-04 (4.8139125720E-05)	-	-
NaI	1.0100000000E-11 (1.7742641930E-02)	-	-	-	-	-	-	-
NaOH	-	-4.2894339330E-04 (1.5498692133E-05)	9.3450662008E-07 (4.3178488363E-08)	-	5.2372513096E-03 (1.9896931344E-03)	-7.8336371546E-06 (3.9274414457E-07)	-	-
RbCl	-	-	-	-	3.6863872306 (2.5729698521E-01)	-3.2645501777E-01 (3.0528116246E-02)	9.9253800955E-03 (1.1195740706E-03)	-9.7509880335E-05 (1.2699892366E-05)
(NH ₄) ₂ SO ₄	5.6121353058E-03 (7.3582212374E-05)	-6.3902500208E-05 (2.3963695016E-06)	-9.7344019613E-08 (3.4233968314E-08)	-	-3.1490303772E-02 (2.3163160310E-03)	2.5045547023E-04 (7.4841277634E-05)	4.6751555816E-06 (1.1390611600E-06)	-
C ₂ S ₂ O ₄	-2.3657474414E-03 (5.1005621771E-13)	-1.0702192398E-04 (1.2751405443E-11)	-1.0938515844E-05 (3.1878513607E-10)	1.1976023091E-06 (87.9696284017E-09)	-6.9022254325E-01 (2.2353740501E-11)	-3.5249582855E-03 (5.5884351252E-10)	-1.0389065509E-04 (1.3971087813E-08)	6.1015449225E-05 (3.4927719532E-07)
K ₂ HPO ₄	-3.9191837518E-03 (1.2007921988E-02)	6.5124314674E-05 (2.3357284499E-05)	-3.9022230674E-07 (1.4530352047E-07)	7.8470370789E-10 (2.9090401911E-10)	8.3082774026E-01 (3.7251263585E-02)	-9.7140778948E-03 (7.4557908276E-04)	4.5128619459E-05 (4.7591406907E-06)	-7.379475266E-08 (9.7564142223E-09)
Na ₂ HPO ₄	-2.053336923E-03 (2.1063708207E-04)	5.3403505562E-06 (1.0437624544E-06)	-	-	7.3899860391E-01 (5.3417243146E-02)	-9.0173098081E-03 (1.0804463832E-03)	-6.9602769518E-08 (6.9214272326E-06)	-
Na ₂ SO ₄	1.3231411387E-02 (1.8108064981E-11)	4.4902319663E-04 (4.5270162454E-10)	3.1846348881E-05 (1.1317540613E-08)	8.7515648463E-07 (2.8293851534E-07)	-8.9312342565E-01 (1.3317066534E-09)	4.6372395548E-02 (3.3292666336E-08)	-9.7893144715E-04 (8.3231665839E-07)	-2.2728959774E-06 (2.0807916460E-05)
Rb ₂ SO ₄	3.7140575352E-03 (6.6673679644E-13)	2.7381414596E-04 (1.6668419911E-11)	-6.7561690179E-06 (4.1671049778E-10)	-1.8605654202E-07 (1.0417762444E-08)	4.5399872909E-01 (3.6527878558E-11)	-9.0750439220E-04 (9.1319696396E-10)	-3.8167730635E-04 (2.2829924099E-08)	3.8672756930E-06 (5.7074810247E-07)
BaBr ₂	1.8005068532 (6.0675351265E-01)	-3.7908538048E-02 (1.3582859069E-02)	-	-	-4.2253836556 (7.9961380815E-01)	2.6321155785E-01 (8.3706197853E-02)	-7.3667811050E-03 (2.9414161199E-03)	7.6430002889E-05 (3.3116252174E-05)
