MATERIAL SAFETY DATA SHEET

1. Product and Company Identification

Material name	**Leaded Solder with Rosin Core**
Version #	01
Issue date	01-23-2013
Revision date	-
Supersedes date	-
CAS #	Mixture
Product code	Varies
MSDS Number	WC008
Product use	Solder.
Manufacturer/Supplier	Worthington Cylinder Corporation 1690 Lowery Street Winston-Salem, NC 27101 US Melissa.Grimes @worthingtonindustries.com Contact Person: Melissa Grimes
Telephone Number:	336-831-8601
Emergency	CHEMTREC - 24 HOURS: (800) 424-9300

2. Hazards Identification

Physical state	Solid.
Appearance	Silver-gray metal in wire form with rosin core.
Emergency overview	WARNING May cause eye, skin and respiratory tract irritation. Molten material will produce thermal burns.
OSHA regulatory status	This product is considered hazardous under 29 CFR 1910.1200 (Hazard Communication).
Potential health effects	
Routes of exposure	Skin contact. Eye contact. Inhalation.
Eyes	Elevated temperatures or mechanical action may form dust and fumes which may be irritating to the eyes.
Skin	May cause skin irritation. Contact with molten material may cause thermal burns.
Inhalation	May cause respiratory tract irritation. Lung damage and possible pulmonary edema can result from dust exposure. Inhalation of fumes may cause a flu-like illness called metal fume fever.
Ingestion	Ingestion of dusts generated during working operations may cause nausea and vomiting. Lead is absorbed into the body through inhalation of spray mist or by ingestion.
Target organs	Eyes. Skin. Respiratory system. Central nervous system.
Chronic effects	Prolonged and repeated overexposure to dust and fumes can lead to benign pneumoconiosis (stannosis). Contains lead which can accumulate in the body.
Signs and symptoms	Dust and fumes may irritate eyes, skin and upper respiratory tract. Contact with molten material may cause thermal burns.
Potential environmental effects	Alloys in massive forms present a limited hazard for the environment.

3. Composition / Information on Ingredients

Components	CAS #	Percent
Lead	7439-92-1	30 - 70
Tin	7440-31-5	30 - 70
Rosin	65997-06-0	1 - 4

Composition comments All concentrations are in percent by weight unless ingredient is a gas. Gas concentrations are in percent by volume.

4. First Aid Measures

First aid procedures

Eye contact	Rinse immediately with plenty of water for at least 15 minutes. Remove any contact lenses. Get medical attention if irritation develops or persists. If molten material contacts the eye, immediately flush with plenty of water for at least 15 minutes.
Skin contact	Remove contaminated clothes and rinse skin thoroughly with water for at least 15 minutes. If skin rash or an allergic skin reaction develops, get medical attention. In case of contact with molten product, cool rapidly with water and seek immediate medical attention. Do not attempt to remove molten product from skin because skin will tear easily.
Inhalation	Immediately remove from further exposure. Get immediate medical assistance. For those providing assistance, avoid exposure to yourself or others. Use adequate respiratory protection. Give supplemental oxygen, if available. If breathing has stopped, assist ventilation with a mechanical device or use mouth-to-mouth resuscitation.
Ingestion	Immediately rinse mouth and drink a cupful of water. Never give anything by mouth to a victim who is unconscious or is having convulsions. Only induce vomiting at the instruction of medical personnel. Get medical attention immediately.
Notes to physician	Treat symptomatically. Exposure may aggravate pre-existing lungs, diseases of the blood and blood forming organs, kidneys, nervous, and possibly reproductive systems. Symptoms may be delayed.
General advice	Show this safety data sheet to the doctor in attendance.

5. Fire Fighting Measures

Flammable properties	Solid metal is not flammable; however, finely divided metallic dust or powder may form an explosive mixture with air.

Extinguishing media

Suitable extinguishing media	Extinguish with foam, carbon dioxide or dry powder.
Unsuitable extinguishing media	Do not use water or halogenated extinguishing media.

Protection of firefighters

Specific hazards arising from the chemical	Fire or high temperatures create: Metal oxides.
Fire fighting equipment/instructions	Self-contained breathing apparatus and full protective clothing must be worn in case of fire. Move containers from fire area if you can do it without risk.

