



Kit Revision Date: 03 March 2020

842ER SUPER SHIELD™ SILVER EPOXY CONDUCTIVE PAINT KIT

MG Chemicals Multipart Product Kit

This product is a kit made up of multiple parts. Each part is an independently packaged chemical component and has independent hazard assessments.

Kit Content

<i>Part</i>	<i>Product Name</i>	<i>Product Use</i>
A	842ER-A	Super Shield Silver conductive paint (epoxy resin)
B	842ER-B	Super Shield Silver conductive paint (epoxy hardener)

Safety Data Sheets for each part listed above follow this cover sheet.

Transportation Instruction

Before offering this product kit for transport, read Section 14 for all parts listed above.

842ER-A

SUPER SHIELD SILVER EPOXY CONDUCTIVE PAINT

Safety Data Sheet

Section 1: Identification

Product Identifier and Other Means of Identification

Product Identifier: 842ER-A**Other Means of Identification:** Super Shield Silver Epoxy Conductive Paint**Related Part #** 842ER-60ML, 842ER-250ML, 842ER-900ML, 842ER-4.25L

Recommended Use and Restriction on Use

Use: Silver conductive epoxy resin**Uses Advised Against:** Not available

Details of Manufacturer or Importer

Manufacturer

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

MG Chemicals (Head Office)
9347-193 Street
Surrey, British Columbia V4N 4E7
CANADA

☎ +1-800-340-0772
Fax +1-800-340-0773
E-mail support@mgchemicals.com
Web www.mgchemicals.com

☎ +1-905-331-1396
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

842ER-A
SUPER SHIELD SILVER EPOXY CONDUCTIVE PAINT
Section 2: Hazard(s) Identification
Classification of Hazardous Chemical
GHS Categories

Criteria		Category	Signal Word	Pictograms
Flammable liquid		2	Danger	Flame
Serious Eye Damage		1	Danger	Corrosion
Sensitization	Skin	1	Warning	Exclamation
Skin Irritation		2	Warning	Exclamation
Specific Target Organ Toxicity	Single Exposure	3	Warning	Exclamation
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	DANGER
Pictograms	Hazard Statements
	H225: Highly flammable liquid and vapor
	H318: Causes serious eye damage
	H317: May cause an allergic skin reaction H315: Causes skin irritation H336: May cause dizziness or drowsiness

Section continued on the next page

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SUPER SHIELD SILVER EPOXY CONDUCTIVE PAINT
Continued...

Pictograms	Hazard Statements
	H410: Very toxic to aquatic life with long lasting effects
Prevention	Precautionary Statements
P102 P210 P233 P240 P241 P243 P261 P264 P280 P272 P271 P273	Keep out of reach of children. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Keep container tightly closed. Ground and bond container and receiving equipment. Use explosion-proof equipment. Take action to prevent static discharges. Avoid breathing mist, vapors, and spray. Wash hands thoroughly after handling. Wear protective gloves and eye protection. Contaminated work clothing should not be allowed out of the workplace. Use only outdoors or in a well-ventilated area. Avoid release to the environment.
Response	Precautionary Statements
P370 + P378 P303 + P361 + P352 P333 + P313 P363 P305 + P351 + P338, P310 P304 + P340, P319 P391	In case of fire: Use dry chemical, carbon dioxide, chemical foam, or water spray to extinguish. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Wash with plenty of water or shower. If skin irritation or rash occurs: Get medical advice or attention. Wash contaminated clothing before reuse. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Get medical help if you feel unwell. Collect spillage.

Section continued on the next page

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SUPER SHIELD SILVER EPOXY CONDUCTIVE PAINT
Continued...

Storage	Precautionary Statements
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
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
Defats skin	Repeated exposure may cause skin dryness or cracking.	None	None
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)
7440-22-4	silver	46%
110-19-0	isobutyl acetate	33%
25085-99-8	bisphenol-A-(epichlorhydrin)	8%
71-36-3	butan-1-ol	8%
14807-96-6	talc (non-asbestos fiber)	2%
123-86-4	n-butyl acetate	0.3%

