

Modelling the Effect of Solution Composition and Temperature on the Conductivity of Zinc Electrowinning Electrolytes

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Table S1. Raw data obtained from the conductivity measurements of the synthetic zinc electrolytes.

Test	Composition g/dm ³				<i>T</i>	<i>κ</i>
	Zn	H ₂ SO ₄	Mn	Mg	°C	mS/cm
1	50	150	0	0	29.7	415
2	50	150	0	2	29.2	401
3	50	150	0	4	29.1	383
4	50	175	4	0	36.4	485
5	50	175	4	2	36.4	471
6	50	175	4	4	36.1	454
7	50	200	8	0	40.9	546
8	50	200	8	2	40.3	525
9	50	200	8	4	39.2	501
10	60	150	8	0	35.9	401
11	60	150	8	2	34.9	379
12	60	150	8	4	34.6	365
13	60	175	0	0	39.8	490
14	60	175	0	2	39.1	471
15	60	175	0	4	39.0	454
16	60	200	4	0	29.3	457
17	60	200	4	2	28.9	440
18	60	200	4	4	30.1	430
19	70	150	4	0	39.9	408
20	70	150	4	2	40.2	394
21	70	150	4	4	39.7	374
22	70	175	8	0	29.7	386
23	70	175	8	2	29.8	372
24	70	175	8	4	29.6	358
25	70	200	0	0	34.8	478
26	70	200	0	2	34.8	463
27	70	200	0	4	34.2	441
28	60	175	4	2	34.4	431
29	60	175	4	2	34.9	434
30	60	175	4	2	34.8	439
31	60	175	0	0	34.5	462
32	60	175	4	0	34.0	447
33	60	175	8	0	34.5	436
34	60	175	0	2	34.3	445
35	60	175	4	2	34.5	434
36	60	175	8	2	34.5	421
37	60	175	0	4	34.0	429

38	60	175	4	4	34.1	414
39	60	175	8	4	34.0	408
40	50	200	8	0	35.0	510
41	50	200	8	2	34.9	493
42	50	200	8	4	34.7	473
43	50	200	4	4	35.1	486
44	50	200	4	4	40.0	520
45	50	200	0	2	35.1	518
46	50	200	4	2	40.0	536
47	70	200	4	2	40.2	475
48	70	200	8	4	30.0	393
49	60	175	0	0	34.8	462

Table S2. Conductivity measurements of industrial electrolytes from the electrowinning cells at different temperatures.

Sample ID	Temperature (°C) and conductivity (mS/cm)									
	T	κ	T	κ	T	κ	T	κ	T	κ
1	38.2	414	29.9	374	34.9	399	40.0	420	44.9	445
2	39.6	424	29.8	379	34.9	403	39.8	428	44.9	449
3	39.6	428	30.2	382	34.9	404	40.1	428	44.8	449
4	40.2	432	29.8	382	35.0	408	39.8	430	44.9	451
5	36.8	402	30.2	370	34.8	393	39.7	416	44.8	437
6	39.9	431	29.8	381	34.7	407	39.8	431	44.9	458
7	40.7	436	30.1	383	34.9	408	39.7	431	44.9	454
8	40.5	437	30.0	385	34.8	409	40.0	433	44.8	455
9	36.1	395	29.9	366	34.8	389	39.8	412	44.9	435
10	40.0	432	30.0	384	34.8	408	39.8	430	44.8	453
11	39.9	434	29.8	382	34.9	407	40.0	433	44.8	455
12	39.9	434	30.0	385	34.8	408	39.8	433	44.8	454
13	35.5	391	29.9	367	34.8	392	40.0	416	45.1	435
14	39.7	433	29.9	387	34.9	413	39.8	435	44.8	458
15	40.0	435	29.9	388	35.0	413	39.9	437	44.8	458
16	41.2	443	30.0	390	34.8	416	39.0	441	44.8	461