

# Material Safety Data Sheet

CircuitWorks® Lead-Free Pocket Solder

## 1. Product and company identification

<b>Product name</b>	: CircuitWorks® Lead-Free Pocket Solder
<b>Supplier</b>	: Chemtronics 8125 Cobb Center Drive Kennesaw, GA 30152  Tel. 770-424-4888 or toll free 800-645-5244
<b>Synonym</b>	: S200
<b>Trade name</b>	: CircuitWorks® Lead-Free Pocket Solder
<b>Material uses</b>	: Other non-specified industry: Welding and soldering agents
<b>Manufacturer</b>	: Chemtronics 8125 Cobb Center Drive Kennesaw, GA 30152  Tel. 770-424-4888 or toll free 800-645-5244
<b>Code</b>	: S200
<b>MSDS #</b>	: 1902
<b>Validation date</b>	: 9/30/2013.
<b>Print date</b>	: 9/30/2013.
<b><u>In case of emergency</u></b>	: Chemtrec - 1-800-424-9300 or collect 703-527-3887 24/7
<b>Product type</b>	: Solid.

## 2. Hazards identification

### Emergency overview

<b>Physical state</b>	: Solid. [Metal.]
<b>Color</b>	: Silvery.
<b>Odor</b>	: Odorless.
<b>Hazard statements</b>	: CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE.
<b>Precautionary measures</b>	: Do not eat, drink or smoke when using this product. Wash thoroughly after handling.
<b>OSHA/HCS status</b>	: This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).
<b>Routes of entry</b>	: Inhalation.Ingestion.Skin contact

### Potential acute health effects

<b>Inhalation</b>	: soldering fumes May cause respiratory irritation.
<b>Ingestion</b>	: Harmful if swallowed.
<b>Skin</b>	: May cause skin irritation.
<b>Eyes</b>	: soldering fumes May cause eye irritation.

### Potential chronic health effects

<b>Chronic effects</b>	: Contains material that can cause target organ damage. May cause sensitization by inhalation. May cause sensitization by skin contact.
<b>Carcinogenicity</b>	: No known significant effects or critical hazards.
<b>Mutagenicity</b>	: No known significant effects or critical hazards.
<b>Teratogenicity</b>	: No known significant effects or critical hazards.
<b>Developmental effects</b>	: No known significant effects or critical hazards.
<b>Fertility effects</b>	: No known significant effects or critical hazards.

## 2. Hazards identification

**Target organs** : Contains material which causes damage to the following organs: eye, lens or cornea.  
Contains material which may cause damage to the following organs: lungs, mucous membranes, upper respiratory tract, skin, nose/sinuses, testes.

### Over-exposure signs/symptoms

**Inhalation** : Adverse symptoms may include the following:  
respiratory tract irritation  
soldering fumes May cause sensitization by inhalation.

**Ingestion** : Adverse symptoms may include the following:  
nausea or vomiting

**Skin** : Adverse symptoms may include the following:  
irritation  
sensitizer May cause allergic reactions in certain individuals.

**Eyes** : Adverse symptoms may include the following:  
irritation  
redness  
watering

**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

Name	CAS number	%
tin	7440-31-5	93 - 97
silver	7440-22-4	1 - 5

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

## 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. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation.

**Notes to physician** : No specific treatment. Treat symptomatically. Contact poison treatment specialist immediately if large quantities have been ingested or inhaled.

## 5. Fire-fighting measures

**Flammability of the product** : No specific fire or explosion hazard.

### Extinguishing media

**Suitable** : Use an extinguishing agent suitable for the surrounding fire.

**Not suitable** : Do not use water jet.

**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.

**Hazardous thermal decomposition products** : Decomposition products may include the following materials:  
metal oxide/oxides

**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.

## 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

**Small spill** : Move containers from spill area. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, labeled waste container. Dispose of via a licensed waste disposal contractor.

