


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

|                               |                                                                                                                     |
|-------------------------------|---------------------------------------------------------------------------------------------------------------------|
| Trade name                    | <b>Lead Silver Alloy</b>                                                                                            |
| Product code                  | None                                                                                                                |
| Product list                  | Silver Lead Solder ; Ag 2.5/Pb 97.5 ; Ag 5/Pb 95 ; Lead Silver Anode.                                               |
| Supplier                      | Xstrata Zinc, General Smelting Company of Canada, 1400 Norman Street, Lachine (Québec), Canada H8S 1A8              |
| Information contact           | Gino De Nobile, Chemist                                                                                             |
| Phone number (Business hours) | (514) 637-3591                                                                                                      |
| Phone number (Emergency)      | <b>CANUTEC : (613) 996-6666</b>                                                                                     |
| Synonym                       | Alliage plomb argent (French)                                                                                       |
| Name / Chemical formula       | Not applicable                                                                                                      |
| Chemical family               | Metal                                                                                                               |
| Utilisation                   | On copper, brass and other similar metals with torch heating. Manufacturing of thermocouples for aircraft engines.. |

### SECTION 2. HAZARDS IDENTIFICATION

|                                               |                                                                                                                                                                                                           |                                                                                     |
|-----------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| WHMIS (Canada)                                | CLASS D-2A : Very toxic material causing other toxic effects                                                                                                                                              |  |
| Hazard classes (categories)/Hazard statements | None                                                                                                                                                                                                      |                                                                                     |
| Hazards words                                 | None                                                                                                                                                                                                      |                                                                                     |
| Precautionary statements                      | None                                                                                                                                                                                                      |                                                                                     |
| Other hazards                                 | Reactive with : Acids, oxidants. Possibility of toxic lead vapours formation. Possibility of eye and skin irritation (Particules). Ingestion will nearly always cause acute gastro-intestinal irritation. |                                                                                     |
| Environmental hazards                         | Toxic for aquatic life.                                                                                                                                                                                   |                                                                                     |

### SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

| Name   | CAS No    | Percentage (%) | EC No     | Hazard statements |
|--------|-----------|----------------|-----------|-------------------|
| Lead   | 7439-92-1 | 70-100         | 231-100-4 | None              |
| Silver | 7440-22-4 | 0.5-10         | 231-131-3 | None              |

### SECTION 4. FIRST-AID MEASURES

|              |                                                                                                                               |
|--------------|-------------------------------------------------------------------------------------------------------------------------------|
| Eye contact  | Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Consult a physician.       |
| Skin contact | Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical advice/attention.                          |
| Inhalation   | Remove the person from exposure. Bring to fresh air. If breathing is difficult, give oxygen. Get immediate medical attention. |
| Ingestion    | Induce vomiting. <b>UNCONSCIOUS</b> person : <b>DO NOT</b> induce vomiting or give any liquid. <b>Consult a physician.</b>    |

### SECTION 5. FIRE-FIGHTING MEASURES

|                           |                                                                                                                                                                                                                                                                                       |
|---------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Flash point               | Not available                                                                                                                                                                                                                                                                         |
| Flammable limits          | Not available                                                                                                                                                                                                                                                                         |
| Auto-ignition temperature | Not available                                                                                                                                                                                                                                                                         |
| Products of combustion    | Metal oxides (Lead, silver)                                                                                                                                                                                                                                                           |
| Fire hazard               | Solid form : No fire hazard. Avoid melting moist metal.<br><b>Lead</b> : 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). <b>NEVER</b> spray water on burning metal because of the risk of explosion which would splatter flaming particles of metal to great distances.<br>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             | Collect spillage.                                                                                                                                                                            |
| Methods              | Use appropriate tools to place spilled materials in suitable containers for reclamation or disposal.                                                                                         |
| Protective equipment | Dust and fumes on melting can cause health effects. If dust or fumes are present, use NIOSH approved respirators equipped with HEPA filtration (for toxic dust or mists). Gloves. Coveralls. |

### SECTION 7. HANDLING AND STORAGE

|          |                                                                                                                                                                                                                                                                |
|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Handling | <b>DO NOT</b> 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. |
|----------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Conditions for storage** Cool and 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<br>TLV-TWA (mg/m <sup>3</sup> ) | OSHA (U.S.)<br>PEL-TWA (mg/m <sup>3</sup> ) | QUEBEC (CA)<br>TWA-EV (mg/m <sup>3</sup> ) |
| Lead   | 7439-92-1 | 70-100         | 0.05 (Pb, inorganic compds Pb)                    | 0.05 (Pb, Pb compds)                        | 0.05 (Pb, inorganic compds)                |
| Silver | 7440-22-4 | 0.5-10         | 0.1 (metal)<br>0.01 (soluble compounds Ag)        | 0.01 (metal, soluble compds Ag)             | 0.1 (metal)<br>0.01 (soluble compounds Ag) |

