Material Safety Data Sheet

Revision Date	**Prepared by**	**Technical Information**
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Section 1: Product Identification

MSDS Code: 840 - liquid **Name: Nickel Print**

Related Part Numbers: 840-20G; 840-250G

Use: For repairing traces on circuit boards.

Section 2: Hazardous Ingredients

CAS#	Chemical Name	Percentage by weight	ACGIH TWA	Osha Pel	Osha Stel
7440-02-0	Nickel	47-52%	1mg/m^3	1mg/m^3	N/E
108-88-3	Toluene	12-14%	50ppm	100ppm	150ppm
67-64-1	Acetone	7-9%	750ppm	1000ppm	1000ppm
110-19-0	2-methylpropyl ester acetic acid	2-4%	N/E	N/E	N/E
110-43-0	2-heptanone	2-4%	50ppm	100ppm	N/E
64-17-5	Ethyl alcohol	2-4%	200ppm	200ppm	250ppm
14807-96-6	talc	1-3%	2 mg/m^3	N/A	N/A
141-78-6	Ethyl acetate	11-2%	400ppm	400ppm	N/E
67-56-1	Methanol	<1%	200ppm	250ppm	250ppm
14808-60-7	Crystaline Silica	<1%	0.025 mg/m^3	N/A	N/A

Section 3: Hazards Identification

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 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 in water:** Partial	**Evaporation Rate:** Fast	
Boiling Point:	59°C	**Specific Gravity:** 1.65@22°C	**Vapor Pressure:** 1PSI @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) Nickel: IARC-2B. Possibly a Carcinogenic to humans.

Teratogenicity: (risk of malformation in an unborn fetus) No

Reproductive Toxicity: (risk of sterility) No

Mutangenicity: (risk of heritable genetic effects) No

Lethal Exposure Concentrations:	**Ingestion (LD50):**	**Inhalation (LC50):**	**Skin (LD50):**	**Inhalation (TCLo):**
Nickel	N/A	N/A	N/A	10 mg/ m^3/2H Mousse
Toluene	636 mg/kg Rat	49 gm/ m^3/4H	14100 Ul/kg Rabbit	1000 ppm/6H Rat
Ethyl acetate	5620 mg/kg Rat	200 gm/ m^3 Rat	>20 mL/kg Rabbit	200 ppm/6H Mouse
2-methylpropyl ester acetic acid	13400 mg/kg Rat	N/A	>17400 mg/kg Rabbit	N/A
2-heptanone	1670 mg/kg	N/A	12600 uL/kg	7000 mg/ m^3/4H

	Rat		Rabbit	Guinea pig
Ethyl alcohol	7060 mg/kg Rat	20000 ppm/10H Rat	N/A	50000 mg/ m³/2H Mouse
Acetone	5800mg/kg Rat	50100 mg/ m³/8H Rat	20ml/kg Rabbit	30000 mg/m³/2H Mouse
Acrylic Resin	N/A	N/A	N/A	N/A
Methanol	5600 mg/kg Rat	81000 mg/ m³/14h Rabbit	15800 mg/kg Rabbit	6.5 mg/ m³/4W Rat
Crystaline Silica	N/A	N/A	N/A	1 mg/kg Rat
Talc	N/A	N/A	N/A	17 mg/ m³/6H/26D Rat

Section 12: Ecological Information

General Information: Avoid runoff into storms and sewers, which lead into waterways. Water runoff can cause environmental damage

Volatile Organic Compounds, % by weight: 36.36%

Volatile Organic Compounds, grams per litre: 600 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: 4L size and smaller:

Classified as **Consumer Commodity**. **Recommend Shipper be trained and certified. Refer to TDG regulations** (Canadian Transportation of Dangerous Goods regulations).

Ground USA: - 4L size and smaller

Classified as **ORM-D**. **Recommend Shipper be trained and certified. Refer to USA CFR 49 Regulations** (Parts 100 to 85).

Ground Canada and USA: (all sizes larger than 4 liter)

Shipper must be trained and certified. Refer to TDG regulation (Canada), CFR 49 regulations (USA) **UN1263**. Shipping name: **PAINT**, Class **3**, Packing group **II**, Flash Point -18°C.

Air: (all sizes).

Shipper must be trained and certified. Refer to IATA Dangerous Goods Regulations.
UN number: **1263,** Shipping Name: **PAINT**, 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**, 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.

Health Canada

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

USA

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.

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

This product contains Toluene (CAS# 108-88-3, 13%) and Nickel (CAS #7440-02-0 (45%), toxic chemicals subject to the reporting requirements of section 313 of Title III of the superfund Amendments and Reauthorization Act of 1986 and 40 CFR part 372

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

This product contains the following chemicals subject to the reporting requirements of section 313 Title III of the SARA of 1986 and 40 CFR part 372: Toluene CAS# 108-88-3, (13%) and Nickel (CAS #7440-02-0 (45%)

TSCA (Toxic Substances Control Act of 1976, USA)

All substances are TSCA listed.

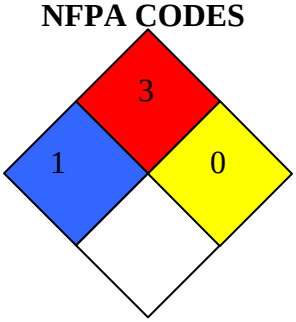
California Proposition 65 (Chemicals know to cause cancer or reproductive toxicity, May 1, 1997 revision, USA)

This product contains toluene and nickel listed under chemicals known to the state to cause reproductive toxicity and cancer.

HMIS RATING

HEALTH:	1
FLAMMABILITY:	3
PHYSICAL HAZARD:	0
PERSONAL PROTECTION:	

NFPA CODES



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.