

Supporting Information

Table S1 Equilibrium time for dissolution of Li_3PO_4 in pure water at 298.15 K

Dissolution				
equilibrium	48	72	96	120
time/h				
$\text{Li}_3\text{PO}_4\%$	0.0244	0.0245	0.0228	0.0245

Table S2 Experimental values of solubility of lithium phosphate in 0% sodium carbonate,
calculated values in exponential form and relative errors

temperature /K	Experimental value (%) content)	Calculated value (%) content)	Relative error %
303.15	0.02827	0.028648	1.34
313.15	0.03267	0.03218	-1.50
323.15	0.03582	0.035379	-1.23
333.15	0.03764	0.038278	1.69
343.15	0.04047	0.040904	1.07
353.15	0.04369	0.043283	-0.93

Table S3 Experimental values of solubility of lithium phosphate in 1% sodium carbonate,
calculated values in exponential form and relative errors

temperature /K	Experimental value (%) content)	Calculated value (%) content)	Relative error %
303.15	0.03305	0.03303	-0.06
313.15	0.03615	0.03632	0.48
323.15	0.04005	0.03933	-1.81
333.15	0.04142	0.04206	1.54
343.15	0.04375	0.04455	1.82
353.15	0.04754	0.04682	-1.52

Table S4 Experimental values of solubility of lithium phosphate in 3% sodium carbonate,
calculated values in exponential form and relative errors

temperature /K	Experimental value (%) content)	Calculated value (%) content)	Relative error %
303.15	0.04439	0.04481	0.94
313.15	0.05062	0.05015	-0.93
323.15	0.05558	0.05467	-1.63
333.15	0.05793	0.05851	1.00
343.15	0.0604	0.06176	2.25
353.15	0.06551	0.06451	-1.53

Table S5 Experimental values of solubility of lithium phosphate in 5% sodium carbonate, calculated values in exponential form and relative errors

temperature /K	Experimental value (%) content)	Calculated value (%) content)	Relative error %
303.15	0.05076	0.05160	1.65
313.15	0.06087	0.05943	-2.37
323.15	0.06703	0.06612	-1.35
333.15	0.07093	0.07185	1.30
343.15	0.07487	0.07675	2.51
353.15	0.08247	0.08094	-1.86

Table S6 Experimental values of solubility of lithium phosphate in 8% sodium carbonate, calculated values in exponential form and relative errors

temperature /K	Experimental value (%) content)	Calculated value (%) content)	Relative error %
303.15	0.0629	0.06334	0.70
313.15	0.07335	0.07140	-2.65
323.15	0.0796	0.07927	-0.42
333.15	0.08587	0.08694	1.24
343.15	0.09413	0.09442	0.31
353.15	0.10293	0.10171	-1.18

Table S7 Experimental values of solubility of lithium phosphate in 10% sodium carbonate,

calculated values in exponential form and relative errors

temperature /K	Experimental value (%) content)	Calculated value (%) content)	Relative error %
303.15	0.0708	0.07137	0.81
313.15	0.07961	0.07905	-0.70
323.15	0.08775	0.08746	-0.33
333.15	0.09647	0.09667	0.21
343.15	0.1058	0.10676	0.90
353.15	0.11817	0.11780	-0.31

Table S8 Experimental values of solubility of lithium phosphate in 15% sodium carbonate,

calculated values in exponential form and relative error

temperature /K	Experimental value (%) content)	Calculated value (%) content)	Relative error %
303.15	0.07529	0.07552	0.30
313.15	0.08348	0.08275	-0.87
323.15	0.09173	0.09144	-0.32
333.15	0.10147	0.10185	0.38
343.15	0.11487	0.11436	-0.45
353.15	0.12967	0.12936	-0.24

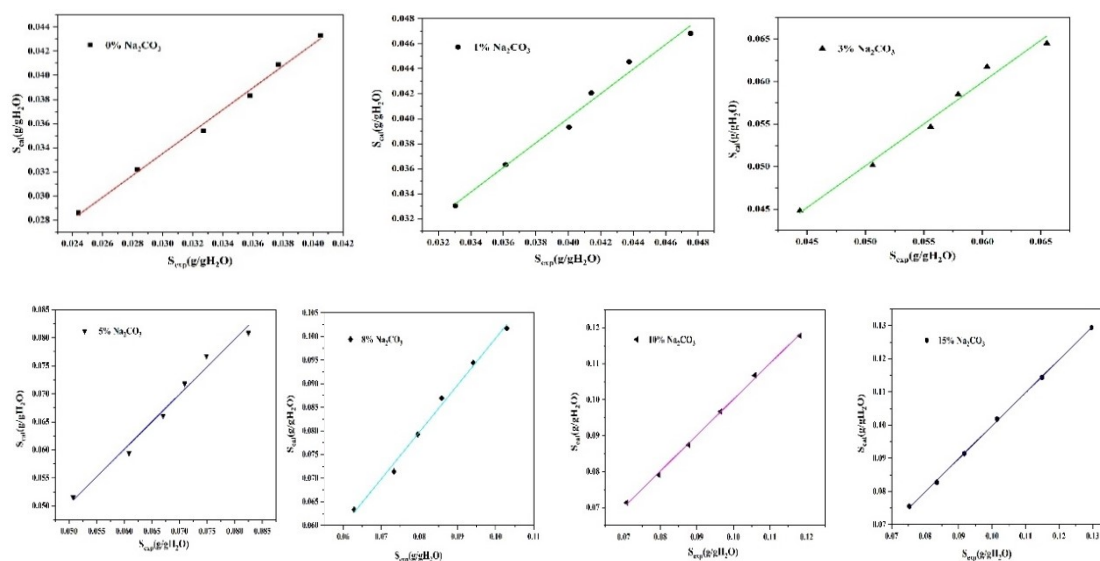


Fig. S1 Correlation between experimental and exponential form calculated values of

solubility of lithium phosphate in sodium carbonate solutions of different concentrations
at different temperatures