

SUPER SHIELD™ WATER BASED NICKEL CONDUCTIVE COATING 841WB-LIQUID

# Safety Data Sheet

## Section 1: Identification

### Product Identifier and Other Means of Identification

**Product Name:** Super Shield™ Water Based Nickel Conductive Coating

**SDS Code:** 841WB-Liquid

**Related Part #** 841WB-15ML, 841WB-150ML, 841WB-850ML, 841WB-3.78L

### Recommended Use and Restriction on Use

**Use:** Nickel 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

MG Chemicals (Head Office)  
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### Emergency Phone Number

**For hazardous material incidents ONLY**—leaks, spills, fires, exposures or accidents

USA or CANADA: Call CHEMTREC ☎: **+1-800-424-9300**

**For emergencies involving dangerous goods;** Collect 24/7



CANADA: Call CANUTEC ☎: **+1-613-996-6666** or **\*666** on cellular phones

**SUPER SHIELD™ WATER BASED NICKEL CONDUCTIVE COATING 841WB-LIQUID**
**Section 2: Hazard(s) Identification**
**Classification of Hazardous Chemical**
**GHS Categories**

Criteria	Category	Signal Word	Pictograms
Reproductive Toxicity	1	Danger	Health
Specific Target Organ Toxicity Repeated Exposure	1	Danger	Health
Carcinogenicity	2	Warning	Health
Sensitization Skin	1	Warning	Exclamation
Hazardous to the Aquatic Environment Chronic	3	<i>none</i>	<i>none</i>

*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	<b>DANGER</b>
Pictograms	<b>Hazard Statements</b>
	H360: May damage fertility or the unborn child H372: Causes damages to organs (lungs) through prolonged or repeated exposure by inhalation H351: Suspected of causing cancer
	H317: May cause allergic skin reaction
<i>None</i>	H412: Harmful to aquatic life with long lasting effects

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**SUPER SHIELD™ WATER BASED NICKEL CONDUCTIVE COATING 841WB-LIQUID**

Continued ...

<b>Prevention</b>	<b>Precautionary Statements</b>
P102	Keep out of reach of children.
P201	Obtain special instructions before use.
P202	Do not handle until all safety precautions have been read and understood.
P260	Do not breathe mist/spray/vapors.
P270	Do not eat, drink or smoke when using this product.
P280	Wear protective gloves/protective clothing/eye protection.
P272	Contaminated work clothing should not be allowed out of the workplace.
P264	Wash hands thoroughly after handling.
P273	Avoid release to the environment.
<b>Response</b>	<b>Precautionary Statements</b>
P308 + P313	IF exposed or concerned: Get medical advice/attention.
P302 + P352	IF ON SKIN: Wash with plenty of water.
P333 + P313	If skin irritation or rash occurs: Get medical advice/attention.
P362 + P364	Take off contaminated clothing and wash it before reuse.
P314	Get medical attention/advice if you feel unwell.
<b>Storage</b>	<b>Precautionary Statements</b>
P405	Store locked up.
<b>Disposal</b>	<b>Precautionary Statements</b>
P501	Dispose of contents/container in accordance to local/regional/international regulations.

**Hazards Not Otherwise Classified**

<b>Other Criteria</b>	<b>Hazard Statements/Precautionary Statement</b>	<b>Signal Word</b>	<b>Pictograms</b>
<i>None</i>	<i>None</i>	<i>None</i>	<i>None</i>

**SUPER SHIELD™ WATER BASED NICKEL CONDUCTIVE COATING 841WB-LIQUID**
**Section 3: Composition/Information on Ingredients**

CAS #	Chemical Name	% (weight)
7440-02-0	nickel	48%
14807-96-6	talc	2%
126-33-0	sulfolane	1%
872-50-4	1-methyl-2-pyrrolidone	0.2%

**Section 4: First-Aid Measures**

<i>Exposure Condition</i>	<i>GHS Code/Symptoms/Precautionary Statements</i>
<b>IF ON SKIN</b>	P302 + P352, P333 + P313, P362 + P364, P308 + P313
<b>Immediate Symptoms</b>	<i>dry skin, redness, allergic rash</i>
<b>Response</b>	Wash with plenty of water. If skin irritation or rash occurs: Get medical advice/attention. Take off contaminated clothing and wash it before reuse. IF exposed or concerned: Get medical advice/attention.
<b>IF INHALED</b>	P304 + P340, P308 + P313
<b>Immediate Symptoms</b>	<i>cough, shortness of breath, headache</i>
<b>Response</b>	Remove person to fresh air and keep comfortable for breathing. IF exposed or concerned: Get medical advice/attention.
<b>IF IN EYES</b>	P305 + P351 + P338
<b>Immediate Symptoms</b>	<i>redness, blurred vision, pain</i>
<b>Response</b>	Rinse cautiously with water for 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
<b>IF SWALLOWED</b>	P301 + P330 + P331, P308 + P313
<b>Immediate Symptoms</b>	<i>not available</i>
<b>Response</b>	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF exposed or concerned: Get medical advice/attention.

