

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

<b>Trade name</b>	<b>Lead Tin Alloy</b>
<b>Product code</b>	None
<b>Product list</b>	Alloy : no 70, Lead-Base Jewellery, Lead-Tin, Lead-Tin-Antimony ; DC-35-4 ; Galvo. Lead for counterbalance ; Solder : 30/3/67, Tin-Lead, Tin-Antimony-Lead, Tin-Silver-Lead.
<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 plomb étain (French)
<b>Name / Chemical formula</b>	Not applicable
<b>Chemical family</b>	Metal
<b>Utilisation</b>	For repairing damaged hot-dip galvanized coatings prior to galvanizing. Soldering : Automobile body solder (Filling dents and seams). Plumber's solder (Coating and joining metals) ; Special electrical soldering applications ; On copper, brass and other similar metals with torch heating. Soldering silver coated surfaces, cryogenic applications. Manufacturing of die casting products. Making of jewelry and pewter.

### 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.

#### 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. P273-Avoid release to the environment. 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
Lead	7439-92-1	10-100	231-100-4	None
Tin	7440-31-5	1-90	231-141-8	none
Antimony	7440-36-0	0-5	231-146-5	None
Cadmium	7440-43-9	0-5	231-152-8	H350-H341-H361fd-H330-H372-H400-H410
Silver	7440-22-4	0-5	231-131-3	None

### 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).

**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.

**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.

**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. Dry, well ventilated area. Away from : Moisture, incompatible substances (Acids, oxidants).

**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) TWAEV (mg/m <sup>3</sup> )
Lead	7439-92-1	10-100	0.05 (Pb, inorganic compds Pb)	0.05 (Pb, Pb compds)	0.05 (Pb, inorganic compds)
Tin	7440-31-5	1-90	2 (Sn)	2 (metal, compounds)	2 (metal)
Antimony	7440-36-0	0-5	0.5 (Sb, compds Sb)	0.5 (Sb, compds Sb)	0.5 (Sb, compds Sb)
Cadmium	7440-43-9	0-5	0.01 (Cd)	0.005 (Cd)	0.025 (Cd, dust, salt)
			0.002 (respirable fraction)	0.2 (dust) 0.1 (fume)	
Silver	7440-22-4	0-5	0.1 (metal)	0.01 (metal, soluble compds Ag)	0.1 (metal)
			0.01 (soluble compounds Ag)		

**Note :** **Lead** : NIOSH REL-TWA ( $\leq 10$  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).

**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 ( $\leq 10$  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 ( $\leq 10$ -hours) : 0.5 mg/m<sup>3</sup> ; IDLH : 50 mg/m<sup>3</sup>.

**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).

**Silver** : NIOSH REL-TWA ( $\leq 10$  hours) (Metal dust, soluble compounds, as Ag) : 0.01 mg/m<sup>3</sup> ; IDLH : 10 mg/m<sup>3</sup> (Ag).

*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, strip, plate, wire, anode, rod )	<b>Odour</b>	Metallic
<b>Molecular weight</b>	Not applicable	<b>Taste</b>	Metallic
<b>pH (1% soln/water)</b>	Not applicable	<b>Colour</b>	Grey to greyish yellow
<b>Boiling point</b>	Not available	<b>Volatility</b>	Not available
<b>Melting point</b>	<b>Lead</b> : 327.43°C (621.4°F) 189°C (372°F) à 371°C (700°F)	<b>% Moisture</b>	Not available
<b>Critical temperature</b>	Not available	<b>Odour threshold</b>	Not available
<b>Specific gravity</b>	Weighted average : 10.42-11.34 (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). Some elements : Slight (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>	Metallic oxides 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).
<b>Conditions to avoid</b>	Acids
<b>Dangerous polymerization</b>	No
<b>Materials to avoid</b>	<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. <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). <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. <b>Cadmium</b> : Combustants agents, acids, strong oxidants. <b>Silver</b> : Ammonia, bromoazide, chloride trifluoride, oxalic acid, sulfuric acid and tartaric acid. Explosive compounds may form, if reacted with acetylene, nitric acid in presence of alcohol, ethylenimine or organic and inorganic peroxides. Avoid contact with acids. <i>NOTE : This list of products is not exhaustive. Verify technical documents to determine any incompatibilities with your process.</i>
<b>Corrosivity</b>	No