BaCl ₂	-2.1680210362E-04 (2.2469715069E-05)	8.4906010587E-05 (5.3272847725E-06)	-	-	4.0572188182E-01 (1.1136923067E-019)	-7.2532332949E-01 (1.9802566993E-01)	3.7231594968E-04 (9.9930564734E-05)	-
Ca(NO ₃) ₂	-1.9214760879E-05 (6.6725410360E-06)	1.6465433747E-04 (2.5842999637E-05)	-	-1.5585378769E-08 (9.6584604577E-10)	-2.2494972082E-04 (5.0991594598E-05)	-	-	-
CaBr ₂	1.0100000000E-11 (2.8655586747E-02)	-	-	-	-	-	-	-
CaCl ₂	-	-2.7141417320E-04 (3.1882377434E-05)	6.6169753944E-07 (9.2441702081E-08)	-	-	2.5202189126E-03 (9.2864169750E-04)	-8.0428775095E-05 (1.6452454570E-05)	1.7849220943E-07 (4.3371768829E-08)
CaI ₂	1.1947379840 (3.8443412085E-01)	-1.2536228713E-01 (3.4622510417E-02)	4.0167407250E-03 (1.0355062940E-03)	-4.0750784815E-05 (1.0234458624E-05)	-2.0297432492E+01 (1.0088905799)	1.7408382945 (1.1197007246E-01)	-5.2642184444E-02 (4.3481971179E-03)	5.2257766242E-04 (5.2853712886E-05)
CdBr ₂	-5.2140658649E-02 (9.8465936663E-03)	-9.5271973157E-03 (1.0326978068E-03)	2.9359240858E-04 (4.8010420554E-05)	2.9361382361E-05 (3.8070130558E-06)	6.4399606769E+01 (2.8319387591E+01)	1.0840812318E+01 (2.8218075579)	-3.3468560827E-01 (1.4019839459E-01)	-3.3444528745E-02 (1.0579144874E-02)
CdCl ₂	-2.8944452517E-01 (1.0186247683E-07)	2.4203025517E-02 (8.0658703118E-07)	1.7722406780E-04 (3.0132565070E-05)	-5.2635366469E-05 (1.2239437610E-06)	-	-	-	-
CdI ₂	2.000000368E-13 (5.8005339162E-04)	-	-	-	-	-	-	-

Table S5. Cont.

Electrolyte	$b_{1,2}$	$b_{1,3}$	$b_{1,4}$	$b_{1,5}$	$S_{2,2}$	$S_{2,3}$	$S_{2,4}$	$S_{2,5}$
MgCl ₂	-5.3513197564E-04 (1.3690716011E-04)	-	-	-	8.7473754865E-02 (3.1059286616E-02)	-1.8493881062E-01 (3.9942826319E-02)	1.3729521860E-04 (6.5903209051E-05)	-
NiCl ₂	-5.1831061438E-04* (7.5513536614E-04)	-	-	-	-9.6736745471E-04 (2.7551770923E-04)	-1.4560023775E-03*	-	-
SrBr ₂	1.0100000000E-11 (7.7742134589E-03)	-	-	-	-	-	-	-
SrCl ₂	1.0100000000E-11 (4.7796269845E-03)	-	-	-	-	-	-	-
SrI ₂	-9.9000000000E-12 (1.0915928228E-02)	-	-	-	-	-	-	-
ZnCl ₂	-9.9000000000E-12 (5.8557709151E-03)	-	-	-	-	-	-	-
ZnI ₂	1.0100000000E-11 (1.4137177204E-01)	-	-	-	-	-	-	-
MgSO ₄	-5.8268313418E-03 (3.5555694465E-06)	-4.6878916842E-04 (7.9185169199E-05)	-	7.1279624432E-08 (1.1004229750E-08)	-	-	-	2.2201809997E-08 (1.0927918480E-08)

*. Statistically not valid parameters

Table S6. Temperature dependence parameters for the Pazuki et al. model (Asymptotic standard error of the parameters is given in parenthesis).

