

Safety Data Sheet

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Revision Number 1

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product Name BLI101MBAS Metal Marking Aerosol Spray
Product Code(s) BLI101MBAS
UN-Number UN1950
Recommended Use Laser Marking

Supplier Address

Brilliance Laser Inks, LLC
2200 Garry Road Suite 1
Cinnaminson, New Jersey 08077
TEL: 609-357-1628

Emergency Telephone Number 609-357-1628 Ext. 100

SECTION 2. HAZARDS IDENTIFICATION

WARNING!

Emergency Overview

Flammable Aerosol
Asphyxiant at high concentrations
Irritating to eyes
Irritating to respiratory system
May be harmful if swallowed or if inhaled
May adversely affect central nervous system, blood, lungs, kidneys and liver.

Appearance Gray **Physical State** Aerosol, Solid/Powder. **Odor** No information available

Potential Health Effects

Acute Toxicity

Eyes

Irritating to eyes.

Skin

May cause irritation. May cause sensitization by skin contact. Avoid skin contact with leaking liquid (danger of frostbite).

Inhalation

Irritating to respiratory system. May be harmful if inhaled. Intentional misuse by deliberately concentrating and inhaling contents may be harmful or fatal. High concentrations may cause asphyxia from lack of oxygen or act as a narcotic causing central nervous system depression. Inhalation of fumes may cause metal-fume fever.

Ingestion

May be harmful if swallowed. Ingestion may cause irritation to mucous membranes. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Chronic Effects

Chronic inhalation exposure to the powder may cause inflammation and irritation to the respiratory system. Inhalation to fumes may cause metal-fume fever. Symptoms of systemic copper poisoning may include capillary damage, headache, cold sweat, weak pulse, and kidney and liver damage, central nervous system excitation followed by depression, jaundice, convulsions, paralysis, and coma. Chronic copper poisoning is typified by cirrhosis of the liver, brain damage and demyelination, kidney defects, and copper deposition in the cornea as exemplified by humans with Wilson's disease. It has also been reported that copper poisoning has lead to hemolytic anemia and accelerates arteriosclerosis.

Aggravated Medical Conditions	Central nervous system. Blood disorders. Kidney disorders. Liver disorders. Respiratory disorders.
Environmental Hazard	Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. See Section 12 for additional Ecological Information.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No	Weight %
Ethanol	64-17-5	15-40
Propane	74-98-6	10-30
Molybdenum trioxide	1313-27-5	10-30
Isobutane	75-28-5	10-30
Trizinc diphosphate	7779-90-0	5-10
Cupric acetate	142-71-2	1-5
Chromic sulfate	10101-53-8	1-5

SECTION 4. FIRST AID MEASURES

Eye Contact	Immediately flush with plenty of water. After initial flushing, remove any contact lenses and continue flushing for at least 15 minutes. Keep eye wide open while rinsing. If symptoms persist, call a physician.
Skin Contact	Consult a physician if necessary. Wash off immediately with plenty of water. Remove and wash contaminated clothing before re-use. If skin irritation persists, call a physician.
Inhalation	Move to fresh air. If breathing is irregular or stopped, administer artificial respiration. Consult a physician.
Ingestion	Do NOT induce vomiting. Rinse mouth. Drink plenty of water. Never give anything by mouth to an unconscious person. Consult a physician.
Notes to Physician	Treat symptomatically.
Protection of First-aiders	Use personal protective equipment.

SECTION 5. FIRE-FIGHTING MEASURES

Flammable Properties	Flammable aerosol.				
Flash Point	Not determined.				
Suitable Extinguishing Media	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.				
Explosion Data					
Sensitivity to Mechanical Impact	Yes.				
Sensitivity to Static Discharge	Yes.				
Protective Equipment and Precautions for Firefighters	As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.				
NFPA	Health Hazard 1	Flammability 3	Instability 0	Physical and Chemical Hazards -	
HMIS	Health Hazard 2*	Flammability 3	Physical Hazard 0	Personal Protection X	

*Indicates a chronic health hazard.

SECTION 6. ACCIDENTAL RELEASE MEASURES

Personal Precautions	Use personal protective equipment. Evacuate personnel to safe areas. Keep people away from and upwind of spill/leak.
Environmental Precautions	Prevent entry into waterways, sewers, basements or confined areas. Do not flush into surface water or sanitary sewer system. Prevent further leakage or spillage if safe to do so. Prevent product from entering drains.
Methods for Containment	Prevent further leakage or spillage if safe to do so.
Methods for Cleaning Up	For small quantities, collect spillage and transfer to a closed waste container for disposal. For large or bulk quantities, collect spillage by carefully wet wiping or HEPA vaccuming and place in a labeled, sealed waste container for disposal.

