

Material Safety Data Sheet

Revision Date November 9, 2010	Prepared by Patti Rogers	Technical Information 1-800-201-8822 or support@mgchemicals.com
Head Office 9347 - 193 Street, Surrey, B.C., V4N 4E7		Emergency Phone Canutech (613) 996-6666 Collect 24 hrs

For updates please download from www.mgchemicals.com or fax requests to 1-800-708-9888

Section 1: Product Identification

MSDS Code: 842 - liquid

Name: Silver Print

Related Part Numbers: 842-20G; 842-250G

Use: For repairing traces on circuit boards

Section 2: Hazardous Ingredients

CAS#	Chemical Name	Percentage by weight	ACGIH TWA	Osha Pel	Osha Stel
7440-22-4	Silver	55-60	0.1mg/m ³	0.0 1mg/m ³	N/E
108-88-3	Toluene	7 – 13	50ppm	100ppm	150ppm
64-17-5	Ethyl alcohol	3 – 7	200ppm	200ppm	250ppm
141-78-6	Ethyl acetate	1 – 5	400ppm	400ppm	N/E
110-43-0	2-heptanone	1 – 5	50ppm	100ppm	N/E
110-19-0	2-methylpropyl ester acetic acid	1 – 5	150ppm	150ppm	N/E
67-64-1	2-propanone	1 – 5	750ppm	1000ppm	1000ppm
70657-70-4	2-methoxy-1 propanone acetate	0.1 – 1	N/E	N/E	N/E
108-65-6	1-methoxy-2 propanone acetate	0.1 – 1	N/E	N/E	N/E

Section 3: Hazards Identification

NFPA Ratings: Health 1 Flammability 3 Reactivity 0

HMIS Ratings: Health 1 Flammability 3 Physical Hazard 0

Eyes: Liquid in contact with eyes may cause permanent eye damage.

Skin: May cause skin irritation and possible pain and stinging if the skin is abraded.

Inhalation: Solvents may cause respiratory tract irritation, headache, and possible dizziness.

Ingestion: May cause respiratory and digestive tract irritation.

Chronic: Prolonged and repeated exposure may cause dermatitis, defatting of the skin, liver and kidney damage, and adverse central nervous system effects.

Section 4: First Aid Measure

Eyes: Remove contact lenses. Flush with plenty of water. Get medical aid.

Skin: Wash skin with soap and water. Get medical aid if symptoms persist.

Inhalation: Immediately remove from exposure to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

Ingestion: Do not induce vomiting. If conscious, give 1-2 glasses of water. Get medical aid.

Section 5: Fire Fighting Measures

Autoignition Temperature: 465°C **Flash Point:** -18°C **LEL / UEL:** 1 / 36
Extinguishing Media: Use water spray, dry chemical, carbon dioxide, or chemical foam.
General Information: Will burn if involved in a fire. Flash back along vapor trail is possible.

Section 6: Accidental Release Measures

Spill Procedure: Remove all sources of ignition. Provide adequate ventilation. Wear appropriate personal protection. Sprinkle absorbent compound onto spill, then sweep into a plastic or metal container. Wipe up further residue with paper towel and place in container. Wash spill area with soap and water.

Section 7: Handling and Storage

Handling: Wash thoroughly after handling. Avoid contact with eyes, skin, and clothing. Do not ingest or inhale. Do not expose container to heat or flame.
Storage: Keep away from sources of ignition. Store in a cool, dry, well-ventilated area, away from incompatible substances. Keep from freezing.

Section 8: Exposure Controls

Routes of entry: Eyes, ingestion, inhalation, and skin.
Ventilation: Use adequate general or local exhaust ventilation to keep airborne concentrations below exposure limits.
Personal Protection: Wear appropriate protective eyeglasses or chemical safety goggles. Wear appropriate protective clothing to prevent skin contact. Use a NIOSH approved respirator when necessary.

Section 9: Physical and Chemical Properties

Physical State:	Liquid	Odor:	Ethereal	Solubility:	Partial	Evaporation Rate:	Fast
Boiling Point:	59°C	Specific Gravity:	2.35	Vapor Pressure:	1 PSI @21°C	Vapor Density:	4.1 (Air=1)
							pH: 7

Section 10: Stability and Reactivity

Stability: Stable at normal temperatures and pressures.
Conditions to avoid: Temperatures over 40°C, ignition sources, and incompatible substances.
Incompatibilities: Alkali and alkaline earth metals, powdered aluminum, zinc, magnesium, and beryllium, lithium aluminum hydride, potassium tert-butoxide, nitrates, strong acids, strong oxidizers, chlorosulphonic acid, hydrogen peroxide.
Polymerization: Will not occur.
Decomposition: Carbon monoxide, carbon dioxide, nitrogen oxides

