

Dicronite® is available throughout the world
www.dicronite.com

DICRONITE®

BROCHURE



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PRODUCT OVERVIEW

WHAT IS DICRONITE®?

Dicronite® is a tungsten disulfide (WS₂) dry film lubricant coating. This thin film coating reduces friction and sliding wear on contact surfaces. Developed as part of NASA's space exploration program, Dicronite® is trusted for precision lubrication across industries.

WHAT DOES DICRONITE® DO?

Dicronite® reduces friction between contacting surfaces to improve performance and prevent failure. With Dicronite®, users can:

- Reduce energy lost to friction and increase mechanical output
- Reduce heat generated from friction for lower operating temperatures
- Reduce sliding wear for extended component lifetime or service interval
- Prevent a mechanical system from resisting motion
- Prevent galling and seizing
- Prevent fretting
- Prevent friction related failures

WHERE CAN DICRONITE® BE USED?

Dicronite® is commonly used in extreme environments, including where other lubricants can't function. The coating can be applied to all metals, most plastics, and some ceramics, as well as on top of many other coatings or platings.

Extreme Temperatures

- Down to cryogenic temperatures
- Up to approximately 538°C (1000°F) in air
- Up to approximately 1316°C (2400°F) in vacuum

Vacuum Environments

Very low outgassing – suitable spacecraft material per ASTM E 595 guidelines

Other compatibility includes...

- Oils, greases, hydraulic fluids, fuels, and many chemicals and solvents
- Environments exposed to radiation
- Liquid and gaseous oxygen systems

Precision Tolerances

- Maximum 0.5 micron (0.00002 inch) avg. thickness allows for tolerances to remain unaffected
- Integrate on precision components without redesign

Biocompatibility

- Biocompatible per USP Class VI and select ISO-10993 testing

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TECHNICAL DATA

SUBSTRATES	All metals, most plastics, some ceramics; may be applied on other coatings/platings
APPEARANCE	Silver, blue gray, dark gray
THICKNESS	0.5 micron (0.00002 inch) or less

PERFORMANCE OVERVIEW

FRICITION REDUCTION	Systems with Dicronite® coated on smooth surfaces often range between 0.03 and 0.07 dynamic coefficient of friction, and 0.05 to 0.09 static coefficient of friction
WEAR REDUCTION	Suitable for sliding wear reduction; not intended for reducing abrasive wear
LOAD CAPACITY	Same as substrate, up to approximately 350,000 psi (2,415 MPa)
THERMAL STABILITY	Functions across high and low temperatures; withstands temperature changes <ul style="list-style-type: none">•up to approximately 538°C (1000°F) in air•up to approximately 1316°C (2400°F) in vacuum•down to cryogenic temperatures
VACUUM STABILITY	Very low outgassing; suitable spacecraft material per ASTM E595 guidelines <ul style="list-style-type: none">•TML < 1.0 %, CVCM < 0.1 %

COATING PROPERTIES

CHEMICAL STABILITY	Inert
TOXICITY	Non-toxic
MAGNETISM	Non-magnetic; won't impact substrate magnetism
CONDUCTIVITY	Will not significantly affect substrate conductivity (thermal or electrical)
CORROSION RESISTANCE	Provides only minimal corrosion inhibition

INDUSTRIES SERVED

AEROSPACE & DEFENSE



Dicronite®'s low outgassing, precision thickness, and functionality across wide temperature and vacuum ranges have led to its widespread use in aerospace applications. Its room temperature application process ensures exotic metals used in innovative aviation and defense applications remain unaffected. Dicronite® has been used in various systems such as: flight control, environmental control, fuel, instrumentation, hydraulic, structural, and projectile systems.

AUTOMOTIVE



Dicronite® is utilized by the automotive industry for its ultra-low friction, precision thickness, and wide temperature range. As a result, Dicronite® is used to reduce friction and improve performance in a broad range of automotive applications. Dicronite® is compatible with oils, greases, and various automotive fluids, allowing it to be used on components such as: gears, valves, actuators, bearings, bushings, shafts, and fasteners throughout automotive systems.

PLASTICS



Dicronite® improves mold flow, enables molds release, reduces scrap rate, and extends the life of tooling. Plastics industry users rely on Dicronite® to improve production efficiencies — increasing output and reducing downtime — by using the coating on mold cavities and other tooling such as ejector pins, core pins, ejector blades, slides, bearings, bushings, rails, and sleeves.

MEDICAL



With its biocompatibility per USP Class VI and ISO-10993 testing, and resistance to multiple sterilization procedures, Dicronite® provides friction reduction for the medical and pharmaceutical industry. A medical device masterfile (MAF) is maintained to support FDA approval for devices including Dicronite®. Applications include: surgical devices, dental instruments, implantable components, injection devices, and bone fixturing/hardware.

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ENERGY



Dicronite® provides precision lubrication that can withstand harsh environments such as extreme high and low temperatures, vacuum, chemical and solvent exposure, liquid and gaseous oxygen, and more. Applications include various mechanical components such as valves, actuators, bearings, bushings, and fasteners

SEMICONDUCTOR



With its precision thickness, performance under vacuum conditions, and strong adhesion (non-contaminating), Dicronite® is utilized for its ability to meet the strict performance requirements of the semiconductor equipment industry.

GENERAL INDUSTRIAL



Dicronite® is effective in various applications where precision friction reduction is required. Applications include manufacturing, vacuum environments, food processing, and anywhere that friction between contact surfaces becomes a problem.



REDUCE FRICTION.
IMPROVE PERFORMANCE.

Learn more at: www.dicronite.com

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