

### SECTION 1. IDENTIFICATION OF THE SUBSTANCE/PREPARATION AND OF THE COMPANY/UNDERTAKING

<b>Trade name</b>	<b>Tin Antimony Copper Alloy</b>
<b>Product code</b>	None
<b>Product list</b>	Alloy : Jewellery ; Pewter, special ; Royal Nickel (XXXX Babbitt) ; Thermodyne. Babbitt : ASTM # 2, # 3, # 11 [SAE # 11], Parsons 171, 11-R.
<b>Supplier</b>	Xstrata Zinc, General Smelting Company of Canada, 1400 Norman Street, Lachine (Québec), Canada H8S 1A8
<b>Information contact</b>	Gino De Nobile, Chemist
<b>Phone number (Business hours)</b>	(514) 637-3591
<b>Phone number (Emergency)</b>	<b>CANUTEC : (613) 996-6666</b>
<b>Synonym</b>	Alliage étain antimoine cuivre (French)
<b>Name / Chemical formula</b>	Not applicable
<b>Chemical family</b>	Metal
<b>Utilisation</b>	Manufacturing of bearing (Sleeves) ; Die castings ; Making of jewelry, pewter ; Others.

### SECTION 2. HAZARDS IDENTIFICATION

**WHMIS (Canada)** CLASS D-2A : Very toxic material causing other toxic effects



#### Hazard classes (categories)/Hazard statements

**Cadmium** : Cancerogen (1B) : H350-May cause cancer. Mutagen (2) : H341-Suspected of causing genetic defects. Reprotoxic (2) : H361fd-Suspected of damaging fertility or the unborn child. Toxicity acute (2) : H330-Fatal if inhaled. STOT RE (1) : H372-Causes damage to organs through prolonged or repeated exposure. Aquatic acute (1) : H400-Very toxic to aquatic life. Aquatic chronic (1) : H410-Very toxic to aquatic life with long lasting effects.

**Nickel** : Cancerogen (2) : H351-Suspected of causing cancer ; Sensitisation (Skin) (1) H317-May cause an allergic skin reaction.

#### Hazards words

Danger



Sensitising, mutagen  
cancerogen, reprotoxic



Toxic



Hazardous to the aquatic environment

#### Precautionary statements

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. P264-Wash (Hands, face, contaminated skin by the product) 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. P281-Use personal protective equipment as required.

#### Other hazards

Reactive with : Acids, oxidants. Release of hydrides, hydrogen. Possibility of eye and skin irritation (Particules). Ingestion will nearly always cause acute gastro-intestinal irritation. Acute exposure : Possibility of other organs and body systems damages.

#### Environmental hazards

Toxic for aquatic life.

### SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Name	CAS No	Percentage (%)	EC No	Hazard statements
Tin	7440-31-5	70-100	231-141-8	none
Antimony	7440-36-0	1-10	231-146-5	None
Copper	7440-50-8	1-10	231-159-6	None
Cadmium	7440-43-9	0-3	231-152-8	H350-H341-H361fd-H330-H372-H400-H410
Lead	7439-92-1	0-1	231-100-4	None
Nickel	7440-02-0	0-1	231-111-4	H351-H317

### SECTION 4. FIRST-AID MEASURES

<b>Eye contact</b>	P305+P351+P338-IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
<b>Skin contact</b>	P302+P352-IF ON SKIN: Wash with plenty of soap and water. P333+P313-If skin irritation or rash occurs: Get medical advice/attention. P363-Wash contaminated clothing before reuse.
<b>Inhalation</b>	P308+P313-IF exposed or concerned: Get medical advice/attention. If breathing is difficult, give oxygen.
<b>Ingestion</b>	P301+P310-IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. P330-Rinse mouth. Induce vomiting. <b>UNCONSCIOUS</b> person : <b>DO NOT</b> induce vomiting or give any liquid.

### SECTION 5. FIRE-FIGHTING MEASURES

<b>Flash point</b>	Not available
<b>Flammable limits</b>	Not available
<b>Auto-ignition temperature</b>	Not available

**Products of combustion**

Metal oxides

**Fire hazard**

 Solid form : No fire hazard. Avoid melting moist metal. Dust : Flammable when exposed to heat or flames. Heated and on contact with acids or acid fumes, metals can release hydrogen and form **stibine**, (**Extremely** toxic gas).