Section 4: First-Aid Measures

<i>Exposure Condition</i>	<i>GHS Code/Symptoms/Precautionary Statements</i>
IF IN EYES	P305 + P351 + P338, P310
Immediate Symptoms	<i>irritation, redness, pain, burn, eye damage</i>
Response	Rinse cautiously with water for at least 30 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor.
IF ON SKIN (or hair)	P303 + P361 + P352, P333 + P317, P363
Immediate Symptoms	<i>redness, irritation, rash, dry skin</i>
Response	Take off immediately all contaminated clothing. Wash with plenty of water or shower. If skin irritation or rash occurs: Get medical help. Wash contaminated clothing before reuse.
IF INHALED	P304 + P340, P319
Immediate Symptoms	<i>cough, shortness of breath, dizziness, drowsiness, headaches</i>
Response	Remove person to fresh air and keep comfortable for breathing. Get medical help if you feel unwell.
IF SWALLOWED	P301 + P330, P331
Immediate Symptoms	<i>abdominal pain, nausea, headaches, dizziness, drowsiness, vomiting</i>
Response	Rinse mouth. Do NOT induce vomiting.

842ER-A**SUPER SHIELD SILVER EPOXY CONDUCTIVE PAINT****Section 5: Fire-Fighting Measures**

Extinguishing Media	In case of fire: Use dry chemical, carbon dioxide, chemical foam, or water spray to extinguish. Use water spray to cool containers.
Specific Hazards	The vapors are heavier than air and may accumulate in low-lying areas. Vapors may travel long distances and ignite at an ignition source, which can cause a flashback or an explosion. Prevent fire-fighting wash from entering waterway or sewer system.
Combustion Products	Produces carbon oxides (CO, CO ₂) and silver oxides fumes.
Fire-Fighter	Wear self-contained breathing apparatus and full fire-fighting turnout gear.

Section 6: Accidental Release Measures

Personal Protection	See personal protection recommendations in Section 8.
Precautions for Response	Avoid breathing mist, spray or 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 absorbent (such as soil, sand, vermiculite).
Cleaning Methods	Collect liquid in a sealable, solvent-resistant 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.

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SUPER SHIELD SILVER EPOXY CONDUCTIVE PAINT
Section 7: Handling and Storage

Prevention	Keep out of reach of children. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ground and bond container and receiving equipment. Use explosion-proof equipment. Take action to prevent static discharges. Keep container tightly closed. Avoid breathing mist, vapors or spray. Contaminated work clothing should not be allowed out of the workplace. Avoid release to the environment.
Handling	Wear protective gloves and eye protection. Take off contaminated clothing and wash it before reuse. Use only outdoors or in a well-ventilated area. Wash hands thoroughly after handling. Collect spillage.
Storage	Store in a well-ventilated place. Keep cool. Store locked up.

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)
silver (metal dust, mist) (metal) (Ag and its compounds) (metal, dust, fumes)	ACGIH	0.1 mg/m ³	Not established
	U.S.A. OSHA PEL	0.01 mg/m ³	Not established
	Canada AB	0.1 mg/m ³	Not established
	Canada BC	0.01 mg/m ³	0.03 mg/m ³
	Canada ON	0.1 mg/m ³	Not established
	Canada QC	0.1 mg/m ³	Not established
isobutyl acetate	ACGIH	150 ppm	Not established
	U.S.A. OSHA PEL	150 ppm	Not established
	Canada AB	150 ppm	Not established
	Canada BC	150 ppm	Not established
	Canada ON	150 ppm	187 ppm
	Canada QC	150 ppm	Not established

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SUPER SHIELD SILVER EPOXY CONDUCTIVE PAINT
Continued...

Chemical Name	Country/ Provinces	Long Term Exposure Limits (PEL)	Short Term Exposure Limits (STEL)
butan-1-ol	ACGIH U.S.A. OSHA PEL Canada AB Canada BC Canada ON Canada QC	20 ppm 100 ppm 20 ppm 15 ppm 20 ppm 50 ppm (Ceiling)	Not established Not established Not established 30 ppm (Ceiling) Not established Not established
talc (without asbestos fibers)	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
n-butyl acetate	ACGIH U.S.A. OSHA PEL Canada AB Canada BC Canada ON Canada QC	150 ppm 150 ppm 150 ppm 20 ppm 150 ppm 150 ppm	Not established Not established 200 ppm 200 ppm Not established 200 ppm

Note: Ingredients are listed in descending weight contribution order (from greatest to least). The ACGIH¹, OSHA (Table Z-1), and Canadian provinces exposure limits were consulted. Limits from the RTECS² database 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) Millions of particles per cubic foot air, based on impinge samples counted by light-field technique.