Electrolyte	$b_{1,2}$	$b_{1,3}$	$b_{1,4}$	$b_{1,5}$	$S_{2,2}$	$S_{2,3}$	$S_{2,4}$	$S_{2,5}$
Citric-acid	-7.0715927933E-08 (1.4341062650E+01)	9.9002299671E+07 (4.3534853230)	-5.6572742877E-06 (3.6895709752E-01)	1.1314548600E+05 (9.4175975475E-03)	-1.6574899376 (2.6258011944E-01)	2.4812132572E-01 (6.7746907015E-02)	-1.3794504801E-02 (5.4578713086E-03)	2.6426142115E-04 (1.3637110961E-04)
CsBr	7.5039175784E-03 (2.2235906467E-04)	-4.5748365846E-05 (4.7618127570E-06)	1.7398203731E-07 (3.6579881594E-08)	-3.8892643713E-10 (8.8435852297E-11)	-9.0184000583E-02 (8.7505997272E-03)	2.0879992565E-03 (1.9033116301E-04)	-1.4220404040E-05 (1.3841508906E-06)	3.1805514399E-08 (3.2835805037E-09)
CsCl	-1.2788975462E-04 (6.9677868743E-06)	1.6710122422E-04 (7.8268289681E-06)	-3.9828076069E-07 (2.1428096278E-08)	-	-1.2301878087E-03 (1.8334935984E-04)	-	-	-
CsI	2.1520654051E+05 (4.7692124940E-05)	-4.7823612486E+03 (2.1461456220E-03)	-	-	-8.0032839999E-01 (5.8605060459E-02)	5.8164332305E-02 (7.0608649558E-03)	-1.6277816585E-03 (2.6551449072E-04)	1.6477287036E-05 (3.1308343498E-06)
CsOH	-2.0141254325E-03 (5.2588703911E-04)	-2.5128084225E-05 (5.8478818635E-06)	6.3323916751E-08 (1.5838995564E-08)	-	8.5734727851E-02 (7.6348777355E-03)	-1.4320971975E-03 (9.8519843623E-05)	4.0537817566E-06 (3.4430981137E-07)	-
HBr	-	-1.6795882314E-03 (2.0033039493E-04)	2.4892718081E-05 (4.9017482570E-06)	-	-	1.2704971793E-02 (2.4749545837E-03)	-1.4845088101E-04 (6.2637109018E-05)	-
HCl	-2.5762650610E-04 (6.2902037421E-05)	1.8944390679E-05 (7.8650206432E-06)	-	-	1.2317301471E-02 (3.2934739039E-03)	-	-5.2260389460E-05 (1.2928093925E-05)	-
KBr	9.4667612994E-03 (5.6182854059E-04)	-7.8712617062E-05 (1.2043498375E-05)	3.5753867765E-07 (9.2363264722E-08)	-8.2262230716E-10 (2.2142091332E-10)	-6.2365728096E-02 (1.3008921853E-02)	2.8538651753E-03 (2.8355131613E-04)	-2.4036757829E-05 (2.1069475901E-06)	5.9142485954E-08 (5.1064590822E-09)
KCl	-6.6647474707E-05 (4.6391393129E-06)	4.4323683753E-05 (4.4484255828E-06)	-7.1521981609E-08 (1.1644127546E-08)	-	2.1997577804E-02 (2.2235387682E-03)	-9.8252384164E-03 (4.9649852432E-04)	-4.2805751922E-05 (6.3561389199E-06)	-
KF	5.5336923204E-03* (6.3272531902E-03)	-	-	-	-	-	-	-
KH ₂ PO ₄	-2.6486510860E-03 (3.5404427939E-04)	1.8131275462E-05 (4.2055239998E-06)	-3.3311170058E-08 (1.2085860238E-08)	-	6.8433514454E-01 (4.5094644647E-02)	-6.5898753970E-03 (8.505223849E-04)	2.7115245974E-05 (5.3408198015E-06)	-4.0820236177E-08 (1.0964609328E-08)