**Tin** : Fine dust combustible when exposed to heat.

**Antimony** : Spontaneously flammable in fluorine, chlorine, or bromine. With iodine : Reaction produces heat, which may cause flames or explosion if quantities are great enough. Dust or vapours exposed to heat or flame : Moderate fire or explosion hazard.

**Lead** : In contact with fire or heat source, it may melt, and then if in contact with water, will cause a violent reaction. Possibility of toxic lead vapours formation.

**Explosion hazard**

 Not explosive (Mechanical impact ; Static discharge). **NEVER** spray water on burning metal because of the risk of explosion which would splatter flaming particles of metal to great distances.

Dust : Slightly explosive to explosive in presence of open flames and sparks.

**Extinguishing media**

NON-FLAMMABLE. Use fire fighting materials and procedures adapted to the immediate environment.

**Protective equipment**

Firefighters must wear full protective clothing and self-contained breathing apparatus (SCBA).

**SECTION 6. ACCIDENTAL RELEASE MEASURES**
**Measures**

P391-Collect spillage.

**Methods**

Use appropriate tools to place spilled materials in suitable containers for reclamation or disposal.

**Protective equipment**

 High concentrations of fumes or dust or risk of emission of toxic material (**Stibine**) : Use a positive-pressure, self-contained breathing apparatus (SCBA) to avoid inhalation of material. Low concentrations : Use a NIOSH/OSHA approved full face cartridge respirator or the equivalent. Full protective clothing. Work gloves and boots.

**SECTION 7. HANDLING AND STORAGE**
**Handling**
**DO NOT** ingest or inhale dust. Wear adequate protective clothing. Wear approved respirators if adequate ventilation cannot be provided. Ingestion or inhalation : Seek medical advice immediately and provide medical personnel with a copy of this SDS.

 Heated and on contact with acids or acid fumes, metals (Aluminum, zinc, iron, etc.) can release hydrogen : Nascent hydrogen may form : Antimony hydride (**Stibine**) (**Extremely** toxic gas). If hydrides suspected in the area, the workplace must be **immediately** evacuated. Personnel entering this area **MUST** wear positive-pressure, self contained breathing apparatus (SCBA).

**Conditions for storage**

P405-Store locked up. Container tightly close. Well ventilated area. Away from : Moisture, incompatible substances (Acids).

**SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION**

Name	CAS No	Percentage (%)	Control parameters		
			ACGIH (U.S.) 2011 TLV-TWA (mg/m <sup>3</sup> )	OSHA (U.S.) PEL-TWA (mg/m <sup>3</sup> )	QUEBEC (CA) TWA <sub>EV</sub> (mg/m <sup>3</sup> )
Tin	7440-31-5	70-100	2 (Sn)	2 (metal, compounds)	2 (metal)
Antimony	7440-36-0	1-10	0.5 (Sb, compds Sb)	0.5 (Sb, compds Sb)	0.5 (Sb, compds Sb)
Copper	7440-50-8	1-10	1 (dust, mist, Cu) 0.2 (fumes)	1 (dust, mist, Cu) 0.1 (fumes)	1 (dust, mist, Cu) 0.2 (fumes Cu)
Cadmium	7440-43-9	0-3	0.01 (Cd) 0.002 (respirable fraction)	0.005 (Cd) 0.2 (dust) 0.1 (fume)	0.025 (Cd, dust, salt)
Lead	7439-92-1	0-1	0.05 (Pb, inorganic compds Pb)	0.05 (Pb, Pb compds)	0.05 (Pb, inorganic compds)
Nickel	7440-02-0	0-1	1.5 (metal, inhalable)	1 (metal, insoluble compds Ni)	1 (metal, insoluble compds)

**Note :** **Tin** : ACGIH TLV TWA : Metal, oxide, inorganic compounds (Sn) except SnH<sub>4</sub>. OSHA PEL-TWA : Metal, inorganic compounds (Sn) except oxides. NIOSH REL-TWA (≤10 hours) : 2 mg/m<sup>3</sup> (Except oxides) ; IDLH : 100 mg/m<sup>3</sup>.

**Antimony** : ACGIH TLV-TWA : Elemental and compounds. NIOSH REL-TWA (≤10-hours) : 0.5 mg/m<sup>3</sup> ; IDLH : 50 mg/m<sup>3</sup>.

