Safety Data Sheet

according to WHMIS 2023 and HCS 2024

Date of issue 04/02/2025 Version number 6.01 Revision: 04/02/2025

* 1 Identification

· **Product identifier**

· **Trade name: 843AR**

· **Other Means of Identification:** Super Shield™ Silver Coated Copper Conductive Paint (Aerosol)

· **Related Part Number:** 843AR-Aerosol, 843AR-140G, 843AR-340G

· **Application of the substance / the mixture** Electrically conductive coating and EMI/RFI shield.

· **Uses advised against** Not available

· **Details of the supplier of the safety data sheet**

·

Manufacturer/Supplier:
MG Chemicals (Head Office)
1210 Corporate Drive
Burlington, Ontario L7L 5R6
CANADA
+(1) 800-340-0772
+(1) 905-331-1396
info@mgchemicals.com

·

Distributor:
Masline
511 Clinton Ave S
Rochester, New York 14620
United States
+(1) 586-546-5373

· **Information department:** sds@mgchemicals.com

· **Emergency telephone 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

* 2 Hazard identification

· **Classification of the substance or mixture**

Aerosols, Section 2.3.1 – Category 2	H223-H229	Flammable aerosol. Pressurized container: may burst if heated.
Eye damage/irritation – Category 2A	H319	Causes serious eye irritation.
Specific target organ toxicity (single exposure) – Category 3	H336	May cause drowsiness or dizziness.
Aquatic Acute 2	H401	Toxic to aquatic life.
Aquatic Chronic 2	H411	Toxic to aquatic life with long lasting effects.

· **Label elements**

· **GHS label elements**

The product is classified and labeled according to the Globally Harmonized System (GHS).

(Contd. on page 2)

(Contd. of page 1)

· **Hazard pictograms**

GHS02 GHS07 GHS09

· **Signal word** Warning

· **Hazard-determining components of labeling:**
acetone
copper
heptan-2-one
Silver (Powder)

· **Hazard statements**
H223-H229 Flammable aerosol. Pressurized container: may burst if heated.
H319 Causes serious eye irritation.
H336 May cause drowsiness or dizziness.
H411 Toxic to aquatic life with long lasting effects.

· **Precautionary statements**
P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.
P211 Do not spray on an open flame or other ignition source.
P251 Do not pierce or burn, even after use.
P271 Use only outdoors or in a well-ventilated area.
P405 Store locked up.
P410+P412 Protect from sunlight. Do not expose to temperatures exceeding 50 °C.

· **Other hazards**
Repeated exposure may cause skin dryness or cracking.
Warning! May displace oxygen and cause rapid suffocation.

3 Composition/Information on ingredients

· **Chemical characterization: Mixtures**

· **Description:** Mixture of the substances listed below with nonhazardous additions.

· **Dangerous components:**		
67-64-1	acetone	32.0% w/w
74-98-6	propane	13.0% w/w
123-86-4	n-butyl acetate	12.0% w/w
616-38-6	dimethyl carbonate	12.0% w/w
7440-50-8	copper	10.0% w/w
75-28-5	isobutane	7.0% w/w
110-43-0	heptan-2-one	7.0% w/w
108-65-6	2-methoxy-1-methylethyl acetate	2.0% w/w

(Contd. on page 3)

(Contd. of page 2)

7440-22-4	Silver (Powder)	1.0% w/w

4 First-aid measures

· **Description of first aid measures**
· **After inhalation:**
Remove person to fresh air and keep comfortable for breathing.
If feeling unwell: Call a POISON CENTRE or doctor.
· **After skin contact:**
Take off contaminated clothing and wash it before reuse.
Wash with plenty of water or shower.
· **After eye contact:**
Rinse cautiously with water for 20 minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
If eye irritation persists: Get medical advice or attention.
· **After swallowing:**
Rinse mouth.
Do NOT induce vomiting.
If symptoms persist consult doctor.

· **Most important symptoms and effects, both acute and delayed**
No further relevant information available.

· **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

· **Extinguishing media**
· **Suitable extinguishing agents:**
CO2, extinguishing powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
Use water spray to cool containers.

· **Special hazards arising from the substance or mixture**
The flu-like symptoms of metal fever may be delayed, occurring 4 to 12 hours after exposure.
Vapors are heavier than air. Vapors may travel to sources of ignition near the ground. They can cause flash fire or ignite explosively.
Prevent fire-fighting wash from entering waterway or sewer system.
Aerosols containers may erupt with force at temperatures above 50 °C [122 °F].
Inhalation of metal fumes may cause metal fever and irritate the respiratory tract.
· **Hazardous combustion products:**
Carbon Oxides (COx)
toxic metal fumes

(Contd. on page 4)

(Contd. of page 3)

· **Advice for firefighters**
· **Protective equipment:** Wear self-contained breathing apparatus and full fire-fighting turn-out gear.