**Note :** **Lead :** 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).

**Silver :** NIOSH REL-TWA (≤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 (Bar, wire, ingot, ribbon, anode) | <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          |
| <b>Boiling point</b>                 | Not available                           | <b>Volatility</b>             | Not available |
| <b>Melting point</b>                 | From 304°C to 380°C (580°F -716°F)      | <b>% Moisture</b>             | Not available |
| <b>Critical temperature</b>          | Not available                           | <b>Odour threshold</b>        | Not available |
| <b>Specific gravity</b>              | Weight average : 11.31 (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>             | Not (Water)   |
| <b>Solubility</b>                    | Not (Water)                             |                               |               |

### SECTION 10. STABILITY AND REACTIVITY

**Stability** Yes (Under normal conditions of ambient temperature)

**Reactivity** Reactive or incompatible with : Acids.

**Dangerous decomposition** Metallic oxides

**Conditions to avoid** Acids

**Dangerous polymerization** No

**Materials to avoid** **Lead :** Violent reaction on ignition with : Chlorine trifluoride, concentrated hydrogen peroxide, ammonium nitrate, sodium acetylide. Other incompatibilities : Sodium nitrate, zirconium, disodium acetylide, oxidants.

**Silver :** 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.

*NOTE : This list of products is not exhaustive. Verify technical documents to determine any incompatibilities with your process.*

**Corrosivity** No

### SECTION 11. TOXICOLOGICAL INFORMATION

**Routes of entry** Ingestion. Inhalation. Eyes and skin contact.

**Carcinogenicity** **Lead :** POSSIBLE (Group 2B, IARC) (EPA) ; CARCINOGEN (Animal, A3, ACGIH).

**Silver :** NOT A CARCINOGEN (IARC, OSHA, NTP) ; NOT LISTED (ACGIH).

**Mutagenicity** **Lead :** Cytogenetic analysis ; DNA. (RTECS).

**Teratogenicity** **Lead :** SUSPECTED (OSHA). Effects on embryo, foetus, fertility (RTECS).

**Acute toxicity** **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).

**Silver :** 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>   | <p>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.</p> <p><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.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>Chronic effects</b> | <p>Non-controlled repeated or prolonged exposure : Possibility of target organ damages (Blood, kidneys, liver, lungs ; nervous and reproductive systems).</p> <p><b>Lead</b> : Target organs for acute and chronic overexposure (NIOSH 90-117) : Blood, gingival tissues ; gastrointestinal, 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.</p> <p><b>Silver</b> : 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.</p> |
| <b>Toxicity</b>        | <p>Persons with the following pre-existing conditions warrant particular attention :</p> <p><b>Lead</b> : 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.</p> <p><b>Silver</b> : Examine for pigmentation : Nasal septum, eye, skin. Goal : Create a reference for possible future pigmentation of tissues.</p> <p><i>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.</i></p>                                                                                                                                                                                                                                                                                                                                                                                                                               |

## SECTION 12. ECOLOGICAL INFORMATION

|                                           |                                                                                                                                                                                                                                                                                                          |
|-------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Ecotoxicity</b>                        | <b>Heavy metals</b> : Harmful to aquatic life.                                                                                                                                                                                                                                                           |
| <b>Toxicity to animals</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).<br><b>Silver</b> : Repeated exposure : Anemia, cardiac enlargement, growth retardation, liver degenerative changes. |
| <b>Mobility (Soil)</b>                    | Not applicable                                                                                                                                                                                                                                                                                           |
| <b>Persistence and degradability</b>      | Not applicable                                                                                                                                                                                                                                                                                           |
| <b>Bioaccumulation</b>                    | Not applicable                                                                                                                                                                                                                                                                                           |
| <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.                                                                                                                                                                                                                                    |
| <b>BOD5 and COD</b>                       | Not available                                                                                                                                                                                                                                                                                            |

## SECTION 13. DISPOSAL CONSIDERATIONS

|                         |                                                                                                                                        |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| <b>Disposal methods</b> | Recycle to process, if possible. P501-Dispose of contents/container in full compliance with Federal, Provincial and local regulations. |
|-------------------------|----------------------------------------------------------------------------------------------------------------------------------------|

## SECTION 14. TRANSPORT INFORMATION

|                                       |                        |
|---------------------------------------|------------------------|
| <b>TDG (Pictograms)</b>               | Not regulated (Canada) |
| <b>PIN</b>                            | Not applicable         |
| <b>Special provisions (Transport)</b> | Not applicable         |

## SECTION 15. REGULATORY INFORMATION

|                             |                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Labelling (GHS)</b>      | Regulation (EC) No 1272/2008 CLP : Not listed.                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>Labeling (DSD)</b>       | EU (Regulation 67/548/EEC) : Not listed.<br>EU: Consolidated Inventories : Listed<br><b>Lead</b> : EU Consolidated Inventories : EC Number 231-100-4<br><b>Silver</b> : EU Consolidated Inventories : EC Number 231-131-3<br>Not classified in the Annex I of Directive 67/548/EEC<br>Not listed in the Annex I of Council Regulation No (EC) 304/2003<br>Not listed in a priority list (as foreseen under Council Regulation (EEC) No 793/93 |
| <b>Risk phrases (DSD)</b>   | None                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>Safety phrases (DSD)</b> | None                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>CEPA DSL (CANADA)</b>    | 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)

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 ; 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.)**

Not controlled

**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.
- 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

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**Partial review :** None

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**Notice to reader**

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