**Copper** : NIOSH REL-TWA (≤10 hours) : 1 mg/m<sup>3</sup> (Copper, copper compounds, as Cu, except fumes) ; IDLH : 100 mg/m<sup>3</sup> (Metal ; Dust, mists, fumes, compounds Cu).

**Cadmium** : OSHA Ceiling : 0.3 mg/m<sup>3</sup> (Cd fume). NIOSH IDLH : 9 mg Cd/m<sup>3</sup> (Metal dust and compounds).

**Lead** : ACGIH TLV TWA : 0.05 mg/m<sup>3</sup> (Lead and inorganic compounds). NIOSH REL-TWA (≤10 hours) : 0.05 mg/m<sup>3</sup> ; REL also applies to other lead compounds (as Pb) ; IDLH : 100 mg/m<sup>3</sup> (Metal ; Compounds). OSHA PEL-TWA : PEL also applies to other lead compounds (as Pb).

**Nickel** : NIOSH REL-TWA (≤10 hours) : 0.015 mg Ni/m<sup>3</sup> (Metal ; Compounds Ni) ; IDLH : 10 mg Ni/m<sup>3</sup> (Metal ; Compounds Ni).

*Consult local authorities for acceptable exposure limits*
**Engineering controls**

Use process enclosures, local exhaust ventilation or other engineering controls to keep airborne levels below recommended exposure limits.

**Individual protection**

Safety goggles. Coveralls. Work gloves and boots. Dust respirator. Be sure to use a NIOSH approved respirator or equivalent when concentrations exceed occupational exposure limits.


**SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES**

<b>Physical state and appearance</b>	Solid (Ingot, bar)	<b>Odour</b>	Odourless
<b>Molecular weight</b>	Not applicable	<b>Taste</b>	Not applicable
<b>pH (1% soln/water)</b>	Not applicable	<b>Colour</b>	Grey to yellowish
<b>Boiling point</b>	Not available	<b>Volatility</b>	Not available
<b>Melting point</b>	Weighted average : 266.62°C (511.9°F) to 482°C (900°F)	<b>% Moisture</b>	Not available
<b>Critical temperature</b>	Not available	<b>Odour threshold</b>	Not available
<b>Specific gravity</b>	Weighted average : 7.38 (Water = 1)	<b>Water/Oil dist. coeff.</b>	Not available
<b>Vapour pressure</b>	Not available	<b>Ionicity (in water)</b>	Not available
<b>Vapour density</b>	Not available	<b>Dispersion</b>	No (Water)
<b>Solubility</b>	No (Water)		

**SECTION 10. STABILITY AND REACTIVITY**

<b>Stability</b>	Yes (Under normal conditions of ambient temperature)
<b>Reactivity</b>	Reactive or incompatible with : Acids.
<b>Dangerous decomposition</b>	<p>Metallic oxides</p> <p>Heated and on contact with acids or acid fumes, metals (Soft or galvanized metal, aluminum) can release hydrogen and form antimony hydride (<b>Stibine</b>) (<b>Extremely</b> toxic gas).</p>
<b>Conditions to avoid</b>	Acids
<b>Dangerous polymerization</b>	No
<b>Materials to avoid</b>	<p><b>Tin</b> : Reacts violently under certain conditions with : Chlorine, bromine, trifluoride (Chlorine, bromine), acids, oxidants. Can react with some extinguishing agents (Bicarbonate powder, carbon dioxide).</p> <p><b>Antimony</b> : Possibility of violent reaction with : Ammonium nitrate, bromate trifluoride, halogens, chloric acid, chlorine trifluoride, nitric acid, potassium nitrate, potassium permanganate, dipotassium peroxide, sodium nitrate and oxidants.</p> <p><b>Copper</b> : Violent reaction with : Bromates, chlorates, hydrogen peroxide, sulfuric acid, sodium peroxide, dipotassium peroxide, hydrazoic acid, combination of hydrogen sulfur and air.</p> <p><b>Cadmium</b> : Comburants agents, acids, strong oxidants.</p> <p><b>Lead</b> : Violent reaction on ignition with : Chlorine trifluoride, concentrated hydrogen peroxide, ammonium nitrate, sodium acetylide. Other incompatibilities : Sodium nitrate, zirconium, disodium acetylide, oxidants.</p> <p><b>Nickel</b> : Violent reaction with : Fluoride, hydrazine, NH<sub>3</sub>, NH<sub>4</sub>NO<sub>3</sub>, H<sub>2</sub>+dioxine, titanium+ KClO<sub>3</sub> ; Phosphorous, selenium, sulfur. Other reactions with : Oxidants (Bromine pentafluoride, chlorine). Raney-nickel catalysts may initiate hazardous reactions with : Ethylene+aluminum chloride, p-dioxane, hydrogen, hydrogen+oxygen, magnesium silicate, methanol, organic solvents + heat, sulfur compounds.</p> <p><i>NOTE : This list of products is not exhaustive. Verify technical documents to determine any incompatibilities with your process.</i></p>
<b>Corrosivity</b>	No