SECTION 7. HANDLING AND STORAGE

Handling	Use only in area provided with appropriate exhaust ventilation. Wear personal protective equipment. Avoid contact with skin, eyes and clothing. Avoid dust formation. Do not breathe dust.
Storage	Keep containers tightly closed in a cool, well-ventilated place. Keep in properly labeled containers. Keep away from open flames, hot surfaces and sources of ignition.

SECTION 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

Exposure Guidelines

Chemical Name	ACGIH TLV	OSHA PEL	NIOSH IDLH
Ethanol 64-17-5	STEL: 1000 ppm	TWA: 1000 ppm TWA: 1900 mg/m ³ (vacated) TWA: 1000 ppm (vacated) TWA: 1900 mg/m ³	IDLH: 3300 ppm 10% LEL TWA: 1000 ppm TWA: 1900 mg/m ³
Propane 74-98-6	TWA: 1000 ppm	TWA: 1000 ppm TWA: 1800 mg/m ³	IDLH: 2100 ppm TWA: 1000 ppm TWA: 1800 mg/m ³
Isobutane 75-28-5	TWA: 1000 ppm	N/A	N/A
Molybdenum trioxide 1313-27-5	TWA: 10 mg/m ³ Mo inhalable fraction TWA: 3 mg/m ³ Mo respirable fraction	TWA: 15 mg/m ³ total dust (vacated) TWA: 10 mg/m ³ Mo	IDLH: 5000 mg/m ³ Mo
Cupric acetate 142-71-2	TWA: 1 mg/m ³ Cu dust and mist	-	IDLH: 100 mg/m ³ Cu dust and mist TWA: 1 mg/m ³ Cu dust and mist
Chromic sulfate 10101-53-8	TWA: 0.5 mg/m ³ Cr	TWA: 0.5 mg/m ³ Cr (vacated) TWA: 0.5 mg/m ³ Cr	IDLH: 25 mg/m ³ Cr(III) TWA: 0.5 mg/m ³ Cr

OSHA PEL: Occupational Safety and Health Administration - Permissible Exposure Limits. ACGIH TLV: American Conference of Governmental Industrial Hygienists - Threshold Limit Value. NIOSH IDLH: Immediately Dangerous to Life or Health.

Other Exposure Guidelines

Vacated limits revoked by the Court of Appeals decision in AFL-CIO v. OSHA, 965 F.2d 962 (11th Cir., 1992).

Engineering Measures

Showers
Eyewash stations
Ventilation systems

Personal Protective Equipment

Eye/Face Protection

Tightly fitting safety goggles. Safety glasses with side-shields.

Skin and Body Protection

Protective gloves.

Respiratory Protection

If exposure limits are exceeded or irritation is experienced, NIOSH/MSHA approved respiratory protection should be worn. Positive-pressure supplied air respirators may be required for high airborne contaminant concentrations. Respiratory protection must be provided in accordance with current local regulations.

Hygiene Measures

When using, do not eat, drink or smoke. Remove and wash contaminated clothing before re-use. Provide regular cleaning of equipment, work area and clothing.

SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance

Gray.

Odor Threshold

No information available

pH

No information available.

Flash Point

No information available.

Decomposition Temperature

No information available.

Melting Point/Range

No information available

Odor

No information available.

Physical State

Aerosol Solid/Powder

Autoignition Temperature

No information available.

Boiling Point/Boiling Range

No information available

Flammability Limits in Air

No information available.

Solubility

No information available.

Vapor Pressure

No data available.

VOC Content (%)

67

Evaporation Rate

No information available

Vapor Density

No data available.

SECTION 10. STABILITY AND REACTIVITY

Stability	Stable under recommended storage conditions.
Incompatible Products	Reducing agents. Acids. Oxidizing agents.
Conditions to Avoid	Keep away from open flames, hot surfaces and sources of ignition.
Hazardous Decomposition Products	Phosphorous oxides. May emit toxic fumes under fire conditions: Chromium oxides. Copper oxides. Metal fume.
Hazardous Polymerization	Hazardous polymerization does not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

Acute Toxicity

Product Information

Inhalation

Irritating to respiratory system. May be harmful by inhalation. Intentional misuse by deliberately concentrating and inhaling contents may be harmful or fatal. Deliberately inhaling or exposure to high concentrations may cause simple asphyxiation (suffocation by displacing the oxygen in the air). Inhalation of fumes may cause metal fume fever, which is characterized by flu-like symptoms with metallic taste, fever, chills, cough, weakness, chest pain, muscle pain and increased white blood cell count.

