Supporting Information

Al-doped spinel $LiMn_2O_4$ anchored on diatomaceous earth for selective lithium adsorption under simulated brine conditions

Shraddha Yadav[1], Irfan T.[1], Tabish Nawaz*[1]

[1]Environmental Science and Engineering Department (ESED), Indian Institute of Technology Bombay, Mumbai 400076, India

*Corresponding author: tnawaz@iitb.ac.in

Captions

Table S1. Experimental dataset used for response surface analysis showing the influence of synthesis parameters on lithium removal efficiency

Table S2. Isotherm model parameters for Li^+ adsorption on HAMO/DE

Fig. S1. Pearson correlation chart of synthesis parameter based on RSM

Table S1. Experimental dataset used for response surface analysis showing the influence of synthesis parameters on lithium removal efficiency

Run	Calcination time (hr)	Li/Mn ratio	DE amount (g)	Al-Dopant ratio (%)	Removal efficiency (%)
1	8	1	4.05	0	32
2	8	1	4.05	2	44.01
3	8	1	4.05	5	51.81
4	8	1	4.05	10	43.2
5	8	1	8.1	0	23.04
6	8	1	8.1	2	31.88
7	8	1	8.1	5	36.14
8	8	1	8.1	10	25.78
9	8	2	4.05	0	30.72
10	8	2	4.05	2	46.37
11	8	2	4.05	5	43.66
12	8	2	4.05	10	38.09
13	8	2	8.1	0	12.14
14	8	2	8.1	2	25.84
15	8	2	8.1	5	34.2
16	8	2	8.1	10	20.59
17	8	0.5	4.05	0	40.98
18	8	0.5	4.05	2	59.55
19	8	0.5	4.05	5	67.08
20	8	0.5	4.05	10	46.17
21	8	0.5	8.1	0	23.08
22	8	0.5	8.1	2	38.17
23	8	0.5	8.1	5	47.11
24	8	0.5	8.1	10	41.67
25	12	0.5	4.05	0	67.35
26	12	0.5	4.05	2	74.87
27	12	0.5	4.05	5	78.44

28	12	0.5	4.05	10	69.31
29	8	0.5	2	2	60.66
30	8	0.5	2	5	76.59
31	8	0.5	2	10	67.74
32	8	0.5	2	15	58.79
33	12	0.5	2	2	83.58
34	12	0.5	2	5	86.83
35	12	0.5	2	10	79.19
36	12	0.5	2	15	76.48

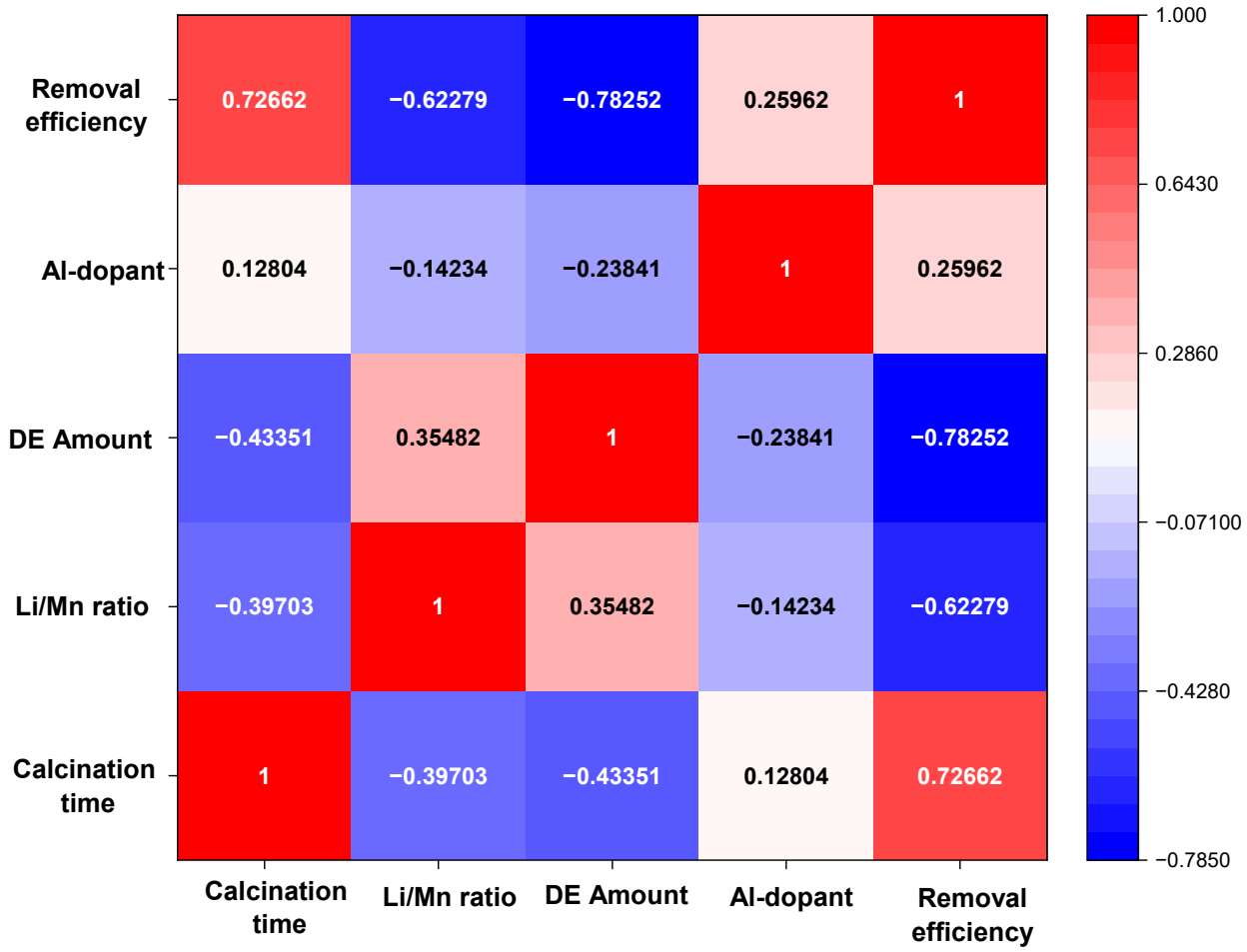

Fig. S1. Pearson correlation chart of synthesis parameter based on RSM

Table S2. Isotherm model parameters for Li^+ adsorption on HAMO/DE

(a) Langmuir isotherm

Parameters	**q_{max}**	**K_L**	**C_e exp**	**q_e exp**	**C_e pred**	**q_e pred**	**R^2**
Values	27.40	0.074	1.25	3.52	1.828	3.27	0.9804

(b) Freundlich isotherm

Parameters	**1/n**	**K_F**	**C_e exp**	**q_e exp**	**C_e pred**	**q_e pred**	**R^2**
Values	0.1397	12.45	1.25	3.52	0.0055	6.02	0.7954