Engineering Controls

Ventilation

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

Section continued on the next page

842ER-A**SUPER SHIELD SILVER EPOXY CONDUCTIVE PAINT****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 contacts, use of protective butyl rubber or other chemically resistant gloves.

For incidental contacts, use disposable natural rubber or other chemically resistant gloves.

Respiratory Protection

For over-exposures up to 10 x OEL of mist, vapors or spray, wear respirator such as a half-mask respirator with organic vapor cartridges.

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.

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SUPER SHIELD SILVER EPOXY CONDUCTIVE PAINT
Section 9: Physical and Chemical Properties

Physical State	Liquid	Lower Flammability Limit ^{b)}	1%
Appearance	Metallic silver	Upper Flammability Limit ^{b)}	11%
Odor	Amine-like	Vapor Pressure @20 °C	>2.56
Odor Threshold	Not available	Vapor Density	Not available
pH	Not available	Relative Density @25 °C	1.65
Freezing/Melting Point	Not available	Solubility in Water	Partially miscible
Initial Boiling Point ^{a)}	116 °C [241 °F]	Partition Coefficient n-octanol/water	Not available
Flash Point ^{a)}	18 °C [64 °F]	Auto-ignition Temperature ^{c)}	>345 °C [653 °F]
Evaporation Rate	Not available	Decomposition Temperature	Not available
Flammability	Highly Flammable	Viscosity @25°C	59 cP

a) Values based on isobutyl acetate.

b) Values calculated using Raoult's Law and Le Chatelier principle for solvent components.

c) Value based on butan-1-ol.

Section 10: Stability and Reactivity

Reactivity	Not available
Chemical Stability	Chemically stable at normal temperatures and pressures.
Conditions to Avoid	Ignition sources, open flames, excessive heat, and incompatible substances. Low lying vapors may form explosive mixture with air.
Incompatibilities	Strong oxidizing agents, strong acids, strong bases
Polymerization	Will not occur
Decomposition	Will not decompose under normal conditions. For thermal decomposition, see combustion products in Section 5.

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SUPER SHIELD SILVER EPOXY CONDUCTIVE PAINT
Section 11: Toxicological Information
Summary of Effects and Symptoms by Routes of Exposure

Eyes	Causes severe irritation, redness, pain, burns and/or eye damage.
Skin	Causes skin irritation, redness, rash, or dry skin.
Inhalation	May cause cough, shortness of breath, dizziness, drowsiness, or headaches.
Ingestion	May cause nausea, sore throat, abdominal pain, and diarrhea (also see inhalation symptoms).
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
silver	>2 000 mg/kg Rat	>2 000 mg/kg Rat	5.16 mg/m ³ 4 h Rat (dust)
isobutyl acetate	13 431 mg/kg Rat	>17 400 mg/kg Rat	Not available
bisphenol-A-(epichlorhydrin)	11 400 mg/kg Rat	100 pph 7 h Rabbit	Not available
butan-1-ol	790 mg/kg Rat	3 400 mg/kg Rabbit	Not available
talc	Not available	Not available	Not available
n-butyl acetate	10 768 mg/kg Rat	>17 600 mg/kg Rabbit	>10 mg/L 4 h Rat (vapor)

Note: Toxicity data from the RTECS² and ECHA databases were consulted. The data from supplier SDSs were also consulted.

Section continued on the next page

842ER-A**SUPER SHIELD SILVER EPOXY CONDUCTIVE PAINT****Other Toxicological Effects**

Skin corrosion/irritation	The bisphenol-A and butan-1-ol are known skin irritants.
Serious eye damage/irritation	The butan-1-ol in the mixture is expected to cause severe eye irritation or irreversible eye damage.
Sensitization (allergic reactions)	Exposure to the epoxy resin may cause an allergic skin reaction.
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	The isobutyl acetate and butan-1-ol can affect the central nervous system by inhalation causing drowsiness or dizziness, and they are a respiratory system irritant.
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 cat 1 ingredients present.

