

SECTION 1: Identification

1.1. Product identifier

Product form : Mixture
Trade name : SILVALOY® 381
Product code : A00000162
Product group : Trade product

1.2. Recommended use and restrictions on use

Recommended use : Alloys for brazing/soldering and other metallurgical processes

1.3. Supplier

Lucas-Milhaupt Toronto
290 Carlingview Drive
M9W 5G1 Rexdale - Canada
T +1 (416) 675-1860
LM_SDSinfo@lucasmilhaupt.com - www.lucasmilhaupt.com

1.4. Emergency telephone number

Emergency number : CHEMTREC Within the USA and Canada: 1-800-424-9300

SECTION 2: Hazard identification

2.1. Classification of the substance or mixture

Classification (GHS CA)

Skin sensitisation, Category 1 H317
Carcinogenicity, Category 2 H351
Specific target organ toxicity — Repeated exposure, Category 1 H372
Hazardous to the aquatic environment — Acute Hazard, Category 1 H400

Full text of H statements : see section 16

2.2. GHS Label elements, including precautionary statements

GHS CA labelling

Hazard pictograms (GHS CA) :



Signal word (GHS CA) : Danger

Hazard statements (GHS CA) : H317 - May cause an allergic skin reaction.
H351 - Suspected of causing cancer.
H372 - Causes damage to organs through prolonged or repeated exposure.
H400 - Very toxic to aquatic life.

Precautionary statements (GHS CA) : P201 - Obtain special instructions before use.
P202 - Do not handle until all safety precautions have been read and understood.
P260 - Do not breathe dust/fume/gas/mist/vapours/spray.
P261 - Avoid breathing dust/fume/gas/mist/vapours/spray.
P264 - Wash hands, forearms and face thoroughly after handling.
P270 - Do not eat, drink or smoke when using this product.
P272 - Contaminated work clothing should not be allowed out of the workplace.
P273 - Avoid release to the environment.
P280 - Wear protective gloves/protective clothing/eye protection/face protection.
P302+P352 - IF ON SKIN: Wash with plenty of water.
P308+P313 - IF exposed or concerned: Get medical advice/attention.
P314 - Get medical advice/attention if you feel unwell.
P321 - Specific treatment (see supplemental first aid instruction on this label)
P333+P313 - If skin irritation or rash occurs: Get medical advice/attention.
P362+P364 - Take off contaminated clothing and wash it before reuse.
P391 - Collect spillage.
P405 - Store locked up.
P501 - Dispose of contents/container to hazardous or special waste collection point, in accordance with local, regional, national and/or international regulation

2.3. Other hazards

No additional information available

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2.4. Unknown acute toxicity (GHS CA)

No data available

SECTION 3: Composition/information on ingredients

3.1. Substances

Not applicable

3.2. Mixtures

Name	Chemical name / Synonyms	Product identifier	%	Classification (GHS CA)
Silver	Silver, metallic / Silver metal / CI 77820 / Nanoscale silver / Nanosilver / Silver, metal / Silver, elemental / C.I. 77820	(CAS-No.) 7440-22-4	37 - 39	Aquatic Acute 1, H400
Copper	C.I. 77400 / C.I. Pigment Metal 2 / Copper, elemental / CI 77400 / Copper metal / Copper, metallic / Pigment Metal 2 / Granulated copper	(CAS-No.) 7440-50-8	30 - 32	Aquatic Acute 1, H400
Zinc	C.I. Pigment Black 16 / C.I. Pigment Metal 6 / Zinc (metallic) / Pigment Black 16	(CAS-No.) 7440-66-6	26 - 30	Acute Tox. 4 (Oral), H302 Aquatic Acute 1, H400
Tin	Tin, metal / Tin, elemental / Tin metal	(CAS-No.) 7440-31-5	1.5 - 2.5	Acute Tox. 4 (Oral), H302
Nickel	Nickel metal / Nickel, elemental / Nickel, metallic / Nickel, metal / C.I. 77775	(CAS-No.) 7440-02-0	0.75 - 1.25	Skin Sens. 1, H317 Carc. 2, H351 STOT RE 1, H372 Aquatic Acute 1, H400

Full text of hazard classes and H-statements : see section 16

SECTION 4: First-aid measures

4.1. Description of first aid measures

- First-aid measures after inhalation : Remove person to fresh air and keep comfortable for breathing.
- First-aid measures after skin contact : Take off contaminated clothing. If skin irritation or rash occurs: Get medical advice/attention. Wash skin with plenty of water.
- First-aid measures after eye contact : Rinse eyes with water as a precaution.
- First-aid measures after ingestion : Call a poison center or a doctor if you feel unwell. Rinse mouth.
- First-aid measures general : IF exposed or concerned: Get medical advice/attention.

