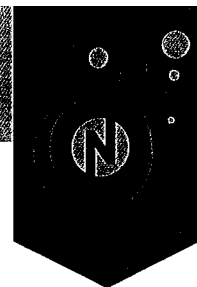


TUNGSTEN DISULFIDE SAFETY DATA SHEET

12-5-2021

Gates Die Lube



Product Identification

Specification:	Data:
Product Name	Tungsten Disulfide
SDS Number	406536-WS2
Chemical Name	Tungsten Disulfide
Chemical Family	Refractory Metal Sulfide
Synonyms	WS2
CA Number	12138-09-9
Formula	WS2
Molecular Weight	248.02

Identify Information

Specification:	Data:
Chemical Formula	WS2
Ingredient	WS2
Percentage	>99%

Hazardous Ingredients

Specification:	Data:
Primary routes of entry	Inhalation, Ingestion, Skin or Eye contact (for dusts, mists, powder, and fumes)
Effects of overexposure	Tungsten Disulfide does not constitute an important health hazard, exposure is related chiefly to the dust arising out of the crushing and milling operations. Chronic inhalation of the dust may cause lung damage in humans.
Carcinogenic Assessment	Not Listed

Physical and Chemical Properties

Specification:	Data:
Physical Form	Powder
Color	Grayish-Blue
Odor	None – slight
Boiling Point	N/A
Melting Point	Decomposes slowly in air at 1,000 °F. >3350 °F in inert atmosphere.

Vapor Pressure	N/A
Vapor Density	N/A
Evaporation Rate	N/A
Solubility in Water	None
Specific Gravity	0.75g/cm3
Percent Volatiles by Volume	N/A

Fire and Explosion Data

Specifications:	Data:
Flash Point	N/A
Extinguishing Media	Class D fire extinguishing agents, dry powder, or other agent suitable for the surrounding fire.
Special Procedures	For a powder fire confined to a small area: Use a respirator approved for smoke, toxic dust and mites. For a large fire: Use self-contained breathing apparatus.
Unusual Hazards	Dusts may present a fire or explosion hazard under fire favoring conditions of particle size, dispersion, and strong ignition source. However, this is not expected to be a problem under normal handling conditions

Human Health Data

Specifications:	Data:
Route of Entry – Inhalation	Yes
Route of Entry – Skin	No
Route of Entry – Ingestion	Yes
Health hazard acute and chronic	Acute: Inhalation of tungsten disulfide may or may not cause transient or permanent lung damage. Inhalation may cause irritation of the nose and throat. Most studies have shown insoluble tungsten compounds to be toxicologically inert. Tungsten Disulfide may cause skin and eye irritation typically due to the abrasive nature of the powder. However, these effects are generally only found when there is concurrent exposure to other dust(s).

Emergency and First Aid Procedures

Specifications:	Data:
First aid for eyes	If irritation occurs, flush with a large amount of water for at least 15 minutes. If irritation persists, seek medical attention.
First aid for skin	Wash with soap and water. If irritation or rash occurs, isolate from exposure. If rash persists, seek medical attention.
First aid for Inhalation	If large amount of dust is inhaled, move the exposed person to fresh air. If necessary, perform artificial respiration and seek medical attention.
First aid for Ingestion	If ingested, get medical attention. Give large quantities of water and induce vomiting. Do not make unconscious person vomit.

Precautions for safe handling and use

Specification:	Data:
If material released/spilled	Avoid dust generation. Do not cause material to become airborne. Provide adequate ventilation. If TLV is exceeded, clean up personnel need NIOSH/MSHA approved dust respirator. Vacuum (with appropriate filter to prevent airborne dust level which exceeds TLV) or wet dust mop or other wet clean up method.
Neutralizing Agent	None
Waste Disposal Method	Disposal must be in accordance with appropriate local, state, and federal regulations.
Handling/Storing Precautions	Maintain good housekeeping procedures to prevent dust accumulation. Wash exposed skin at end of work shift. Do not shake clothing, rags, or other items to remove dust.
Other Precautions	Dust should be removed by washing/vacuuming (with appropriate filters) the clothing, rags, or other items. Periodic medical examinations are required for individuals regularly exposed to dust.

Control Measures

Specification:	Data:
Respiratory Protection	NIOSH/MSHA approved dust respirator is required if TLV is exceeded. All appropriate requirements set forth in 29 CFR 1910.134 should be met.
Ventilation	General and local ventilation is recommended. Use local exhaust ventilation, which is adequate to limit personal exposure to levels, which do not exceed the TLV. If such equipment is not available use respirators as specified above.
Protective Gloves	Impervious gloves are recommended when contact is likely.
Eye Protection	Safety goggles or glasses recommended
Other Protective Equipment	None under normal conditions.
Work Hygienic practices	Wash hands thoroughly after handling, before eating or smoking.
Explosive Hazard	Depending upon particle size, dispersion, and exposure to ignition source. This is not expected under normal conditions. Ammonium Metatungstate, particularly powder less than 1 micron (FSSS) can be ignited in air by friction during blending, milling, etc., If over blended, over milled, etc. Fine powders may ignite spontaneously in air.

Toxicological Information

Tungsten Disulfide itself does not constitute an important health hazard; exposure is related chiefly to any dust created. Heavy exposure to the dust or the ingestion of large amounts of the soluble compounds produces changes in body weight, behavior, blood cells, colin activity, and sperm in experimental animals

Ecological Information

Not available currently.

Disposal Considerations:

This material must be disposed of in accordance with all applicable local, state, and federal regulations. Material intended for disposal may be sold as scrap for reclaim.

Transport Information

This material must be stocked in dry, ventilated place without acid, alkali. Avoid getting wet during transit.

Regulatory Information

Not available currently.

Reactivity Data

Specifications:	Data:
Stability	Stable
Conditions to avoid	N/A
Incompatibility (materials to avoid)	Contact with strong acids may generate hydrogen sulfide
Hazardous decomposition products	Oxides of sulfur and tungsten may be evolved at extreme temperatures.
Hazardous Polymerization	Will not occur
Conditions to avoid	N/A

Revision Date: 01/05/2021