842ER-A**SUPER SHIELD SILVER EPOXY CONDUCTIVE PAINT****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 of less than a 1 mm but more than 100 nm (larger than nanoparticles), which release ionic silver 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 takes into account to chronic aqueous toxicity of category 1 (M = 10 for silver) of the EU.

In Europe, similar the epoxy resins with CAS# 25085-99-8 and MW <700 is generally classified as chronic category 2 marine pollutant. It generally has LC50 96 h of >1 mg/L but ≤10 mg/L.

Isobutyl acetate, butan-1-ol, talc (non-asbestos fiber), and n-butyl acetate are not classifiable as an environmental toxicant (with minimal LC50 of >100 mg/L).

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

Solvent part expected to be biodegradable, but not the polymer or metal filler. The volatile solvent constituents will oxidize rapidly in air by photochemical reaction.

Other Effects

VOC *Actual* Volatile Organic Content) = 44% [734 g/L]

Section 13: Disposal Information

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

842ER-A

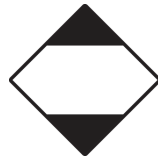
SUPER SHIELD SILVER EPOXY CONDUCTIVE PAINT

Section 14: Transport Information

Ground

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

Sizes 5 L and under
842ER-60ML, 842ER-250ML,
842ER-900ML, 842ER-4.25L
Limited Quantity



FOR REFERENCE ONLY

UN number: UN1263
Shipping Name: PAINT
Class: 3
Packing Group: II
Marine Pollutant: Yes

Air

Refer to ICAO-IATA Dangerous Goods Regulations.

Sizes 0.5 L and under
842ER-60ML, 842ER-250ML
Limited Quantity

Total Net QTY per
package 1 L



Sizes up to 5 L (passenger), 60 L (cargo)
842ER-900ML, 842ER-4.25L

UN number: UN1263
Shipping Name: PAINT
Class: 3
Packing Group: II
Marine Pollutant: Yes



Sea

Refer to IMDG regulations.

Sizes 5 L and under
842ER-60ML, 842ER-250ML,
842ER-900ML, 842ER-4.25L
Limited Quantity



FOR REFERENCE ONLY

UN number: UN1263
Shipping Name: PAINT
Class: 3
Packing Group: II
Marine Pollutant: Yes

Note: Shipper must be appropriately trained and certified before involvement with the transport of dangerous goods.

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SUPER SHIELD SILVER EPOXY CONDUCTIVE PAINT

Section 15: Regulatory Information

Canada

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

All hazardous ingredients are listed on the DSL/NDSL.

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.

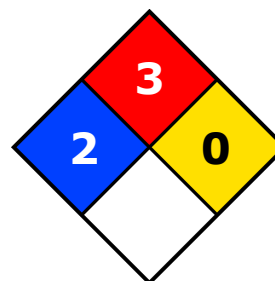
USA

Other Classifications

HMIS® RATING

HEALTH:	* 2
FLAMMABILITY:	3
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 substances that are listed as hazardous air pollutants.

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

This product contains 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.

This product contains isobutyl acetate (CAS# 110-19-0), which are subject to the CERCLA reporting requirements at the 5 000 lb (2 268 kg) threshold.

This product contains n-butyl acetate (CAS# 123-86-4), which is subject to the CERCLA reporting requirements at the 5 000 lb (2 268 kg) threshold.

Section continued on the next page

842ER-A**SUPER SHIELD SILVER EPOXY CONDUCTIVE PAINT****TSCA** (Toxic Substances Control Act of 1976, USA)

All substances are TSCA listed.

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

This product does not contain any substances known to be listed in California.

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

MSDS Prepared by	MG Chemicals' Regulatory Department
Date of Creation	11 June 2020
Supersedes	03 March 2020
Reason for Changes:	Added new part number.

References

- 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®), MDL Information Systems, Inc.

