

PRODUCT DATA SHEET OF GRAPHENE-SUPER® FOR BATTERY APPLICATIONS

PRODUCT AND COMPANY IDENTIFICATION

Generic Description: Graphene

GRAPH-ON

BULGARIA

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Graphite generated nanomaterials

Physical Form: Fluffy, Very Light Powder

Color: Grey – Black

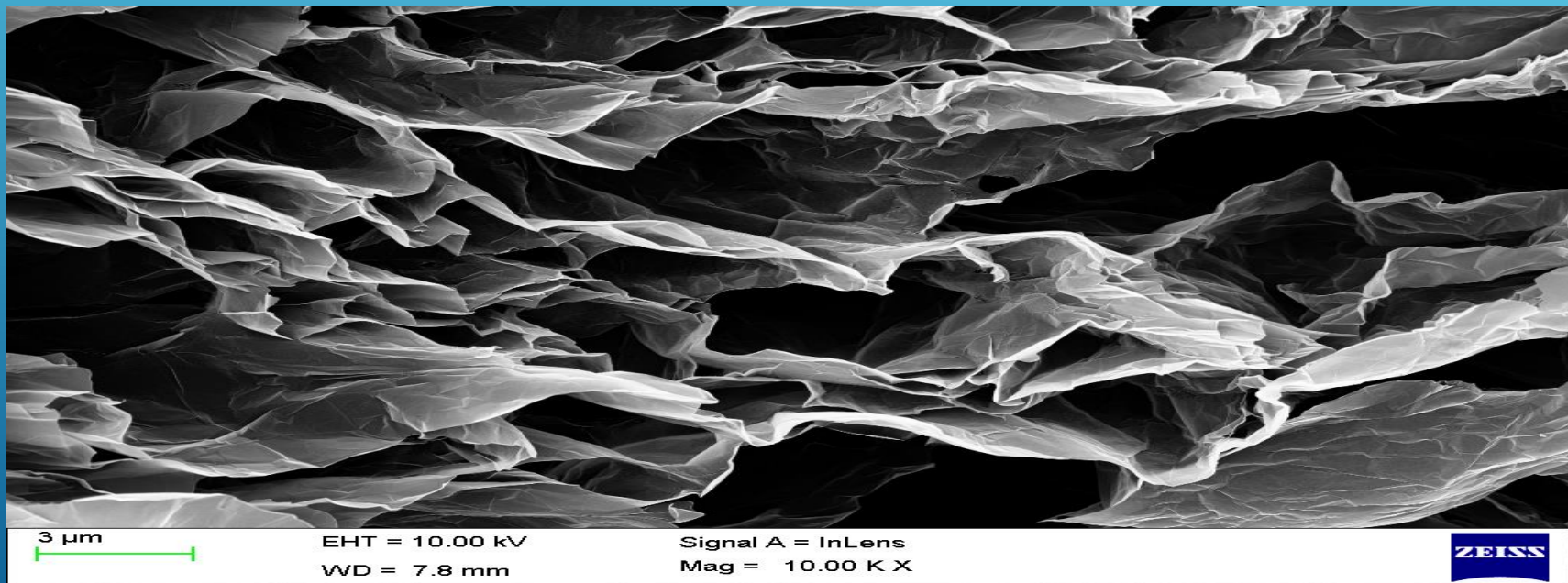
Odor: Characteristic

CAS NO.: 7782-42-5 (graphite)

Chemical Formula: C

Parameters	Industry Grade[G1]	Technical Grade[G2]	Super Grade[G3]	Analytical Grade [G4]
Thickness	20nm	8-10nm	1-2nm	2-5nm
Lateral Dimension	<20μ	10μ	<10μ	50μ
Layers	20-40	10-16	1-4	2-4
BET SURFACE AREA	112 m ² /g	150 m ² /g	220-500m ² /g	200m ² /g
Bulk density	0.53g/cc	0.45g/cc	0.08g/cc	0.10g/cc
Purity	>98%	>98%	>99%	>99%
Porosity	0.1 nm	0.3 nm	20nm	0.8 nm
Atomic Oxygen Content	2%	<1%	0.05%	0.1%

Density	Parallel to Surface	Perpendicular to Surface
Thermal	Conductivity 3,000 watts/m-K	6 watts/m-K
Tensile Modulus	>1,000 GPa	Not applicable
Tensile Strength	>5 GPa	Not applicable
Electrical Conductivity	10^7 siemens/m	10^2 siemens/m

