

Graphene Supermarket 二硫化钼晶 体

中文名称: Graphene Supermarket 二硫化钼晶体

英文名称: Molybdenum Disulfide (MoS₂) Crystals

货 号: ML1178

CAS 号: 1317-33-5

包 装: 1 盒

参 数

纯 度: 99%

面 积: 0.7cm²

保质期: 1 年常温干燥避光

Molybdenum Disulfide (MoS₂) Crystals

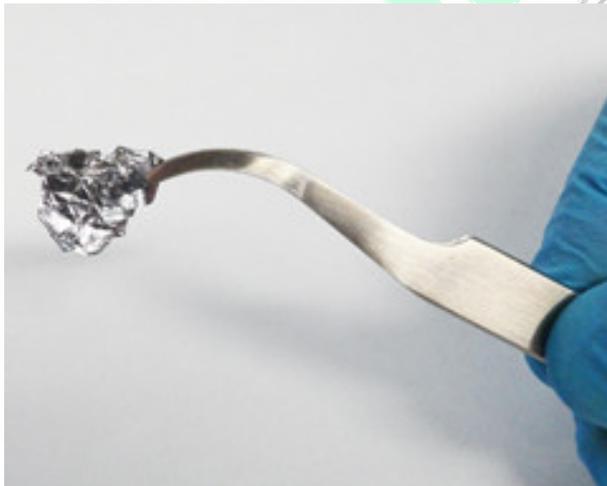
MoS₂ is a naturally-forming layered transition metal dichalcogenide which may be mined. It is a silvery-black crystal which looks and feels similar to crystals of graphite.

Properties:

One or two crystals

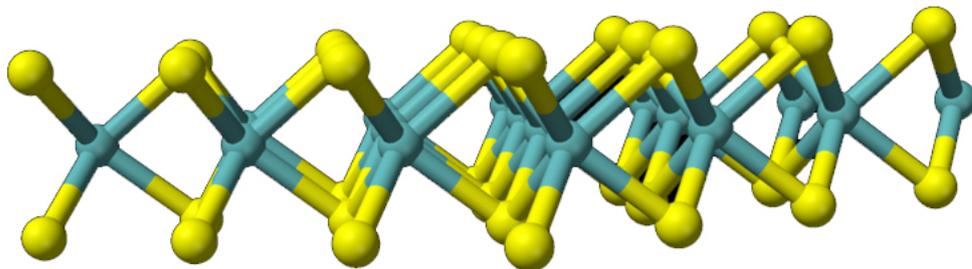
0.7cm² average area, or more

purity: >99%



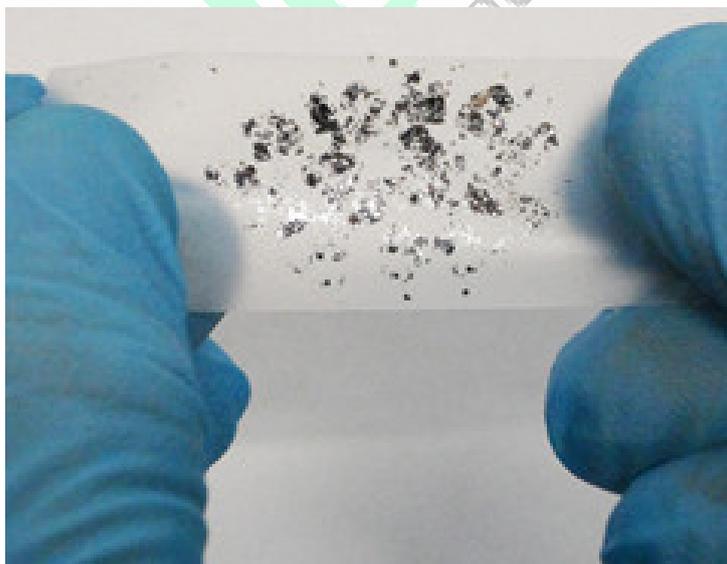
Each Mo(IV) center of MoS₂ is occupying a trigonal prismatic coordination sphere, which is bound to six sulfide ligands. The sulfur centre is connected to three Molybdenum centres, which are pyramidal. The trigonal prisms are layered, sandwiching molybdenum atoms between layers

of sulfur atoms.

