

MATERIAL SAFETY DATA SHEET

SECTION 1 - PRODUCT IDENTIFICATION AND USE

PRODUCT IDENTIFIER: Molybdenum Concentrate

PRODUCT USE: Used in metal smelting and as a lubricant

WHMIS CLASSIFICATION: D2A

MANUFACTURER'S NAME: Highland Valley Copper

SUPPLIER'S NAME: Same as manufacturer

STREET ADDRESS: P.O. Box 1500, Logan Lake, BC V0K 1W0

STREET ADDRESS: Same as manufacturer

IN CASE OF EMERGENCY: (250) 523-2443

SECTION 2 - HAZARDOUS INGREDIENTS

HAZARDOUS INGREDIENTS	%	CAS #	LD50 OF INGREDIENT (SPECIFY SPECIES & ROUTE)	LC50 OF INGREDIENT (SPECIFY SPECIES)
Molybdenum, as disulphide and trioxide	30-60%	7439-98-7	>5g/kg molybdenum disulphide oral LD50 in rats; 2689 mg/kg molybdenum trioxide oral LD50 in rats	NAP
Iron Sulphide, possibly as oxide (Not a Controlled Product under WHMIS)	1-5%	1317-37-9	NAP	NAP
Silica, amorphous and crystalline	3-7%	7631-86-9 112926-00-8	NAP	NAP
Aluminum Oxide	1-5%	1344-28-1	NAP	NAP

SECTION 3 - PHYSICAL DATA

PHYSICAL STATE:	ODOUR & APPEARANCE: Odourless, dark green, extremely fine powder.			ODOUR THRESHOLD (ppm): NAP
VAPOUR PRESSURE: (mmHg) NAP	VAPOUR DENSITY: (Air=1) NAP	EVAPORATION RATE: NAP	BOILING POINT: (°C) NAP	MELTING POINT: (°C) 795 °C
pH: NAP	SPECIFIC GRAVITY: NAV	COEFF. WATER/OIL DIST. NAP		SOLUBILITY: 1.06 g/l

SECTION 4 - FIRE AND EXPLOSION DATA

FLAMMABILITY: slight

IF YES UNDER WHAT CONDITIONS? Dust explosion is possible. Can burn violently if mixed with finely ground metals such as aluminum, magnesium and silicon.

MEANS OF EXTINCTION: Use extinguishing media compatible with surrounding materials (i.e. water, water fog, dry chem or carbon dioxide)

SPECIAL PROCEDURES: Fire fighters should wear full body protection and SCBA

FLASHPOINT (°C) AND METHOD: NAP

UPPER FLAMMABLE LIMIT (% BY VOLUME):
NAP

LOWER FLAMMABLE LIMIT: (% BY VOLUME): NAP

AUTOIGNITION TEMPERATURE (°C)
NAV

HAZARDOUS COMBUSTION PRODUCTS: Sulphur dioxide, metal oxide fumes

EXPLOSION DATA » SENSITIVITY TO IMPACT: NO

SENSITIVITY TO STATIC DISCHARGE: NAP

SECTION 5 - REACTIVITY DATA

CHEMICAL STABILITY: Stable under normal conditions.

INCOMPATIBILITY: The product may, under certain conditions, react with strong oxidants such as hydrogen peroxide or nitric acid.

CORROSIVE BEHAVIOUR: NAV

REACTIVITY AND UNDER WHAT CONDITIONS: May react with fluoride, oxygen difluoride, chlorine trifluoride or hydrogen peroxide. Heated to high temperatures, sulphur dioxide will form. Sulphur dioxide, in combination with water, fog, mist or spray may form a corrosive acid. When this material is in contact with acid or acid mists, highly irritating sulphur dioxide gas could be emitted.

HAZARDOUS DECOMPOSITION PRODUCTS: No hazardous decomposition products other than those from fire or explosion. Longterm storage may result in oxidation and, under certain conditions, spontaneous combustion may occur.

SECTION 6 - TOXICOLOGICAL PROPERTIES

ROUTE OF ENTRY: SKIN CONTACT: (Yes) SKIN ABSORPTION: (No) EYE CONTACT: (Yes) INHALATION : (Yes) INGESTION: (Yes)

EFFECTS OF ACUTE EXPOSURE TO PRODUCT: May irritate eyes, nose and throat. Acute toxicity data from experimental animals exposed to molybdenum shows symptoms of severe gastrointestinal irritation with diarrhea, coma, and deaths from heart failure.

EFFECTS OF CHRONIC EXPOSURE: Repeated or prolonged overexposure may cause silicosis or lung cancer due to the silica content, pneumoconiosis due to molybdenum content, siderosis due to the iron content, fibrosis, emphysema and pneumothorax due to the aluminum content of the product.

EXPOSURE LIMITS: 10 mg/m³, based on molybdenum; 0.05 mg/m³, based on crystalline silica; 10 mg/m³, based on aluminum oxide.

SYNERGISTIC PRODUCTS: None known	IRRITANCY: Irritating to eyes, respiratory system, skin	SENSITIZATION: NAV	CARCINOGENICITY: Yes
TERATOGENICITY: NAV	REPRODUCTIVE HAZARD: NAV	MUTAGENICITY: Under experimental conditions, aluminum molybdate is mutagenic at a certain oxidation state.	

SECTION 7 - PREVENTIVE MEASURES

PERSONAL PROTECTIVE EQUIPMENT:
 Glove and Eye Protection : Wear gloves if operations are hot. Wear chemical goggles if dusting occurs or if operations are hot.
 Footwear : Normal safety boots
 Clothing: Wear overall to protect street clothing. Respirator: Wear a dual cartridge half face respirator equipped with P100 cartridges when handling product if dust is generated. Other Protective Equipment: Wear fire resistant clothing near smelting operations.

ENGINEERING CONTROLS: Use local exhaust, if there is dust.

LEAK AND SPILL PROCEDURE: Spilled material should be swept up, placed in containers and returned to process cycle.

WASTE DISPOSAL: Ensure that disposal is in compliance with government requirements and ensure conformity to local disposal regulations.

HANDLING PROCEDURES AND EQUIPMENT: Handle in a manner that will control dust. Avoid breathing dust. In dusty conditions wear dual cartridge respirator fitted with P100 cartridge.

STORAGE REQUIREMENTS: Store in well ventilated conditions that will prevent dusting. Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking or smoking.

SPECIAL SHIPPING INFORMATION: NAP

SECTION 8 - FIRST AID MEASURES

INHALATION: Remove from exposure to fresh air. Symptomatic treatment. If symptoms persist, consult physician.
EYE CONTACT: Dust: treat as a foreign body. Flush eyes with large amounts of water for 15 minutes or until irritation subsides. If irritation persists, get medical attention. SO₂: remove from exposure. Treat symptomatically.
SKIN CONTACT: Treat as a foreign body.
INGESTION: Treat symptomatically.

SECTION 9 - PREPARATION DATE OF MSDS

PREPARED BY: Susan Ewing (BC Research Inc.) SIGNATURE:	BUS NUMBER:	ADDITIONAL INFORMATION: Class D2A (Poisonous and infectious material-Other effects-Very toxic)
DATE:		

NAP: Not applicable

NAV: Not available