

# Material Safety Data Sheet

Sn-Pb-Ag RA



## 1. Product and company identification

**Common name** : Sn-Pb-Ag RA  
**Synonym** : FOR ALL ALLOYS (Sn-Pb-Ag) RA  
**Material uses** : Soldering.  
**Validation date** : **6/3/2013.**  
**Contacts** : In Canada:  
AIM  
9100 Henri Bourassa East  
Montreal, QC  
H1E 2S4  
(514) 494-2000  
  
In the United States:  
AIM  
25 Kenney Drive  
Cranston, RI  
(800) CALL-AIM  
  
INFOTRAC - Emergency 24h  
North America: (800) 535-5053  
International: (352) 323-3500

## 2. Hazards identification

**Physical state** : Solid.  
**Odor** : Odorless.  
**OSHA/HCS status** : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).  
**Emergency overview** : CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE. CANCER HAZARD - CONTAINS MATERIAL WHICH CAN CAUSE CANCER.  
Avoid exposure - obtain special instructions before use. Contains material that can cause target organ damage. Contains material which can cause cancer. Risk of cancer depends on duration and level of exposure.  
**Routes of entry** : Inhalation. Ingestion.  
**Potential acute health effects**  
**Eyes** : No known significant effects or critical hazards.  
**Skin** : No known significant effects or critical hazards.  
**Inhalation** : No known significant effects or critical hazards.  
**Ingestion** : No known significant effects or critical hazards.  
**Medical conditions aggravated by over-exposure** : Pre-existing disorders involving any target organs mentioned in this MSDS as being at risk may be aggravated by over-exposure to this product.

See toxicological information (section 11)

## 3. Composition/information on ingredients

<u>Name</u>	<u>CAS number</u>	<u>%</u>
Tin	7440-31-5	1 - 99
Lead	7439-92-1	1 - 99
Silver	7440-22-4	1 - 99
Rosin	8050-09-7	0.2 - 5

## 4 . First aid measures

- Eye contact** : Check for and remove any contact lenses. Immediately flush eyes with plenty of water for at least 15 minutes, occasionally lifting the upper and lower eyelids. Get medical attention immediately.
- Skin contact** : In case of contact, immediately flush skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes. Wash clothing before reuse. Clean shoes thoroughly before reuse. Get medical attention immediately.
- Inhalation** : Move exposed person to fresh air. If not breathing, if breathing is irregular or if respiratory arrest occurs, provide artificial respiration or oxygen by trained personnel. Loosen tight clothing such as a collar, tie, belt or waistband. Get medical attention immediately.
- Ingestion** : Wash out mouth with water. Do not induce vomiting unless directed to do so by medical personnel. Never give anything by mouth to an unconscious person. Get medical attention immediately.
- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. Wash contaminated clothing thoroughly with water before removing it, or wear gloves.

## 5 . Fire-fighting measures

- Flammability of the product** : May be combustible at high temperature.
- Products of combustion** : Decomposition products may include the following materials:  
metal oxide/oxides
- Extinguishing media**
- Suitable** : Use an extinguishing agent suitable for the surrounding fire.
- Not suitable** : None known.
- Special exposure hazards** : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.  
No specific fire or explosion hazard.
- Special protective equipment for fire-fighters** : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.
- Special remarks on fire hazards** : Massive metal is nonflammable. Flux core will burn on contact with direct flame.
- Special remarks on explosion hazards** : No additional remark.

## 6 . Accidental release measures

- Personal precautions** : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment (see section 8).
- Environmental precautions** : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).
- Methods for cleaning up** : Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Vacuum or sweep up material and place in a designated, labeled waste container. Dispose of via a licensed waste disposal contractor. Note: see section 1 for emergency contact information and section 13 for waste disposal.