6 Accidental release measures

· **Personal precautions, protective equipment and emergency procedures**
Wear protective equipment. Keep unprotected persons away.
Ensure adequate ventilation
Remove or keep away all sources of extreme heat or open flames.
Avoid breathing mist, spray, or vapors.

· **Environmental precautions:**
Avoid release to the environment.
Do not allow to enter sewers/ surface or ground water.

· **Methods and material for containment and cleaning up:**
Ensure adequate ventilation.
Collect liquid in a sealable, chemical-resistant container.
Wash residue with a paper towel and place dirty towels in container.
Use soap and water to remove the last traces of residue.

· **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.

7 Handling and storage

· **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Wear protective gloves and eye protection.
Wash hands and exposed skin thoroughly after handling.
Take off contaminated clothing and wash it before reuse.
Collect spillage.
Avoid breathing mist, spray, or vapors.
· **Information about protection against explosions and fires:**
Do not spray on a naked flame or any incandescent material.
Keep ignition sources away - Do not smoke.
Pressurized container: protect from sunlight and do not expose to temperatures exceeding 50°C, i.e. electric lights. Do not pierce or burn, even after use.

· **Conditions for safe storage, including any incompatibilities**
· **Storage:**
· **Requirements to be met by storerooms and receptacles:**
Observe official regulations on storing packagings with pressurized containers.
Keep in a dry and clean area, away from incompatible substances
· **Information about storage in one common storage facility:** Not required.

(Contd. on page 5)

(Contd. of page 4)

· **Further information about storage conditions:**
Keep receptacle tightly sealed.
Protect from heat and direct sunlight.
Do not expose to temperatures exceeding 50 °C [122 °F].
Store locked up.

· **Specific end use(s)** See section 1.2

8 Exposure controls/ Personal protection

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**	
67-64-1 acetone	
EL (Canada)	STEL: 500 ppm TWA: 250 ppm
EV (Canada)	STEL: 750 ppm TWA: 500 ppm
PEL (USA)	TWA: 2400 mg/m³, 1000 ppm
REL (USA)	TWA: 590 mg/m³, 250 ppm
TLV (USA)	STEL: 1187 mg/m³, 500 ppm TWA: 594 mg/m³, 250 ppm A4, BEI
74-98-6 propane	
EL (Canada)	Simple asphyxiant; EX
EV (Canada)	TWA: 1,000 ppm revoked as of 01/01/18
PEL (USA)	TWA: 1800 mg/m³, 1000 ppm
REL (USA)	TWA: 1800 mg/m³, 1000 ppm
TLV (USA)	see Appendix F Minimal oxygen content (D, EX)
123-86-4 n-butyl acetate	
EL (Canada)	STEL: 150 ppm TWA: 50 ppm
EV (Canada)	STEL: 950 mg/m³, 200 ppm TWA: 710 mg/m³, 150 ppm
PEL (USA)	TWA: 710 mg/m³, 150 ppm
REL (USA)	STEL: 950 mg/m³, 200 ppm TWA: 710 mg/m³, 150 ppm
TLV (USA)	STEL: 712 mg/m³, 150 ppm TWA: 238 mg/m³, 50 ppm
7440-50-8 copper	
EL (Canada)	TWA: 1* 0.2** mg/m³ *dusts and mists; **fume, as Cu

(Contd. on page 6)

(Contd. of page 5)

EV (Canada)	TWA: 0.2* 1** mg/m³ as copper, *fume;**dust and mists
PEL (USA)	TWA: 1* 0.1** mg/m³ as Cu *dusts and mists **fume
REL (USA)	TWA: 1* 0.1** mg/m³ as Cu *dusts and mists **fume
TLV (USA)	TWA: 0.2* 1** mg/m³ as Cu *fume **dust/mist
75-28-5 isobutane	
EL (Canada)	STEL: 1000 ppm EX
EV (Canada)	TWA: 800 ppm revoked as of 01/01/18
TLV (USA)	STEL: 2370 mg/m³, 1000 ppm (EX)
110-43-0 heptan-2-one	
EL (Canada)	TWA: 50 ppm
EV (Canada)	TWA: 115 mg/m³, 25 ppm
PEL (USA)	TWA: 465 mg/m³, 100 ppm
REL (USA)	TWA: 465 mg/m³, 100 ppm
TLV (USA)	TWA: 50 ppm
108-65-6 2-methoxy-1-methylethyl acetate	
EL (Canada)	STEL: 75 ppm TWA: 50 ppm
EV (Canada)	TWA: 270 mg/m³, 50 ppm
WEEL (USA)	TWA: 50 ppm
7440-22-4 Silver (Powder)	
TLV (USA)	TWA: 0.1* mg/m³ *metal: dust and fume

· **Ingredients with biological limit values:**

67-64-1 acetone	
BEI (USA)	25 mg/L Medium: urine Time: end of shift Parameter: Acetone (nonspecific)

· **Additional information:**
The lists that were valid during the creation were used as basis.
Refer to the national or regional occupational exposure limit regulation for abbreviations and acronyms.