Section continued on the next page

842ER-A**SUPER SHIELD SILVER EPOXY CONDUCTIVE PAINT****Abbreviations**

ACGIH	American Conference of Governmental Industrial Hygienists (USA)
EC50	Half maximal effective concentration
EL50	Half maximal effective loading
NOELR	No observable effect loading ratio
GHS	Globally Harmonized System of Classification of Labeling of Chemicals
LC50	Lethal Concentration 50%
LCLo	Lowest published lethal concentration
LD50	Lethal Dose 50%
PEL	Permissible Exposure Limit
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

Mailing Addresses *Manufacturing & Support*
1210 Corporate Drive
Burlington, Ontario, Canada
L7L 5R6

Head Office
9347-193rd Street
Surrey, British Columbia, Canada
V4N 4E7

Disclaimer

This safety data sheet is provided as an information resource only. *M.G. Chemicals, Ltd.* believes the information contained herein is accurate and compiled from reliable sources. It is the responsibility of the user to query and verify any information seeming suspect where doubt on the validity may exist. The buyer assumes all responsibility of using and handling the product in accordance with local, regional, national, and international regulations.

842ER-B

SUPER SHIELD SILVER EPOXY CONDUCTIVE PAINT

Safety Data Sheet

Section 1: Identification

Product Identifier and Other Means of Identification

Product Identifier: 842ER-B**Other Means of Identification:** Super Shield Silver Epoxy Conductive Paint**Related Part #** 842ER-60ML, 842ER-250ML, 842ER-900ML, 842ER-4.25L

Recommended Use and Restriction on Use

Use: Silver conductive epoxy hardener**Uses Advised Against:** Not applicable

Details of Manufacturer or Importer

ManufacturerMG Chemicals
1210 Corporate Drive
Burlington, Ontario L7L 5R6
CANADAMG Chemicals (Head Office)
9347-193 Street
Surrey, British Columbia V4N 4E7
CANADA**☎** +1-800-340-0772**Fax** +1-800-340-0773**E-mail** support@mgchemicals.com**Web** www.mgchemicals.com**☎** +1-905-331-1396**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

842ER-B

SUPER SHIELD SILVER EPOXY CONDUCTIVE PAINT

Section 2: Hazard(s) Identification




Classification of Hazardous Chemical

GHS Categories

Criteria	Category	Signal Word	Pictograms
Flammable Liquid	2	Danger	Flame
Serious Eye Damage	1	Danger	Corrosion
Sensitization Skin	1	Warning	Exclamation
Skin Irritation	2	Warning	Exclamation
Specific Target Organ Toxicity Single Exposure	3	Warning	Exclamation
Hazardous to the Aquatic Environment Chronic	2	None	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	DANGER
Pictograms	Hazard Statements
	H225: Highly flammable liquid and vapor
	H318: Causes serious eye damage
	H317: May cause an allergic skin reaction H315: Causes skin irritation H336: May cause dizziness or drowsiness

Section continued on the next page

842ER-B
SUPER SHIELD SILVER EPOXY CONDUCTIVE PAINT
Continued...

Pictograms	Hazard Statements
	H411: Toxic to aquatic life with long lasting effects
Prevention	Precautionary Statements
P201	Keep out of reach of Children
P210	Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P233	Keep container tightly closed.
P240	Ground and bond container and receiving equipment.
P241	Use explosion-proof equipment.
P243	Take action to prevent static discharges.
P261	Avoid breathing mist, vapors, and spray.
P264	Wash hands thoroughly after handling.
P280	Wear protective gloves and eye protection.
P272	Contaminated work clothing should not be allowed out of the workplace.
P271	Use only outdoors or in a well-ventilated area.
P273	Avoid release to the environment.
Response	Precautionary Statements
P370 + P378	In case of fire: Use dry chemical, carbon dioxide, chemical foam, or water spray to extinguish.
P303 + P361 + P352	IF ON SKIN (or hair): Take off immediately all contaminated clothing. Wash with plenty of water or shower.
P333 + P313	If skin irritation or rash occurs: Get medical advice or attention.
P363	Wash contaminated clothing before reuse.
P305 + P351 + P338, P310	IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor.
P304 + P340, P319	IF INHALED: Remove person to fresh air and keep comfortable for breathing. Get medical help if you feel unwell.
P391	Collect spillage.

Section continued on the next page

842ER-B
SUPER SHIELD SILVER EPOXY CONDUCTIVE PAINT
Continued...