KI	-2.6296498100E-01 (1.5092602512E-02)	2.1442364401E-02 (1.8194075148E-03)	-6.3680920505E-04 (6.5479614713E-05)	6.2554629891E-06 (7.2706900186E-07)	3.665493351E-01 (5.1070313647E-02)	-	-	-
KOH	2.6382109028E-05 (2.9947139821E-06)	-9.1406496717E-05 (3.7534844996E-06)	1.7550162010E-07 (1.4126869580E-08)	-	-7.7093022125E-03 (2.7765937135E-03)	-1.1054480957E-04 (2.9047535296E-05)	-	-
LiBr	-5.8680730587E-02 (8.9158821301E-03)	3.6663433974E-04 (9.8631914834E-05)	-7.6912561679E-07 (2.6359644188E-07)	-	2.3175760571E-01 (5.5858826460E-02)	-1.0543884948E-03 (3.4049296894E-04)	-	-
LiCl	-7.7548564421E-05* (5.0470049905E-05)	-1.3164072700E-05 (8.1168804936E-06)	-	-	5.0358876973E-03* (3.0531983006E-03)	1.1650520233E-03 (3.8196639138E-04)	-2.9822694790E-05 (5.8068472053E-06)	-
LiOH	-5.7227363883E-02 (8.9087090030E-04)	2.4438659342E-04 (8.3174626343E-06)	-	-	1.2261638676E-01 (5.1151745524E-02)	-1.395239970E-02 (2.2968346901E-03)	2.3403699166E-04 (3.0069759520E-05)	-1.0345342455E-06 (1.1444634956E-07)
NaBF ₄	-2.8447797816E-01 (1.5608752404E-07)	5.2445904590E-03 (1.5608752404E-08)	3.1254733555E-03 (1.5608752404E-05)	-3.8076786362E-05 (1.5608752404E-06)	-2.4789012171E-01 (3.0303415746E-06)	-4.1348333243E-02 (3.0303415746E-07)	1.7304032007E-03 (3.0303415746E-04)	3.9238862545E-04 (3.0303415746E-05)
NaBr	1.0183179096E-02 (5.8860964819E-04)	-1.2691689506E-04 (1.0380508147E-05)	6.0657735445E-07 (9.3779620257E-08)	-1.0047782757E-09 (2.5380985991E-10)	1.0632808547E-01 (6.1761914471E-03)	-	-3.8350677514E-06 (7.6272503436E-07)	6.8980125309E-09 (3.1635582289E-09)
NaCF ₃ SO ₃	-3.6465225198E-02 (1.1639245719E-11)	1.2485564618E-03 (2.9098114298E-10)	2.6015615266E-05 (7.2745285746E-09)	-1.2792435729E-06 (1.8186321436E-07)	3.3872220044E-01 (1.2490167885E-10)	-4.9433542551E-03 (3.1225419713E-09)	-4.7981465368E-04 (7.8063549282E-08)	1.2742311378E-05 (1.9515887320E-06)
NaCl	7.3750908606E-03 (1.4288485345E-04)	-7.9340802129E-05 (4.0579247235E-06)	4.2543055808E-07 (4.7631472951E-08)	-1.0128256688E-09 (1.6272197065E-10)	8.3119871441E-02 (2.9583938383E-03)	-1.1359520126E-03 (8.991877801E-05)	4.4290383228E-06 (1.0594161926E-06)	-1.0962254332E-08 (3.6951046436E-09)
NaH ₂ PO ₄	-	-	-2.904535054E-08 (3.1729944797E-09)	1.1180320754E-10 (1.4211886930E-11)	-4.711237519E-03 (1.1876514210E-03)	-	-	-
NaI	4.7615410663E-02 (1.0562438093E-02)	-	-	-	-	8.5668059971E-03 (1.2182474360E-03)	-1.3629107728E-04 (2.6579348822E-05)	-