**SUPER SHIELD™ WATER BASED NICKEL CONDUCTIVE COATING 841WB-LIQUID****Section 5: Fire-Fighting Measures**

<b>Extinguishing Media</b>	In case of fire use extinguishing media suitable for surrounding material.
<b>Specific Hazards</b>	Produces irritating and toxic fumes in fires or in contact with hot surfaces. May produce very toxic nickel carbonyl gas in the presence of carbon monoxide in a reducing atmosphere.
<b>Combustion Products</b>	Produces carbon oxides (CO,CO <sub>2</sub> ), nickel oxides fumes, and nitrogen oxides (NO <sub>x</sub> ).
<b>Fire-Fighter</b>	Wear self-contained breathing apparatus and full fire-fighting turn-out gear.

**Section 6: Accidental Release Measures**

<b>Personal Protection</b>	Use personal protection recommendations in Section 8.
<b>Precautions for Response</b>	Do not breathe the mist/spray/vapors. Remove or keep away all sources of extreme heat or open flames.
<b>Environmental Precautions</b>	Avoid releasing to the environment. Prevent spill from entering drains and waterways.
<b>Containment Methods</b>	Contain with inert and non-flammable absorbent (such as soil, sand, vermiculite).
<b>Cleaning Methods</b>	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.
<b>Disposal Methods</b>	Dispose of spill waste according to Section 13.

**Section 7: Handling and Storage**

<b>Prevention</b>	Keep out of reach of children. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe mist/spray/vapors. Do not eat, drink, or smoke when using this product. Contaminated work clothing should not be allowed out of the workplace.
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**SUPER SHIELD™ WATER BASED NICKEL CONDUCTIVE COATING 841WB-LIQUID**

<b>Handling</b>	Wear protective gloves/protective clothing/eye protection. Take off contaminated clothing and wash it before reuse. Wash hands thoroughly after handling. Avoid release to the environment.
<b>Storage</b>	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)
nickel	ACGIH	1.5 mg/m <sup>3</sup>	Not established
	U.S.A. OSHA PEL	1 mg/m <sup>3</sup>	Not established
	Canada AB	1.5 mg/m <sup>3</sup>	Not established
	Canada BC	0.05 mg/m <sup>3</sup>	Not established
	Canada ON	1 mg/m <sup>3</sup>	Not established
	Canada QC	1 mg/m <sup>3</sup>	Not established
talc (non-asbestos fiber)	ACGIH	2 mg/m <sup>3</sup>	Not established
	U.S.A. OSHA PEL	20 mppcf <sup>a)</sup>	Not established
	Canada AB	2 mg/m <sup>3</sup>	Not established
	Canada BC	2 mg/m <sup>3</sup>	Not established
	Canada ON	2 mg/m <sup>3</sup>	Not established
	Canada QC	3 mg/m <sup>3</sup>	Not established
1-methyl-2-pyrrolidinone	ACGIH	Not established	Not established
	U.S.A. OSHA PEL	Not established	Not established
	Canada AB	Not established	Not established
	Canada BC	Not established	Not established
	Canada ON	400 mg/m <sup>3</sup>	Not established
	Canada QC	Not established	Not established

*Note:* Ingredients are listed in descending weight contribution order (from greatest to least). The ACGIH<sup>1</sup>, OSHA (Table Z-1), and Canadian provinces exposure limits were consulted. Limits from by RTECS database<sup>2</sup> and data 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**

<b>Ventilation</b>	Keep airborne concentrations below the occupational exposure limits (OEL).
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**SUPER SHIELD™ WATER BASED NICKEL CONDUCTIVE COATING 841WB-LIQUID****Personal Protective Equipment**

<b>Eye protection</b>	Wear appropriate protective eyeglasses or chemical safety goggles.  <b>RECOMMENDATION:</b> Ensure that glasses have side shields for lateral protection.
<b>Skin Protection</b>	For likely or incidental contacts, use nitrile, neoprene, or other chemically resistant gloves.
<b>Respiratory Protection</b>	For over-exposures up to 10 x OEL of mist/vapors/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.  <b>RECOMMENDATION:</b> 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.