**SECTION 11. TOXICOLOGICAL INFORMATION**

<b>Routes of entry</b>	Ingestion. Inhalation. Eyes and skin contact.
<b>Carcinogenicity</b>	<p><b>Cadmium</b> : PROVEN (Group 1, IARC) ; SUSPECTED (ACGIH) ; LISTED (NTP, OSHA).</p> <p><b>Lead</b> : POSSIBLE (Group 2B, IARC) (EPA) ; CARCINOGEN (Animal, A3, ACGIH).</p> <p><b>Nickel</b> : POSSIBLE (Group 2B, IARC) ; SUSPECTED (NTP) ; NOT SUSPECTED (Human, A5, ACGIH).</p> <p><b>Copper ; Tin</b> : NOT A CARCINOGEN (IARC, OSHA, NTP) ; NOT LISTED (ACGIH).</p> <p><b>Antimony</b> : NOT LISTED (IARC, ACGIH).</p>
<b>Mutagenicity</b>	<p><b>Cadmium</b> : DNA damages (Human, mouse) ; Cytogenetic analysis (1µmol/L, hamster ovary).</p> <p><b>Lead</b> : Cytogenetic analysis ; DNA. (RTECS).</p> <p><b>Nickel</b> : Morphological transform : 400 mg/l, kidney (Hamster) ; 5 µmol/l, embryo, (Hamster).</p>
<b>Teratogenicity</b>	<p><b>Cadmium</b> : ORAL : Biochemical and metabolic effects (Mouse newborn) ; INTRAPERITONEAL : Specific developmental abnormalities of the CNS (Mouse).</p> <p><b>Lead</b> : SUSPECTED (OSHA). Effects on embryo, foetus, fertility (RTECS).</p> <p><b>Nickel</b> : ORAL (LoTD) : 158 mg/kg, Effects on embryo or fetus : Fetotoxicity (except death), fetal death (Rat).</p>
<b>Acute toxicity</b>	<p><b>Tin</b> : UNREPORTED ROUTE acute (LoTD) : 250 mg/kg (Human). (RTECS).</p> <p><b>Antimony</b> : ORAL acute (LD50) : 7 000 mg/kg (Rat). INTRAPERITONEAL acute (LD50) : 100 mg/kg (Rat) ; 80 mg/kg (Mouse). (RTECS).</p>

**Copper** : SUBCUTENOUS acute (LoLD) : 375 mg/kg (Rabbit) ; INTRAPERITONAL acute (LD 50) : 0.7 mg/kg (Mouse). (RTECS).

**Cadmium** : ORAL acute (LD50) : 225 mg/kg (Rat). (HSDB). ORAL acute (LD50) : 2 330 mg/kg (Rat) ; 890 mg/kg (Mouse). INHALATION acute (LC50) : 25 mg/m<sup>3</sup>/30 minute (Rat) (RTECS).

**Lead** : ORAL acute (LoLD) : 155 mg/kg (Human) ; 0.2 mg/kg (Rat). INHALATION acute (LoTC) : 10 µg/m<sup>3</sup> (Human). INTRAPERITONEAL acute (LoLD) : 1 g/kg (Rat). (RTECS).

**Nickel** : ORAL acute (LoLD) : 500 mg/kg (Rat, Mouse). ORAL acute (LoTD) : 200 mg/kg (Rat, Mouse). INTRAPERITONEAL acute (LD50) : 250 mg/kg (Rat). INTRAVENOUS acute (LoLD) : 50 mg/kg (Mouse). (RTECS).

