

# Graphene Supermarket 二硫化钨分散液

中文名称: Graphene Supermarket 二硫化钨分散液

英文名称: Tungsten Disulfide Dispersion

货 号: ML1168

CAS 号: 12138-09-9

包 装: 100mL

参 数: 26mg/L 1-4 层

保质期: 6 月常温干燥避光

**Tungsten Disulfide (WS<sub>2</sub>) Pristine Flakes in Solution, 100 ML**

WS<sub>2</sub> Pristine Flakes are nanoscale crystals dispersed in ethanol solution. If separated from

solution, nano-WS2 forms bright-green crystals, that look different from silver-grey crystals of bulk WS2.

**Properties:**

Lateral Size: 50-150 nm

Thickness: 1-4 monolayers

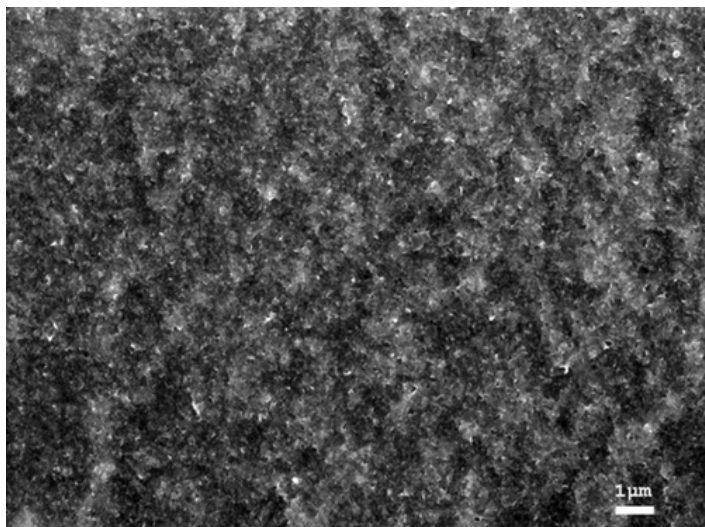
Purity in dry phase: >99%

Solution Concentration: 26 mg/L

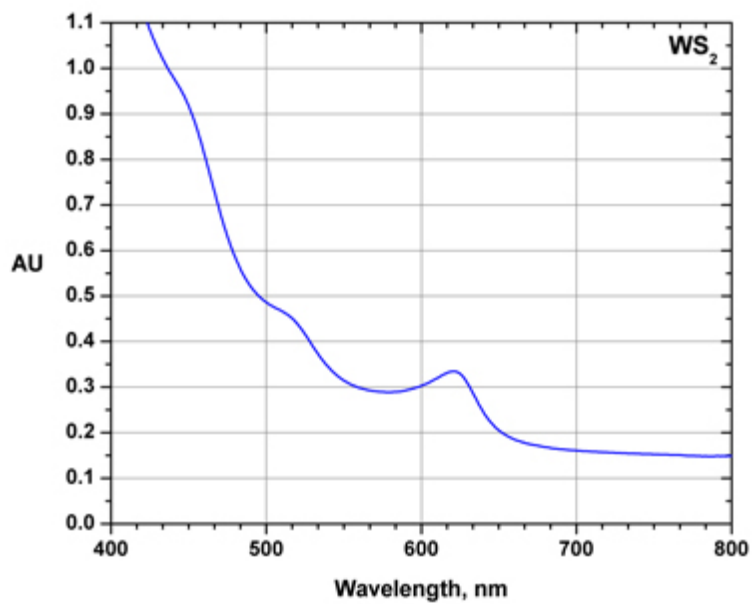
Solution is stable under ambient conditions

This solution can be easily deposited onto a substrate or surface of your choice to form a thin film coating.

**SEM image of thin-film WS2 after the solution was used to coat SiO2**



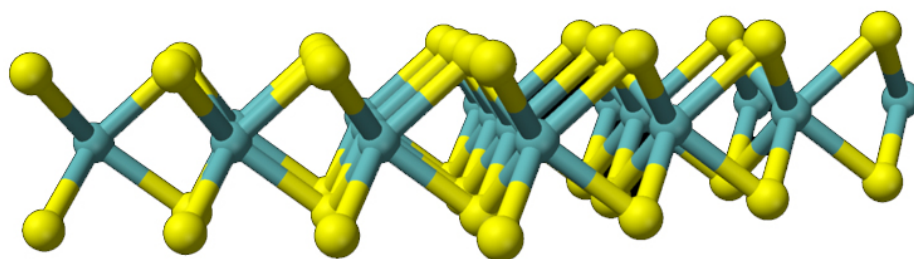
UV-Visible Absorption Spectrum



Bulk WS<sub>2</sub> forms dark gray hexagonal crystals with a layered structure. They are not chemically active and can only be dissolved by a mixture of nitric and hydrofluoric acids. Each W(IV) center

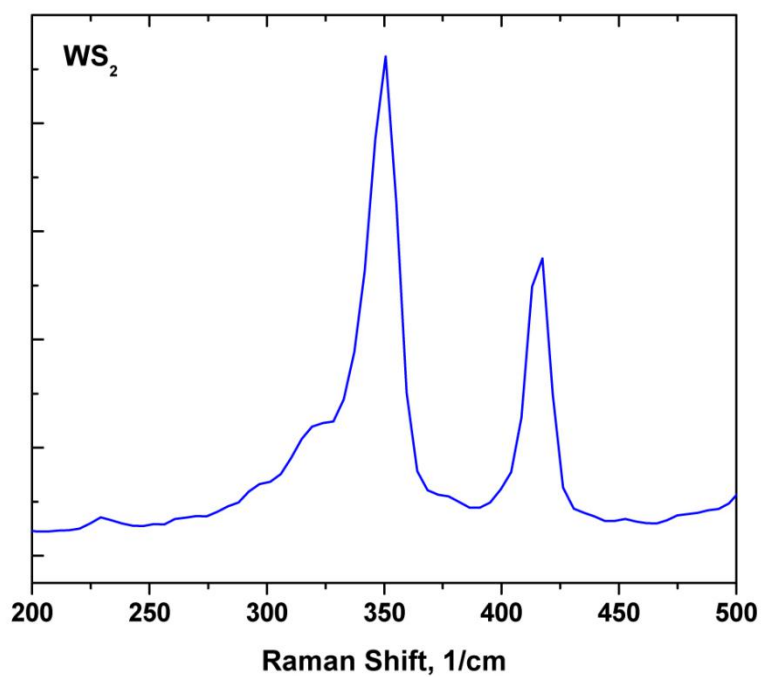
of WS<sub>2</sub> is occupying a trigonal prismatic coordination sphere, which is bound to six sulfide ligands. The sulfur centre is connected to three tungsten centres, which are pyramidal. The trigonal prisms are layered, sandwiching tungsten atoms between layers of sulfur atoms.<sup>1</sup>

#### Depiction of WS<sub>2</sub> Crystal Structure<sup>1</sup>



WS<sub>2</sub> in its monolayer form has recently been under particular recognition for its intriguing electrical and optical properties. Bulk WS<sub>2</sub> is generally an n-type semiconductor with an indirect bandgap (~1.4 eV). On the other hand, monolayer WS<sub>2</sub> has a direct bandgap of ~1.9 eV, and can be useful in low-power switching devices.

#### WS<sub>2</sub> Raman Spectrum



Preparation Method: Solution-Based Exfoliation

**Applications:**

Transistors

Flexible Displays

Optics

WS<sub>2</sub> Research

Inks

Thin Semiconducting Films

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