**SUPER SHIELD™ WATER BASED NICKEL CONDUCTIVE COATING 841WB-LIQUID**
**Section 9: Physical and Chemical Properties**

<b>Physical State</b>	Liquid	<b>Lower Flammability Limit</b>	Not applicable
<b>Appearance</b>	Dark grey	<b>Upper Flammability Limit</b>	Not applicable
<b>Odor</b>	Musty	<b>Vapor Pressure</b> <sup>a)</sup>	23 hPa [17 mmHg]
<b>Odor Threshold</b>	Not available	<b>Vapor Density</b>	Not available
<b>pH</b>	Not available	<b>Specific Gravity @25 °C</b>	1.81
<b>Freezing/Melting Point</b>	Not available	<b>Solubility in Water</b>	Miscible
<b>Boiling Point</b>	100 °C [212 °F]	<b>Partition Coefficient</b>	Not available
<b>Flash Point</b>	Not available	<b>Auto-ignition Temperature</b>	Not available
<b>Evaporation Rate</b>	Not available	<b>Decomposition Temperature</b>	Not available
<b>Flammability (solid, gas)</b>	Not available	<b>Viscosity @40 °C</b>	Not available

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

**Section 10: Stability and Reactivity**

<b>Reactivity</b>	The nickel can react vigorously with acids and liberate hydrogen, which can form an explosive mixture in air.  Nickel may react with carbon monoxide in a reducing atmosphere to form a very toxic nickel carbonyl gas.
<b>Chemical Stability</b>	Chemically stable at normal temperatures and pressures
<b>Conditions to Avoid</b>	Ignition sources, open flames, excessive heat, and incompatible substances
<b>Incompatibilities</b>	Oxidizing agents, strong acids, acid anhydrides
<b>Polymerization</b>	Will not occur
<b>Decomposition</b>	Does not decompose under normal conditions. For thermal decomposition, see combustion products in Section 5.



**SUPER SHIELD™ WATER BASED NICKEL CONDUCTIVE COATING 841WB-LIQUID**
**Section 11: Toxicological Information**
**Routes of Exposure**

Inhalation, Skin contact, Eye contact, and Ingestion

**Symptoms Summary**

<b>Eyes</b>	May cause redness, mild irritation and/or pain.
<b>Skin</b>	May cause dry skin, redness and/or allergic rash.
<b>Inhalation</b>	May cause cough, shortness of breath and/or headaches
<b>Ingestion</b>	No effects are known (see inhalation symptoms).
<b>Chronic</b>	Chronic inhalation exposure to nickel dust, mist, or spray may affect the central nervous system, damage lungs. Nickel is suspected of being a carcinogen.

**Acute Toxicity (Lethal Exposure Concentrations)**

Chemical Name	LD50 oral	LD50 dermal	LC50 inhalation
nickel	9 000 mg/kg Rat	Not established	10.2 mg/L 1 h Rat
talc	Not established	Not established	Not established
sulpholane	2 130 mg/kg Rat	2 000 mg/kg Rat	12 000 mg/L 4 h Rat
1-methyl-2-pyrrolidone	3 914 mg/kg Rat	8 000 mg/kg Rabbit	>5.1 mg/L Rat 4 h (mist)

*Note:* Toxicity data from the RTECS<sup>2</sup> and ECHA databases were consulted. The data from supplier (M)SDS were also consulted.

**Other Toxicological Effects**

<b>Skin corrosion/irritation</b>	Based on available data, the classification criteria are not met.
<b>Serious eye damage/irritation</b>	Based on available data, the classification criteria are not met. Contains mechanically abrasive particles.
<b>Sensitization</b> (allergic reactions)	Exposure to nickel may cause allergic skin reaction.

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**SUPER SHIELD™ WATER BASED NICKEL CONDUCTIVE COATING 841WB-LIQUID****Carcinogenicity**  
(risk of cancer)

Nickel is classified as a suspect carcinogen based on animal intratracheal instillation (intubation) or interperitoneal (in body cavity) injection studies. A reliable 2008 study by Oller et al. shows no carcinogenicity for the nickel metal via normal inhalation route.

**Nickel [7440-02-0]**

IARC Group 2B: Possibly carcinogenic to humans

ACGIH A5: Not suspected as a human carcinogen

CA Prop 65: Listed as a carcinogen

NTP: Reasonably anticipated to be human carcinogen

**Mutagenicity**  
(risk of heritable genetic effects)

Based on available data, the classification criteria are not met.

