AN ASCENSUS™ COMPANY

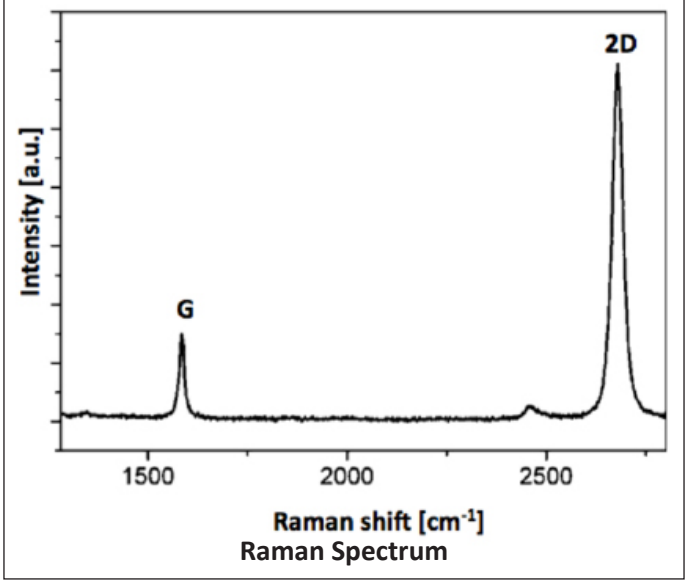
Graphene, Graphene Oxide & Reduced Graphene Oxide

METALS • INORGANICS • ORGANOMETALLICS • CATALYSTS • LIGANDS • NANOMATERIALS • CUSTOM SYNTHESIS • cGMP FACILITIES

Monolayer Graphene Film on Various Substrates

Item#	Description	Unit Sizes
06-2510	Monolayer Graphene on Cu (10 mm x 10 mm)	4 piece unit
06-2518	Monolayer Graphene on Cu (60 mm x 40 mm)	1 piece unit
06-2523	Monolayer Graphene on Cu with PMMA coating (60mm x 40mm)	1 piece unit
06-2534	Monolayer Graphene on SiO_2/Si (10mm x 10mm)	4 piece unit

Graphene Film Product Details	
Growth Method:	CVD synthesis
Transfer Method:	Clean transfer method
Color and Form:	Transparent Film
Transparency:	>97%
Coverage:	>95%
Thickness:	0.345 nm
Number of Graphene layers:	1
Grain Size:	Up to 10 µm
Field Effect Mobility on SiO_2/Si:	2000 $cm^2/V{\cdot}s$
Hall Effect Mobility on SiO_2/Si:	4000 $cm^2/V{\cdot}s$



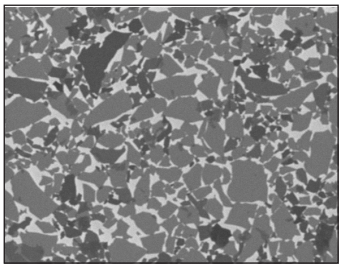
Raman Spectrum

Substrates	
SiO_2/Si	
Type/Dopant	P/Bor
Orientation	<100>
Growth Method	CZ
Resistivity	<0.005 ohm cm
Thickness	525 +/- 20 µm
Front Surface	polished
Back Surface	etched
Flats	2 SEMI
Coating	300 nm thermal oxide on BOTH wafer sides
Cu Foil	
Thickness	18 µm

Applications
Flexible batteries, Electronics, Aerospace industry, MEMS and NEMS, Microactuators, Conductive coatings, Research

Graphene Oxide

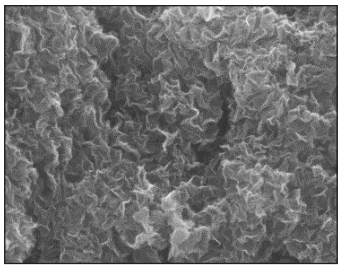
Item#	Description	Unit Sizes
06-2545	Graphene oxide (4mg/ml water dispersion)	50ml and 250ml



Properties	
Color:	Yellow-brown
Form:	Dispersion of graphene oxide sheets
Odor:	Odorless
Sheet Dimension:	Variable
Dispersibility:	Polar solvents
Solvents:	Water
Concentration:	4 mg/ml
pH:	2.2-2.5
Monolayer content: (measured in 0.5mg/ml)	>95%*

**4mg/ml concentration tends to agglomerate the GO flakes and dilution followed by slight sonication is required in order to obtain a higher percentage of monolayer flakes*

Item#	Description	Unit Sizes
06-2550	Graphene oxide, reduced	250mg and 1g



Properties	
Color and form:	Black pwdr.
Reduction method:	Chemically reduced
Odor:	Odorless
Sheet Dimension:	Variable
Solubility:	Insoluble
Dispersibility:	low concentrations (<0.1mg/ml) in NMP, DMSO, DMF
Electrical Conductivity:	> 600 S/m
BET surface area:	422.69-499.85 m^2/g
Particle size (z-sizer in NMP at 0.1 mg/mm):	260-295nm
Density:	1.91 g/cm^3

Applications: Graphene/polymer composite materials, batteries, biomedical, solar cells, supercapacitors, support for metallic catalysts, low permeability materials, biosensors, multifunctional materials, CO2 capture, graphene-based cementitious composites, energy storage, water purification, graphene research

References:

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