Section 11: Toxicological Information

Sensitization: (effects of repeated exposure) Prolonged or repeated skin contact may cause dermatitis.
Carcinogenicity: (risk of cancer) No
Teratogenicity: (risk of malformation in an unborn fetus) No
Reproductive Toxicity: (risk of sterility) Toluene is listed under **California Proposition 65** under chemicals known to cause reproductive toxicity.
Mutagenicity: (risk of heritable genetic effects) No

Lethal Exposure Concentrations:	Ingestion (LD50):	Inhalation (LC50):	Skin (LD50):	Inhalation (TCLo):
Silver	N/A	N/A	N/A	N/A
Toluene	636 mg/kg Rat	49 gm/ m ³ /4H Rat	14100 uL/kg Rabbit	1000 ppm/6H Rat
Ethyl alcohol	7060 mg/kg Rat	20000 ppm/10H Rat	20gm/kg Rabbit	50000 mg/ m ³ /2H Mouse
Ethyl acetate	5620 mg/kg Rat	200 gm/m ³ Rat	>20mL/kg Rabbit	200 ppm/6M Mouse
2-heptanone	4670 mg/kg Rat	N/A	N/A	7000 mg/m ³ /4H Guinea pig
2-methylpropyl ester acetic acid	13400mg/kg Rat	>17400mg/kg Rabbit	N/A	N/A
2-propanone	5800 mg/kg Rodent	500 mg/m ³ /8H Rat	>9400 uL/kg Guinea pig	30000 mg/m ³ /2H Mouse
2-methoxy-1 propanol acetate	N/A	N/A	N/A	2710 ppm Rat
1-methoxy-2 propanol acetate	8532 mg/kg Rat	N/A	>5 gm/kg Rabbit	N/A

Section 12: Ecological Information

General Information:

Volatile Organic compounds, % by weight:	31%
Volatile Organic compounds, grams per litre:	728.5 g/L

Section 13: Disposal Information

General Information: Dispose of in accordance with all local, provincial, state, and federal regulations. Water runoff can cause environmental damage.

Section 14: Transportation Information

Ground Canada: (1L and smaller)

Classified as **Consumer Commodity**. Note: TDG Amendment. Refer to section 1.15, 150 KG gross mass exemption.

Ground USA: - (1L and smaller)

Classified as **ORM-D**. Refer to USA CFR 49 Regulations.

Air: (all sizes).

Shipper must be trained and certified. Refer to IATA Dangerous Goods Regulations.

Shipping Name: **PAINT RELATED MATERIAL**, UN number: **1263**, Class: **3**, Packing Group: **II**, Flash Point: -18°C. Subsidiary Risk – nil, Recommend using original MG Chemicals certified outer cartons. Tape all seams on the carton. Hazard Label required – Flammable Liquid. A double arrow orientation label is required and is already printed on the original outer carton.

Sea - All Sizes:

Shipper must be trained and certified. Refer to IMDG regulations.

Shipping Name: **PAINT RELATED MATERIAL**, UN number: **1263**, Class: **3**, Packing Group: **II**, Flash Point: -18°C. Storage category "A", segregation as for class 9 but away from sources of heat and separated from goods of class 1 except for those in division 1.4.

Section 15: Regulatory Information

CANADA

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

DSL

All ingredients in this product are listed on the Domestic Substances List



WHMIS

This product belongs to the following categories: **B2, D2A**

Industry and Science Canada

MG Labels products intended for the workplace to conform to WHMIS labeling regulations. Product identification, net quantity declaration, minimum printing type size heights, and packaging of this product are in compliance.

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 any chemicals listed as hazardous air pollutants.

Health Canada

Products produced by MG Chemicals intended for retail display conform to the Canadian Consumer Labeling Regulations.

USA

SARA (Superfund Amendments and Reauthorization Act of 1986, USA, 40 CFR 372.4)

This product contains Toluene CAS# 108-88-3 (12.8%) and Silver CAS# 7440-22-4 (57%) listed under section 313 as a toxic chemical.

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

This product contains Toluene, and Silver toxic chemicals 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.

California Proposition 65 (Chemicals known to cause cancer or reproductive toxicity, May 1, 1997 revision, USA)

This product contains Toluene a chemical known to the state of California to cause reproductive toxicity.

EUROPE

RoHS

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

WEEE

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

Section 16: Other Information

Definitions: N/A = not applicable, N/E = not established

Disclaimer: This material safety data sheet is provided as an information resource only. M.G. Chemicals believes the information contained herein is accurate and compiled from reliable sources. It is the responsibility of the user to verify its validity. The buyer assumes all responsibility of using and handling the product in accordance with federal, state, and local regulations.