## 7 . Handling and storage

- Handling** : Put on appropriate personal protective equipment (see section 8). Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Do not get in eyes or on skin or clothing. Do not ingest. If during normal use the material presents a respiratory hazard, use only with adequate ventilation or wear appropriate respirator. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.
- Storage** : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see section 10) and food and drink. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

## 8 . Exposure controls/personal protection

### Product name

Silver

### Exposure limits

**NIOSH REL (United States, 12/2001).**

TWA: 0.01 mg/m<sup>3</sup> 10 hour(s). Form: All forms

**OSHA PEL (United States, 8/1997).**

TWA: 0.01 mg/m<sup>3</sup> 8 hour(s). Form: All forms

**OSHA PEL 1989 (United States, 3/1989).**

TWA: 0.01 mg/m<sup>3</sup> 8 hour(s). Form: All forms

**ACGIH TLV (United States, 1/2006). Notes: Substances for which the TLV is higher than the OSHA Permissible Exposure Limit (PEL) and/or the NIOSH Recommended Exposure Limit (REL). See CFR 58(124) :36338-33351, June 30, 1993, for revised OSHA PEL.**

TWA: 0.1 mg/m<sup>3</sup> 8 hour(s). Form: Metallic form

Tin

**ACGIH TLV (United States, 1/2005).**

TWA: 2 mg/m<sup>3</sup> 8 hour(s). Form: All forms

**NIOSH REL (United States, 12/2001). Notes: Note: The REL and PEL also apply to other inorganic tin compounds (as Sn) except tin oxides.**

TWA: 2 mg/m<sup>3</sup> 10 hour(s). Form: All forms

**NIOSH (United States, 0/1994). Notes: Respirable**

TWA: 2 mg/m<sup>3</sup>

STEL: 4 mg/m<sup>3</sup>

**OSHA (United States, 0/1997). Notes: Respirable**

TWA: 2 mg/m<sup>3</sup>

Rosin

**NIOSH REL (United States, 12/2001). Notes: Note: Carcinogenic in the presence of formaldehyde, acetaldehyde, or malonaldehyde. See Appendix C (Aldehydes) See Appendix A - NIOSH Potential Occupational Carcinogen**

TWA: 0.1 mg/m<sup>3</sup> 10 hour(s). Form: All forms

**OSHA PEL 1989 (United States, 3/1989).**

TWA: 0.1 mg/m<sup>3</sup> 8 hour(s). Form: All forms

**Consult local authorities for acceptable exposure limits.**

- Engineering measures** : If user operations generate dust, fumes, gas, vapor or mist, use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

### Personal protection

## 8 . Exposure controls/personal protection

- Eyes** : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts.
- Skin** : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.
- Respiratory** : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.
- Hands** : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary.
- Hygiene measures** : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

## 9 . Physical and chemical properties

- Physical state** : Solid.
- Color** : Silver-grey.
- Odor** : Odorless.
- Vapor pressure** : Not available
- Evaporation rate** : not available
- Dispersibility properties** : Not dispersible in the following materials: cold water, hot water, methanol, diethyl ether, n-octanol and acetone.
- Solubility** : Partially soluble in the following materials: methanol.  
Insoluble in the following materials: cold water, hot water, diethyl ether, n-octanol and acetone.

## 10 . Stability and reactivity

- Stability and reactivity** : The product is stable.
- Conditions of instability** : Stable in normal conditions. Over melting point, toxic metallic oxides may be evolved. A small amount of organic fumes may also be evolved.
- Incompatibility with various substances** : Reactive or incompatible with the following materials: oxidizing materials, metals, acids and moisture.
- Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.
- Hazardous polymerization** : Under normal conditions of storage and use, hazardous polymerization will not occur.
- Conditions of reactivity** : Slightly flammable in the presence of the following materials or conditions: open flames, sparks and static discharge.  
Non-flammable in the presence of the following materials or conditions: heat, shocks and mechanical impacts, oxidizing materials, reducing materials, combustible materials, organic materials, metals, acids, alkalis and moisture.  
Metallic part of product is nonflammable. The core may burn if exposed to direct flame.  
Non-explosive in the presence of the following materials or conditions: open flames, sparks and static discharge, heat and shocks and mechanical impacts.