Eye Contact

Irritating to eyes.

Skin Contact

May cause sensitization by skin contact.

Ingestion

May be harmful if swallowed. Ingestion may cause gastrointestinal irritation, nausea, vomiting and diarrhea.

Chemical Name	LD50 Oral	LD50 Dermal	LC50 Inhalation
Ethanol	= 7060 mg/kg (Rat)	-	= 124.7 mg/L (Rat) 4 h
Propane		-	= 658 mg/L (Rat) 4 h
Isobutane			= 658 mg/L (Rat) 4 h
Molybdenum trioxide	= 2689 mg/kg (Rat)	> 2 g/kg (Rat)	> 5840 mg/m ³ (Rat) 4 h
Trizinc diphosphate	> 5000 mg/kg (Rat)		
Cupric acetate	= 501 mg/kg (Rat)		

Chronic Toxicity

Chronic Toxicity

Chronic inhalation exposure to the powder may cause inflammation and irritation to the respiratory system. Inhalation to fumes may cause metal-fume fever. Symptoms of systemic copper poisoning may include capillary damage, headache, cold sweat, weak pulse, and kidney and liver damage, central nervous system excitation followed by depression, jaundice, convulsions, paralysis, and coma. Chronic copper poisoning is typified by cirrhosis of the liver, brain damage and demyelination, kidney defects, and copper deposition in the cornea as exemplified by humans with Wilson's disease. It has also been reported that copper poisoning has lead to hemolytic anemia and accelerates arteriosclerosis.

Carcinogenicity

Contains Molybdenum trioxide which is a suspected carcinogen within the EU based on the limited evidence of carcinogenicity observed in animal studies. Ethanol has been shown to be carcinogenic in long-term studies only when consumed and abused as an alcoholic beverage.

Chemical Name	ACGIH	IARC	NTP	OSHA
Ethanol	A3	Group 1	Known	X
Chromic sulfate		Group 3		

ACGIH: (American Conference of Governmental Industrial Hygienists)

A3 - Animal Carcinogen

IARC: (International Agency for Research on Cancer)

Group 1 - Carcinogenic to Humans

Group 3: Not Classifiable as to its Carcinogenicity to Humans

NTP: (National Toxicity Program)

Known - Known Carcinogen

OSHA: (Occupational Safety & Health Administration)

X - Present

Target Organ Effects

Central nervous system (CNS). Kidney. Liver. Lungs. Blood. Eyes.

SECTION 12. ECOLOGICAL INFORMATION

Ecotoxicity

This product contains ingredient(s) that are classified, according to European regulations, as "very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment".

Chemical Name	Toxicity to Algae	Toxicity to Fish	Toxicity to Microorganisms	Daphnia Magna (Water Flea)
Ethanol		LC50 96 h: 12.0 - 16.0 mL/L static (Oncorhynchus mykiss) LC50 96 h: 13400 - 15100 mg/L flow-through (Pimephales promelas) LC50 96 h: > 100 mg/L static (Pimephales promelas)	EC50 = 34634 mg/L 30 min EC50 = 35470 mg/L 5 min	LC50 48 h: 9268 - 14221 mg/L (Daphnia magna) EC50 24 h: = 10800 mg/L (Daphnia magna) EC50 48 h: = 2 mg/L Static (Daphnia magna)
Chemical Name		Log Pow		
Ethanol		-0.32		
Propane		2.3		
Isobutane		2.88		

SECTION 13. DISPOSAL CONSIDERATIONS

Waste Disposal Methods Dispose of in accordance with local regulations.

Contaminated Packaging Do not re-use empty containers.

This product contains one or more substances that are listed with the State of California as a hazardous waste.