Storage	Precautionary Statements
P403 + P235	Store in a well-ventilated place. Keep cool.
P405	Store locked up.
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
Defats skin	Repeated exposure may cause skin dryness or cracking.	None	None

Section 3: Composition/Information on Ingredients

CAS #	Chemical Name	%(weight)
110-19-0	isobutyl acetate	48%
68410-23-1	fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines	34%
71-36-3	1-butanol	8%
67-64-1	acetone	6%
112-24-3	triethylenetetramine	3%

Section 4: First-Aid Measures

<i>Exposure Condition</i>	<i>GHS Code/Symptoms/Precautionary Statements</i>
IF IN EYES	P305 + P351 + P338, P310
Immediate Symptoms	<i>irritation, redness, pain, burn, eye damage</i>
Response	Rinse cautiously with water for at least 30 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor.

Section continued on the next page

842ER-B**SUPER SHIELD SILVER EPOXY CONDUCTIVE PAINT**

IF ON SKIN (or hair)	P303 + P361 + P352, P333 + P317, P363
Immediate Symptoms	<i>redness, irritation, rash, dry skin</i>
Response	Take off immediately all contaminated clothing. Wash with plenty of water or shower. If skin irritation or rash occurs: Get medical help. Wash contaminated clothing before reuse.
IF INHALED	P304 + P340, P319
Immediate Symptoms	<i>cough, shortness of breath, dizziness, drowsiness, headaches</i>
Response	Remove person to fresh air and keep comfortable for breathing. Get medical help if you feel unwell.
IF SWALLOWED	P301 + P330, P331
Immediate Symptoms	<i>abdominal pain, nausea, headaches, dizziness, drowsiness, vomiting</i>
Response	Rinse mouth. Do NOT induce vomiting.

Section 5: Fire-Fighting Measures

Response	In case of fire: Use dry chemical, carbon dioxide, chemical foam, or water spray to extinguish. Use water spray to cool containers.
Specific Hazards	The vapors are heavier than air and may accumulate in low-lying areas. Vapors may travel long distances and ignite at an ignition source, which can cause a flashback or an explosion. Prevent fire-fighting wash from entering waterway or sewer system.
Combustion Products	Produces carbon oxides (CO, CO ₂) and nitrogen oxides (NO _x).
Fire-Fighter	Wear self-contained breathing apparatus and full fire-fighting turnout gear.

842ER-B**SUPER SHIELD SILVER EPOXY CONDUCTIVE PAINT****Section 6: Accidental Release Measures**

Personal Protection	See personal protection recommendations in Section 8.
Precautions for Response	Avoid breathing mist, spray or vapors. Remove or keep away all sources of extreme heat or open flames.
Environmental Precautions	Prevent spill from entering drains and waterways.
Containment Methods	Contain with inert absorbent (such as soil, sand, vermiculite).
Cleaning Methods	Collect liquid in a sealable, solvent-resistant 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. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. Ground and bond container and receiving equipment. Use explosion-proof equipment. Take action to prevent static discharges. Keep container tightly closed. Avoid breathing mist, vapors or spray. Contaminated work clothing should not be allowed out of the workplace. Avoid release to the environment.
Handling	Wear protective gloves and eye protection. Take off contaminated clothing and wash it before reuse. Use only outdoors or in a well-ventilated area. Wash hands thoroughly after handling. Collect spillage.
Storage	Store in a well-ventilated place. Keep cool. Store locked up.

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)
isobutyl acetate	ACGIH U.S.A. OSHA PEL Canada AB Canada BC Canada ON Canada QC	150 ppm 150 ppm 150 ppm 150 ppm 150 ppm 150 ppm	Not established Not established Not established Not established 187 ppm Not established
acetone	ACGIH U.S.A. OSHA PEL Canada AB Canada BC Canada ON Canada QC	500 ppm 1 000 ppm 500 ppm 250 ppm 500 ppm 750 ppm	750 ppm Not established 750 ppm 500 ppm 750 ppm 1 000 ppm
butan-1-ol	ACGIH U.S.A. OSHA PEL Canada AB Canada BC Canada ON Canada QC	20 ppm 100 ppm 20 ppm 15 ppm 20 ppm 50 ppm (Ceiling)	Not established Not established Not established 30 ppm (Ceiling) Not established Not established
triethylenetetramine	ACGIH U.S.A. OSHA PEL U.S.A (WEEL) Canada AB Canada BC Canada ON	Not established Not established 1 ppm Not established Not established 0.5 mg/m ³ (Skin) ^{a)}	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 ACGIH¹, OSHA (Table Z-1), and Canadian provinces exposure limits were consulted. Limits from the RTECS² database 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) Skin—can be absorbed through the skin.

