

WS2 TECHNICAL DATA

Composition	Modified Tungsten Disulfide (WS2) in lamellar form
Hardness	Same as the substrate - doesn't increase the hardness
Molecular Weight	248.02
Density	7.4 gr/cm ³
Thickness	0.5 microns (0.000020 inch)
Appearance	Silver-grey/rhodium
Coefficient of Friction	Dynamic - 0.030; static - 0.070
Carrier	High velocity refrigerated air without binders or adhesives
Adhesion	Mechanical-molecular interlock
Cure Time	No cure time required, applied at ambient temperature
Temperature Range	Lubricates from -273°C to 650°C in normal atmosphere
Chemical Stability	Inert, non-toxic, corrosion resistant
Corrosion Resistance	Minor delay of corrosion, will not prevent corrosion of substrate
Magnetism	Non magnetic
Vacuum Enviroment	From -188°C to + 1316°C in vacuum of 10-14 Torr
Substrates	All ferrous or non-ferrous metals, glass, porcelain and many plastics
AS A Substrate	Accepts most paints, all platings and is compatible with solvents, fuels and oils

APPLICATION PROCESS

WS2 is impinged upon the substrate at ambient temperature. It is applied to any metal without binders or chemical agents. It will not flake, chip or peel because it becomes part of the substrate.

Coefficient of friction - WS2 achieves a dynamic coefficient of .030 and static .070 to .090. Pressure, surface finish and surface hardness will effect these results. Extensive real life wear tests indicates little change over time unless severe overload conditions are introduced.

Operating range - WS2 operates from -273°C to 650°C in normal atmosphere and 1.350°C in vacuum. At approximately 440°C is an oxidation threshold but its rate is quite slow when compared to other lubricants. Out-gassing characteristics are quite low too.

Chemical stability - WS2 is inert, non-toxic, and non-corrosive. WS2 can be applied to all stable metal substrates. It is impervious to most solvents, refined fuels, and chlorinated solvents. It is attached by fluorine gases, sulfuric and hydrofluoric acids and hot, caustic alkaline solutions. WS2 is resistant to corrosion but can not inhibit the effect of corrosion on inherently low resistant materials.

Compatibility - WS2 is used successfully with petrochemical oils and greases, synthetic diesters oils, silicone lubricants and hydraulic fluids. It has an affinity to lubricants and strives to maintain a hydro dynamic layer.

COMPONENT PART AND ASSEMBLIES

Linear Bearings - Used in waterjet cutting, milling and positioning devices

Ball Bearings - Vacuum laser applications, nuclear applications, clean rooms, medical devices

Video Recorder Bearings - High speed Duplication

Roller Bearings - Shafts, high speed spindles, cart wheels in meat packaging, aluminum rolling mills

Ball Screws - Thompson type shafts, THK IKO, NSK Linear actuation devices for positioning

Automotive - Main engine bearings, rod bearings, wheel bearings and c.v. joints

Gears - Copying equipment, paper handling devices, high temperature open faced, non wet lube applications clean rooms, printing presses. Automotive transmissions, rear end differentials. High load heavy equipment for disassembly ease. Generators, electric motors high speed and fractional hp.

Shafts - Motor drives, internal, external spline shafts and acme threads. Dental motors, medical motors, turbine engines.

Injection Moulding - All mould components which contact resin as well as slides, gibs and inserts. Enhances flow 3 - 9% and increases productivity from 4 to 8% on the average. Does not transfer to finished parts.

Wear Plates, Gibs - Injection moulds, canning machines, tooling cold handling, crimping tools, forming tools. Galling problems of stainless on stainless or aluminum on aluminum. Conveyor systems glass plants.

Chains - Roller chain, link assemblies, glass plants, papermills, food processing, clean room applications, machine assembly. Sprocket grip chain. Automotive conveyance.

Valves - Servo valves, solenoid, needle, metering valves, ball valves, fuel injection systems automotive, diesel hydraulic valves and nuclear systems.

Cutting Tools - End mills, roughing mills, jig reamers, drills, and taps, used for cutting hard, pre-hardened steels or waspalloy, hastalloy and tool steels.

Investment Casing Tooling - Almost eliminates the use of silicone sprays and extends the life of moving parts.