4.2. Most important symptoms and effects (acute and delayed)

- Symptoms/effects after skin contact : May cause an allergic skin reaction.

4.3. Immediate medical attention and special treatment, if necessary

- Other medical advice or treatment : Treat symptomatically.

SECTION 5: Fire-fighting measures

5.1. Suitable extinguishing media

- Suitable extinguishing media : Dry powder. Water spray. Foam.

5.2. Unsuitable extinguishing media

- Unsuitable extinguishing media : Water.

5.3. Specific hazards arising from the hazardous product

No additional information available

5.4. Special protective equipment and precautions for fire-fighters

- Protection during firefighting : Do not attempt to take action without suitable protective equipment. Self-contained breathing apparatus. Complete protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

No additional information available

6.2. Methods and materials for containment and cleaning up

- For containment : Collect spillage.
- Methods for cleaning up : Mechanically recover the product. Notify authorities if product enters sewers or public waters.
- Other information : Dispose of materials or solid residues at an authorized site.

6.3. Reference to other sections

For further information refer to section 8: "Exposure controls/personal protection"

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SECTION 7: Handling and storage

7.1. Precautions for safe handling

- Precautions for safe handling : Ensure good ventilation of the work station. Wear personal protective equipment. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe dust/fume/gas/mist/vapours/spray. Avoid contact with skin and eyes. Take all necessary technical measures to avoid or minimize the release of the product on the workplace. Limit quantities of product at the minimum necessary for handling and limit the number of exposed workers. Provide local exhaust or general room ventilation. Floors, walls and other surfaces in the hazard area must be cleaned regularly.
- Hygiene measures : Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reuse. Do not eat, drink or smoke when using this product. Always wash hands after handling the product. Separate working clothes from town clothes. Launder separately.

7.2. Conditions for safe storage, including any incompatibilities

- Storage conditions : Store locked up. Store in a well-ventilated place. Keep cool.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Copper (7440-50-8)		
USA - ACGIH	ACGIH TWA (mg/m ³)	0.2 mg/m ³ (fume)
USA - OSHA	OSHA PEL (TWA) (mg/m ³)	0.1 mg/m ³ (fume) 1 mg/m ³ (dust and mist)
Canada (Quebec)	VEMP (mg/m ³)	0.2 mg/m ³ (fume)
Alberta	OEL TWA (mg/m ³)	0.2 mg/m ³ (fume)
British Columbia	OEL TWA (mg/m ³)	1 mg/m ³ (dust and mist)
Manitoba	OEL TWA (mg/m ³)	0.2 mg/m ³ (fume)
New Brunswick	OEL TWA (mg/m ³)	0.2 mg/m ³ (fume)
Newfoundland & Labrador	OEL TWA (mg/m ³)	0.2 mg/m ³ (fume)
Nova Scotia	OEL TWA (mg/m ³)	0.2 mg/m ³ (fume)
Nunavut	OEL STEL (mg/m ³)	3 mg/m ³ (dust and mist)
Nunavut	OEL TWA (mg/m ³)	0.2 mg/m ³ (fume)
Northwest Territories	OEL STEL (mg/m ³)	3 mg/m ³ (dust and mist)
Northwest Territories	OEL TWA (mg/m ³)	0.2 mg/m ³ (fume)
Ontario	OEL TWA (mg/m ³)	0.2 mg/m ³ (fume)
Prince Edward Island	OEL TWA (mg/m ³)	0.2 mg/m ³ (fume)
Saskatchewan	OEL STEL (mg/m ³)	0.6 mg/m ³ (fume)
Saskatchewan	OEL TWA (mg/m ³)	0.2 mg/m ³ (fume)
Yukon	OEL STEL (mg/m ³)	0.2 mg/m ³ (fume)
Yukon	OEL TWA (mg/m ³)	0.2 mg/m ³ (fume)
Nickel (7440-02-0)		
USA - ACGIH	ACGIH TWA (mg/m ³)	1.5 mg/m ³ (inhalable particulate matter)
USA - OSHA	OSHA PEL (TWA) (mg/m ³)	1 mg/m ³
Canada (Quebec)	VEMP (mg/m ³)	1 mg/m ³
Alberta	OEL TWA (mg/m ³)	1.5 mg/m ³
British Columbia	OEL TWA (mg/m ³)	0.05 mg/m ³
Manitoba	OEL TWA (mg/m ³)	1.5 mg/m ³ (inhalable particulate matter)
New Brunswick	OEL TWA (mg/m ³)	1 mg/m ³
Newfoundland & Labrador	OEL TWA (mg/m ³)	1.5 mg/m ³ (inhalable particulate matter)
Nova Scotia	OEL TWA (mg/m ³)	1.5 mg/m ³ (inhalable particulate matter)
Nunavut	OEL STEL (mg/m ³)	3 mg/m ³ (inhalable fraction)
Nunavut	OEL TWA (mg/m ³)	1.5 mg/m ³ (inhalable fraction)
Northwest Territories	OEL STEL (mg/m ³)	3 mg/m ³ (inhalable fraction)
Northwest Territories	OEL TWA (mg/m ³)	1.5 mg/m ³ (inhalable fraction)
Ontario	OEL TWA (mg/m ³)	1 mg/m ³ (inhalable)

