



xGNP®

TECHNICAL DATA SHEET

xGNP® Graphene Nanoplatelets

A unique carbon nonomaterial with multifunctional properties

xGNP® Graphene Nanoplatelets are ultrathin particles of graphite that can also be thought of as short stacks of graphene sheets made through a proprietary manufacturing process. We produce several grades and sizes with thickness ranging from 1 to 20 nanometers and width ranging from 1 to 50 microns.

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

xGNP® Graphene Nanoplatelets are compatible with almost all polymers, and can be an active ingredient in inks or coatings as well as an excellent additive to plastics of all types. Our unique manufacturing processes are **non-oxidizing**, so our material has a pristine graphitic surface of sp² carbon molecules that makes it especially suitable for applications requiring high electrical or thermal conductivity.

Available as bulk powder or in dispersions:

xGNP® bulk dry powder

- Grade C
- Grade H
- Grade M

xGNP® dispersions

- Aqueous
- IPA
- Organic solvents
- Resins and custom

Potential applications include:

- Ultracapacitor electrodes
- Anode materials for lithium-ion batteries
- Conductive additive for battery electrodes
- Electrically conductive inks
- Thermally conductive films and coatings
- Additive for lightweight composites
- Films or coatings for EMI shielding
- Substrate for chemical and biochemical sensors
- Barrier material for packaging
- Additive for super-strong concrete
- Additive for metal-matrix composites

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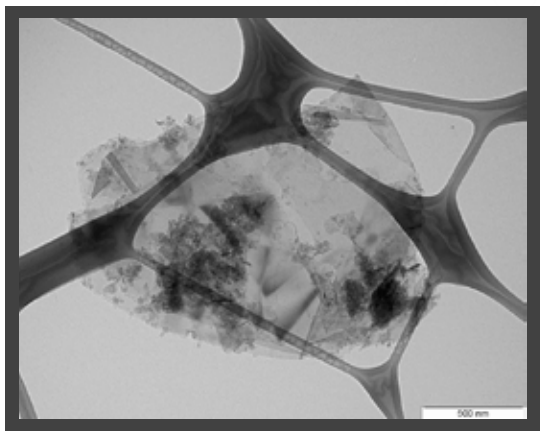
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xGnP® Grade C Product Characteristics

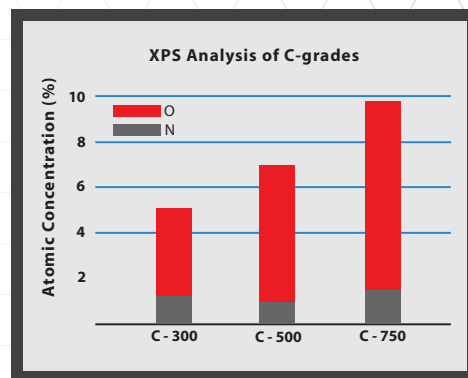
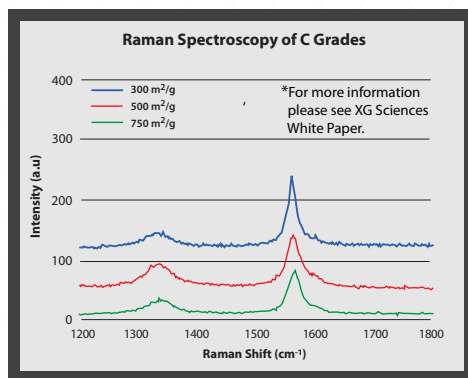
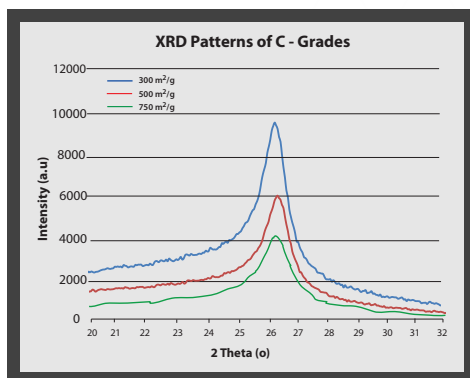
xGnP® Graphene Nanoplatelets are unique nanoparticles consisting of short stacks of graphene sheets having a platelet shape. **Grade C** particles typically consist of aggregates of sub-micron platelets that have a particle diameter of less than two microns and a typical particle thickness of a few nanometers, depending on the surface area. **Grade C** particles can be ordered with average surface areas of **300, 500 and 750 m²/g**.



Characteristics of Bulk Powder

Appearance	Black granules
Bulk Density	0.2-0.4 g/cc
Relative Gravity	2-2.25 g/cc

**Note: nanoplatelets have naturally occurring functional groups like ethers, carboxyls, or hydroxyls that can react with atmospheric humidity to form acids or other compounds. These functional groups are present on the edges of the particles and their wt% varies with particle size.*



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 **XG sciences**
THE MATERIAL DIFFERENCE

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