**SECTION 11. TOXICOLOGICAL INFORMATION**

<b>Routes of entry</b>	Ingestion. Inhalation. Eyes and skin contact.
<b>Carcinogenicity</b>	<b>Cadmium</b> : PROVEN (Group 1, IARC) ; SUSPECTED (ACGIH) ; LISTED (NTP, OSHA). <b>Lead</b> : POSSIBLE (Group 2B, IARC) (EPA) ; CARCINOGEN (Animal, A3, ACGIH). <b>Silver ; Tin</b> : NOT A CARCINOGEN (IARC, OSHA, NTP) ; NOT LISTED (ACGIH). <b>Antimony</b> : NOT LISTED (IARC, ACGIH).
<b>Mutagenicity</b>	<b>Cadmium</b> : DNA damages (Human, mouse) ; Cytogenetic analysis (1µmol/L, hamster ovary). <b>Lead</b> : Cytogenetic analysis ; DNA. (RTECS).
<b>Teratogenicity</b>	<b>Cadmium</b> : ORAL : Biochemical and metabolic effects (Mouse newborn) ; INTRAPERITONEAL : Specific developmental abnormalities of the CNS (Mouse). <b>Lead</b> : SUSPECTED (OSHA). Effects on embryo, foetus, fertility (RTECS).
<b>Acute toxicity</b>	<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). <b>Tin</b> : UNREPORTED ROUTE acute (LoTD) : 250 mg/kg (Human). (RTECS). <b>Antimony</b> : ORAL acute (LD50) : 7 000 mg/kg (Rat). INTRAPERITONEAL acute (LD50) : 100 mg/kg (Rat) ; 80 mg/kg (Mouse). (RTECS). <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). <b>Silver</b> : ORAL acute (LD50) : > 5 000 mg/kg (Rat, male). DERMAL acute (LD50) : > 2 000 mg/kg (Rat, male). (HSDB). ORAL acute (LD50) : > 10 g/kg (Mouse) ; > 5 g/kg (Guinea pig). (RTECS).
<b>Acute effects</b>	Solid form : No health hazards. Conditions and work practices which generate dust or fumes should be avoided or controlled. Other forms : Dangerous (Ingestion, inhalation). Possibility of eye and skin irritation. <b>Lead</b> : 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.

**Chronic effects**

**Cadmium** : Sensitive organs : Respiratory system, bone structure, kidneys, blood.

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.

**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.

**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.

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

**Silver** : May produce argyria (Bluish-black skin pigmentation) by depositing metal silver in eyes, mucous membranes and skin. Argyria is more a cosmetic effect than a disease. Generalised argyria may follow ingestion or inhalation (1-5 g). Respiratory tract argyrosis is reported. Target organs for acute and chronic overexposure (NIOSH 90-117) : Nasal septum, skin, eyes.

**Toxicity**

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

**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.

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

**Antimony** : Pulmonary and cardiac conditions.

**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.

**Silver** : Examine for pigmentation : Nasal septum, eye, skin. Goal : Create a reference for possible future pigmentation of tissues.

*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**

**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).

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

**Silver** : Repeated exposure : Anemia, cardiac enlargement, growth retardation, liver degenerative changes

**Mobility (Soil)**

**Cadmium** : Soluble cadmium produced by acidic conditions, becomes mobile in water and in soil.

**Persistence and degradability**

Not applicable

**Bioaccumulation**

**Cadmium** : Bioconcentrated in aquatic invertebrates and fish ; Aquatic and terrestrial plants. Low soil pH tends to increase the availability of cadmium

**Biodegradation products**

Not biodegradable

**Biodegradation products (Toxicity)**

Not applicable

**Remarks on environment**

Due to the product's composition, particular attention must be taken.