Engineering Controls
Ventilation

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

Section continued on the next page

842ER-B**SUPER SHIELD SILVER EPOXY CONDUCTIVE PAINT****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 contacts, use of protective butyl rubber or other chemically resistant gloves.

For incidental contacts, use disposable natural rubber or other chemically resistant gloves.

Respiratory Protection

For over-exposures up to 10 x OEL of mist, vapors or spray, wear respirator such as a half-mask respirator with organic vapor cartridges.

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.

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SUPER SHIELD SILVER EPOXY CONDUCTIVE PAINT
Section 9: Physical and Chemical Properties

Physical State	Liquid	Lower Flammability Limit ^{b)}	2%
Appearance	Pale yellow	Upper Flammability Limit ^{b)}	12%
Odor	Amine-like	Vapor Pressure @20 °C	Not available
Odor Threshold	Not available	Vapor Density	>2.01
pH	Not available	Relative Density @25 °C	0.90
Freezing/Melting Point	Not available	Solubility in Water	Partially miscible
Initial Boiling Point ^{a)}	56 °C [132 °F]	Partition Coefficient n-octanol/water	Not available
Flash Point ^{a)}	-17 °C [1.4 °F]	Auto-ignition Temperature	>330 °C [626 °F]
Evaporation Rate	Not available	Decomposition Temperature	Not available
Flammability	Highly Flammable	Viscosity @25°C	22 cP

a) Values based on acetone component.

b) Values calculated using Raoult's Law and Le Chatelier principle for solvent components.

Section 10: Stability and Reactivity

Reactivity	Not available
Chemical Stability	Chemically stable at normal temperatures and pressures.
Conditions to Avoid	Ignition sources, open flames, excessive heat, and incompatible substances. Low lying vapors may form explosive mixture with air.
Incompatibilities	Strong oxidizing agents, strong acids, strong bases
Polymerization	Will not occur
Decomposition	Will not decompose under normal conditions. For thermal decomposition, see combustion products in Section 5.

842ER-B
SUPER SHIELD SILVER EPOXY CONDUCTIVE PAINT
Section 11: Toxicological Information
Summary of Effects and Symptoms by Routes of Exposure

Eyes	Causes severe irritation, redness, pain, burns and/or eye damage.
Skin	Causes skin irritation, redness, rash, or dry skin.
Inhalation	May cause cough, shortness of breath, dizziness, drowsiness, or headaches.
Ingestion	May cause nausea, sore throat, abdominal pain, and diarrhea (also see inhalation symptoms).
Chronic	None known

Acute Toxicity (Lethal Exposure Concentrations)

Chemical Name	LD50 oral	LD50 dermal	LC50 inhalation
isobutyl acetate	13 431 mg/kg Rat	>17 400 mg/kg Rat	Not available
Fatty acids, C18-unsatd., dimers,...	>5 000 mg/kg	>5 000 mg/kg	Not available
butan-1-ol	790 mg/kg Rat	3 400 mg/kg Rabbit	Not available
acetone	5 800 mg/kg Rat	20 mL/kg Rabbit ^{a)}	16 000 ppm 4 h Rat ^{a)}
triethylenetetramine	2 500 mg/kg Rat	805 mg/kg Rabbit	Not available

Note: Toxicity data from the RTECS² and ECHA databases were consulted. The data from supplier SDSs' were also consulted.

Section continued on the next page

842ER-B**SUPER SHIELD SILVER EPOXY CONDUCTIVE PAINT****Other Toxicological Effects**

Skin corrosion/irritation	The mixture of triethylenetetramine and fatty acids, C18-unsatd., dimers causes skin irritation.
Serious eye damage/irritation	The mixture of triethylenetetramine and fatty acids, C18-unsatd., dimers causes eye damage.
Sensitization (allergic reactions)	The mixture of triethylenetetramine and fatty acids, C18-unsatd., dimers may cause allergic skin reaction.
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	The isobutyl acetate, 1-butan-1-ol, and acetone components can affect the central nervous system by inhalation causing drowsiness or dizziness.
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 cat 1 ingredients present.

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.

The fatty acids, C18-unsatd., dimers, reaction products with polyethylenepolyamines (CAS# 68410-23-1) were classified as a chronic category 2 environmental toxicant (not readily biodegradable, LC50 range of 1–10 mg/L for fish; EC0 bacterial >10 and ≤100 mg/L).