**Large spill** : Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Avoid dust generation. Do not dry sweep. Vacuum dust with equipment fitted with a HEPA filter and place in a closed, 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. Remove contaminated clothing and protective equipment before entering eating areas. Do not ingest. Avoid contact with eyes, skin and clothing. 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

Ingredient	Exposure limits
tin          silver	<b>ACGIH TLV (United States, 3/2012).</b> TWA: 2 mg/m <sup>3</sup> , (as Sn) 8 hours. <b>NIOSH REL (United States, 1/2013).</b> TWA: 2 mg/m <sup>3</sup> 10 hours. <b>ACGIH TLV (United States, 3/2012).</b> TWA: 0.1 mg/m <sup>3</sup> 8 hours. Form: Dust and fumes <b>NIOSH REL (United States, 1/2013). Notes: as Ag</b> TWA: 0.01 mg/m <sup>3</sup> , (as Ag) 10 hours. Form: METAL DUST AND SOLUBLE <b>OSHA PEL (United States, 6/2010). Notes: as Ag</b> TWA: 0.01 mg/m <sup>3</sup> , (as Ag) 8 hours. <b>OSHA PEL 1989 (United States, 3/1989). Notes: as Ag</b> TWA: 0.01 mg/m <sup>3</sup> , (as Ag) 8 hours.

- Recommended monitoring procedures** : If this product contains ingredients with exposure limits, personal, workplace atmosphere or biological monitoring may be required to determine the effectiveness of the ventilation or other control measures and/or the necessity to use respiratory protective equipment. Reference should be made to appropriate monitoring standards. Reference to national guidance documents for methods for the determination of hazardous substances will also be required.
- Engineering measures** : Good general ventilation should be sufficient to control worker exposure to airborne contaminants.
- 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.
- Personal protection**
- Respiratory** : Use a properly fitted, particulate filter 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. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.
- 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. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: safety glasses with side-shields.
- 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.
- Environmental exposure controls** : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

## 9. Physical and chemical properties

<b>Physical state</b>	: Solid. [Metal.]
<b>Auto-ignition temperature</b>	: Not applicable
<b>Flammable limits</b>	: Not applicable
<b>Color</b>	: Silvery.
<b>Odor</b>	: Odorless.
<b>Taste</b>	: Tasteless.
<b>Boiling/condensation point</b>	: >927°C (>1700.6°F)
<b>Melting/freezing point</b>	: 177°C (350.6°F)
<b>Critical temperature</b>	: Not applicable
<b>Relative density</b>	: 9.7
<b>Vapor density</b>	: Not applicable
<b>Volatility</b>	: Non-volatile.
<b>Viscosity</b>	: Not applicable
<b>Ionicity (in water)</b>	: Not applicable
<b>Dispersibility properties</b>	: Not dispersible in the following materials: cold water, hot water, methanol, diethyl ether, n-octanol and acetone.
<b>Solubility</b>	: Insoluble in the following materials: cold water, hot water, methanol, diethyl ether, n-octanol and acetone.

## 10. Stability and reactivity

<b>Chemical stability</b>	: The product is stable.
<b>Conditions to avoid</b>	: No specific data.
<b>Incompatible materials</b>	: Strong oxidizing materials strong acids strong alkalis
<b>Hazardous decomposition products</b>	: Under normal conditions of storage and use, hazardous decomposition products should not be produced.
<b>Possibility of hazardous reactions</b>	: Under normal conditions of storage and use, hazardous reactions will not occur.

## 11. Toxicological information

### Acute toxicity

**Conclusion/Summary** : Not available.

### Chronic toxicity

**Conclusion/Summary** : Not available.

### Irritation/Corrosion

**Conclusion/Summary** : Not available.

### Sensitizer

**Conclusion/Summary** : Not available.

### Carcinogenicity

**Conclusion/Summary** : Not available.

### Classification

Product/ingredient name	OSHA	IARC	NTP	ACGIH	EPA	NIOSH
silver	-	-	-	-	-	None.

### Mutagenicity

**Conclusion/Summary** : Not available.

### Teratogenicity

## 11. Toxicological information

**Conclusion/Summary** : Not available.

### Reproductive toxicity

**Conclusion/Summary** : Not available.

## 12. Ecological information

**Ecotoxicity** : No known significant effects or critical hazards.

### Aquatic ecotoxicity

Product/ingredient name	Result	Species	Exposure
silver	Acute EC50 1.4 µg/l Marine water	Algae - Chroomonas sp.	4 days
	Acute EC50 0.24 µg/l Fresh water	Daphnia - Daphnia magna	48 hours
	Acute LC50 4500 ppb Fresh water	Crustaceans - Gammarus pseudolimnaeus	48 hours
	Acute LC50 2.13 to 2.93 µg/l Fresh water	Fish - Pimephales promelas	96 hours
	Chronic NOEC 5 mg/l Marine water	Algae - Glenodinium halli	72 hours

**Conclusion/Summary** : Not available.

### Persistence/degradability

**Conclusion/Summary** : Not available.

## 13. Disposal considerations

**Waste disposal** : The generation of waste should be avoided or minimized wherever possible. 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. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. 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.

