Technical Data Sheet

Filament-Eco Graphene

FILAMENT-Eco Graphene is a composite material of conductive graphene particles dispersed in a PLA matrix. Filaments conductivity can be tailored by inorganic content. FILAMENT-Eco Graphene is the most conductive graphene filament on the market.

FILAMENT-Eco Graphene is ideal for applications where a reinforced material is needed. In addition, the graphene used has properties that are distinctive, so it can be used as an electrode substrate, structural health monitoring.

Filament features

Particle	Graphene oxide
Polymeric matrix	PLA-based
Particle loading (from - to vol.%/wt.%)	5-15 vol.% / 9-25 wt.%
Diameter	1.75 ± 0.15 mm
Density	1.37 g/cm^3
Linear Density	0.033 g/cm
Format	Vacuum-packed spool

Thermal Properties

Glass Transiction	61 °C
Melting Temp.	152 °C
Degradation Temp.	313 °C

Printing Recommendations

Printing Temp.	170-180 °C
Hot Pad	50-60 °C
Printing Speed	5-20 mm/s
Layer Height	≥ 0.15 mm
Nozzle Diameter	≥ 0.8 mm
Head travel speed	< 150 mm/s
Stand-by Temp.	<140 °C

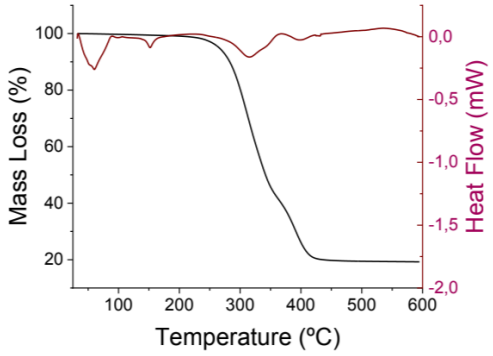
Storage Conditions

Keep in a dry place
Protect from direct sunlight
Storage between 5°C - 30°C

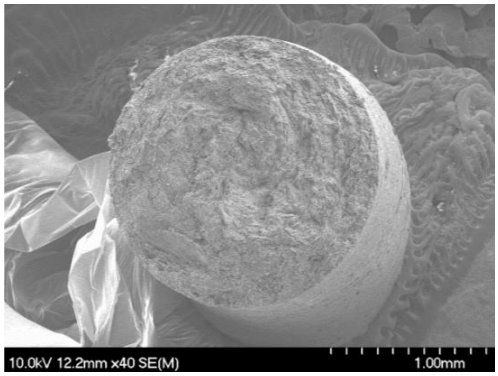
Specific properties

Filament conductivity: 500-1100 S·m^{-1} depending on the Graphene content

Thermal behavior



Filament cross-section



Printing Examples

Powder Specifications

Graphene Oxide Powder

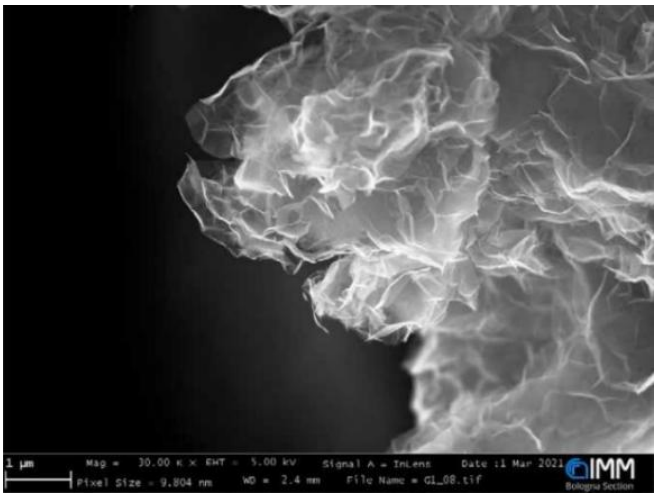
Identification Product

Commercial name	GUP
Appearance	Black powder
Supplier	GrapheneUp
Characteristics/ Description	GUP Nanoplatelets consist of high-quality powder based on graphene nanoplatelets. GUP has been manufactured using “top-down” exfoliation method.

Chemical composition

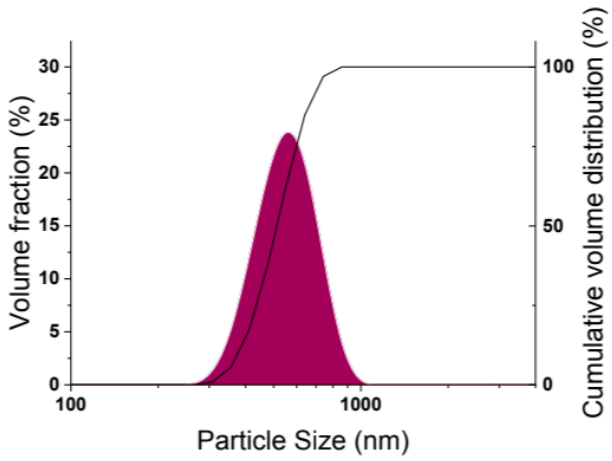
Purity	>99 %	X-Ray Fluorescence
Spec. Surf. area	180 m^2/g	N_2 adsorption- desorption
N° layers	2-5 nanosheets	

Particle morphology



Scanning electron microscope image

Particle size distribution



D_{10}: 310 nm D_{50}: 503.3 nm D_{90}: 681.2nm
Measured by Laser Diffraction at small angles

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