843WB SUPER SHIELD™ WATER BASED SILVER COATED COPPER CONDUCTIVE PAINT

Safety Data Sheet

Section 1: Identification

Product Identifier and Other Means of Identification

Product Identifier: 843WB

Other Means of Identification: Super Shield™ Water Based Silver Coated Copper Conductive Paint

Related Part # 843WB-15ML, 843WB-150ML, 843WB-850ML, 843WB-3.78L, 834WB-18.9L

Recommended Use and Restriction on Use

Use: Silver filled, electrically conductive coating

Uses Advised Against: Not available

Details of Manufacturer or Importer

Manufacturer
MG Chemicals
1210 Corporate Drive
Burlington, Ontario L7L 5R6
CANADA

☎ +1-800-340-0772
FAX +1-800-340-0773
E-MAIL support@mgchemicals.com
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FAX +1-905-331-2682
E-MAIL info@mgchemicals.com

E-MAIL (Competent Person): sds@mgchemicals.com

Emergency Phone Number

For hazardous material incidents ONLY (leaks, spills, fires, exposures or accidents)
USA or CANADA—Call Verisk 3E at ***+1-866-519-4752*** or ***+1-760-476-3962***
(Service access code: 335388)

For emergencies involving the transport of dangerous goods; 24/7 service
CANADA—Call CANUTEC collect at ***+1-613-996-6666*** or ****666*** on cellular phones

Section 2: Hazard(s) Identification

Classification of Hazardous Chemical

GHS Categories

Criteria	Category	Signal Word	Pictograms
Hazardous to the Aquatic Environment Chronic	1	Warning	Environment

Note: The degree of severity is ranked within each hazard class from 1 (Highest Severity) to up to 5 (Lowest Severity), which is opposite to HMIS and NFPA conventions. Severity category rankings do not allow comparisons between classes.

Label Elements

Signal Word	**WARNING**
Pictograms	**Hazard Statements**
	H410: Very toxic to aquatic life with long lasting effects
Prevention	**Precautionary Statements**
P273	Avoid release to the environment.
Response	**Precautionary Statements**
P391	Collect Spillage.
Disposal	Precautionary Statements
P501	Dispose of contents in accordance to local, regional, national, and international regulations.

Hazards Not Otherwise Classified

Other Criteria	Hazard Statements/Precautionary Statement	Signal Word	Pictograms
Argyria	Long term exposure to silver powder or compounds can lead to an irreversible blue-grey discoloration of the skin.	None	None

Section 3: Composition/Information on Ingredients

CAS #	Chemical Name	%(weight)
7440-50-8	copper	22%
7440-22-4	silver	4%
121-44-8	triethylamine	0.8%
14807-96-6	talc	0.5%

Section 4: First-Aid Measures

Exposure Condition	*GHS Code/Symptoms/Precautionary Statements*
IF IN EYES	P305 + P351 + P338
Immediate Symptoms	*low toxicity: redness, mild irritation*
Response	Rinse cautiously with water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF ON SKIN	P302 + P352
Immediate Symptoms	*low toxicity: redness, mild irritation, dry skin*
Response	Wash with plenty of water.
IF INHALED	P304 + P340
Immediate Symptoms	*low toxicity: cough, shortness of breath, headache, sore throat*
Response	Remove person to fresh air and keep comfortable for breathing.
IF SWALLOWED	P301 + P330 + P331
Immediate Symptoms	*low toxicity: abdominal pain, nausea, vomiting*
Response	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

Section 5: Fire-Fighting Measures

Extinguishing Media	In case of fire: Use extinguishing media suitable for surrounding material.
Specific Hazards	Produces irritating and toxic fumes in fires or in contact with hot surfaces.
Combustion Products	Produces carbon oxides (CO, CO_2), nitrogen oxides (NO_x) and metal oxide fumes.
Fire-Fighter	Wear self-contained breathing apparatus and full fire-fighting turn-out gear.

