

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 |
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| 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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