Chemical Name	California Hazardous Waste
Ethanol	Toxic Ignitable
Molybdenum trioxide	Toxic
Trizinc diphosphate	Toxic
Cupric acetate	Toxic
Chromic sulfate	Toxic

SECTION 14. TRANSPORT INFORMATION

DOT

UN-Number UN1950
Proper shipping name Aerosols, flammable
Hazard Class 2.1
Description UN1950, Aerosols, flammable, 2.1, Marine Pollutant (Trizinc diphosphate)
Emergency Response Guide Number 126

TDG

UN-Number UN1950
Proper Shipping Name Aerosols
Hazard Class 2.1
Description UN1950, Aerosols, 2.1, Marine Pollutant (Trizinc diphosphate)

MEX

UN-Number UN1950
Proper Shipping Name Aerosols
Hazard Class 2.1
Description UN1950, Aerosols, 2.1, Marine Pollutant (Trizinc diphosphate)

IATA

UN-Number UN1950
Proper Shipping Name Aerosols, flammable
Hazard Class 2.2
ERG Code 10L
Description UN1950, Aerosols, flammable, 2.2

IMDG/IMO

UN-Number UN1950
Proper Shipping Name Aerosols
Hazard Class 2
Subsidiary Class See SP63
EmS No. F-D, S-U
Marine Pollutant Product is a marine pollutant according to the criteria set by IMDG/IMO
Description UN1950, Aerosols, 2.1 (See SP63), Marine Pollutant (Trizinc diphosphate)

SECTION 15. REGULATORY INFORMATION

International Inventories

TSCA Complies
DSL Complies

Legend

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory
DSL/NDL - Canadian Domestic Substances List/Non-Domestic Substances List

U.S. Federal Regulations

Section 313 of Title III of the Superfund Amendments and Reauthorization Act of 1986 (SARA). This product contains a chemical or chemicals which are subject to the reporting requirements of the Act and Title 40 of the Code of Federal Regulations, Part 372:

Chemical Name	CAS-No	Weight %	SARA 313 - Threshold Values %
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Molybdenum trioxide	1313-27-5	10-30	1.0
Trizinc diphosphate	7779-90-0	5-10	1.0
Cupric acetate	142-71-2	1-5	1.0
Chromic sulfate	10101-53-8	1-5	1.0

SARA 311/312 Hazard Categories

Acute Health Hazard	Yes
Chronic Health Hazard	Yes
Fire Hazard	No
Sudden Release of Pressure Hazard	No
Reactive Hazard	No

Clean Water Act

This product contains the following substances which are regulated pollutants pursuant to the Clean Water Act (40 CFR 122.21 and 40 CFR 122.42):

Chemical Name	CWA - Reportable Quantities	CWA - Toxic Pollutants	CWA - Priority Pollutants	CWA - Hazardous Substances
Trizinc diphosphate		X		
Cupric acetate	100 lb	X		X
Chromic sulfate	1000 lb	X		X

CERCLA

This material, as supplied, does not contain any substances regulated as hazardous substances under the Comprehensive Environmental Response Compensation and Liability Act (CERCLA) (40 CFR 302) or the Superfund Amendments and Reauthorization Act (SARA) (40 CFR 355). There may be specific reporting requirements at the local, regional, or state level pertaining to releases of this material.

Chemical Name	Hazardous Substances RQs	Extremely Hazardous Substances RQs	RQ
Cupric acetate	100 lb		RQ 100 lb final RQ RQ 45.4 kg final RQ
Chromic sulfate	1000 lb		RQ 1000 lb final RQ RQ 454 kg final RQ

U.S. State Regulations

California Proposition 65

Ethyl alcohol is only considered a Proposition 65 developmental hazard when it is ingested as an alcoholic beverage. This product contains the following Proposition 65 chemicals:

Chemical Name	CAS-No	California Prop. 65
Ethanol	64-17-5	Developmental

U.S. State Right-to-Know Regulations

Chemical Name	New Jersey	Massachusetts	Pennsylvania	Illinois	Rhode Island
Ethanol	X	X	X		
Propane	X	X	X		X
Isobutane	X	X	X		
Molybdenum trioxide	X	X	X		
Trizinc diphosphate			X		
Cupric acetate	X	X	X		
Chromic sulfate	X	X	X	X	X

International Regulations

Chemical Name	Carcinogen Status	Exposure Limits
Ethanol		Mexico: TWA 1000 ppm Mexico: TWA 1900 mg/m ³
Molybdenum trioxide		Mexico: TWA 10 mg/m ³ Mexico: STEL 20 mg/m ³
Chromic sulfate		Mexico: TWA 0.5 mg/m ³

Canada

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all the information required by the CPR.

WHMIS Hazard Class

B5 Flammable aerosol

D2B Toxic materials



Component	NPRI
Molybdenum trioxide 1313-27-5 (10-30)	X

Legend

NPRI - National Pollutant Release Inventory

SECTION 16. OTHER INFORMATION

General Disclaimer

The information provided on this SDS is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guide for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered as a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other material or in any process, unless specified in the text.

End of Safety Data Sheet