

Table S6. Comparison of adsorption performance of different manganese series lithium-ion sieves

Adsorbent	Raw material	Morphology	Li ⁺ solution	Equilibrium time	Li adsorption capacity/mg·g ⁻¹	Manganese dissolution/wt%	Ref.
H _{1.6} Mn _{1.6} O ₄	Mn(CH ₃ COO) ₂ ·4H ₂ O/ LiClO ₄	Nanofibers	LiCl solution/Brine (Li ⁺ 200 mg·L ⁻¹ , pH = 9.8±0.1, 12 h/Li ⁺ 197.54 mg·L ⁻¹ , pH = 7.3±0.1, 12 h)	40 min	37.37/32.43	0.83	This work
H _{1.6} Mn _{1.6} O ₄	γ-MnOOH/LiOH	Irregular particle	Seawater (Li ⁺ 5 mg·g ⁻¹ , pH=8, 6 days)	6 days	37	1.5	9
H _{1.6} Mn _{1.6} O ₄	γ-MnOOH/LiOH	Irregular particle	Seawater (Li ⁺ 0.17 mg·g ⁻¹ , pH=8, 4 weeks)	4 weeks	36.1	2.5	4
H _{1.6} Mn _{1.6} O ₄	-	-	Brine (Li ⁺ 1600 mg·L ⁻¹ , pH=6.6, 8 h)	8 h	32	0.5	3
H _{1.6} Mn _{1.6} O ₄	(KMnO ₄ , MnCl ₂)/LiOH	Irregular particle	Salt lake (Li ⁺ 1.79×10 ⁴ mg·L ⁻¹ , pH=6.4, 48 h)	48 h	28.6	1.2	10
H _{1.6} Mn _{1.6} O ₄	γ-MnOOH/LiOH·H ₂ O	Rod-like	Brine (Li ⁺ 182 mg·L ⁻¹ , pH =	12 h	30.20	2.2	5

			8, 12 h)				
$H_{1.6}Mn_{1.6}O_4$	$MnCO_3/LiNO_3$	Spherical	Brine (Li^+ 182 $mg \cdot L^{-1}$, pH = 8, 12 h)	12 h	33.10	1.6	5
$H_{1.6}Mn_{1.6}O_4$	$MnO/LiOH \cdot H_2O$	Flower-like	Brine (Li^+ 182 $mg \cdot L^{-1}$, pH = 8, 12 h)	12 h	31.47	2.4	5
$H_{1.6}Mn_{1.6}O_4$	$Mn(CH_3COO)_2 \cdot 4H_2O/LiNO_3$	3D macroporous-mesoporous	Brine (Li^+ 182 $mg \cdot L^{-1}$, pH = 8, 12 h)	12 h	42.15	3.5	5
HMn_2O_4	$Mn(CH_3COO)_2 \cdot 4H_2O/LiNO_3$	Nanofibers	Mixed solution of LiCl and LiOH (Li^+ 200 $mg \cdot L^{-1}$, pH = 11, 24 h)	24 h	34.21	-	1
HMn_2O_4	$Mn(CH_3COO)_2 \cdot 2H_2O/LiNO_3$	Nanofibers	Li solution/Seawater (Li^+ 100 $mg \cdot L^{-1}/Li^+$ 0.17 $mg \cdot L^{-1}$, pH = 8, 24 h)	24 h	32.50/18.81	-	2
HMn_2O_4	$Mn(NO_3)_2/LiOH$	Particle	Li solution (Li^+ 69.41 $mg \cdot L^{-1}$, pH = 10.10, 72 h)	24 h	20.47	-	11
$H_{1.6}Mn_{1.6}O_4$	$Mn(NO_3)_2 \cdot 4H_2O/LiOH \cdot H_2O$	Particle	LiCl solution (Li^+ 6.08 $mg \cdot L^{-1}$, pH = 12, 48 h)	4 h	24.7	-	6