

Nan☀Integris

Technical Data Sheet

PureSheets™
Pristine Graphene Nanoplatelets



光技術をサポートする
株式会社オプトサイエンス

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NanoIntegris

Better Data

Better Results



NanoIntegris supplies premium nanomaterials to companies and academic institutions developing next-generation electronics, energy, and biomedical technologies.



We pride ourselves on our **thorough, accurate, and honest material characterization**. Our nanomaterial powders and dispersions are among the purest in the industry.

What is more, our strict quality control standards and procedures ensure that our products exhibit **exceptionally high batch-to-batch consistency**.

We hope the following data provides you with confidence in the quality of our materials.

If you have further questions, **please don't hesitate to contact us**.

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Tel USA: +1-216-314-0106

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Nan*Integris

Product Delivery Forms

Our PureSheets™ graphene products are comprised entirely of **pristine graphene platelets** that have not been oxidized, reduced, or otherwise chemically modified in any way.

PureSheets MONO 1, 2 Layer Graphene



PureSheets QUATTRO 3, 4+ Layer Graphene



Figure 1. 5 mg of (A) MONO (B) and QUATTRO graphene in 100 mL of solution.

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Properties at a Glance

Property	MONO Grade	QUATTRO Grade	Measurement	See Figure
Single Layer Content	27%	6%	AFM	2
Double Layer Content	48%	23%	AFM	2
Triple Layer Content	20%	27%	AFM	2
4+ Layer Content	5%	44%	AFM	2
Average Flake Area	~10,000 nm ²	~10,000 nm ²	AFM	3
Solution Type	Aqueous w/surfacant	Aqueous w/surfacant	n/a	n/a
Graphene Concentration	0.05 mg/mL	0.05 mg/mL	n/a	n/a
Surfactant Concentration	2% w/v	2% w/v	n/a	n/a
Surfactant Type	Ionic (proprietary)	Ionic (proprietary)	n/a	n/a
Shelf Life	6 months	6 months	n/a	n/a

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Flake Thickness and Layer Number

- MONO Grade
- QUATTRO Grade

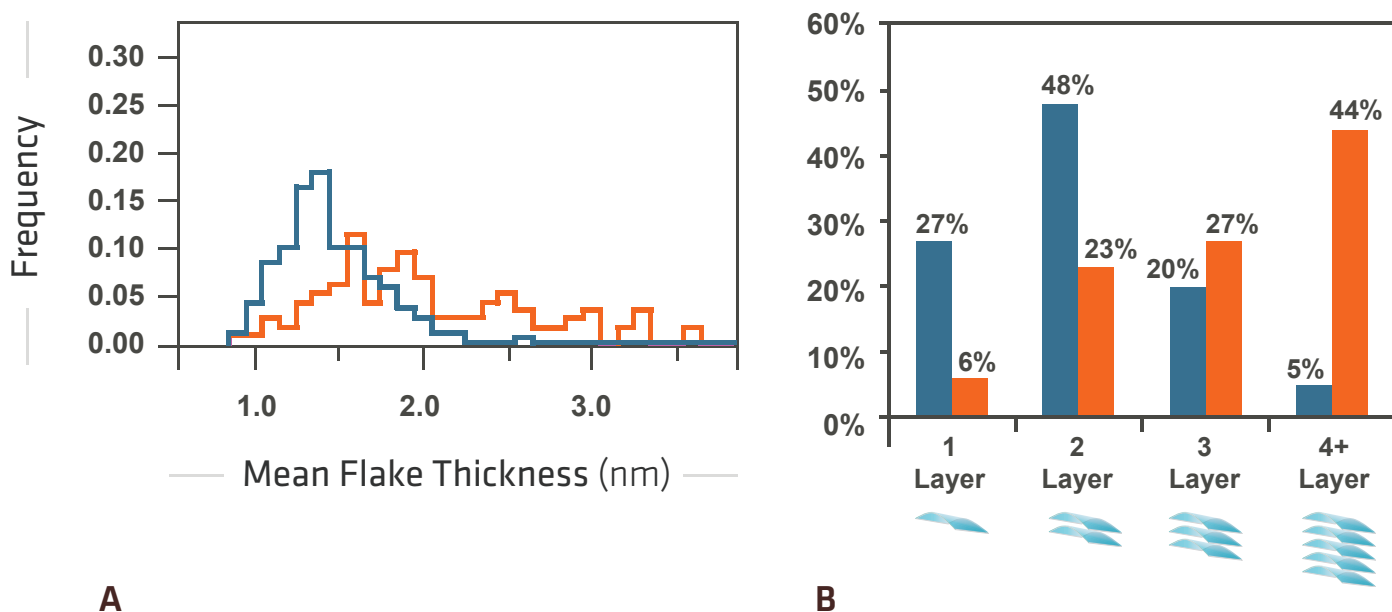


Figure 2. (A) Flake thickness histograms for MONO and QUATTRO products compiled by AFM analysis. The thickness of a single layer of graphene on an SiO₂ substrate, including adsorbed surfactant and water, is estimated to be approximately 1.1 nm*. **(B)** Platelet-layer distribution of MONO and QUATTRO products. MONO Grade material consists of approximately 75% single and double-layer graphene. Approximately 71% of QUATTRO Grade material is triple layer or greater.

*For more information, see: Alexander A. Green and Mark C. Hersam *Nano Letters*, 2009, 9 (12), pp 4031-4036

Flake Area

- MONO Grade
- QUATTRO Grade

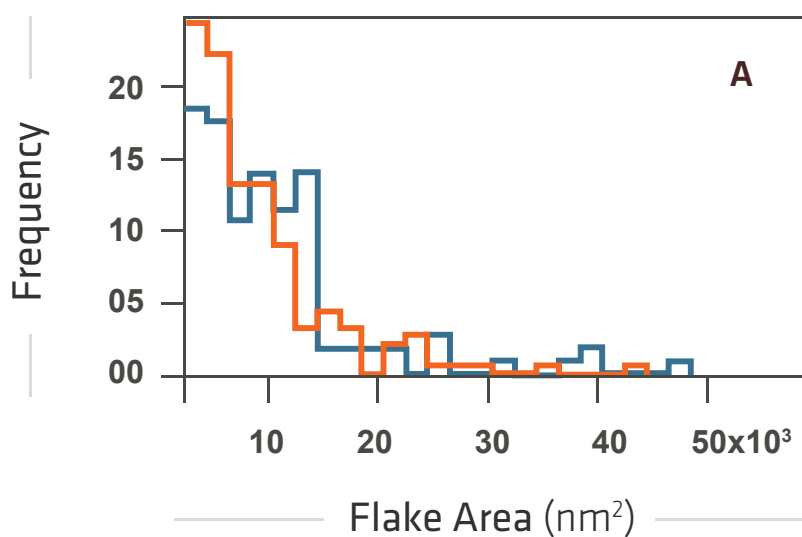


Figure 3. (A) Flake area histograms for MONO and QUATTRO products compiled by AFM analysis. Both products exhibit a mean flake area of approximately $10,000 \text{ nm}^2$. **(B)** AFM image of several pristine graphene flakes on an SiO_2 substrate.