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	Classes	PG*	Label	Additional information
<b>DOT Classification</b>	Not regulated.	-	-	-		Not regulated.
<b>TDG Classification</b>	Not regulated.	-	-	-		Not regulated.
<b>Mexico Classification</b>	Not regulated.	-	-	-		Not regulated.
<b>ADR/RID Class</b>	Not regulated.	-	-	-		Not regulated.
<b>IMDG Class</b>	Not regulated.	-	-	-		Not regulated.

## 14. Transport information

<b>IATA-DGR Class</b>	Not regulated.	-	-	-		Not regulated.
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PG\* : Packing group

## 15. Regulatory information

**HCS Classification** : Target organ effects

**U.S. Federal regulations** : **TSCA 8(a) CDR Exempt/Partial exemption**: Not determined

**United States inventory (TSCA 8b)**: All components are listed or exempted.

**Clean Water Act (CWA) 307**: silver; copper

**Clean Air Act Section 112** : Not listed

**(b) Hazardous Air Pollutants (HAPs)**

**Clean Air Act Section 602** : Not listed

**Class I Substances**

**Clean Air Act Section 602** : Not listed

**Class II Substances**

**DEA List I Chemicals** : Not listed

**(Precursor Chemicals)**

**DEA List II Chemicals** : Not listed

**(Essential Chemicals)**

### SARA 302/304

#### Composition/information on ingredients

No products were found.

**SARA 304 RQ** : Not applicable.

### SARA 311/312

**Classification** : Delayed (chronic) health hazard

#### Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
tin	93 - 97	No.	No.	No.	No.	Yes.
silver	1 - 5	No.	No.	No.	No.	Yes.

### SARA 313

	Product name	CAS number	%
<b>Form R - Reporting requirements</b>	silver	7440-22-4	1 - 5
<b>Supplier notification</b>	silver	7440-22-4	1 - 5

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

**Massachusetts** : The following components are listed: TIN; SILVER

**New York** : The following components are listed: Silver

**New Jersey** : The following components are listed: TIN; SILVER

**Pennsylvania** : The following components are listed: TIN; SILVER; ROSIN CORE SOLDER  
PYROLYSIS PRODUCTS



## 15. Regulatory information

<b>Canada inventory</b>	: All components are listed or exempted.
<b>International regulations</b>	
<b>International lists</b>	: <b>Australia inventory (AICS)</b> : All components are listed or exempted. <b>China inventory (IECSC)</b> : All components are listed or exempted. <b>Japan inventory</b> : Not determined. <b>Korea inventory</b> : All components are listed or exempted. <b>Malaysia Inventory (EHS Register)</b> : Not determined. <b>New Zealand Inventory of Chemicals (NZIoC)</b> : All components are listed or exempted. <b>Philippines inventory (PICCS)</b> : All components are listed or exempted. <b>Taiwan inventory (CSNN)</b> : Not determined.
<b>Chemical Weapons Convention List Schedule I Chemicals</b>	: Not listed
<b>Chemical Weapons Convention List Schedule II Chemicals</b>	: Not listed
<b>Chemical Weapons Convention List Schedule III Chemicals</b>	: Not listed

## 16. Other information

<b>Label requirements</b>	: CONTAINS MATERIAL THAT CAN CAUSE TARGET ORGAN DAMAGE.
<b>Hazardous Material Information System (U.S.A.)</b>	:

<b>Health</b>	1
<b>Flammability</b>	0
<b>Physical hazards</b>	0

Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks. Although HMIS® ratings are not required on MSDSs under 29 CFR 1910.1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

<b>National Fire Protection Association (U.S.A.)</b>	:
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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

<b>Date of printing</b>	: 9/30/2013.
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## 16. Other information

**Date of issue** : 9/30/2013.

**Date of previous issue** : 8/23/2013.

**Version** : 1.02

**Prepared by** : Not available.

☐ Indicates information that has changed from previously issued version.

### Notice to reader

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.