



Technical Data Sheet

ACS Material Aminated Graphene Octadecylamine Covalently Linked rGO-NH-(CH₂)₁₇-CH₃

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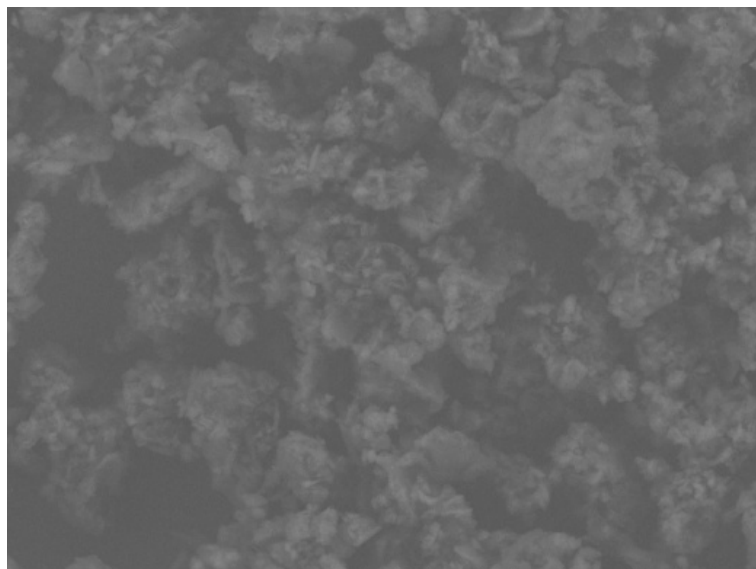
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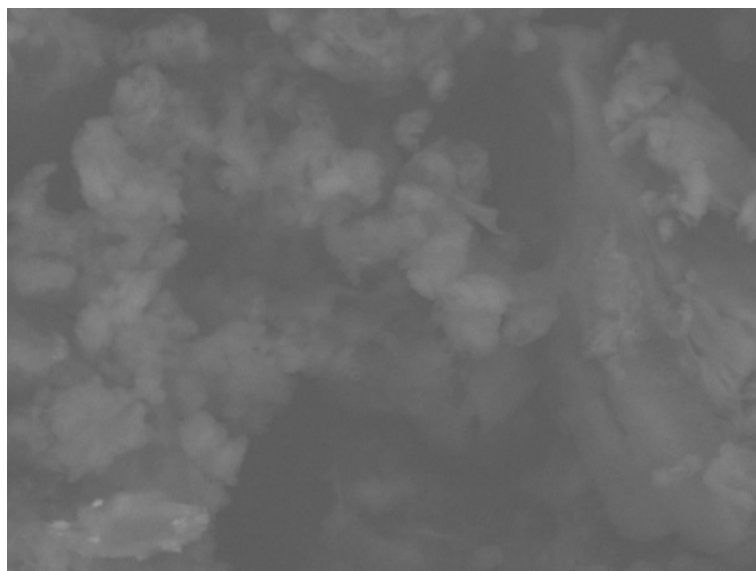
1. Preparation Method

- 1) Prepare Graphene Oxide
- 2) Graphene oxide is modified by Octadecylamine

2. Characterizations

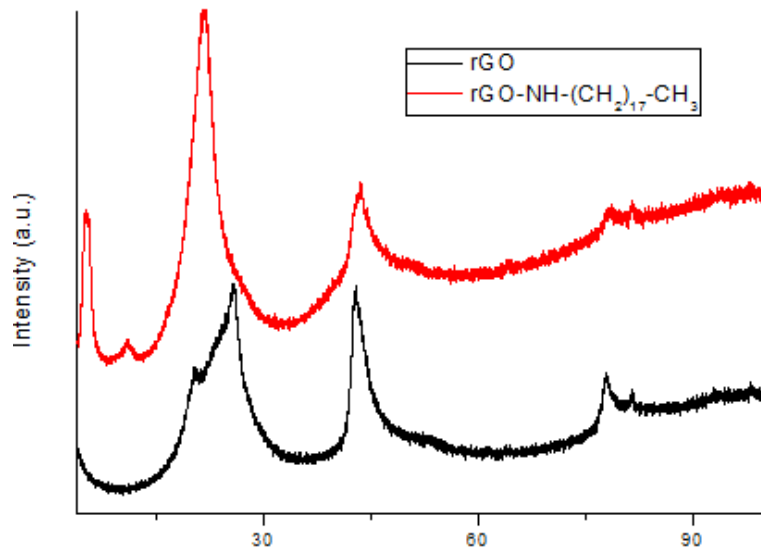


rGOODA1a3 0010 L x1,0k 100 um

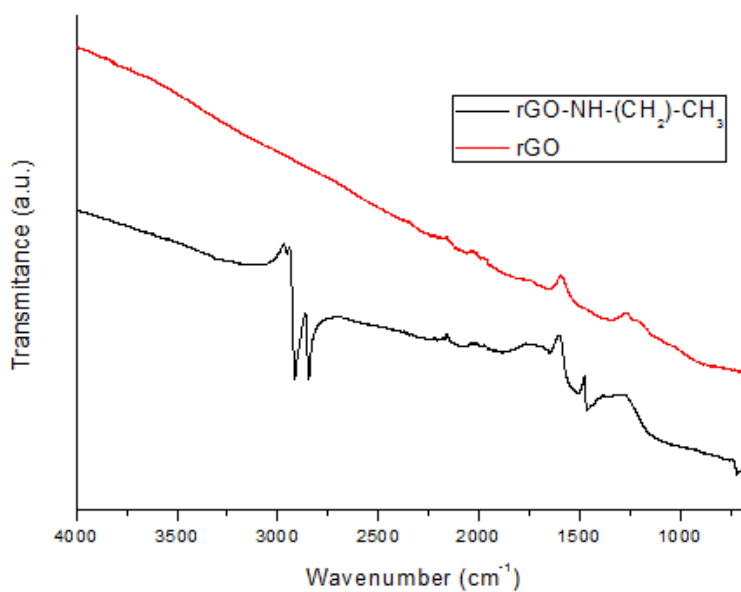


rGOODA1a3 0007 L x3,0k 30 um

Typical SEM Image of ACS Material Aminated Graphene Octadecylamine Covalently Linked