· **Exposure controls**

· **Appropriate engineering controls** No further data; see section 7.

· **Personal protective equipment:**

· **General protective and hygienic measures:**
Keep away from foodstuffs, beverages and feed.
Immediately remove all soiled and contaminated clothing.

(Contd. on page 7)

(Contd. of page 6)

Wash hands before breaks and at the end of work.
Avoid contact with the eyes and skin.

· **Breathing equipment:**
Advice should be sought from respiratory protection specialists.
In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.
If the product is heated or worker has a known allergic reaction, consider using a full mask with organic vapor cartridge or with an independent air supply.

· **Protection of hands:**
Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.


Protective gloves: EN374

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.
Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**
The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer. As the product is a preparation of several substances, the resistance of the glove material can not be calculated in advance and has therefore to be checked prior to the application.

· **Penetration time of glove material**
The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**
Safety glasses


Safety glasses or tightly sealed goggles: EN 166

9 Physical and chemical properties

· **Information on basic physical and chemical properties**

· **Physical state**	Aerosol
· **Form:**	Liquid, in aerosol format.
· **Color:**	Light brown
· **Odor:**	Acetone-like
· **Odor threshold:**	Not determined.
· **Melting point/Melting range:**	Undetermined.
· **Boiling point/Boiling range:**	≥56 °C (≥132.8 °F)
· **Flammability:**	Flammable.
· **Explosion limits:**	
· **Lower:**	2 Vol %

(Contd. on page 8)

(Contd. of page 7)

· **Upper:**	13 Vol %
· **Flash point:**	-17 °C (1.4 °F)
· **Auto igniting:**	370 °C (698 °F)
· **Decomposition temperature:**	Not determined.
· **pH-value:**	Not determined.
· **Viscosity:**	
· **Kinematic:**	Not determined.
· **Dynamic:**	Not determined.
· **Solubility in / Miscibility with**	
· **Water:**	Partly miscible.
· **Partition coefficient (n-octanol/water):**	Not determined.
· **Vapor pressure at 20 °C (68 °F):**	8,300 hPa (6.200 mm Hg)
· **Vapor pressure at 50 °C (122 °F):**	800 hPa (600 mm Hg)
· **Density at 20 °C (68 °F):**	1.2 g/cm³ (10.014 lbs/gal)
· **Relative density at 25 °C (77 °F):**	1.2
· **Bulk density:**	1,577 kg/m³
· **Vapor density (air=1):**	>2
· **Particle characteristics**	Not applicable.

· **Other information**

· **Important information on protection of health and environment, and on safety.**	
· **Ignition temperature:**	Product is not selfigniting.
· **Danger of explosion:**	Product is not explosive. However, formation of explosive air/vapor mixtures are possible.
· **Solvent content:**	
· **Organic solvents:**	66.00 %
· **Solids content:**	15.0 %
· **Evaporation rate**	Not applicable.

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.

· **Thermal decomposition / conditions to be avoided:**
No decomposition if used according to specifications.

· **Possibility of hazardous reactions** No dangerous reactions known.

· **Conditions to avoid** Temperatures above 50 °C, open flames, and incompatible substances

· **Incompatible materials:**
Oxidizing agents
Strong acids
Peroxides
alkali
alkali earth metals

(Contd. on page 9)

(Contd. of page 8)

· **Hazardous decomposition products:**
No dangerous decomposition products known.
Hazardous combustion products: see section 5.