Section 6: Accidental Release Measures

Personal Protection	Use personal protection recommended in Section 8.
Precautions for Response	Avoid breathing mist, spray, and vapors. Remove or keep away all sources of extreme heat or open flames.
Environmental Precautions	Avoid releasing to the environment. Prevent spill from entering drains and waterways.
Containment Methods	Contain with inert and non-flammable absorbent (such as soil, sand, vermiculite).
Cleaning Methods	Collect liquid in a sealable, waste container. Sprinkle inert absorbent compound onto spill, then sweep into the container. Wash spill area with soap and water to remove the last traces of residue.
Disposal Methods	Dispose of spill waste according to Section 13.

Section 7: Handling and Storage

Prevention	Keep out of reach of children.
Handling	Avoid release to the environment. Collect spillage.
Storage	Keep away from incompatible substances.

Section 8: Exposure Controls/Personal Protection

Substances with Occupational Exposure Limit Values

Chemical Name	Country/ Provinces	Long Term Exposure Limits (PEL)	Short Term Exposure Limits (STEL)
copper *(dust and mist)*	ACGIH U.S.A. OSHA PEL Canada AB Canada BC Canada ON Canada QC	1.0 mg/m^3 1.0 mg/m^3 1.0 mg/m^3 1.0 mg/m^3 1 mg/m^3 1 mg/m^3	Not established Not established Not established Not established Not established Not established
silver *(metal dust, mist)* *(metal)* *(Ag and its compounds)* *(metal, dust, fumes)*	ACGIH U.S.A. OSHA PEL Canada AB Canada BC Canada ON Canada QC	0.1 mg/m^3 0.01 mg/m^3 0.1 mg/m^3 0.01 mg/m^3 0.1 mg/m^3 0.1 mg/m^3	Not established Not established Not established 0.03 mg/m^3 Not established Not established
triethylamine	ACGIH U.S.A. OSHA PEL Canada AB Canada BC Canada ON Canada QC	1 ppm 25 ppm 1 ppm 1 ppm 1 ppm 10 ppm	2 ppm Not established 3 ppm 3 ppm 3 ppm 15 ppm
talc (non-asbestos fiber)	ACGIH U.S.A. OSHA PEL Canada AB Canada BC Canada ON Canada QC	2 mg/m^3 20 mppcf [a)] 2 mg/m^3 2 mg/m^3 2 mg/m^3 3 mg/m^3	Not established Not established Not established Not established Not established Not established

Note: Ingredients are listed in descending weight contribution order (from greatest to least). The ACGIH[1], OSHA (Table Z-1), and Canadian provinces exposure limits were consulted. Limits from the RTECS database[2] and from suppliers' SDS were also consulted. Short term exposure limits (STEL) are for 15 min and long term permissible exposure limits (PEL) for 8 h.

a) Million particles per cubic foot of air, based on impinge samples counted by light-field technique.

Engineering Controls

Ventilation	Keep airborne concentrations below the occupational exposure limits (OEL).

Personal Protective Equipment

Eye protection	Wear appropriate protective eyeglasses or chemical safety goggles. **RECOMMENDATION:** Ensure that glasses have side shields for lateral protection.
Skin Protection	For likely or incidental contacts, use nitrile, neoprene, or other chemically resistant gloves.
Respiratory Protection	For over-exposures up to 10 x OEL of mist, vapors, and spray, wear respirator such as a half-mask respirator with organic vapor cartridges and particulate filter. Above 10 x OEL, use a positive-pressure, air-supplied respirator or a self-contained breathing apparatus. **RECOMMENDATION:** Consult your local safety supply store to ensure that your respirator has a NIOSH (U.S.) approved filter cartridges appropriate for the ingredients listed in Section 3. The respirator should be fitted to the employee by a professional. Ensure vapor cartridges are stored in sealed plastic bags when not being used.

General Hygiene Considerations

Wash hands thoroughly with water and soap after handling.