6. Accidental Release Measures

Personal precautions	Keep unnecessary personnel away. Avoid inhalation of fumes from molten product. Wear protective clothing as described in Section 8 of this MSDS. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing.
Environmental precautions	Prevent further leakage or spillage if safe to do so. Do not contaminate water. If release occurs in the U.S. and is reportable under CERCLA Section 103, notify the National Response Center at (800)424-8802 (USA) or (202)426-2675 (USA).
Methods for containment	Stop leak if you can do so without risk. Local authorities should be advised if significant spillages cannot be contained.
Methods for cleaning up	For a dry material spill, use a HEPA (high efficiency particle air) vacuum to collect material and place in a sealable container for disposal. Avoid dust formation. Recover and recycle, if practical. Keep out of water supplies and sewers.
Other information	Clean up in accordance with all applicable regulations.

7. Handling and Storage

Handling

Wear appropriate personal protective equipment (See Section 8). Keep formation of airborne dusts to a minimum. Provide appropriate exhaust ventilation at places where dust is formed. Avoid inhalation of dust and fumes. Avoid contact with skin and eyes. Do not get this material on clothing. Do not eat, drink or smoke when using the product. Wash thoroughly after handling. Avoid release to the environment. Follow special national provisions related to work with lead and its compounds. Pregnant women should not work with the product, if there is the least risk of lead exposure.

Any surface that comes in contact with molten metal must be preheated or specially coated and rust free. Inadvertent contaminants to product such as moisture, ice, snow, grease, or oil can cause an explosion when charged to a molten metal bath or metal furnace (preheating metal will remove moisture from product).

Storage

Store in tightly closed original container in a dry, cool and well-ventilated place. Store in a closed container away from incompatible materials. Keep out of reach of children. Keep away from food, drink and animal feedingstuffs.

8. Exposure Controls / Personal Protection

Occupational exposure limits

US. ACGIH Threshold Limit Values

Components	Type	Value
Lead (CAS 7439-92-1)	TWA	0.05 mg/m3
Tin (CAS 7440-31-5)	TWA	2 mg/m3

US. OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Components	Type	Value
Lead (CAS 7439-92-1)	TWA	0.05 mg/m3

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Tin (CAS 7440-31-5)	PEL	2 mg/m3

Canada. Alberta OELs (Occupational Health & Safety Code, Schedule 1, Table 2)

Components	Type	Value
Lead (CAS 7439-92-1)	TWA	0.05 mg/m3
Tin (CAS 7440-31-5)	TWA	2 mg/m3

Canada. British Columbia OELs. (Occupational Exposure Limits for Chemical Substances, Occupational Health and Safety Regulation 296/97, as amended)

Components	Type	Value
Lead (CAS 7439-92-1)	TWA	0.05 mg/m3
Tin (CAS 7440-31-5)	TWA	2 mg/m3

Canada. Ontario OELs. (Control of Exposure to Biological or Chemical Agents)

Components	Type	Value
Lead (CAS 7439-92-1)	TWA	0.05 mg/m3
Tin (CAS 7440-31-5)	TWA	2 mg/m3

Canada. Quebec OELs. (Ministry of Labor - Regulation Respecting the Quality of the Work Environment)

Components	Type	Value
Lead (CAS 7439-92-1)	TWA	0.05 mg/m3
Tin (CAS 7440-31-5)	TWA	2 mg/m3

Mexico. Occupational Exposure Limit Values

Components	Type	Value	Form
Lead (CAS 7439-92-1)	TWA	0.15 mg/m3	Dust and fume.
Tin (CAS 7440-31-5)	STEL	4 mg/m3	
	TWA	2 mg/m3	

Engineering controls	Provide adequate ventilation. Observe Occupational Exposure Limits and minimize the risk of inhalation of dust. Keep melting/soldering temperatures as low as possible to minimize the generation of fume. Shower, hand and eye washing facilities near the workplace are recommended.
Personal protective equipment	
Eye / face protection	Wear safety glasses with side shields (or goggles). Wear a face shield when working with molten material.
Skin protection	Chemical resistant clothing is recommended. Heat resistant/insulated gloves and clothing are recommended when working with molten material.
Respiratory protection	Use a respirator when local exhaust or ventilation is not adequate to keep exposures below the OEL. In a confined space a supplied respirator may be required. Selection and use of respiratory protective equipment should be in accordance with OSHA General Industry Standard 29 CFR 1910.134; or in Canada with CSA Standard Z94.4. Use a NIOSH/MSHA approved respirator if there is a risk of exposure to dust/fume at levels exceeding the exposure limits.
General hygiene considerations	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical & Chemical Properties