11 Toxicological information

· **Information on toxicological effects**
· **Acute toxicity:**

· **LD/LC50 values that are relevant for classification:**		
ATE (Acute Toxicity Estimate)		
Oral	LD50	19,086 mg/kg (rat)
Inhalative	LC50/4 h	>191 mg/kg (rabbit)

67-64-1 acetone		
Oral	LD50	5,800 mg/kg (rat)
Dermal	LD50	>7,426 mg/kg (rabbit)
Inhalative	LC50/ 3 h	132 mg/L (rat)
74-98-6 propane		
Inhalative	LC50/4 h	>800,000 ppm (rat)
123-86-4 n-butyl acetate		
Oral	LD50	>10,768 mg/kg (rat)
Dermal	LD50	>17,600 mg/kg (rabbit)
Inhalative	LC50/4 h	>21 mg/L (rat)
616-38-6 dimethyl carbonate		
Oral	LD50	13,000 mg/kg (rat)
Dermal	LD50	>5,000 mg/kg (rabbit)
7440-50-8 copper		
Oral	LD50	>5,000 mg/kg (mouse)
Inhalative	LC50/4 h	>5.11 mg/L (rat)
75-28-5 isobutane		
Inhalative	LC50/4 h	>800,000 ppm (rat)
110-43-0 heptan-2-one		
Oral	LD50	1,670 mg/kg (rat)
Dermal	LD50	12,600 µL/kg (rabbit)
Inhalative	LC50/4 h	>16.7 mg/kg (rabbit)
108-65-6 2-methoxy-1-methylethyl acetate		
Oral	LD50	8,532 mg/kg (rat)
Dermal	LD/50	5 g/kg (rabbit)
Inhalative	LC50/4 h	35.7 mg/L (rat)

(Contd. on page 10)

(Contd. of page 9)

7440-22-4 Silver (Powder)		
Oral	LD50	>2,000 mg/kg (rat)
Dermal	LD50	>2,000 mg/kg (rat)

· **Primary irritant effect:**
· **on the eye:** Irritating effect.

· **Summary of effects and symptoms by route of exposure**
· **Eyes:**
redness, serious irritation
pain
· **Skin:**
dry skin
redness, may cause mild irritation
· **Inhalation:**
dizziness or drowsiness
cough
nausea
sore throat
headache
weakness
unconsciousness
· **Swallowed:**
nausea
sore throat
diarrhea
vomiting
abdominal discomfort

· **Delayed and immediate effects as well as chronic effects from short and long-term exposure**
Prolonged or repeated exposure may defat skin and cause skin dryness and cracking, and local redness and discomfort.
Exposure to silver powder may also cause argyria, an irreversible blue-grey discoloration of the skin.

· **Additional toxicological information:**
The product shows the following dangers according to internally approved calculation methods for preparations:
Irritant

· **Carcinogenic categories**

· IARC (International Agency for Research on Cancer)
None of the ingredients is listed.

· NTP (National Toxicology Program)
None of the ingredients is listed.

(Contd. on page 11)

(Contd. of page 10)

12 Ecological information

· **Toxicity**
· **Aquatic toxicity:**
Toxic to aquatic life with long lasting effects.
Avoid release to the environment.
Collect spillage.

67-64-1 acetone	
EC50/ 48 h	13,500 mg/L (daphnia)
LC50 96h	5,540 mg/L (trout)
123-86-4 n-butyl acetate	
LC50 96h	18 mg/L (minnow)
110-43-0 heptan-2-one	
EC50/ 48 h	>100 mg/L (daphnia)
LC50 96h	131 mg/L (minnow)

· **Persistence and degradability** No further relevant information available.

· **Bioaccumulative potential** No further relevant information available.

· **Mobility in soil** No further relevant information available.

· **Results of PBT and vPvB assessment**
· **PBT:** Not applicable.
· **vPvB:** Not applicable.

· **Other adverse effects**
· **Remark:** Toxic for fish

13 Disposal considerations

· **Waste treatment methods**
· **Recommendation:** This material and its container must be disposed of as hazardous waste.

· **Uncleaned packagings:**
· **Recommendation:**
Containers may still present a chemical hazard/ danger when empty.
Dispose of contents in accordance with all local, regional, national, and international regulations.
Where possible retain label warnings and SDS and observe all notices pertaining to the product.

14 Transport information

· **UN-Number**
· **DOT/TDG, IMDG, IATA** UN1950

(Contd. on page 12)

(Contd. of page 11)

· **UN proper shipping name**
· **DOT/TDG, IATA** Aerosols, flammable
· **IMDG** AEROSOLS

· **Transport hazard class(es)**

· **DOT/TDG (Transport dangerous goods):**

· **Class** 2.1 Gases
· **Label** 2.1

· **IMDG, IATA**

· **Class** 2.1 Gases
· **Label** 2.1

· **Packing group**
· **DOT/TDG, IMDG, IATA** Not applicable

· **Environmental hazards:** Product contains environmentally hazardous substances: Silver (Powder)
· **Marine pollutant:** MARINE POLLUTANT
· **Special marking (IATA):** ENVIRONMENTALLY HAZARDOUS

· **Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code** Not applicable.