Section 9: Physical and Chemical Properties

Physical State	Liquid	**Lower Flammability Limit**	Not applicable
Appearance	Light brown metallic	**Upper Flammability Limit**	Not applicable
Odor	Musty	**Vapor Pressure** [a)]	19 hPa [14 mmHg]
Odor Threshold	Not available	**Vapor Density**	Not available
pH	Not available	**Relative Density @25 °C**	1.3
Freezing/Melting Point	Not available	**Solubility in Water**	Partly miscible
Initial Boiling Point	≥100 °C [≥212 °F]	**Partition Coefficient n-octanol/water**	Not available
Flash Point	Not available	**Auto-ignition Temperature**	Not available
Evaporation Rate	Not available	**Decomposition Temperature**	Not available
Flammability	Non Flammable	**Viscosity @40 °C**	Not available

a) Calculated using from volatile components parameters and Raoult's Law.

Section 10: Stability and Reactivity

Reactivity	The copper may form shock sensitive compounds in the presence of acetylenic compounds.
Chemical Stability	Chemically stable at normal temperatures and pressures
Conditions to Avoid	Ignition sources, open flames, excessive heat, and incompatible substances
Incompatibilities	Oxidizing agents, strong acids, peroxides, acetylenic compounds
Polymerization	Will not occur
Decomposition	Will not decompose under normal conditions. For thermal decomposition, see combustion products in Section 5.

Section 11: Toxicological Information

Summary of Effects and Symptoms by Routes of Exposure

Eyes	Low toxicity: may cause eye redness, and mild irritation.
Skin	Low toxicity: may cause redness, mild irritation and/or dry skin.
Inhalation	Low toxicity: may cause cough, shortness of breath, headache and/or sore throat.
Ingestion	Low toxicity: may cause abdominal pain, nausea and vomiting.
Chronic	Exposure to silver powder may also cause argyria, an irreversible blue-grey discoloration of the skin.

Acute Toxicity (Lethal Exposure Concentrations)

Chemical Name	LD50 oral	LD50 dermal	LC50 inhalation
copper	>5 000 mg/kg mouse	Not available	5.11 mg/L 4 h Rat
silver	>2 000 mg/kg Rat	>2 000 mg/kg Rat	5.16 mg/m^3 4 h Rat (dust)
talc	Not available	Not available	Not available
triethylamine	730 mg/kg Rat	580 mg/kg Rabbit	2 552 mg/L 1 h Rat

Note: Toxicity data from the RTECS[2] and ECHA databases were consulted. The data from supplier SDSs' were also consulted.

Section continued on the next page

Other Toxicological Effects

Skin corrosion/irritation	Based on available data, the classification criteria are not met.
Serious eye damage/irritation	Based on available data, the classification criteria are not met.
Sensitization (allergic reactions)	Based on available data, the classification criteria are not met.
Carcinogenicity (risk of cancer)	Based on available data, the classification criteria are not met.
Mutagenicity (risk of heritable genetic effects)	Based on available data, the classification criteria are not met.
Reproductive Toxicity (risk to sex functions)	Based on available data, the classification criteria are not met.
Teratogenicity (risk of fetus malformation)	Based on available data, the classification criteria are not met.
STOT-single exposure	Based on available data, the classification criteria are not met.
STOT-repeated exposure	Based on available data, the classification criteria are not met.
Aspiration hazard	Based on available data, the classification criteria are not met. There are no category 1 components.

Section 12: Ecological Information

Ecological classifications are based on the IMDG/GHS criteria in conjunction with ecotoxicological data from our suppliers, the European Chemical Agency database (http://echa.europa.eu), and other reliable sources.

Contains silver and copper particles of less than a 1 mm but more than 100 nm (larger than nanoparticles), which release ionic silver and ionic copper levels that are very toxic to the environment. While massive silver and copper are insoluble in water, their powders are considered sufficiently soluble to give rise to an ecological hazard by EU regulators. The classification that follows considers to chronic aqueous toxicity of category 1 (M = 10 for silver and M = 1 for copper) of the EU.

