NanoXplore

Performance Through Carbon Chemistry

Technical Data Sheet

GRAPHENEBLACK™ 3X

GrapheneBlack™ 3X

A versatile and low-cost graphene powder available in industrial volumes.

GrapheneBlack 3X is a multifunctional carbon additive formulated for across-the-board performance improvements in thermoplastics, thermosets, inks, coatings, and rubbers. It provides a unique opportunity to enable manufacturers to reach the next level of long term performance and cost reduction with virgin and recycled resins. Performance improvements include:

Mechanical Properties   Electrical Conductivity & Shielding   Thermal Properties   Oxidation Resistance   UV Protection   Barrier Properties

Physical and chemical properties

Physical properties

Property	Value
Primary particle size*	1–2 µm
Agglomerate size**	D50=38 µm
Number of layers***	6 –10
Bulk density	0.18 g/cm3
Appearance	Black fluffy powder
Odor	Odorless
Solubility	Insoluble
Moisture (TGA)	<0.7 wt%
Ash content (TGA)	< 6 wt%

* Average primary particle size measured by statistical TEM analysis.
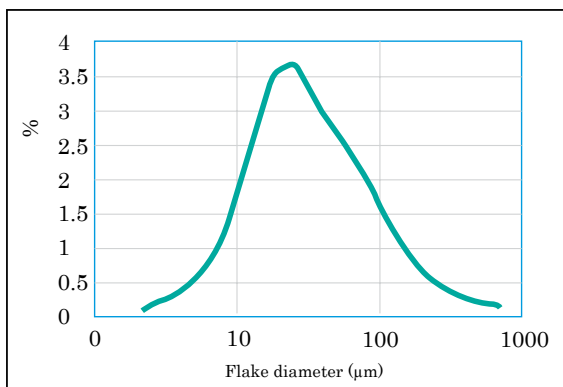*** Loose agglomerate size measured by laser diffraction.*
*** Up to 90% of flakes within this range.

Chemical composition

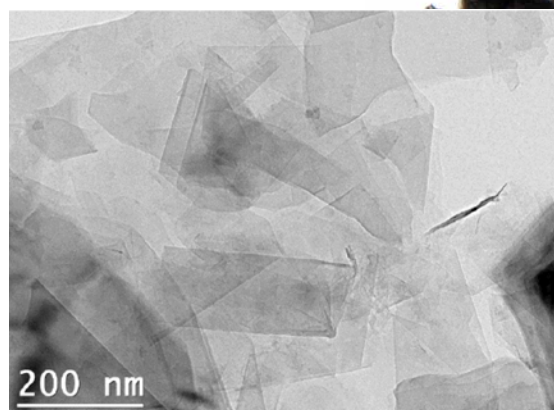| Element	Value
Carbon	>91 at.%
Oxygen	< 7 at.%
Sulfur	< 0.5 at.%
Metal impurities	< 2 at.%

Elemental content derived from X-Ray Photoelectron Spectroscopy (XPS) and the Energy Dispersive X-ray spectroscopy (EDS) analysis.

Agglomerate size distribution

Electron microscopy

Few-layer GrapheneBlack™ 3X flakes under TEM.

Electron micrograph (TEM) shows various few-layer thick flakes with thicknesses mainly ranging from 6 to 10 layers.

200 nm

GrapheneBlack 3X is available in: **1 kg**, **30 kg**, **300 kg** containers.

Contact us for larger package sizes.

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