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Nickel (7440-02-0)		
Prince Edward Island	OEL TWA (mg/m ³)	1.5 mg/m ³ (inhalable particulate matter)
Saskatchewan	OEL STEL (mg/m ³)	3 mg/m ³ (inhalable fraction)
Saskatchewan	OEL TWA (mg/m ³)	1.5 mg/m ³ (inhalable fraction)
Yukon	OEL STEL (mg/m ³)	3 mg/m ³
Yukon	OEL TWA (mg/m ³)	1 mg/m ³
Silver (7440-22-4)		
USA - ACGIH	ACGIH TWA (mg/m ³)	0.1 mg/m ³ (dust and fume)
USA - OSHA	OSHA PEL (TWA) (mg/m ³)	0.01 mg/m ³
Canada (Quebec)	VEMP (mg/m ³)	0.1 mg/m ³
Alberta	OEL TWA (mg/m ³)	0.1 mg/m ³
British Columbia	OEL STEL (mg/m ³)	0.03 mg/m ³
British Columbia	OEL TWA (mg/m ³)	0.01 mg/m ³
Manitoba	OEL TWA (mg/m ³)	0.1 mg/m ³ (dust and fume)
New Brunswick	OEL TWA (mg/m ³)	0.1 mg/m ³
Newfoundland & Labrador	OEL TWA (mg/m ³)	0.1 mg/m ³ (dust and fume)
Nova Scotia	OEL TWA (mg/m ³)	0.1 mg/m ³ (dust and fume)
Nunavut	OEL STEL (mg/m ³)	0.3 mg/m ³ (metal)
Nunavut	OEL TWA (mg/m ³)	0.1 mg/m ³ (metal)
Northwest Territories	OEL STEL (mg/m ³)	0.3 mg/m ³ (metal)
Northwest Territories	OEL TWA (mg/m ³)	0.1 mg/m ³ (metal)
Ontario	OEL TWA (mg/m ³)	0.1 mg/m ³ (dust and fume)
Prince Edward Island	OEL TWA (mg/m ³)	0.1 mg/m ³ (dust and fume)
Saskatchewan	OEL STEL (mg/m ³)	0.3 mg/m ³
Saskatchewan	OEL TWA (mg/m ³)	0.1 mg/m ³
Yukon	OEL STEL (mg/m ³)	0.03 mg/m ³
Yukon	OEL TWA (mg/m ³)	0.01 mg/m ³
Tin (7440-31-5)		
USA - ACGIH	ACGIH TWA (mg/m ³)	2 mg/m ³
Canada (Quebec)	VEMP (mg/m ³)	2 mg/m ³
Alberta	OEL TWA (mg/m ³)	2 mg/m ³
British Columbia	OEL TWA (mg/m ³)	2 mg/m ³
Manitoba	OEL TWA (mg/m ³)	2 mg/m ³
New Brunswick	OEL TWA (mg/m ³)	2 mg/m ³
Newfoundland & Labrador	OEL TWA (mg/m ³)	2 mg/m ³
Nova Scotia	OEL TWA (mg/m ³)	2 mg/m ³
Nunavut	OEL STEL (mg/m ³)	4 mg/m ³ (metal)
Nunavut	OEL TWA (mg/m ³)	2 mg/m ³ (metal)
Northwest Territories	OEL STEL (mg/m ³)	4 mg/m ³ (metal)
Northwest Territories	OEL TWA (mg/m ³)	2 mg/m ³ (metal)
Ontario	OEL TWA (mg/m ³)	2 mg/m ³
Prince Edward Island	OEL TWA (mg/m ³)	2 mg/m ³
Saskatchewan	OEL STEL (mg/m ³)	4 mg/m ³
Saskatchewan	OEL TWA (mg/m ³)	2 mg/m ³
Zinc (7440-66-6)		
USA - ACGIH	ACGIH TWA (mg/m ³)	2 mg/m ³ (as ZnO)