## 11 . Toxicological information

- Chronic effects on humans** : **CARCINOGENIC EFFECTS:** Classified None. by NIOSH [SILVER]. Classified A3 (Proven for animals.) by ACGIH, 2B (Possible for humans.) by IARC [LEAD]. Classified 2 (Reasonably anticipated to be human carcinogens.) by NTP [LEAD]. Classified None. by NIOSH [LEAD]. Classified None. by NIOSH [TIN].  
Contains material which causes damage to the following organs: blood, kidneys, lungs, the nervous system, the reproductive system, mucous membranes, spleen, brain, digestive system, gastrointestinal tract, upper respiratory tract, skin, central nervous system (CNS), eye, lens or cornea, nose/sinuses, thyroid.
- Other toxic effects on humans** : Very hazardous by the following route of exposure: of eye contact (irritant), of ingestion, . Hazardous by the following route of exposure: of skin contact (irritant, sensitizer), of inhalation (lung sensitizer).  
Non-corrosive to skin. Non-permeator through skin.
- Special remarks on chronic effects on humans** : Human: LEAD crosses the placental barrier.  
CHRONIC OVEREXPOSURE EFFECTS; Increase of LEAD LEVEL in blood, muscle soreness, metallic taste, abdominal cramps, headaches.  
Overexposure to tin oxide fumes may result in benign pneumoconiosis (stannosis).
- (Note: the above statements apply to ingested and/or inhaled particles)
- Special remarks on other toxic effects on humans** : Fumes may irritate eyes, digestive system and respiratory tract.  
MOLTEN METAL can cause severe BURNS! Inhalation of smoke and fumes, at high temperatures, may cause an asthmatic reaction in some individuals.
- Specific effects**
- Carcinogenic effects** : Contains material which can cause cancer. Risk of cancer depends on duration and level of exposure.
- Mutagenic effects** : No known significant effects or critical hazards.
- Teratogenicity / Reproductive toxicity** : No known significant effects or critical hazards.
- Sensitization**
- Ingestion** : No known significant effects or critical hazards.
- Inhalation** : No known significant effects or critical hazards.
- Eyes** : No known significant effects or critical hazards.
- Skin** : No known significant effects or critical hazards.

## 12 . Ecological information

### Ecotoxicity data

<u>Product/ingredient name</u>	<u>Species</u>	<u>Period</u>	<u>Result</u>
Silver	Daphnia magna (EC50)	48 hour(s)	0.0092 mg/l
	Pimephales promelas (LC50)	96 hour(s)	0.00213 mg/l
	Pimephales promelas (LC50)	96 hour(s)	0.00238 mg/l
	Pimephales promelas (LC50)	96 hour(s)	0.00276 mg/l
	Pimephales promelas (LC50)	96 hour(s)	0.00312 mg/l
	Pimephales promelas (LC50)	96 hour(s)	0.00342 mg/l
Lead	Oncorhynchus mykiss (LC50)	96 hour(s)	1.17 mg/l
	Oncorhynchus mykiss (LC50)	96 hour(s)	471 mg/l
	Oncorhynchus mykiss (LC50)	96 hour(s)	542 mg/l

**Environmental precautions** : Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.

**Products of degradation** : Some metallic oxides.

**Toxicity of the products of biodegradation** : The products of degradation are more toxic than the product itself.

## 13 . Disposal considerations

**Waste disposal** : The generation of waste should be avoided or minimized wherever possible. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe way. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

Disposal should be in accordance with applicable regional, national and local laws and regulations. Local regulations may be more stringent than regional or national requirements.

The information presented below only applies to the material as supplied. The identification based on characteristic(s) or listing may not apply if the material has been used or otherwise contaminated. It is the responsibility of the waste generator to determine the toxicity and physical properties of the material generated to determine the proper waste identification and disposal methods in compliance with applicable regulations.