NaOH	1.9650333944E-05 (3.4230494606E-06)	-1.2317955047E-04 (4.3304573506E-06)	2.5081547662E-07 (1.4610370244E-08)	-	-	-	-3.7085587621E-06 (1.9338530077E-07)	-
RbCl	-1.3778272431E-02 (5.1640680670E-03)	3.1709250457E-04 (1.3920586643E-04)	-	-	1.9083740385 (1.2612304337E-01)	-1.6123052582E-01 (1.4247634839E-02)	4.8100622229E-03 (5.2672895553E-04)	-4.7293130431E-05 (5.9733954176E-06)
(NH ₄) ₂ SO ₄	2.5683126181E-03 (9.9871633868E-05)	-3.220427511E-05 (1.5114397775E-06)	-	-	-9.4683515952E-03 (1.0688169596E-03)	-9.338374685E-05 (1.7140575847E-05)	-	-
Cs ₂ SO ₄	1.217115465E-02 (7.2216957156E-13)	-4.3081674868E-04 (1.8054239289E-11)	1.4857666681E-06 (4.5135598222E-10)	4.0078129726E-08 (1.1283899556E-08)	1.7500252983E-02 (1.1045197776E-11)	-3.6628276883E-04 (2.7612994440E-10)	-2.5726256444E-05 (6.9032486099E-09)	1.6073743166E-06 (1.7258121525E-07)
K ₂ HPO ₄	-2.3653392642E-03 (1.3059397434E-04)	6.9226535947E-06 (6.5876999289E-07)	-	-	2.4413478126E-01 (1.1461407693E-02)	-2.6592051587E-03 (2.3154830073E-04)	1.1993541287E-05 (1.4919422945E-06)	-1.9826639223E-08 (3.0836580520E-09)
Na ₂ HPO ₄	-2.0259556455E-03 (1.9709151717E-04)	4.7637966629E-06 (9.7380208391E-07)	-	-	1.7128475709E-01 (1.9343269891E-02)	-2.1362052473E-03 (83.9142221788E-04)	1.0411202963E-05 (2.5071045292E-06)	-1.7439926673E-08 (5.1273632629E-09)
Na ₂ SO ₄	8.6061836314E-02 (1.3417626515E-11)	-2.4628968051E-04 (3.3552902597E-10)	-1.355337130E-05 (8.3850162902E-09)	5.1450477077E-06 (2.0948174769E-07)	1.8430179342E-01 (8.3997267923E-02)	-	-	-
Rb ₂ SO ₄	-4.5246780535E-02 (9.7241341890E-13)	9.3083417790E-06 (2.4310355472E-11)	2.3414509232E-05 (6.0775838681E-10)	2.0021368764E-06 (1.5193959670E-08)	7.9952690550E-02 (1.8337822344E-11)	-2.9246132327E-03 (4.5844555860E-10)	9.5970235483E-05 (1.1461138965E-08)	-7.0817595132E-07 (2.8652847412E-07)
BaBr ₂	5.0695482971E-01 (1.0594389536E-01)	-2.3465874126E-02 (5.2563389439E-03)	2.7683899572E-04 (6.4944832730E-05)	-	-1.8808890284E-01 (2.1959802506E-02)	4.0444296912E-03 (6.0520997326E-04)	-	-
BaCl ₂	-6.2929284706E-05 (2.3479041109E-06)	2.8844469319E-05 (6.2714646230E-07)	-	-	-	-	-1.0633387174E-06 (9.4374569784E-08)	-
Ca(NO ₃) ₂	4.2664561351E-06 (1.7524786190E-06)	2.3928230564E-05* (1.3273879435E-05)	-4.3308096289E-07 (1.2049622164E-07)	-	-1.6967844436E-05 (3.3293752693E-06)	-	-	-
CaBr ₂	9.0758593393E-02* (1.1757910751E-01)	-	-	-	-4.8006768772E-02 (1.8803977153E-02)	-	-	-
