Supporting Information

Table S1 The comparison of the electrochemical performance of NiAl and NiCoAl LDHs synthesized by different methods

Working electrode	Method	Specific Capacity (SC)	SC retention after 1000 cycles	Ref
NA-2	**Dropping double hydrolysis method**	**583 C g^{-1} at 1 A g^{-1} 530 C g^{-1} at 2 A g^{-1}**	**83.3%**	**This Work**
NiAl-LDH	Hydrothermal method	471.2 C g^{-1} at 1 A g^{-1}	88%	[1]
NiAl-LDH@GOs[a]	Hydrothermal method	556 C g^{-1} at 1 A g^{-1}	98%	[2]
NiAl-LDH	Hydrothermal method	390.6 C g^{-1} at 2 A g^{-1}	90%	[3]
NiAl-LDH core-shell spheres	Solvothermal method	511 C g^{-1} at 1 A g^{-1}	85%	[4]
Ag NW@NiAl-LDH	Hydrothermal method	574 C g^{-1} at 1 A g^{-1}	95%	[5]
NCA-3	**Dropping double hydrolysis method**	**703 C g^{-1} at 1 A g^{-1}**	**73.5%**	**This Work**
NiCoAl-LDH	Hydrothermal method	534 C g^{-1} at 1 A g^{-1}	90%	[1]
$Ni_{0.70}Co_{0.05}Al_{0.25}$-LDH	Hydrothermal method	583 C g^{-1} at 1 A g^{-1}	80%	[6]
NiCoAl-LDH nanosheets	Solvothermal method	614 C g^{-1} at 1 A g^{-1}	95%	[7]
$NiCo_2$Al-LDH@N-GO[b]	Hydrothermal method	682 C g^{-1} at 1 A g^{-1}	92%	[8]
NiCoAl-LDH@NRG[c]	Surfactantassisted co-precipitation method	751 C g^{-1} at 1 A g^{-1}	90%	[9]
CoNiAl-LDH	Hydrothermal method	624 C g^{-1} at 1 A g^{-1}	92%	[10]

[a]GOs = Graphene oxides

[b]N-GO = N-doped reduced graphene oxide

[c]NRG = N-doped reduced graphene oxide

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