Section continued on the next page

Acute Ecotoxicity

Category 1

Very toxic to aquatic life

Chronic Ecotoxicity

Category 1

Very toxic to aquatic life with long lasting effects

Avoid release to the environment. Collect spillage.

Biodegradability

The silver and copper content are not biodegradable.

Other Effects

Actual VOC (Volatile Organic Compounds) content according to the US (EPA) and Canadian (CEPA) authorities.

Actual VOC = 1.5% [20 g/L]; Regulated VOC = 71 g/L

Section 13: Disposal Information

Dispose of contents in accordance with all local, regional, national, and international regulations.

Section 14: Transport Information

Ground

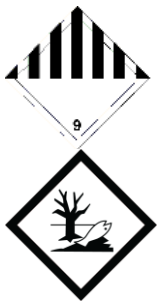
Refer to TDG regulations (Canadian Transportation of Dangerous Goods regulations); **USA DOT 49 CFR** (Parts 100 to 185) **Regulations.**

Sizes under 450 L
NOT REGULATED in TDG
per Special Provisions 99

Sizes 5 L and under
843WB-15ML, 843WB-150ML, 843WB-850ML, 843WB-3.78L

NOT REGULATED in 49 CFR
per exception 171.4 (c)(2)

Sizes greater than 5 L
843WB-18.9L
UN number: UN3082
Shipping Name: ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (silver particles <1 mm, copper particles <1 mm)
Class: 9
Packing Group: III
Marine Pollutant: Yes

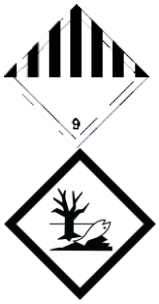


Special Provision 99 (2): These Regulations, except for Part 1 (Coming into Force, Repeal, Interpretation, General Provisions and Special Cases) and Part 2 (Classification), do not apply to the handling, offering for transport or transporting of less than 450 kg of UN3077, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S., or less than 450 L of UN3082, ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S., on a road vehicle or a railway vehicle. The dangerous goods must be contained in one or more small means of containment designed, constructed, filled, closed, secured and maintained so that under normal conditions of transport, including handling, there will be no accidental release of the dangerous goods that could endanger public safety.

Section continued on the next page

Air

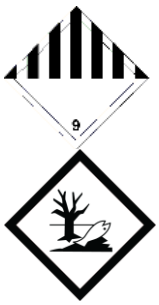
Refer to ICAO-IATA regulations.

Sizes 5 L and under	Sizes greater than 5 L
843WB-15ML, 843WB-150ML, 843WB-850ML, 843WB-3.78L **NOT REGULATED** On air waybill, write: "Not Restricted, as per Special Provisions A197"	*843WB-18.9L* **UN number:** UN3082 **Shipping Name:** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (silver particles <1 mm, copper particles <1 mm) **Class:** 9 **Packing Group:** III **Marine Pollutant:** Yes 

Special Provision A197: These substances when transported in single or combination packagings containing net quantity per single or inner packaging of less than 5 L or less for liquids or having a net mass of 5 kg or less for solids, are not subject to any other provisions of these Regulations provided the packagings meet the general provisions 5.0.2.4.1, 5.0.2.6.1.1 and 5.0.2.8.

Sea

Refer to IMDG regulations.

Sizes 5 L and under	Sizes greater than 5 L
843WB-15ML, 843WB-150ML, 843WB-850ML, 843WB-3.78L **NOT REGULATED** per 2.10.2.7	*843WB-18.9L* **UN number:** UN3082 **Shipping Name:** ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (silver particles <1 mm, copper particles <1 mm) **Class:** 9 **Packing Group:** III **Marine Pollutant:** Yes 

2.10.2.7: Marine pollutants packaged in single or combination packagings containing a net quantity per single or inner packaging of 5 L or less for liquids or having a net mass per single or inner packaging of 5 kg or less for solids are not subject to any other provision of this Code relevant to marine pollutants provided the packagings meet the general provisions of 4.1.1.1, 4.1.1.2 and 4.1.1.4 to 4.1.1.8. In the case of marine pollutants also meeting the criteria for inclusion in another hazard class, all provisions of this Code relevant to any additional hazards continue to apply.