CaCl ₂	-	-1.00601158E-04 (1.27354974E-05)	2.58101385E-07 (3.30838761E-08)	-	-	-	-5.69503913E-06 (4.40354332E-07)	6.22216174E-09 (6.50627186E-10)
CaI ₂	2.5342619994E-01 (7.722882481E-02)	-3.0610411017E-02 (7.0716693346E-03)	1.0244266946E-03 (2.1786483093E-04)	-1.0622042624E-05 (2.2244348095E-06)	-2.8260121491 (1.2690778231E-01)	2.4490263474E-01 (1.5224251597E-02)	-7.4450314371E-03 (6.0183873548E-04)	7.4136715023E-05 (7.2906071270E-06)
CdBr ₂	-4.0404421377E-02 (7.3702701281E-03)	-7.3828494959E-03 (7.6087205574E-04)	2.2749151980E-04 (3.6088874677E-05)	2.2753481077E-05 (2.8181742799E-06)	1.3302020740E+01 (5.2395304825)	2.2548535637 (5.1762216439E-01)	-6.9574940392E-02 (2.5999127933E-02)	-6.9548462554E-03 (1.9463669478E-03)
CdCl ₂	-	-1.5858781337E-03 (1.9514281849E-04)	-	-	-1.2747056610E+01 (5.0709899312)	-	-	-
CdI ₂	6.3966186076E-03 (2.5045992012E-03)	-	-	-	-1.1042188032* (8.2061380752E-01)	-	-	-

Table S6. Cont.

Electrolyte	$b_{1,2}$	$b_{1,3}$	$b_{1,4}$	$b_{1,5}$	$S_{2,2}$	$S_{2,3}$	$S_{2,4}$	$S_{2,5}$
MgCl ₂	-5.7367791009E-05 (7.2311419205E-06)	2.5718616726E-05 (1.9025079427E-06)	-	-	-4.2346352636E-04 (6.1813867035E-05)	-	-	-
NiCl ₂	-	-	-	-	-1.2752970746E-04 (8.5436335484E-06)	-2.9849691134E-04 (1.1239193441E-04)	-	-
SrBr ₂	1.6146381339E+07 (0.0)	-	-	-	-1.9577492532E-02 (7.4388581624E-03)	-	-	-
SrCl ₂	-2.2551256236E-02 (1.1112859654E-02)	7.6223903225E-04 (3.3040650298E-04)	-	-	4.2387127078E-01 (7.7810035413E-02)	-1.8764737968E-02 (4.3311477003E-03)	2.0588732016E-04 (6.1078279460E-05)	-
SrI ₂	2.8356855096E-01 (7.5605383066E-02)	-5.9682450703E-03 (1.7079793293E-03)	-	-	-2.5740121271E-01 (1.7511213639E-02)	5.1054903333E-03 (4.7168024978E-04)	-	-
ZnCl ₂	-	1.0743135610E-02 (1.8936485545E-03)	-	-3.9964596808E-05 (8.3056558115E-06)	-3.6091325963E-01 (6.0424448186E-02)	-2.3140319192E-02 (9.8330086860E-03)	-	-
ZnI ₂	-3.5647615687E-01 (5.7323902722E-02)	-6.6112993118E-02 (5.5694317749E-03)	2.0276869495E-03 (2.8520110352E-04)	2.0332037573E-04 (2.1052557470E-05)	2.4877986245 (1.1133085404)	4.6548669237E-01 (1.0601671101E-01)	-1.4324994757E-02 (5.5826772185E-03)	-1.4385543837E-03 (4.0415455908E-04)
MgSO ₄	1.7347631251E-01 (3.1236161870E-09)	3.7099133841E-02 (6.9570316971E-08)	8.3606721622E-04 (2.4634659067E-06)	-1.5258916399E-05 (2.8975802835E-08)	1.3754838041 (1.0701634373E-05)	6.2298756538E-02 (2.3833333616E-04)	-	-1.0854263031E-05 (3.2998788661E-08)

*. Statistically not valid parameters