Please note that partial of the analysis data are also conveniently available online at www.graphene.com.tw

Technical Data Sheet

Graphene Multi Layer Powder P-ML20

P-ML20 is multi layer graphene sheet which is stacked by 10 to 15 layers of graphene. Multi layer graphene is much more suitable for industrial applications to enhance electrical conductivity, thermal management, mechanical strength, anti-corrosion, lubrication and anti-wear.

Physical Property

- Appearance : Gray fluffy powder
- Oxygen Content : ≤ 3wt%
- Tap Density : 0.025±0.005 g/cm^3
- Specific Surface Area : 25±5 m^2/g
- Average Thickness (Z axis) : ~ 5 nm
- Average Lateral Size (X-Y plane) : D_{50} 11±3 μm，D_{95} ≤ 25 μm
- Oil Absorption：~250 ml/100 g
- Electrical Conductivity：≥ 1,600 S/cm

Recommended Operation Condition

- Multi layer graphene powders are hydrophobic.
- Pre-dry at 100 °C for 1 hr before handling is recommended.
- Graphene powder shows low compatibility with most systems. Please contact Enerage Inc. for more information about dispersion.

Storage

- Graphene powder should be stored in a clean and stable environment

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at room temperature.

- Storage in high temperature (>30 ^{o}C) or freezers (<0 ^{o}C) is NOT recommended.

Safety Issue

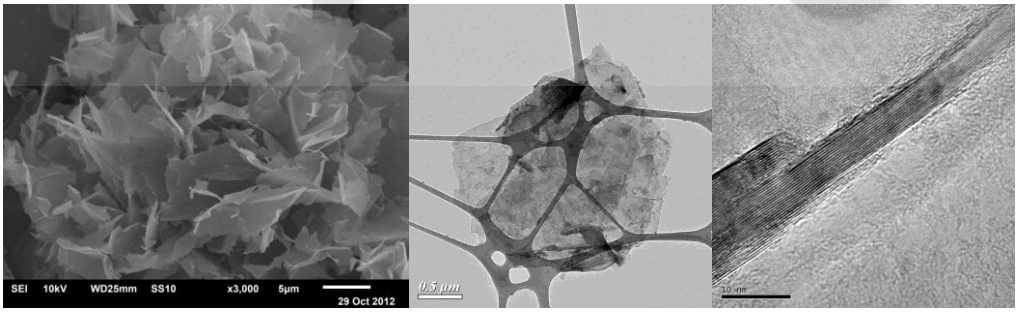
- Products are intended for use in an industrial environment by trained personnel. Please follow proper health/safety processes regarding storage, handling and processing of the products. For Safety and Handling information pertaining to this product, refer to Safety Data Sheet (SDS).

Package

- The standard package is 1Kg/bag.

Supporting Information

- **SEM & TEM**



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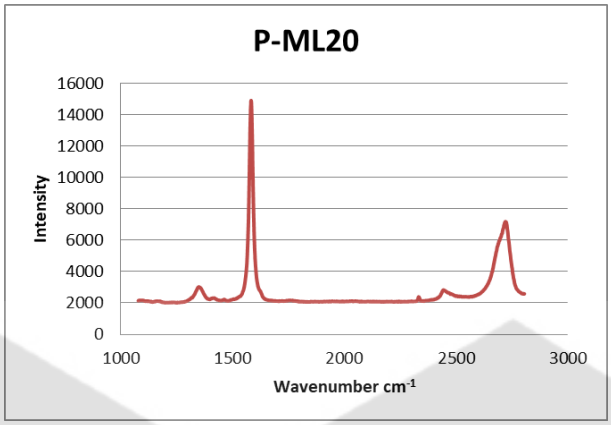
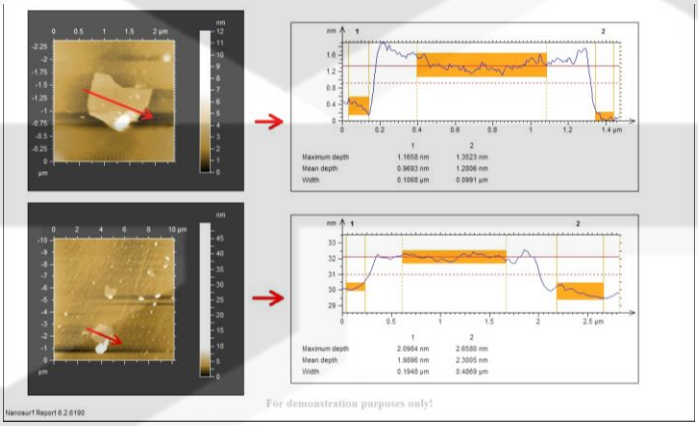
- **Raman Spectroscopy**



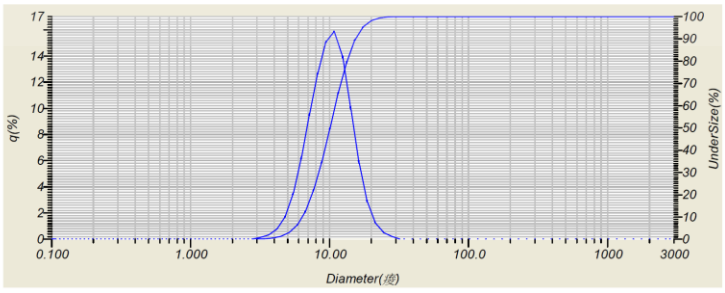
- **AFM**



- **Particle Size Distribution**

HORIBA Laser Scattering Particle Size Distribution Analyzer LA-950

Sample Name	: M17044-S3-1	Median Size	: 10.12535(μm)
ID#	: 201801161413369	Mean Size	: 10.60676(μm)
Data Name	: 201801161413369	Std.Dev.	: 3.6613(μm)
Transmittance(R)	: 83.2(%)	Geo.Mean Size	: 10.0103(μm)
Transmittance(B)	: 82.8(%)	Geo.Std.Dev.	: 1.4086(μm)
Circulation Speed	: OFF	Mode Size	: 10.7537(μm)
Agitation Speed	: OFF	Span	: OFF
Ultra Sonic	: OFF	Diameter on Cumulative %	: (1)5.000 (%)- 5.5831(μm)
Form of Distribution	: Manual		: (2)10.00 (%)- 6.3717(μm)
Distribution Base	: Volume		: (3)20.00 (%)- 7.4841(μm)
Refractive Index (R)	: C-IPA[Carbon 1(1.920 - 0.000i),Isopropanol(1.378)]		: (4)30.00 (%)- 8.3892(μm)
Refractive Index (B)	: C-IPA[Carbon 1(1.920 - 0.000i),Isopropanol(1.378)]		: (5)40.00 (%)- 9.2538(μm)
Material	:		: (6)60.00 (%)- 11.0296(μm)
Source	:		: (7)70.00 (%)- 12.0791(μm)
Lot Number	:		: (8)80.00 (%)- 13.3444(μm)
Test or Assay. Number	:		: (9)90.00 (%)- 15.3768(μm)
			: (10)95.00 (%)- 17.2707(μm)



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