Appearance	Silver-gray metal in wire form with rosin core.
Physical state	Solid.
Form	Wire.
Color	Silver to gray.
Odor	Odorless.
Odor threshold	Not available.
pH	Not available.
Vapor pressure	Not available.
Vapor density	Not available.
Boiling point	Not Available
Melting point/Freezing point	361.4 - 437 °F (183 - 225 °C) Depending on composition
Solubility (water)	Not soluble
Specific gravity	8 - 11 Depending on composition
Flash point	Not available.
Flammability limits in air, upper, % by volume	Not available.
Flammability limits in air, lower, % by volume	Not available.
Auto-ignition temperature	Not available.
Other data	
Flammability	Not flammable.

10. Chemical Stability & Reactivity Information

Chemical stability	Material is stable under normal conditions.
Conditions to avoid	Contact with incompatible materials. Avoid molten metal contact with water.
Incompatible materials	Strong acids. Strong oxidizing agents. Reducing agents. Halogens.
Hazardous decomposition products	Toxic metal oxides are emitted when heated above the melting point.
Possibility of hazardous reactions	Hazardous polymerization does not occur.

11. Toxicological Information

Sensitization	No sensitizing effects known.

Acute effects High concentrations of freshly formed fumes/dusts of metal oxides can produce symptoms of metal fume fever. When heated, the vapors/fumes given off may cause respiratory tract irritation. Overexposure to Lead may lead to central nervous system disorders, characterized by drowsiness, seizures, coma and death. It should be recognized that exposures of this magnitude in an industrial setting are extremely unlikely. Overexposure of Tin can cause irritation of the eyes, skin, mucous membranes, and respiratory system.

Local effects Elevated temperatures or mechanical action may form dust and fumes which may be irritating to the eye, mucous membranes and respiratory tract. Molten material will produce thermal burns.

Chronic effects Prolonged and repeated overexposure to dust and fumes can lead to benign pneumoconiosis (stannosis). Overexposure to Lead can lead to systemic lead poisoning with symptoms of metallic taste, anemia, insomnia, weakness, constipation, abdominal pain, gastrointestinal disorders, joint and muscle pains, and muscular weakness, and may cause damage to the blood forming, nervous, kidneys and reproductive systems. Damage may include reduced fertility in both men and women, damage to the fetus of the exposed pregnant woman, anemia, muscular weakness and kidney dysfunction. Overexposure to Tin can result in benign pneumoconiosis (stannous). This form of pneumoconiosis produces progressive x-ray changes of the lungs as long as exposure exists, but there is no distinctive fibrosis, no evidence of disability and no special complicating factors.

Carcinogenicity Contains lead.

ACGIH Carcinogens

Lead (CAS 7439-92-1)	A3 Confirmed animal carcinogen with unknown relevance to humans.

IARC Monographs. Overall Evaluation of Carcinogenicity

Lead (CAS 7439-92-1)	2B Possibly carcinogenic to humans.

US NTP Report on Carcinogens: Anticipated carcinogen

Lead (CAS 7439-92-1)	Reasonably Anticipated to be a Human Carcinogen.

Epidemiology No data available.

Mutagenicity No data available.

Reproductive effects Lead is a teratogen. Elevated lead exposure of either parent before pregnancy may increase the changes of miscarriage or birth defects. Continuous exposure may result in decreased fertility. Exposure of the mother during pregnancy may cause birth defects.

Further information Lead is accumulated in the body and may cause damage to the brain and nervous system after prolonged exposure.

12. Ecological Information

Ecotoxicological data

Components		Species	Test Results
Lead (CAS 7439-92-1)			
Aquatic			
Fish	LC50	Rainbow trout,donaldson trout (Oncorhynchus mykiss)	1.17 mg/l, 96 hours

Ecotoxicity Alloys in massive forms present a limited hazard for the environment.

Environmental effects No data available for this product.

Persistence and degradability The product is not biodegradable.

Bioaccumulation / Accumulation No data available.

