

Solid/Dry Lubricant Tungsten Disulfide (WS₂) Powder

Tungsten Disulfide (WS₂) is one of the most lubricous materials known to science. With Coefficient of Friction at 0.03, it offers excellent dry lubricity unmatched to any other substance. It can also be used in high temperature and high pressure applications. It offers temperature resistance from -450 °F (-270°C) to 1200°F (650°C) in normal atmosphere and from -305°F (-188°C) to 2400°F (1316°C) in Vacuum. Load bearing property of coated film is extremely high at 300,000 psi.

Since the powder offers one of the lowest Coefficient of Friction (Dynamic @ 0.03 & Static @ 0.07), the applications are unlimited and could be tried with every conceivable idea.

WS₂ powder can be added to Oil/Lubricant/Liquid/Water/Plastic etc. to increase lubricity of mixture. WS₂ can also be coated on a substrate by Spraying/Buffering/Tumbling.

Physical and Technical Properties

Properties	Tungsten Disulfide (WS ₂) CAS No 12138-09-9
Colour	Silver Gray
Appearance	Crystalline Solid
Melting Point	1250° C, 1260° C (decomposes)
Boiling Point	1260° C
Density	7500 Kg.m ⁻³
Molecular Weight	248
Coefficient of Friction	0.03 Dynamic; 0.07 Static
Load bearing ability	300,000 psi for coated film
Lubrication Temperature Range	Ambient: from -273° C to 650° C Vacuum(10 ⁻¹⁴ Torr): from -188° C to 1316° C
Chemical Durability	Inert Substance, Non-Toxic
Magnetism	Non-Magnetic
Rockwell Hardness	30 HRc
Coating Specifications	Spray Blast substrate with Cold and Dry Air at 120 PSI
Coating Film Thickness	0.5 micron
Corrosion Stability	Can slow down the corrosion rate, but can not fully prevent substrate corrosion
Coatable Substrates	Iron, Steel, Aluminum, Copper, other Metals, Plastics and Manmade Solids
Compatibility	Oil, Solvent, Paint, Fuel, Water, Resin/Plastic,

WS₂ powder is available in Nano grade and sub-micron particle sizes such as 0.4 up to 1.0 micron.
Packing (for sub-micron grade): 1 lb plastic bag; 10 lbs plastic bag; 25 Kg (55 lbs.) small drum.

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