### Acute effects

Solid form : No health hazards. Conditions and work practices which generate dust or fumes should be avoided or controlled. Other forms : Dangerous (Ingestion, inhalation).

**Copper** : Exposure to fumes or extremely fine dust (Concentrations of 0.075 to 0.12 mg/m<sup>3</sup>) may cause **metal fume fever**, a delayed, generally benign, transient, reversible flu-like condition.

**Cadmium** : Sensitive organs to acute and chronic overexposure : Respiratory system, bone structure, kidneys, blood. Possibility of symptoms after chronic overexposure : Shortness of breath, cough, osteoporosis, proteinuria.

**Lead** : Absorption is easier by inhalation and the symptoms develop more quickly than by ingestion. Symptoms : Loss of appetite, anemia, insomnia, headache, muscle and joint pain. Toxicity by ingestion, compared to those by inhalation, requires greater concentrations before symptom onset.

**Nickel** : Possibility of allergic reaction.

### Chronic effects

Non-controlled repeated or prolonged exposure : Possibility of target organ damages (Blood, kidneys, liver, lungs ; nervous and reproductive systems). Repeated exposure : Possibility of a general health deterioration by an accumulation in one or many organs.

**Tin** : Low toxicity for humans. Chronic inhalation of oxide (Dust, fume) may cause stannosis (Benign pneumoconiosis) without any pulmonary functional impairment. Other sensitive organs : Kidneys, central nervous system.

**Antimony** : The principal toxicological properties mimic those of arsenic such as : Abdominal cramps, nausea, vomiting, watery diarrhea which may be bloody. Possibility of dermatitis called **antimony spots** : Papules and pustules around sweat and sebaceous glands (Generally on the forearms) which resemble chicken pox and are transient in nature. Some people may develop an allergy to antimony metal. Inhalation (Antimony and compounds) : Possibility of pneumoconiosis which can lead to some obstructive lung disease. There is some evidence that antimony may have some effect on the heart.

**Copper** : Target organs for acute and chronic overexposure (NIOSH 90-117) : Respiratory system, skin, liver and kidneys.

**Cadmium** : Sensitive organs to acute and chronic overexposure : Respiratory system, bone structure, kidneys, blood. Possibility of symptoms after chronic overexposure : Shortness of breath, cough, osteoporosis, proteinuria.

**Lead** : Target organs for acute and chronic overexposure (NIOSH 90-117) : Blood, gingival tissues ; gastro-intestinal, central nervous, renal systems. Symptoms of acute overexposure often develop abruptly and resemble those of chronic overexposure : Anaemia, lassitude, weakness, nausea, vomiting, abdominal cramps, constipation, confusion, convulsions, muscular weakness, muscular and joint pains. Target organs (Chronic overexposure) : Blood, kidneys, digestive, nervous and reproductive systems.

**Nickel** : Carcinogen : This evaluation applies to the group of chemicals as a whole and not necessarily to all individual chemicals within the group. The exposure to metallic nickel or concentrate dust did not indicate an increased risk of cancer. Possibility of skin sensitivity. Target organs for acute and chronic overexposure (NIOSH 90-117) : Nasal cavities, lungs, skin. Symptoms : Skin allergies, allergic asthma.

### Toxicity

Persons with the following pre-existing conditions warrant particular attention :

**Tin** : Respiratory system (Inorganic compounds).

**Antimony** : Pulmonary and cardiac conditions.

**Copper** : Wilson's disease.

**Cadmium** : Osteoporosis, chronic renal diseases, emphysema. Preferred method for biological monitoring : Urinary (BEI 5 µg/g creatinine, background) and blood (BEI 5 µg/g, background) levels measurement ; Sampling time : Not critical. Proteinuria detection : Beta-2 microglobulines or protein-retinol linked dosages.

**Lead** : Anaemia, pregnant or breast feeding women and women of child bearing age. Preferred method for biological monitoring : Blood lead levels (Pb blood) measurement (BEI 30 µg/100 ml) ; Sampling time : Not critical.