Mobility in environmental media Alloys in massive forms are not mobile in the environment.

13. Disposal Considerations

Waste codes Product contains lead a hazardous waste constituent regulated under 40 CFR 261.24.

Disposal instructions Dispose in accordance with all applicable regulations.

Waste from residues / unused products Scrapped material should be sent for refining to recover precious metal content. Solid metal and alloys in the form of particles may be reactive. Its hazardous characteristics, including fire and explosion, should be determined prior to disposal.

14. Transport Information

DOT

Not regulated as a hazardous material by DOT.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

TDG

Not regulated as dangerous goods.

15. Regulatory Information

US federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Lead (CAS 7439-92-1)

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: De minimis concentration

Lead (CAS 7439-92-1)	0.1 % Substance is not eligible for the de minimis exemption except for the purposes of supplier notification requirements.

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Reportable threshold

Lead (CAS 7439-92-1)	100 LBS

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance

Lead (CAS 7439-92-1)	Listed.

CERCLA (Superfund) reportable quantity (lbs) (40 CFR 302.4)

Lead: 10

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories	Immediate Hazard - Yes Delayed Hazard - Yes Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No
Section 302 extremely hazardous substance (40 CFR 355, Appendix A)	No
Section 311/312 (40 CFR 370)	Yes

Drug Enforcement Administration (DEA) (21 CFR 1308.11-15)

Not controlled

Canadian regulations

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

WHMIS status

Controlled

WHMIS classification

D2A - Other Toxic Effects-VERY TOXIC

WHMIS labeling

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes

Country(s) or region	Inventory name	On inventory (yes/no)*
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No
Japan	Inventory of Existing and New Chemical Substances (ENCS)	No
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates this product complies with the inventory requirements administered by the governing country(s)

State regulations

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

US - California Hazardous Substances (Director's): Listed substance

Lead (CAS 7439-92-1)	Listed.
Tin (CAS 7440-31-5)	Listed.

US - California Proposition 65 - Carcinogens & Reproductive Toxicity (CRT): Listed substance

Lead (CAS 7439-92-1)	Listed.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

Lead (CAS 7439-92-1)	Listed: October 1, 1992 Carcinogenic.

US - California Proposition 65 - CRT: Listed date/Developmental toxin

Lead (CAS 7439-92-1)	Listed: February 27, 1987 Developmental toxin.

US - California Proposition 65 - CRT: Listed date/Female reproductive toxin

Lead (CAS 7439-92-1)	Listed: February 27, 1987 Female reproductive toxin.

US - California Proposition 65 - CRT: Listed date/Male reproductive toxin

Lead (CAS 7439-92-1)	Listed: February 27, 1987 Male reproductive toxin.

US - New Jersey RTK - Substances: Listed substance

Lead (CAS 7439-92-1)	Listed.
Tin (CAS 7440-31-5)	Listed.

US - Pennsylvania RTK - Hazardous Substances: All compounds of this substance are considered environmental hazards

Lead (CAS 7439-92-1)	LISTED

US. Massachusetts RTK - Substance List

Lead (CAS 7439-92-1)	Listed.
Tin (CAS 7440-31-5)	Listed.

US. New Jersey Worker and Community Right-to-Know Act

Lead (CAS 7439-92-1)	500 LBS

US. Pennsylvania RTK - Hazardous Substances

Lead (CAS 7439-92-1)	Listed.
Tin (CAS 7440-31-5)	Listed.

Mexico regulations

This safety data sheet was prepared in accordance with the Official Mexican Standard (NOM-018-STPS-2000).

16. Other Information

Further information

See U.S. OSHA Lead Standard, 29 CFR 1910.1025 for specific guidance, medical evaluation requirements and other information related to the handling of this product.

HMIS® is a registered trade and service mark of the NPCA.
A HMIS® Health rating including an * indicates a chronic hazard.

HMIS® ratings

Health: 1*
Flammability: 0
Physical hazard: 0

NFPA ratings

Health: 1
Flammability: 0
Instability: 0

Disclaimer

All information in this Material Safety Data Sheet is believed to be accurate and reliable. However, no guarantee or warranty of any kind is made with regard to the accuracy of information or the suitability of the recommendations contained herein. It is the user's responsibility to assess the safety and toxicity of this product under their own conditions of use and to comply with all applicable laws and regulations.