**BOD5 and COD**

Not available

**SECTION 13. DISPOSAL CONSIDERATIONS**
**Disposal methods**

Recycle to process, if possible. P501-Dispose of contents/container in full compliance with Federal, Provincial and local regulations.

**SECTION 14. TRANSPORT INFORMATION**
**TDG (Pictograms)**

Not regulated (Canada)

**PIN**

Not applicable

Special provisions (Transport) Not applicable

**SECTION 15. REGULATORY INFORMATION**

**Labelling (GHS)**

Regulation (EC) No 1272/2008 CLP : Listed.  
**Cadmium (Non pyrophoric)** : Index number : 048-002-00-0 ; EC Number 231-152-8

**Labeling (DSD)**

EU (Regulation 67/548/EEC) : Listed.  
**Cadmium (non pyrophoric)** : 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  
EU: Consolidated Inventories : Listed  
**Lead** : EU Consolidated Inventories : EC Number 231-100-4  
**Tin** : EU Consolidated Inventories : EC Number 231-141-8  
**Antimony** : EU Consolidated Inventories : EC Number 231-146-5  
**Silver** : EU Consolidated Inventories : EC Number 231-131-3  
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



**Risk phrases (DSD)**

R26-Very toxic by inhalation  
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)**

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.  
**Lead** (RQ) : \* 10 pounds (4.54 kg)  
**Antimony** (RQ) : \* 5 000 pounds (2 270 kg)  
**Cadmium** (RQ) : \* 10 pounds (4.54 kg)  
CERCLA Section 103 Hazardous substances (40 CFR 302.4) ; SARA Section 313, Toxic Chemicals (40 CFR 372.65) : Listed.  
**Silver** (RQ) : \* 1 000 pounds (454 kg)  
TSCA (EPA, Toxic Substance Control Act) Chemical Inventory (40 CFR710) : Listed.  
**Lead ; Tin ; Antimony ; Cadmium ; Silver.**  
\* 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.)**

Toxic

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

Fire Hazard 0 Reactivity 0 Health 3 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.
- ERG (2008). Emergency Response Guidebook, U.S. Department of Transportation, Transport Canada, et le Secretariat of Communications and Transportation of Mexico
- 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.
- HSDB (2011) - Hazardous Substances Data Bank. TOXNET® Network of databases on toxicology, hazardous chemicals, and environmental health. NLM Databases & Electronic Resources, U.S. National Library of Medicine, NHI, 8600 Rockville Pike, Bethesda, MD 20894 <http://toxnet.nlm.nih.gov/cgi-bin/sis/htmlgen?HSDB>
- IARC - Monographs on the Evaluation of Carcinogenic Risks to Humans (collection) - <http://www-cie.iarc.fr/>
- Merck Index (1999). Merck & CO., Inc, 12th edition
- NIOSH U.S. (2011) - Pocket Guide to Chemical Hazards - <http://www.cdc.gov/niosh/npg/>
- Patty's Industrial Hygiene and Toxicology, 3rd Revised Edition
- Règlement sur les produits contrôlés (Canada)
- REGULATION (EC) No 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 16 December 2008 on classification, labelling and packaging of substances and mixtures, amending and repealing. Directives 67/548/EEC and 1999/45/EC, and amending Regulation (EC) No 1907/2006. (Text with EEA relevance). Official Journal of the European Union. L353 p1-1355, 1.12.2008.
- RTECS (2011). Registry of Toxic Effects of Chemical Substances, NIOSH, CDC
- Toxicologie industrielle & intoxication professionnelle, 3e édition, Lauwerys
- TSCA (2011) - U.S. EPA Toxic Substance Control Act, Chemical Inventory. System of Registries (SoR), Substance Registry Services, [http://iaspub.epa.gov/sor\\_internet/registry/substreg/searchandretrieve/substancesearch/search.do](http://iaspub.epa.gov/sor_internet/registry/substreg/searchandretrieve/substancesearch/search.do)

**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.

**Written by :** Groupe STEM Consultants / Xstrata Zinc Canada

**Complete revision :** 2011-06-28

**Partial review :** None

**Previous complete revision :** 2008-06-28

**Request**

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**Notice to reader**

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