**Nickel** : Cancer and allergy. Preferred method for biological monitoring : Urinary nickel measurement.

*Eating, drinking and smoking must be prohibited in areas where this material is handled and processed. Wash hands and face before eating, drinking and smoking.*

## SECTION 12. ECOLOGICAL INFORMATION

### Ecotoxicity

**Heavy metals** : Harmful to aquatic life.

### Toxicity to animals

**Tin** : UNREPORTED ROUTE acute (LoTD) : 250 mg/kg (Human). (RTECS).

	<p><b>Copper</b> : SUBCUTENOUS acute (LoLD) : 375 mg/kg (Rabbit) ; INTRAPERITONAL acute (LD 50) : 0.7 mg/kg (Mouse). (RTECS).</p> <p><b>Cadmium</b> : ORAL acute (LD50) : 225 mg/kg (Rat). (HSDB). ORAL acute (LD50) : 2 330 mg/kg (Rat) ; 890 mg/kg (Mouse). INHALATION acute (LC50) : 25 mg/m<sup>3</sup>/30 minute (Rat) (RTECS).</p> <p><b>Lead</b> : ORAL acute (LoLD) : 155 mg/kg (Human) ; 0.2 mg/kg (Rat). INHALATION acute (LoTC) : 10 µg/m<sup>3</sup> (Human). INTRAPERITONEAL acute (LoLD) : 1 g/kg (Rat). (RTECS).</p> <p><b>Nickel</b> : ORAL acute (LoLD) : 500 mg/kg (Rat, Mouse). ORAL acute (LoTD) : 200 mg/kg (Rat, Mouse). INTRAPERITONEAL acute (LD50) : 250 mg/kg (Rat). INTRAVENOUS acute (LoLD) : 50 mg/kg (Mouse). (RTECS).</p>
<b>Mobility (Soil)</b>	<b>Cadmium</b> : Soluble cadmium produced by acidic conditions, becomes mobile in water and in soil.
<b>Persistence and degradability</b>	Not applicable
<b>Bioaccumulation</b>	<b>Cadmium</b> : Bioconcentrated in aquatic invertebrates and fish ; Aquatic and terrestrial plants. Low soil pH tends to increase the availability of cadmium
<b>Biodegradation products</b>	Not biodegradable
<b>Biodegradation products (Toxicity)</b>	Not applicable
<b>Remarks on environment</b>	Due to the product's composition, particular attention must be taken : Substances potentially toxic to aquatic life include copper, lead. Run-off water may become acidic and may be harmful to flora and fauna.
<b>BOD5 and COD</b>	Not available
<b><u>SECTION 13. DISPOSAL CONSIDERATIONS</u></b>	
<b>Disposal methods</b>	Recycle to process, if possible. P501-Dispose of contents/container in full compliance with Federal, Provincial and local regulations.
<b><u>SECTION 14. TRANSPORT INFORMATION</u></b>	
<b>TDG (Pictograms)</b>	Not regulated (Canada)
<b>PIN</b>	Not applicable
<b>Special provisions (Transport)</b>	Not applicable
<b><u>SECTION 15. REGULATORY INFORMATION</u></b>	
<b>Labelling (GHS)</b>	Regulation (EC) No 1272/2008 CLP : Listed. <b>Cadmium (Non pyrophoric)</b> : Index number : 048-002-00-0 ; EC Number 231-152-8 <b>Nickel</b> : Index number 028-002-00-7 ; EC number 231-111-4
<b>Labeling (DSD)</b>	EU (Regulation 67/548/EEC) : Listed. <b>Cadmium (non pyrophoric)</b> : T+ Very toxic ; N Dangerous for the environment Annex I Index number : 048-002-00-0 ; EU Consolidated Inventories : EC Number 231-152-8 Classification : Carc. C2 R45 ; Muta. Cat 3 R68; Repr. Cat 3 R62,63 ; T+ R26 ; T 48/23/25 ; N R50/53 R45, 26, 48/23/25, 62, 63, 68, 50/53 ; S53, 45, 60, 61 <b>Nickel</b> : Xn Harmful Annex I Index number 028-002-00-7 ; EU Consolidated Inventories : EC number 231-111-4 Classification : Carc. Cat. 3 ; R40 ; R43 R40, 43 ; S22, 36 EU: Consolidated Inventories : Listed <b>Tin</b> : EU Consolidated Inventories : EC Number 231-141-8 <b>Antimony</b> : EU Consolidated Inventories : EC Number 231-146-5 <b>Copper</b> : EU Consolidated Inventories : EC Number 231-159-6 <b>Lead</b> : EU Consolidated Inventories : EC Number 231-100-4 Not classified in the Annex I of Directive 67/548/EEC Not listed in the Annex I of Council Regulation No (EC) 304/2003 Not listed in a priority list (as foreseen under Council Regulation (EEC) No 793/93
<b>Risk phrases (DSD)</b>	R26-Very toxic by inhalation R40-May cause irreversible effects R43-May cause sensitisation by skin contact R45- May cause cancer R48/23/25- Toxic: danger of serious damage to health by prolonged exposure through inhalation and if swallowed. R50/53-Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment. R62-Possible risk of impaired fertility. R63-Possible risk of harm to the unborn child. R68-Possible risk of irreversible effects