· **Transport/Additional information:**

Limited Quantity

· **DOT/TDG**
· **Quantity limitations** On passenger aircraft/rail: 75 kg
On cargo aircraft only: 150 kg

· **IMDG**
· **Limited quantities (LQ)** 1L
· **Excepted quantities (EQ)** Code: E0
Not permitted as Excepted Quantity

· **Special precautions for user** Not applicable.

(Contd. on page 13)

(Contd. of page 12)

· **Hazard identification number (Kemler code):**	-
· **EMS Number:**	F-D,S-U
· **Stowage Code**	SW1 Protected from sources of heat. SW22 For AEROSOLS with a maximum capacity of 1 litre: Category A. For AEROSOLS with a capacity above 1 litre: Category B. For WASTE AEROSOLS: Category C, Clear of living quarters.
· **Segregation Code**	SG69 For AEROSOLS with a maximum capacity of 1 litre: Segregation as for class 9. Stow "separated from" class 1 except for division 1.4. For AEROSOLS with a capacity above 1 litre: Segregation as for the appropriate subdivision of class 2. For WASTE AEROSOLS: Segregation as for the appropriate subdivision of class 2.
· **UN "Model Regulation":**	UN 1950 AEROSOLS, 2.1

* 15 Regulatory information

· **Safety, health and environmental regulations/legislation specific for the substance or mixture**

· **OSHA Hazard Communication Standard (29 CFR Part 1900)**
The safety data sheet and label comply with HCS 2024.

· **Hazardous Products Act (R.S.C., 1985, c. H-3)**
The safety data sheet and label comply with the Hazardous Product Act and WHMIS 2023.

· **Sara**

· **Section 355 (extremely hazardous substances):**
None of the ingredients is listed.

· **Section 313 (Specific toxic chemical listings):**	
7440-50-8	copper

· **TSCA (Toxic Substances Control Act):**		
67-64-1	acetone	ACTIVE
74-98-6	propane	ACTIVE
123-86-4	n-butyl acetate	ACTIVE
616-38-6	dimethyl carbonate	ACTIVE
7440-50-8	copper	ACTIVE
75-28-5	isobutane	ACTIVE
110-43-0	heptan-2-one	ACTIVE
108-65-6	2-methoxy-1-methylethyl acetate	ACTIVE

(Contd. on page 14)

(Contd. of page 13)

· **Hazardous Air Pollutants**
None of the ingredients is listed.

· **Proposition 65**

· **Chemicals known to cause cancer:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for females:**
None of the ingredients is listed.

· **Chemicals known to cause reproductive toxicity for males:**
None of the ingredients is listed.

· **Chemicals known to cause developmental toxicity:**
None of the ingredients is listed.

· **Carcinogenic categories**

· **TLV (Threshold Limit Value)**		
67-64-1	acetone	A4

· **NIOSH-Ca (National Institute for Occupational Safety and Health)**
None of the ingredients is listed.

· **Canadian substance listings:**

· **Canadian Domestic Substances List (DSL)**	
67-64-1	acetone
74-98-6	propane
123-86-4	n-butyl acetate
616-38-6	dimethyl carbonate
7440-50-8	copper
75-28-5	isobutane
110-43-0	heptan-2-one
108-65-6	2-methoxy-1-methylethyl acetate

· **Canadian Non-Domestic Substances List (NDSL)**
None of the ingredients is listed.

· **Canadian Ingredient Disclosure list (limit 0.1%)**
None of the ingredients is listed.

· **Canadian Ingredient Disclosure list (limit 1%)**	
67-64-1	acetone
123-86-4	n-butyl acetate
7440-50-8	copper
110-43-0	heptan-2-one

· **HMIS-ratings (scale 0 - 4)**
Health = * 2
Fire = 3
Reactivity = 0

(Contd. on page 15)

(Contd. of page 14)

· **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.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

· **Department issuing SDS:** Regulatory department
· **Contact:** sds@mgchemicals.com
· **Version number of previous version:** 6.00
· **Date of preparation** 04/02/2025
· **Abbreviations and acronyms:**
IMDG: International Maritime Code for Dangerous Goods
DOT: US Department of Transportation
IATA: International Air Transport Association
EINECS: European Inventory of Existing Commercial Chemical Substances
ELINCS: European List of Notified Chemical Substances
CAS: Chemical Abstracts Service (division of the American Chemical Society)
LC50: Lethal concentration, 50 percent
LD50: Lethal dose, 50 percent
PBT: Persistent, Bioaccumulative and Toxic
vPvB: very Persistent and very Bioaccumulative
NIOSH: National Institute for Occupational Safety
· *** Data compared to the previous version altered.**