Refer to Section 7: HANDLING AND STORAGE and Section 8: EXPOSURE CONTROLS/PERSONAL PROTECTION for additional handling information and protection of employees.

## 14 . Transport information

Regulatory information	UN number	Proper shipping name	Class	PG*	Label	Additional information
DOT Classification	Not regulated.	-	-	-		-
TDG Classification	Not regulated.	-	-	-		-
ADR/RID Class	Not available.	-	-	-		-
IMDG Class	Not regulated.	-	-	-		-
IATA-DGR Class	Not regulated.	-	-	-		-

PG\* : Packing group

## 15 . Regulatory information

### United States

**HCS Classification** : Carcinogen  
Target organ effects

**U.S. Federal regulations** : TSCA 6 proposed risk management: LEAD  
TSCA 8(a) PAIR: SILVER

**United States inventory (TSCA 8b):** Not determined.  
TSCA 12(b) annual export notification: LEAD

**SARA 302/304/311/312 extremely hazardous substances:** No products were found.

**SARA 302/304 emergency planning and notification:** No products were found.

**SARA 302/304/311/312 hazardous chemicals:** SILVER; LEAD; TIN; rosin

**SARA 311/312 MSDS distribution - chemical inventory - hazard identification:**  
SILVER: Immediate (acute) health hazard; LEAD: Delayed (chronic) health hazard; TIN: Immediate (acute) health hazard; rosin: Immediate (acute) health hazard, Delayed (chronic) health hazard

**Clean Water Act (CWA) 307:** SILVER; LEAD

**Clean Water Act (CWA) 311:** No products were found.

**Clean Air Act (CAA) 112 accidental release prevention:** No products were found.

**Clean Air Act (CAA) 112 regulated flammable substances:** No products were found.

## 15 . Regulatory information

Clean Air Act (CAA) 112 regulated toxic substances: No products were found.

### SARA 313

	<u>Product name</u>	<u>CAS number</u>	<u>Concentration</u>
<b>Form R - Reporting requirements</b>	: SILVER	7440-22-4	1 - 99
	: LEAD	7439-92-1	1 - 99
<b>Supplier notification</b>	: SILVER	7440-22-4	1 - 99
	: LEAD	7439-92-1	1 - 99

SARA 313 notifications must not be detached from the MSDS and any copying and redistribution of the MSDS shall include copying and redistribution of the notice attached to copies of the MSDS subsequently redistributed.

### State regulations

- : **Connecticut Carcinogen Reporting:** None of the components are listed.
- : **Connecticut Hazardous Material Survey:** None of the components are listed.
- : **Florida substances:** None of the components are listed.
- : **Illinois Chemical Safety Act:** None of the components are listed.
- : **Illinois Toxic Substances Disclosure to Employee Act:** None of the components are listed.
- : **Louisiana Reporting:** None of the components are listed.
- : **Louisiana Spill:** None of the components are listed.
- : **Massachusetts Spill:** None of the components are listed.
- : **Massachusetts Substances:** None of the components are listed.
- : **Michigan Critical Material:** None of the components are listed.
- : **Minnesota Hazardous Substances:** None of the components are listed.
- : **New Jersey Hazardous Substances:** None of the components are listed.
- : **New Jersey Spill:** None of the components are listed.
- : **New Jersey Toxic Catastrophe Prevention Act:** None of the components are listed.
- : **New York Acutely Hazardous Substances:** None of the components are listed.
- : **New York Toxic Chemical Release Reporting:** None of the components are listed.
- : **Pennsylvania RTK Hazardous Substances:** None of the components are listed.
- : **Rhode Island Hazardous Substances:** None of the components are listed.

**WARNING:** This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

<u>Ingredient name</u>	<u>Cancer</u>	<u>Reproductive</u>	<u>No significant risk level</u>	<u>Maximum acceptable dosage level</u>
LEAD	Yes.	Yes.	15 µg/day (ingestion) 0.0005 µg/day (inhalation)	Yes.