**Safety phrases (DSD)**

S22-Do not breathe dusts  
 S36-Wear suitable protective clothing  
 S45-In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).  
 S53-Avoid exposure - obtain special instructions before use  
 S60-This material and/or its container must be disposed of as hazardous waste.  
 S61-Avoid release to the environment. Refer to special instructions/Safety data sheets

**CEPA DSL (CANADA)**

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA) : on the Domestic Substances List (DSL) ; acceptable for use under the provisions of CEPA.

**Regulation (U.S.A.)**

CERCLA Section 103 Hazardous substances (40 CFR 302.4) ; SARA 110 ATSDR CERCLA Priority List : Listed ; SARA Section 313, Toxic Chemicals (40 CFR 372.65) : Listed.

**Antimony** (RQ) : \*5 000 pounds (2 270 kg)

**Copper** (RQ) : \*5 000 pounds (2 270 kg)

**Cadmium** (RQ) : \*10 pounds (4.54 kg)

**Lead** (RQ) : \*10 pounds (4.54 kg)

**Nickel** (RQ) : \*100 pounds (45.4 kg)

TSCA (EPA, Toxic Substance Control Act) Chemical Inventory (40 CFR710) : Listed.

**Tin ; Antimony ; Copper ; Cadmium ; Lead ; Nickel.**

\* No declaration required if the diameter of the piece of solid metal released is equal to or exceeds 100 micrometers (0.004 inches).

**Classifications HCS (U.S.A.)**

Dangerous may cause cancer  
 Toxic

**NFPA (National Fire Protection Association) (U.S.A.)**

Fire Hazard **0** Reactivity **0** Health **2** Special Hazard

**SECTION 16. OTHER INFORMATION**
**References**

- TLVs and BEIs (2011). Based on the Documentation of the Threshold Limit Values for Chemical Substances and Physical Agents & Biological Exposure Indices. ACGIH, Cincinnati, OH – <http://www.acgih.org>
- CCOHS (2011) - Canadian Centre for Occupational Health and Safety - <http://www.ccohs.ca/>
- CSST (2011) - Commission de la Santé et de la Sécurité du Travail (Québec). Service du répertoire toxicologique <http://www.reptox.csst.qc.ca/>
- ESIS : C&L (Classification and Labelling), substances ou préparations selon la Directive 67/548/EEC (substances) et 1999/45/EC (préparations).
- ESIS : EINECS (European Inventory of Existing Commercial chemical Substances) O.J. C 146A, 15.6.1990
- ESIS : EINECS corrections publiées dans O.J. C 54/13 01.03.2002, 2002/C54/08.
- Guidance on the Application of the CLP Criteria. Guidance to Regulation (EC) No 1272/2008 on Classification, Labelling and Packaging (CLP) of substances and mixtures. 25/08/2009. ECHA Reference : ECHA-09-G-02-EN. © European Chemicals Agency, 2009.
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**Glossary**

CSST : Commission de la Santé et de la Sécurité du Travail (Québec).  
 HSDB : Hazardous Substances Data Bank.

IARC : International Agency for Research on Cancer.  
NIOSH : National Institute of Occupational Safety and Health.  
NTP : U.S. National Toxicology Program.  
RTECS : Registry of Toxic Effects of Chemical Substances  
STOT : Specific target organ toxicity

**Note** No specific studies have been performed on this mixture. For your protection, we suggest that you test it before using in your process.

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