



## xGnP<sup>®</sup> Graphene Nanoplatelets – Grade R

**xGnP<sup>®</sup> Graphene Nanoplatelets** are high purity, low defect, ultra thin particles of graphite of nanometer scale thickness. They can be thought of as short stacks of graphite sheets made through a proprietary manufacturing process. They are produced in several grades and sizes.

The unique size and platelet morphology of **xGnP<sup>®</sup> Graphene Nanoplatelets** makes these particles especially effective at providing barrier properties, while pure graphitic composition makes them excellent electrical and thermal conductors. Unlike many other additives, **xGnP<sup>®</sup> Graphene Nanoplatelets** can improve mechanical properties such as stiffness, abrasion resistance, and surface hardness of the matrix material.

**xGnP<sup>®</sup> Graphene Nanoplatelets** are compatible with almost all polymers and can be an active ingredient in inks or coatings. The unique non-oxidizing manufacturing processes give the **xGnP<sup>®</sup> Graphene Nanoplatelets** a pristine graphitic surface of sp<sup>2</sup> carbon molecules that makes it especially suitable for applications requiring high electrical or thermal conductivity.

Available as bulk powder or in dispersions:

**xGnP<sup>®</sup>** bulk powder **xGnP<sup>®</sup>** dispersions

- \* Grade C \* Aqueous
- \* Grade H \* IPA
- \* Grade M \* Organic solvents
- \* Grade R \* Resins and custom

### Product Characteristics

Appearance	Black granules
Bulk Density	0.03 – 0.1 g/cc
Oxygen Content	< 5%
Residual Acid Content	< 0.5 wt%

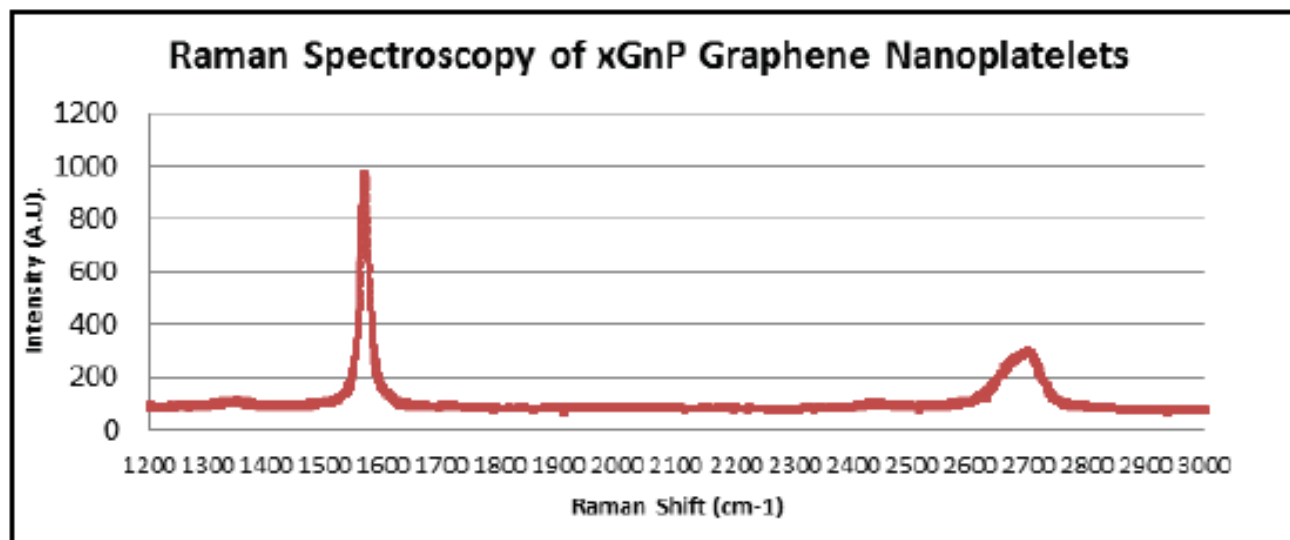
### Potential applications include

- Anode materials for lithium-ion batteries
- Conductive additives for battery electrodes
- Ultracapacitor electrodes
- Electrically conductive inks
- Films and coatings for EMI shielding
- Thermally conductive inks and coatings
- Thermal Interface Materials
- Heat spreaders
- Additive for high-strength, lightweight composites
- Additive for metal-matrix composites
- Substrates for chemical and biochemical sensors
- Barrier coatings for packaging
- Barrier coatings for anti-corrosion
- Additives for concrete
- Additives for lubricants

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## xGnP® Product Characteristics

xGnP® **Graphene Nanoplatelets** are unique nanoparticles consisting of short stacks of graphene sheets having a platelet shape. Grade R particles have a typical surface area of **30 to 60m<sup>2</sup>/g**. Grade R is available with average particle diameters of **7, 10, or 25 microns**.



	Parallel To Surface	Perpendicular To Surface
Density (g/cm <sup>3</sup> )	2.2	2.2
LOI – Loss on Ignition (wt %)	≥ 99.0	≥ 99.0
Thermal Conductivity (W/m.K)	3,000	6
Thermal Expansion (m/m/K)	4 - 6 x 10 <sup>-6</sup>	0.5 - 1.0 x 10 <sup>-6</sup>
Tensile Modulus (MPa)	1,000	NA
Tensile Strength (MPa)	5	NA
Electrical Conductivity (S/m)	10 <sup>7</sup>	10 <sup>2</sup>

### Safety

For safety and handling information pertaining to this product, read the Safety Data Sheet (SDS).

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