Note: **Shipper must be appropriately <u>trained and certified</u> before involvement with the transport of dangerous goods.**

Section 15: Regulatory Information

Canada

Domestic Substance List (DSL) / Non-Domestic Substance Lists (NDSL)

All hazardous ingredients are listed on the DSL.

Hazardous Products Act (R.S.C., 1985, c. H-3)

The safety data sheet and label comply with the Hazardous Product Act and WHMIS 2015.

USA

Other Classifications

HMIS® RATING

HEALTH:	* 2
FLAMMABILITY:	0
PHYSICAL HAZARD:	0
PERSONAL PROTECTION:	

NFPA® 704 CODES

Approximate HMIS and NFPA Risk Ratings Legend:
0 (Low or none); 1 (Slight); 2 (Moderate); 3 (Serious); 4 (Severe)

CAA (Clean Air Act, USA)

This product does not contain any class 1 ozone depleting substances.

This product does not contain any class 2 ozone depleting substances.

This product does not contain products that are listed as hazardous air pollutants.

EPCRA (Emergency Planning and Right to Know Act, USA, 40 CFR 372.45)

This product contains copper (CAS# 7440-50-8; reportable quantity = 5 000 lb) and silver (CAS# 7440-22-4; reportable quantity = 1 000 lb), which is subject to the reporting requirements of section 313 Title III of the SARA of 1986 and 40 CFR part 372.

TSCA (Toxic Substances Control Act of 1976, USA)

All substances are TSCA listed.

Section continued on the next page

California Proposition 65 (Chemicals known to cause cancer or reproductive toxicity, USA).

This product does not contain any substances on the California Proposition 65 list.

Europe

RoHS (Restriction of Hazardous Substances Directive)

This product does not contain any lead, cadmium, mercury, hexavalent chromium, PBB's, PBDE's, DEHP, BBP, DBP, or DIBP and complies with European RoHS regulations.

WEEE (Waste Electrical and Electronic Equipment Directive)

This product is not a piece of electrical or electronics equipment, and is therefore not governed by this regulation.

Section 16: Other Information

SDS Prepared by	MG Chemicals' Regulatory Department
Date of Review	03 March 2020
Supersedes	06 November 2019
Reason for Changes:	Update to the emergency phone number information.

Reference

1) ACGIH *2017 TLVs and BEIs: Based on the documentation of the threshold limit values for chemical substances and physical agents & biological exposure indices*, American Conference of Governmental of Industrial Hygienist Cincinnati, OH (2017).

2) All toxicological data were checked against the RTECS (Registry of Toxic Effects of Chemical Substances®)

Section continued on the next page

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists (USA)
ECHA	European Chemicals Agency
EU	European Union
EC50	Half maximal effective concentration
EL50	Half maximal effective loading
IARC	International Agency for Research on Cancer
NOELR	No observable effect loading ratio
NTP	National Toxicology Program
GHS	Globally Harmonized System of Classification of Labeling of Chemicals
LC50	Lethal Concentration 50%
LCLo	Lowest published lethal concentration
LD50	Lethal Dose 50%
OEL	Occupational Exposure Limit
PEL	Permissible Exposure Limit
SDS	Safety Data Sheet
STEL	Short-Term Exposure Limit
TCLo	Lowest published toxic concentration
TWA	Time Weighted Average
VOC	Volatile Organic Content

Technical Queries Contact us regarding any questions, improvement suggestions, or problems with this product. Application notes, instructions, and FAQs are located at www.mgchemicals.com.

Email: support@mgchemicals.com

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