Supplementary Information:

A new application of oily cold rolling mill sludge for preparing Fe_2O_3/graphene as anodes for lithium-ion batteries

Cheng Liu[a,‡], Xinjing Wang[b,‡], Peng Ma[b], Jilu Chen[b], Jianzhong Jiang[b], Yani Ai[b], Erqin Wang[a], Sheng Han[b,*], Shaofeng Rong[a,*]

[a] *School of Perfume and Aroma Technology, Shanghai Institute of Technology, Shanghai 201418, China. *Co-corresponding author E-mail: rongshaofeng@163.com; Tel: +86 13818786015;*

[b] *School of Chemical and Environmental Engineering, Shanghai Institute of Technology, Shanghai 201418, China. *Corresponding author Email: hansheng654321@sina.com; Tel: +86 13524694909;*

‡ These two authors contributed equally to this work.

Table S1 The weight loss of solid phase and oily CRM sludge in different temperature ranges

Samples	First stage		Second stage	
	temperature range (°C)	weight loss (%)	temperature range (°C)	weight loss (%)
solid phase	25-120	<1	120-200	6
oily CRM sludge	25-120	<2	120-250	20
Samples	Third stage		Forth stage	
	temperature range (°C)	weight loss (%)	temperature range (°C)	Weight increase (%)
solid phase	200-400	miniscule	400-500	<1
oily CRM sludge	250-400	miniscule	400-500	<1

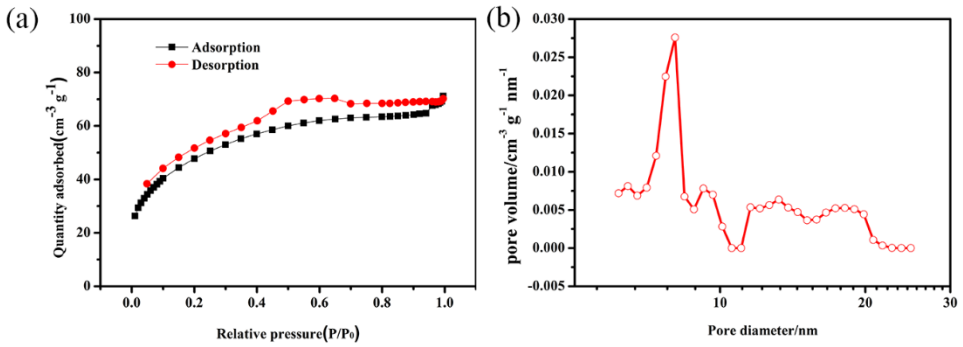

Figure S1. Nitrogen adsorption/desorption isotherms and pore size distribution of Fe_2O_3/graphene

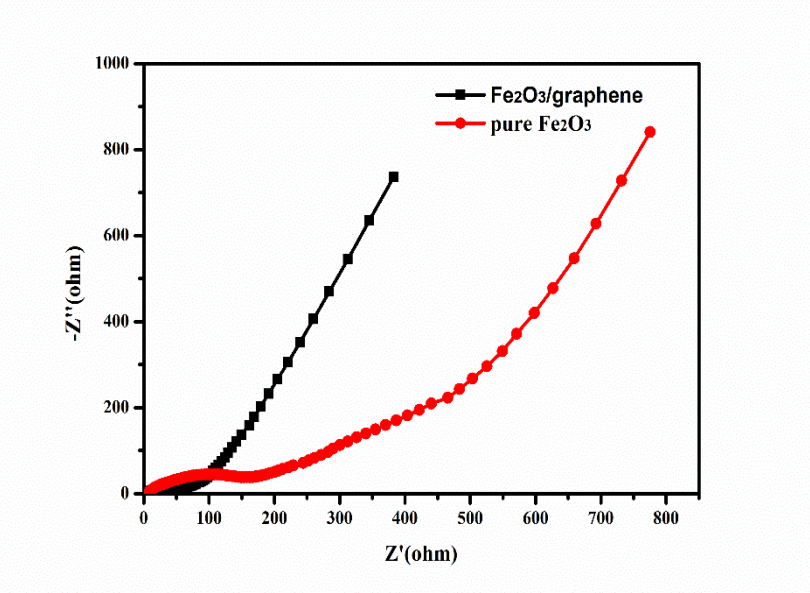

Figure S2. Nyquist plots of Fe_2O_3/graphene and pure Fe_2O_3 obtained by applying a sine wave with an amplitude of 5.0 mV over the frequency range from 100 kHz to 0.01 Hz