



Preliminary Technical Datasheet

Graphane Powder

(Hydrogenated Graphite)

XlynX Graphane Powder is manufactured by the hydrogenation of graphite. Graphane has exceptional electronic, chemical, optical, magnetic, and thermal properties that make it an excellent candidate for use in hydrogen storage, advanced 2D electronic devices, transistors, electron-phonon superconductors, highly sensitive nanosensors, etc.

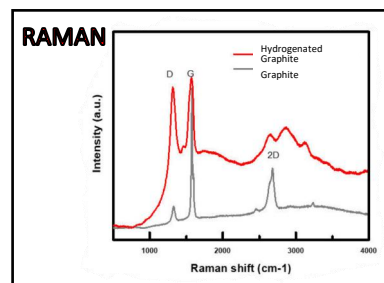
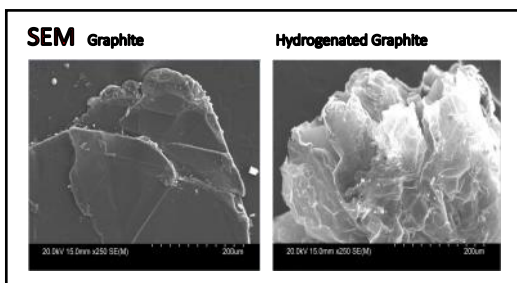
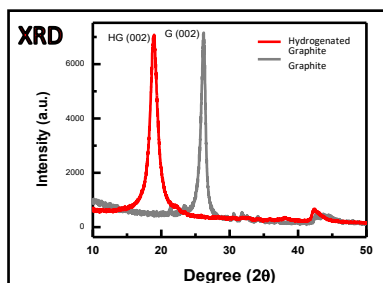
Physical/Mechanical Properties	Graphite starting material	Graphane 100%*	XlynX Graphane Powder
Crystal structure (X-Ray diffraction)	26.5 degree (2 θ)	20 degree (2 θ)	20 degree (2 θ)
Resonant frequencies (IR spectroscopy)	No C-H peak	C-H 2850 cm ⁻¹	C-H 2850 cm ⁻¹
Elemental composition (by weight)	C 100%; H 0%	C 92.3%; H 7.7%	TBD
Specific surface area	TBD		TBD

Electronic/Chemical Properties

Electrical resistivity	<1 ohm-cm	insulating	up to 1000 Kohm-cm
sp ² to sp ³ ratio (13C NMR)	1:0	0:1	1:2
Reversibility (dehydrogenation)	N/A	100%	100%

Optical Properties

Raman shift (cm ⁻¹)	G (1600) 2D (2800)	D (1340) G (1600)	D (1340) G (1600)
Optical band gap	0 eV	4 eV	3.5-3.8 eV
Fluorescence	No fluorescence	Intense UV fluorescence	Intense UV fluorescence



* Theoretical values:

K.E. Whitener, "Review Article: Hydrogenated graphene: A user's guide," J. Vac. Sci. Technol. A 36, 05G401 (2018)

Y. Yang, Y. Li, Z. Huang, X. Huang, "(C1.04H)n: A nearly perfect pure graphane," Carbon, Vol 107, pp 154-161 (2016)