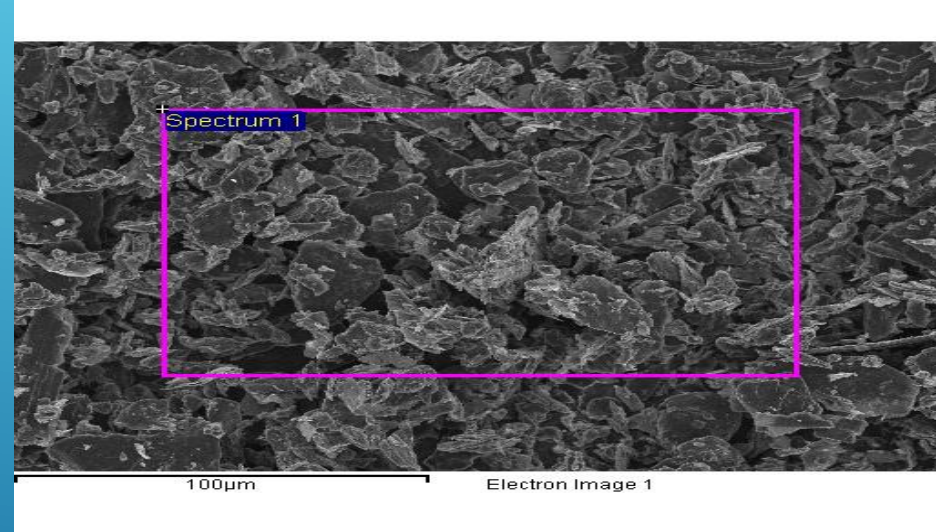


SEM IMAGE OF GRAPHENE [G3] FESEM IMAGE – SUPER GRAPEHNE

SEM EDEX-ELEMENTAL ANALYSIS

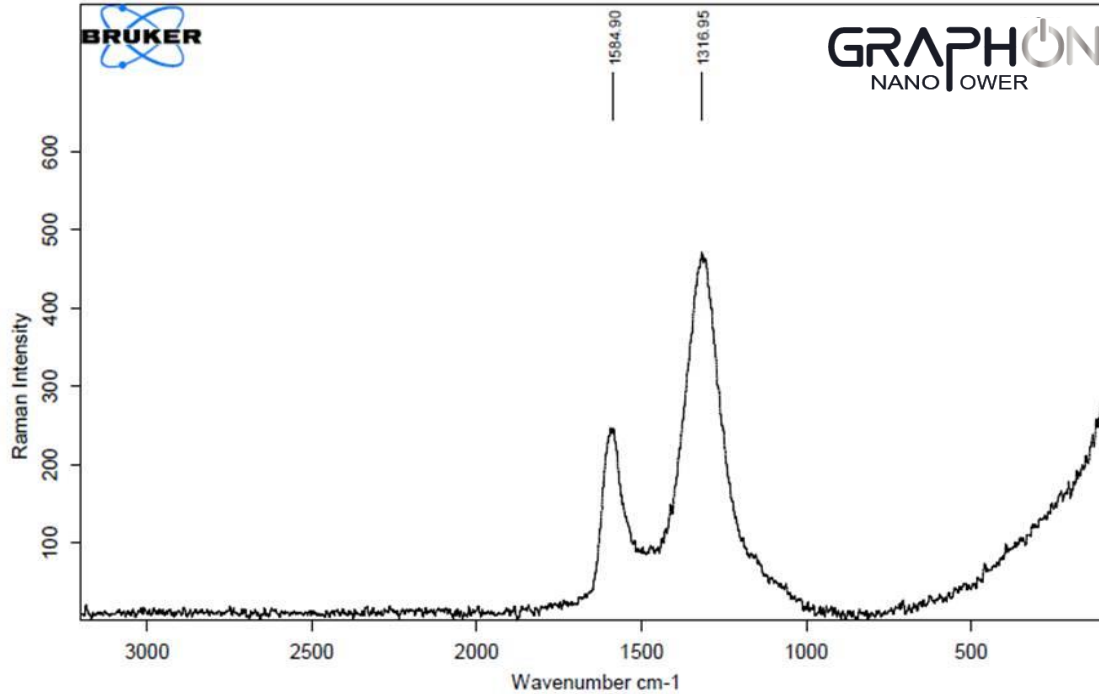
STEM Image Research Graphene

Element	Weight%	Atomic%
C K	98.02	99.31
O K	1.40	0.05
S	0.49	0.33
Si	0.09	0.31
Totals	100.00	100.00