### Canada

#### WHMIS (Canada)

- : Class D-2A: Material causing other toxic effects (Very toxic).
- : **CEPA Toxic substances:** None of the components are listed.
- : **Canadian ARET:** None of the components are listed.
- : **Canadian NPRI:** None of the components are listed.
- : **Alberta Designated Substances:** None of the components are listed.
- : **Ontario Designated Substances:** None of the components are listed.
- : **Quebec Designated Substances:** None of the components are listed.

This product has been classified in accordance with the hazard criteria of the Controlled Products Regulations and the MSDS contains all the information required by the Controlled Products Regulations.

### EU regulations

Hazard symbol or symbols :



## 15 . Regulatory information

- Risk phrases** : R20/22- Harmful by inhalation and if swallowed.  
R36/38- Irritating to eyes and skin.  
R42/43- May cause sensitization by inhalation and skin contact.  
R33- Danger of cumulative effects.  
R50/53- Very toxic to aquatic organisms, may cause long-term adverse effects in the aquatic environment.
- Safety phrases** : S2- Keep out of the reach of children.  
S22- Do not breathe dust.  
S24- Avoid contact with skin.  
S29- Do not empty into drains.  
S37- Wear suitable gloves.  
S45- In case of accident or if you feel unwell, seek medical advice immediately (show the label where possible).  
S61- Avoid release to the environment. Refer to special instructions/safety data sheet.  
S63- In case of accident by inhalation: remove casualty to fresh air and keep at rest.

### International regulations

- International lists** : **Australia inventory (AICS):** Not determined.  
**China inventory (IECSC):** Not determined.  
**Japan inventory:** Not determined.  
**Korea inventory:** Not determined.  
**New Zealand Inventory of Chemicals (NZIoC):** Not determined.  
**Philippines inventory (PICCS):** Not determined.

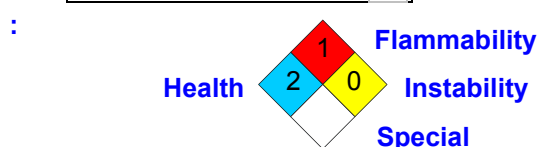
## 16 . Other information

- Label requirements** : CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE. CANCER HAZARD - CONTAINS MATERIAL WHICH CAN CAUSE CANCER.

### Hazardous Material Information System (U.S.A.)

Health	*	2
Fire hazard		1
Reactivity		0
Personal protection		

### National Fire Protection Association (U.S.A.)



### References

- : -ACGIH, Threshold Limit Values, 1994-1995. -Canada Gazette Part II, Vol. 122, No. 2 Registration SOR/88-64 31 December, 1987 Hazardous Products Act "Ingredient Disclosure List". -CFR29, OSHA's Permissible Exposure Limits, revision July, 1993. -CFR29, part 1910.1200, Hazard Communication. -CHEMTOX database -Components' manufacturer's Material Safety Data Sheet. -CRC Handbook of chemistry and physics, 67 th edition, CRC Press inc., Boca Raton, Florida. -CSST (Comission de Santé et Sécurité au Travail), document #RT-12: Classification of Certain Chemical Substances. -IATA, Dangerous Goods Regulations, 37th edition (January 1, 1996) -NFPA, Fire Protection Guide to Chemical Hazards, 11th edition. -NIOSH, Pocket Guide to Chemical Hazards, revision June 1994. Sigma-Alrich handbook of fine chemicals, 1998 -TSCA (Toxic Substance Contral Act), Chemical Substance Inventory List, 1985.

### Other special considerations

- : -ALL INGREDIENTS WITH SUSCEPTIBLE HAZARDS THAT ARE PRESENT IN A CONCENTRATION GREATER THAN 1 % (GREATER THAN 0.1 % FOR CARCINOGENS) HAVE BEEN DISCLOSED IN THIS SAFETY DOCUMENT.

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### Version

: 3

### Notice to reader



## **16 . Other information**

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.

Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.