XRD pattern of ACS Material rGO and rGO-NH-(CH₂)₁₇-CH₃
 (The peak at $2\theta = 5.1^\circ$ is related to the longer interplanar distance of graphene due to octadecylamine chains.)



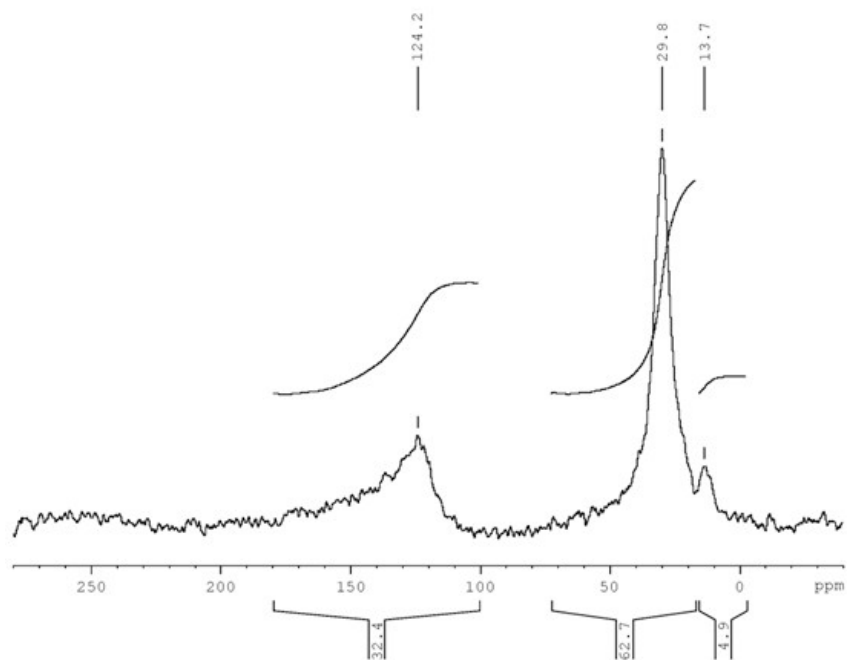
FTIR Spectroscopy: Attenuated Total Reflectance (ATR) of ACS Material rGO and rGO-NH-(CH₂)₁₇-CH₃
 (Assignment (cm⁻¹): 2915, 2846, 1538 and 1465)

XPS Results of rGO-NH-(CH₂)₁₇-CH₃ and GO

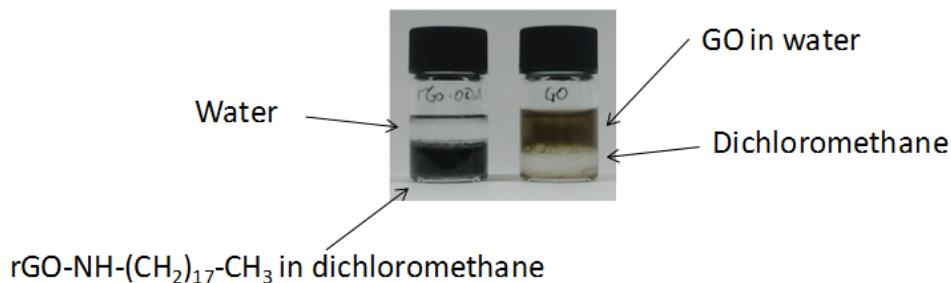
	C1s	O1s	N1s	O/C atomic ratio	N/C atomic ratio
rGO-NH-(CH ₂) ₁₇ -CH ₃	284.8 (82)	532.3 (75)	399.8 (70)	0.067	0.031
	286.4 (14)	534.0 (25)	401.4 (30)		
	288.0 (4)				
GO	284.8 (38)	531.5 (21)	--	0.655	--
	286.6 (54)	532.7 (79)			
	288.4 (8)				

Elemental analysis of rGO-NH-(CH₂)₁₇-CH₃ and GO

	% C	% H	% N	% S
rGO-NH-(CH ₂) ₁₇ -CH ₃	80.91	8.22	3.11	0.02
GO	53.24	2.51	0.04	0.91



Solid-state ¹³C NMR



Distribution of rGO-NH-(CH₂)₁₇-CH₃ (left) and graphene oxide (right) in a mixture of water (up) and dichloromethane (down) showing hydrophobicity of rGO-NH-(CH₂)₁₇-CH₃

3. Application Fields

- 1) Catalyst
- 2) Supercapacitors
- 3) Solar energy
- 4) Graphene semiconductor chips
- 5) Conductive graphene film
- 6) Graphene computer memory
- 7) Biomaterials
- 8) Transparent conductive coatings

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