Supporting Material

Surfactant/Polymer Responsible for Exfoliation	Final Maximum Concentration of Graphitic Material	Method	Selected Properties and Results	Reference
Sodium dodecylbenzene-sulfonate (SDBS)	0.05mg/mL	Aqueous, surfactant assisted exfoliation of graphene with bath sonication and centrifugation.	Proportion of flakes, by number: Few layer graphene flakes: 45% Monolayer graphene: 3% Lateral Size: Peak width:150nm Peak length: 250 nm,	[26]
Cetyltrimethyl ammoniumbromide (CTAB)	-	HOPG sonicated in surfactant solution in glacial acetic acid, refluxed under nitrogen atmosphere, then decanted and centrifuged. Resultant residue resuspended in DMF.	Thickness of flakes: ~ 1.3nm Lateral Size: Average length: 700nm Average width: 500nm	[33]

Sodium Cholate (SC)	90 μg/mL (Following sonication and centrifugation)	Aqueous, surfactant assisted exfoliation of graphene with sonication and centrifugation. Step gradient centrifugation, followed by density gradient ultracentrifugation.	Proportion of flakes, by number: Monolayer graphene: 80%	[21]
SC	0.04mg/mL	Aqueous, surfactant assisted exfoliation of graphene with bath sonication and centrifugation..	Graphitic flakes with a higher degree of exfoliation compared with SDBS. Able to prepare graphene thin films with a direct conductivity of 1.5×10^4 S m^{-1}	[27]
SC	0.3mg/mL	Aqueous, surfactant assisted exfoliation of graphene with bath sonication and centrifugation. Sonication time and centrifugation speed were varied factors.	Proportion of flakes, by number: Monolayer graphene: 20% Lateral Size: Average length: 1um Average width: 400nm Mean flake length decreases with	[37]

			increasing centrifugation rate	
sodiumdodecylsulfate **(SDS), SDBS, lithium dodecyl sulfate (LDS), CTAB, tetradecyltrimethylammonium bromide (TTAB), SC, sodium deoxycholate (DOC) and sodium taurodeoxycholate (TDOC), IGEPAL CO-890, Triton X-100, Tween 20 and Tween 80.**	0.026 mg/mL (Achieved with both IGEPAL and Sodium Cholate)	Aqueous, surfactant assisted exfoliation of graphene with tip sonication and centrifugation.	Lateral Size: Mean length in all cases: 0.75µm Ionic surfactants yield concentrations of graphene dependent on zeta potential (electrostatic stabilisation). Non-ionic surfactants stabilise via steric interactions.	[24]
Pluronic P-123, Tween 80, Brij 700, Gum arabic from acacia tree, Triton X-100, Tween 85, Brij 30, Polyvinylpyrrolidone (PVP), n-Dodecyl b-D-maltoside (DBDM), Poly(sodium 4-styrenesulfonate) (PSS), 3-[(3-Cholamidopropyl)dimethyl ammonio]-1-Propanesulfonate (CHAPS), DOC, SDBS, 1-Pyrenebutyric acid (PBA), Sodium dodecyl sulphate (SDS), TDOC,	1.5mg/mL (Achieved with P-123, at an extended sonication time of 5hrs)	Aqueous, surfactant assisted exfoliation of graphene with bath sonication and centrifugation.	Proportion of flakes, by number: Monolayer graphene: 10-15% Lateral size of flakes within the 50-200 nm range.	[34]

Hexadecyltrimethylammonium bromide (HTAB)				
Pluronic F127, P123, P104, P103, F84,F38, F68, F88, F98, F108, F77, F87, and Tetronic 908, 1107, 1307 and 904	> 0.07 mg/mL (Achieved with Pluronics F68, F77, F87 and Tetronics 1107 and 1307)	Aqueous, surfactant assisted exfoliation of graphene with tip sonication and centrifugation.	Graphene thicknesses range from 1 to 4 nm, consistent with 1-10 layers of stacked graphene. Lateral size of flakes between 50 and several hundred nm. Ability to enhance exfoliation efficiency by tuning surface interactions of selected Pluronics and Tetronics.	[22]
TDOC	7.1mg/mL	Aqueous, surfactant assisted exfoliation of graphene with tip sonication and centrifugation.	Proportion of flakes, by number: Monolayer graphene: 8% Few layer graphene: 82%	[28]
SC	-	Aqueous, surfactant assisted exfoliation of graphene with bath sonication and	Mean lateral flake length (Stock dispersion): 0.58 μm Clear separation of particles	[41]

		centrifugation. Partial evaporation liquid in the dispersion was performed, followed by dilution with ethylene glycol before performing size exclusion chromatography.	based on size: 2nd fraction, mean lateral flake length:1.17 μm 14th fraction, mean lateral flake length: 0.45 μm	
CTAB	~0.55mg/mL	Aqueous, surfactant assisted exfoliation of graphene with tip sonication. Subsequent centrifugation and dialysis was performed.	Approximately 80% of particles either monolayer or bilayer graphene. Typical flake diameter: < 30nm	36
CTAB	0.1mg/mL	Aqueous, surfactant assisted exfoliation of graphene with tip sonication. Subsequent centrifugation and dialysis was performed, followed by treatment with polyelectrolytes.	Typical flake diameter: 50–60 nm Maximum flake diameter: < 200nm	35
Pluronic F108, F127, and CTAB,	15 mg/mL (Achieved with Pluronic	Aqueous, surfactant assisted exfoliation of	Similar lateral flake size to	15

TTAB and DTAB	F108)	graphene with tip sonication and continuous addition of surfactant. Subsequent centrifugation and dialysis was performed.	reference 36 and 35	
PVP, albumin and sodic carboxymethylcellulose	0.1 mg/ml (Achieved with PVP) 0:15-0.20 mg/ml (Achieved with Albumin and sodic carboxymethylcellulose)	Aqueous, polymer assisted exfoliation of graphene with bath sonication and centrifugation.	Proportion of flakes, by number: Monolayer graphene: 10% - 20%	[23]
Ethyl Cellulose (EC)	122.2 μg/mL (Prior to iterative solvent exchange) 1.02 mg/mL (Achieved after three solvent exchange iterations)	Polymer assisted exfoliation of graphene in ethanol with sonication and centrifugation. Subsequent iterative solvent exchange was performed using terpineol.	Peak flake thickness: 1.6-1.8 nm Lateral dimensions: 50-400nm	[25]