8.2. Appropriate engineering controls

Appropriate engineering controls : Ensure good ventilation of the work station.
Environmental exposure controls : Avoid release to the environment.

8.3. Individual protection measures/Personal protective equipment

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Hand protection:

Protective gloves

Eye protection:

Safety glasses

Skin and body protection:

Wear suitable protective clothing

Respiratory protection:

[In case of inadequate ventilation] wear respiratory protection.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state	: Solid
Appearance	: White to light yellow metallic luster, various forms.
Colour	: No data available
Odour	: No data available
Odour threshold	: No data available
pH	: No data available
Relative evaporation rate (butylacetate=1)	: No data available
Relative evaporation rate (ether=1)	: No data available
Melting point	: 1350 °F
Freezing point	: Not applicable
Boiling point	: No data available
Flash point	: Not applicable
Auto-ignition temperature	: Not applicable
Decomposition temperature	: No data available
Flammability (solid, gas)	: Non flammable.
Vapour pressure	: No data available
Vapour pressure at 50 °C	: No data available
Relative density	: Not applicable
Solubility	: No data available
Log Pow	: No data available
Explosive limits	: Not applicable

9.2. Other information

No additional information available

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity	: The product is non-reactive under normal conditions of use, storage and transport.
Chemical stability	: Stable under normal conditions.
Possibility of hazardous reactions	: No dangerous reactions known under normal conditions of use.
Conditions to avoid	: None under recommended storage and handling conditions (see section 7).
Hazardous decomposition products	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Acute toxicity (oral)	: Not classified
Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified

Nickel (7440-02-0)	
LD50 oral rat	> 9000 mg/kg
LC50 inhalation rat (mg/l)	> 10.2 mg/l (Exposure time: 1 h)

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Silver (7440-22-4)	
LD50 oral rat	> 5000 mg/kg
LD50 dermal rat	> 2000 mg/kg

Tin (7440-31-5)	
LD50 oral rat	700 mg/kg
ATE CA (oral)	700 mg/kg bodyweight

Zinc (7440-66-6)	
LD50 oral rat	630 mg/kg
ATE CA (oral)	630 mg/kg bodyweight

Skin corrosion/irritation : Not classified
Serious eye damage/irritation : Not classified
Respiratory or skin sensitization : May cause an allergic skin reaction.
Germ cell mutagenicity : Not classified
Carcinogenicity : Suspected of causing cancer.

Reproductive toxicity : Not classified

STOT-single exposure : Not classified
: Causes damage to organs through prolonged or repeated exposure.

STOT-repeated exposure

Nickel (7440-02-0)	
STOT-repeated exposure	Causes damage to organs through prolonged or repeated exposure.

Aspiration hazard : Not classified

Symptoms/effects after skin contact : May cause an allergic skin reaction.