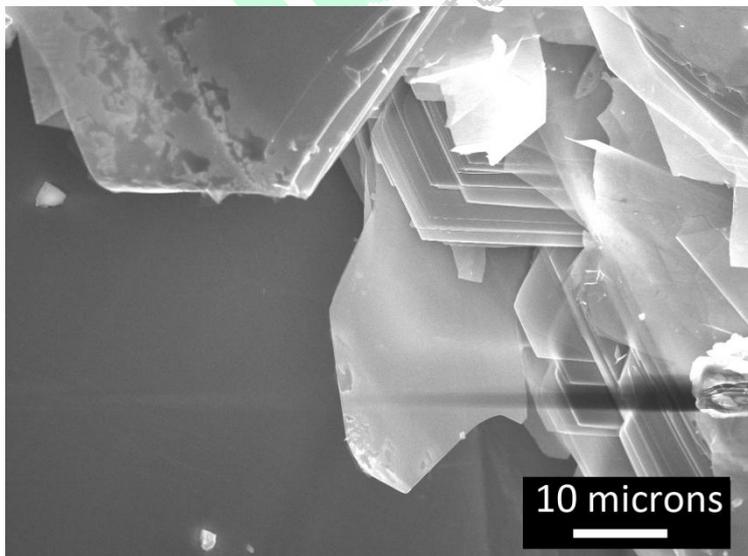
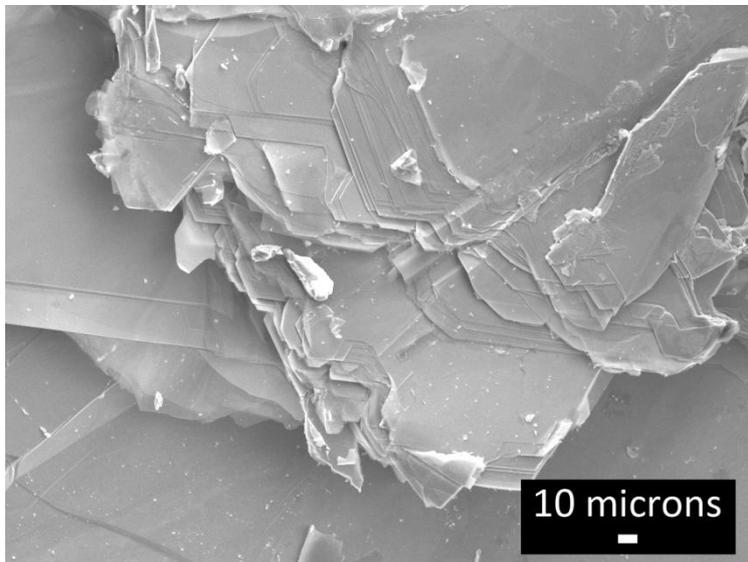


Depiction of MoS2 Crystal Structure1

MoS2 has a number of unique properties which allow it potential applications in transistors, flexible displays, and optics. For one, it possesses a direct bandgap, which is necessary for most transistor applications. It also has unique optical properties, namely having a high level of photoluminescence; this property gives it potential applications in making walls which can glow or windows which display images. It being an ultra-thin, transparent, flexible conductor makes it a likely material-of-choice for transparent, flexible displays.



MoS₂ may be mechanically exfoliated using scotch tape to create 2D MoS₂ samples, similarly to graphene. To do this, use a piece of scotch tape, and press a thin piece of MoS₂ to it. Then, take the other end of the tape and stick it together with the tape with MoS₂ on it. Do that several more times, eventually sticking the tape to a clean substrate (such as a Si/SiO₂ wafer) and peel it back. You will then have multi and monolayer MoS₂ samples on your substrate, which can be viewed under a microscope.



In the above SEM images, you can see the layering of MoS₂

Academic reference:

Single-Layer MoS₂ Transistors, Radisavljevic et al., Nature Nanotechnology, 2011, 6 (March). pp 447-500

Stretching and Breaking of Ultrathin MoS₂, Bertolazzi et al., ACS Nano, 2011 (12), 5. 9703-9709