Isobutyl acetate, 1-butanol, acetone, and triethylenetetramine are not classifiable as an environmental toxicant (with minimal LC50 of >100 mg/L).

Section continued on the next page

842ER-B**SUPER SHIELD SILVER EPOXY CONDUCTIVE PAINT****Acute Ecotoxicity**

The component substances are not classifiable as an environmental toxicant.

Chronic Ecotoxicity

Category 2

Toxic to aquatic life with long lasting effects

Avoid release to the environment. Collect spillage.

Biodegradability

Not readily biodegradable

Other Effects

VOC (Volatile Organic Content) = 56% [510 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 CFR 49 Regulations (Parts 100 to 185).

Sizes 5 L and under
842ER-60ML, 842ER-250ML, 842ER-
900ML, 842ER-4.25L

Limited Quantity



FOR REFERENCE ONLY

UN number: UN1263
Shipping Name: PAINT
Class: 3
Packing Group: II
Marine Pollutant: Yes

Section continued on the next page

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SUPER SHIELD SILVER EPOXY CONDUCTIVE PAINT

Air

Refer to ICAO-IATA Dangerous Goods Regulations.

Sizes 0.5 L and under
842ER-60ML, 842ER-250ML
Limited Quantity

Total Net QTY per
package 1 L



Sizes up to 5 L (passenger), 60 L (cargo)
842ER-900ML, 842ER-4.25L

UN number: UN1263
Shipping Name: PAINT
Class: 3
Packing Group: II
Marine Pollutant: Yes



Sea

Refer to IMDG regulations.

Sizes 5 L and under
842ER-60ML, 842ER-900ML,
842ER-4.25L
Limited Quantity



FOR REFERENCE ONLY

UN number: UN1263
Shipping Name: PAINT
Class: 3
Packing Group: II
Marine Pollutant: Yes

Note: Shipper must be appropriately trained and certified 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/NDSL.

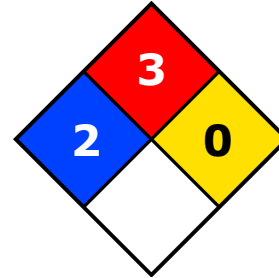
Hazardous Products Act (R.S.C., 1985, c. H-3)

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

Section continued on the next page

842ER-B**SUPER SHIELD SILVER EPOXY CONDUCTIVE PAINT****USA****Other Classifications****HMIS® RATING**

HEALTH:	*	2
FLAMMABILITY:		3
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 substances that are listed as hazardous air pollutants.

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

This product contains isobutyl acetate (CAS# 110-19-0), which are subject to the CERCLA reporting requirements at the 5 000 lb (2 268 kg) threshold.

This product contains acetone (CAS# 67-64-1), which are subject to the CERCLA reporting requirements at the 5 000 lb (2 268 kg) threshold.

TSCA (Toxic Substances Control Act of 1976, USA)

All substances are TSCA listed.

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

This product does not contain any of the listed substances.

Section continued on the next page

842ER-B**SUPER SHIELD SILVER EPOXY CONDUCTIVE PAINT****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 Creation	11 June 2020
Supersedes	03 March 2020
Reason for Changes:	Added new part number.

References

- 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®)

Abbreviations

ACGIH	American Conference of Governmental Industrial Hygienists (USA)
EC50	Half maximal effective concentration
EL50	Half maximal effective loading
NOELR	No observable effect loading ratio
GHS	Globally Harmonized System of Classification of Labeling of Chemicals
LC50	Lethal Concentration 50%
LCLo	Lowest published lethal concentration
LD50	Lethal Dose 50%
PEL	Permissible Exposure Limit
STEL	Short-Term Exposure Limit
TCLo	Lowest published toxic concentration
TWA	Time Weighted Average
VOC	Volatile Organic Content

Section continued on the next page

842ER-B**SUPER SHIELD SILVER EPOXY CONDUCTIVE PAINT**

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

Mailing Addresses *Manufacturing & Support*
1210 Corporate Drive
Burlington, Ontario, Canada
L7L 5R6

Head Office
9347-193rd Street
Surrey, British Columbia, Canada
V4N 4E7

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