SECTION 12: Ecological information

12.1. Toxicity

Ecology - general : Very toxic to aquatic life.
Acute aquatic toxicity : Very toxic to aquatic life.
Chronic aquatic toxicity : Not classified

Copper (7440-50-8)	
EC50 96h algae (1)	0.031 - 0.054 mg/l (Species: Pseudokirchneriella subcapitata [static])

Nickel (7440-02-0)	
LC50 fish 1	> 100 mg/l (Exposure time: 96 h - Species: Brachydanio rerio)
LC50 fish 2	1.3 mg/l (Exposure time: 96 h - Species: Cyprinus carpio [semi-static])
EC50 Daphnia 1	> 100 mg/l (Exposure time: 48 h - Species: Daphnia magna)
EC50 Daphnia 2	1 mg/l (Exposure time: 48 h - Species: Daphnia magna [Static])
EC50 72h algae (1)	0.18 mg/l (Species: Pseudokirchneriella subcapitata)
EC50 96h algae (1)	0.174 - 0.311 mg/l (Species: Pseudokirchneriella subcapitata [static])

Zinc (7440-66-6)	
EC50 96h algae (1)	0.11 - 0.271 mg/l (Species: Pseudokirchneriella subcapitata [static])

12.2. Persistence and degradability

No additional information available

12.3. Bioaccumulative potential

No additional information available

12.4. Mobility in soil

No additional information available

12.5. Other adverse effects

Ozone : Not classified

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SECTION 13: Disposal considerations

13.1. Disposal methods

Waste treatment methods : Dispose of contents/container in accordance with licensed collector's sorting instructions.

SECTION 14: Transport information

14.1. Basic shipping description

In accordance with TDG

Transportation of Dangerous Goods

Not regulated for transport

14.2. Transport information/DOT

Department of Transport

Not regulated for transport

14.3. Air and sea transport

IMDG

Not regulated for transport

IATA

Not regulated for transport

SECTION 15: Regulatory information

15.1. National regulations

Copper (7440-50-8)

Listed on the Canadian DSL (Domestic Substances List)

Nickel (7440-02-0)

Listed on the Canadian DSL (Domestic Substances List)

Silver (7440-22-4)

Listed on the Canadian DSL (Domestic Substances List)

Tin (7440-31-5)

Listed on the Canadian DSL (Domestic Substances List)

Zinc (7440-66-6)

Listed on the Canadian DSL (Domestic Substances List)

15.2. International regulations

Copper (7440-50-8)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the United States TSCA (Toxic Substances Control Act) inventory
Listed on INSQ (Mexican National Inventory of Chemical Substances)
Listed on Turkish inventory of chemical

Nickel (7440-02-0)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the United States TSCA (Toxic Substances Control Act) inventory
Japanese Pollutant Release and Transfer Register Law (PRTR Law)
Listed on INSQ (Mexican National Inventory of Chemical Substances)
Listed on Turkish inventory of chemical

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Silver (7440-22-4)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the United States TSCA (Toxic Substances Control Act) inventory
Japanese Pollutant Release and Transfer Register Law (PRTR Law)
Listed on INSQ (Mexican National Inventory of Chemical Substances)
Listed on Turkish inventory of chemical

Tin (7440-31-5)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the United States TSCA (Toxic Substances Control Act) inventory
Listed on INSQ (Mexican National Inventory of Chemical Substances)
Listed on Turkish inventory of chemical

Zinc (7440-66-6)

Listed on the AICS (Australian Inventory of Chemical Substances)
Listed on IECSC (Inventory of Existing Chemical Substances Produced or Imported in China)
Listed on the EEC inventory EINECS (European Inventory of Existing Commercial Chemical Substances)
Listed on the Korean ECL (Existing Chemicals List)
Listed on NZIoC (New Zealand Inventory of Chemicals)
Listed on PICCS (Philippines Inventory of Chemicals and Chemical Substances)
Listed on the United States TSCA (Toxic Substances Control Act) inventory
Listed on INSQ (Mexican National Inventory of Chemical Substances)
Listed on Turkish inventory of chemical

SECTION 16: Other information

Date of issue : 29 November 2017

Revision date : 17 October 2017

Full text of H-statements:

H302	Harmful if swallowed.
H317	May cause an allergic skin reaction.
H351	Suspected of causing cancer.
H372	Causes damage to organs through prolonged or repeated exposure.
H400	Very toxic to aquatic life.

SDS Canada (GHS)

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.