RAMAN SPECTRA GRAPHENE-SUPER

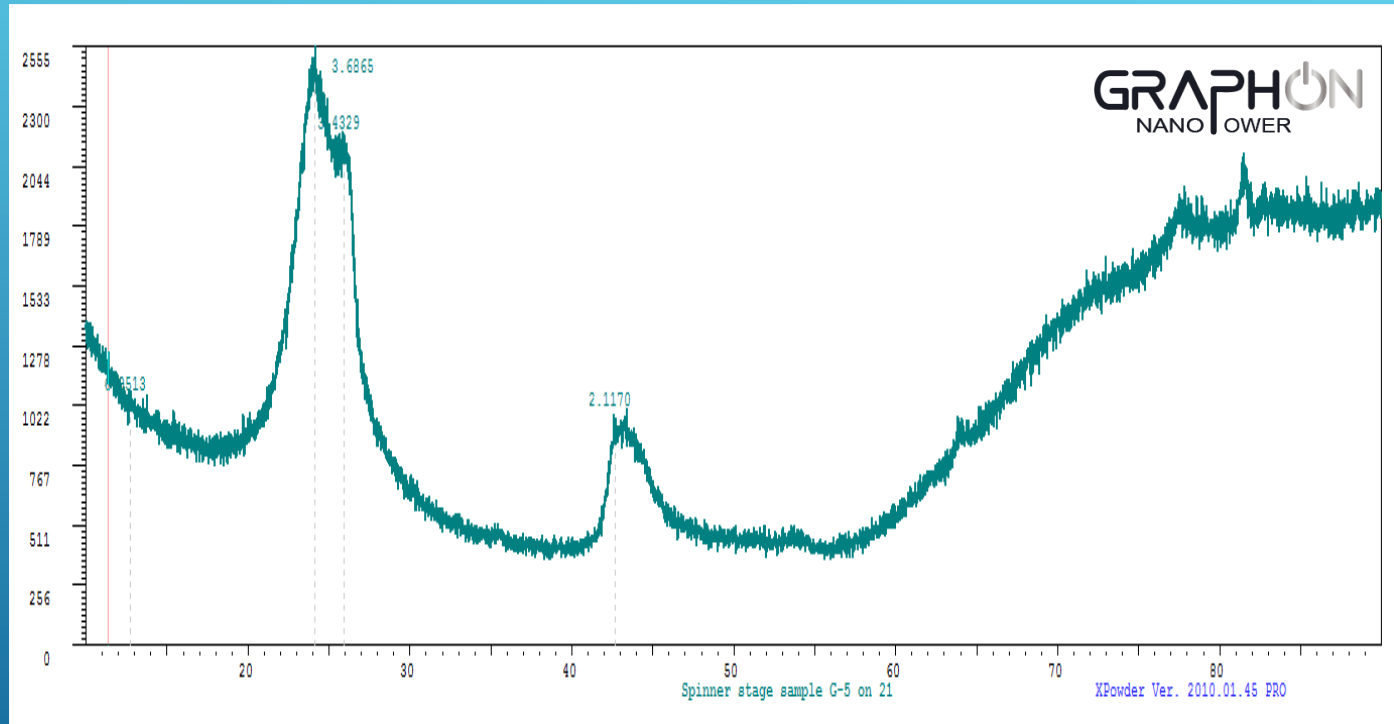
$I_D/I_G=0.936$



Raman Spectra of pristine Graphene-Super®

*Raman Spectra of Graphene Research grade] : D/G intensity ratio of 0.936
D band at 1316 cm^{-1} indicating the presence of intentional defects due to Redox process*

XRD SPECTRA OF GRAPHENE [SUPER]



APPLICATIONS

Graphen-Super® improves the mechanical performance, thermal conductivity, electrical conductivity, and permeation barrier properties of a range of composites and formulations. The graphene layers are entirely disassociated ensuring good dispersion and ease of handling while providing the full performance advantages of graphene.

BATTERY-SUPERCAPACITOR SENSOR,

ELECTRONICS, CONDUCTIVE INK MEMS

Graphen-Super® has been successfully implemented and is recommended for following areas. Although the main users are: Academic research centres, Defence laboratories AND Industries covering-Composite /Structural materials, Paint &Coating, Energy, Biomedical, Electronics!

Available form of Graphene

- ✓ Powder
- ✓ Dispersion
- ✓ Polymer Master Batch

Working Policy Compliances: We are strict to the working policies set by authorities & meeting various compliance s & quality certifications

Bulk inquiry at:- office@graph-on.com