Technical Datasheet

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CSE: **ARGO** | OTCQB: **ARLSF** | FSE: **94Y**

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PRODUCT DESCRIPTION

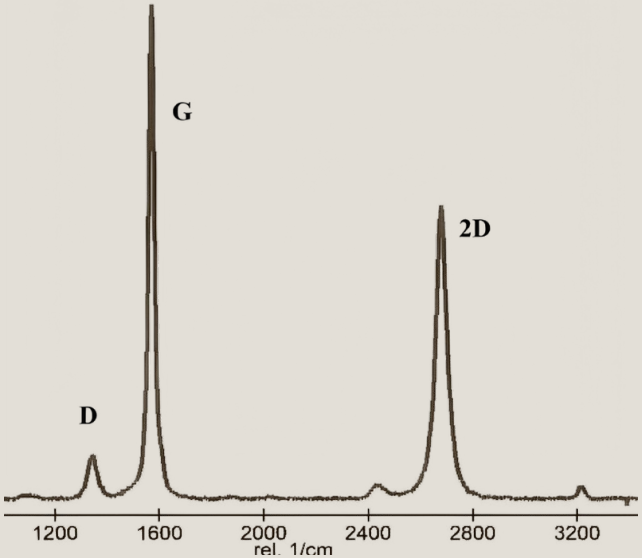
High-surface-area few-layer graphene synthesized via upcycling of carbonaceous feedstocks.
Designed for applications in construction, composites, and energy storage.

PRODUCT SPECIFICATIONS

Property	Form	Appearance	Number of Layers	Particle Size (µm)	Crystallinity	Carbon Purity (%)	Electrical Conductivity
Typical Value	Fluffy Dry Powder	Black	~1–5 layers	~1–5 µm lateral sheet size	Turbostratic	99.7% Predominantly sp^2 Carbon	1 - 3 × 10^3 S/m
Test Method	Visual	Visual	Raman	TEM	Raman/XRD	Chemical Analysis	Compression Dependent

CHARACTERIZATION DATA

Raman Spectroscopy



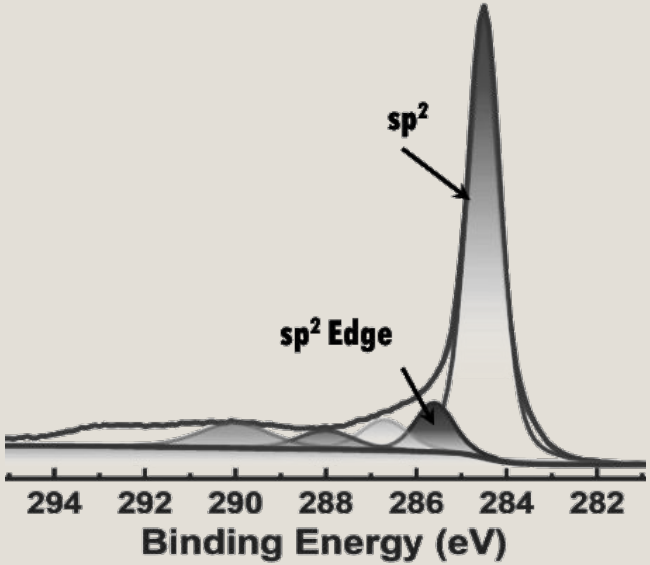
Spectral Interpretation:

- Strong G peak (~1580 cm^{-1}) confirms dominant sp^2 carbon structure.
- Well-defined 2D peak (~2700 cm^{-1}) confirms layered structure.
- I_{2D}/I_G ratio (~0.58) is consistent with few-layer graphene.
- Low I_D/I_G ratio (~0.09) indicates minimal structural defects and high crystallinity.
- Raman features in the 1800–2200 cm^{-1} region and the unsplit 2D band are consistent with turbostratic stacking and rotationally disordered stacking in few-layer graphene.

Overall Raman analysis confirms a high-quality low-defect few-layer graphene.

CHARACTERIZATION DATA

X-ray Photoelectron Spectroscopy (XPS)



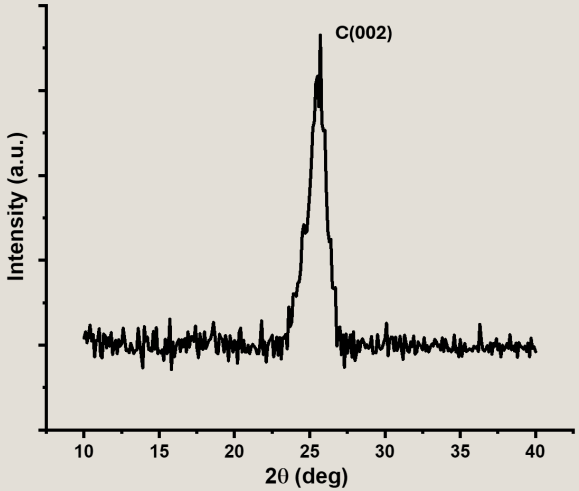
Spectral Interpretation:

- Dominant peak at ~284.5 eV corresponds to sp^2-bonded C–C, confirming a graphitic carbon framework.
- Minor contribution from sp^2 edge carbon, indicating graphene edge sites.
- Small peaks assigned to C–O–C (~286 eV) and C–OH (~287 eV) suggest limited oxygen functionalization.
- Weak higher-binding-energy component indicates minimal sp^3 carbon content.

XPS analysis confirms predominantly sp^2-bonded carbon with minimal oxygen functionalization, consistent with high-purity few-layer graphene.

CHARACTERIZATION DATA

X-Ray Diffraction (XRD)



Spectral Interpretation:

• A dominant (002) peak XRD confirms minimal crystalline impurities.

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