**Reproductive Toxicity**  
(risk to sex functions)

Sulophane may damage fertility.

**Teratogenicity**  
(risk of fetus malformation)

Sulophane and 1-methyl-2-pyrrolidinone may damage the unborn child.

At large doses of >4 000 mg/kg, 1-methyl-2-pyrrolidone shows reproductive effects based on studies in rats and mice.

**1-methyl-2-pyrrolidinone [CAS# 872-50-4]**

CA Prop 65: Listed as a reproductive toxicant

**STOT-single exposure**

Based on available data, the classification criteria are not met.

**STOT-repeated exposure**

Nickel particles can damage the respiratory tract leading to inflammation, lung fibrosis, and accumulation of nickel particles in a rat study.

**Aspiration hazard**

There are no category 1 components, and the kinematic viscosity of the mixture is >20.5 mm<sup>2</sup>/s at 40 °C.

**SUPER SHIELD™ WATER BASED NICKEL CONDUCTIVE COATING 841WB-LIQUID****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.

Nickel powder less than 1 mm diameter is classified as a chronic category 3 aquatic pollutant by ECHA registrants.

The 1-methyl-2-pyrrolidinone ingredient is not classified as an environmental hazard according to GHS criteria. It has a minimal LC50 96 h of >500 mg/L for *Pimephales promelas* (fathead minnow); EC50 24 h of  $\geq 1\ 000$  mg/L *Daphnia magna* (water flea).

**Acute Ecotoxicity**

Available toxicity data does not meet classification thresholds.

**Chronic Ecotoxicity**

Category 3

Harmful to aquatic life with long lasting effects.

Avoid release to the environment. Collect spillage.

**Biodegradability**

The nickel content is not biodegradable.

**Other Effects**

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

Actual VOC = 1.5% [28 g/L]; Regulated VOC = 145 g/L

*Note:* Nickel can be recovered from the waste to reclaim the value of the nickel.

**Section 13: Disposal Information**

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

**SUPER SHIELD™ WATER BASED NICKEL CONDUCTIVE COATING 841WB-LIQUID****Section 14: Transport Information****Ground**

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

Not Regulated

**Air**

Refer to **ICAO-IATA Dangerous Goods Regulations**.

Not Regulated

**Sea**

Refer to **IMDG Dangerous Goods Regulations**.

Not Regulated

**Section 15: Regulatory Information****Canada****Domestic Substance List (DSL) / Non-Domestic Substance Lists (NDSL)**

All hazardous ingredients are listed on the DSL.

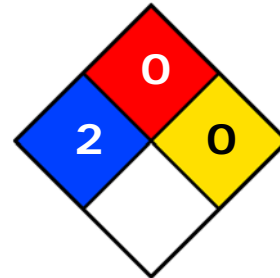
**Industry and Science Canada**

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.

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**SUPER SHIELD™ WATER BASED NICKEL CONDUCTIVE COATING 841WB-LIQUID****USA****Other Classifications****HMIS® RATING**

<b>HEALTH:</b>	<b>*</b>	<b>2</b>
<b>FLAMMABILITY:</b>		<b>0</b>
<b>PHYSICAL HAZARD:</b>		<b>0</b>
<b>PERSONAL PROTECTION:</b>		

**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 nickel (CAS# 7440-02-0, reportable quantity = 100 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 1-methyl-2-pyrrolidinone (CAS# 872-50-4), 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.

**California Proposition 65 (Chemicals known to cause cancer or reproductive toxicity, June 06, 2014 revision, USA).**

This product contains nickel, which is listed as a carcinogen. This product contains 1-methyl-2-pyrrolidinone (CAS# 872-50-4), which is listed as reproductive toxicity.

**Europe****RoHS (Restriction of Hazardous Substances Directive)**

This product does not contain any lead, cadmium, mercury, hexavalent chromium, PBB's, or PBDE's, 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.

**SUPER SHIELD™ WATER BASED NICKEL CONDUCTIVE COATING 841WB-LIQUID****Section 16: Other Information**

**SDS Prepared by** Michel Hachey  
**Date of Review** 08 December 2016  
**Supersedes** 15 August 2016  
**Reason for Changes:** Formulation change.

**Reference**

- 1) ACGIH 2013 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 (2013).
- 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)
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

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Quality System Certified to ISO 9001:2008

SAI Global File #004008

Burlington, Ontario, Canada

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## SUPER SHIELD™ WATER BASED NICKEL CONDUCTIVE COATING 841WB-LIQUID

**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](http://www.mgchemicals.com).

Email: [support@mgchemicals.com](mailto:support@mgchemicals.com)

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