SAFETY DATA SHEET

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ACCORDING TO OSHA HCS (29 CFR 1910.1200)

SECTION 1: IDENTIFICATION

Product identifier used on the label M-Line 430-20S Solder

Other means of identification Not applicable

Recommended use of the chemical and restrictions on use

Recommended use: PC38 Welding and soldering products (with flux coatings or flux cores.), flux products

Restrictions on use: Anything other than the above.

Details of the supplier of the safety data sheet

Supplier: VISHAY MEASUREMENTS GROUP, INC.
Address of Supplier: Post Office Box 27777
Raleigh, NC 27611
USA
Telephone: +1 919-365-3800
Fax: +1 919-365-3945
E-Mail (competent person): mm.us@vishaypg.com

Emergency telephone number 1-800-424-9300 CHEMTREC (24 hours)

SECTION 2: HAZARD(S) IDENTIFICATION

Classification of the substance or mixture in accordance with paragraph (d) of 29 CFR 1910.1200

Physical hazards: Not classified
Health hazards: Not classified
Environmental hazards: Hazardous to the aquatic environment, Acute, Category 1
Hazardous to the aquatic environment, Chronic , Category 1

Hazard Symbol

Signal Word(s): WARNING

Hazard Statement(s): Very toxic to aquatic life with long lasting effects.

Precautionary Statement(s):
Avoid release to the environment.
Collect spillage.
Dispose of contents in accordance with local, state or national legislation.

Other hazards None known

Percent of the mixture consists of ingredient(s) of unknown acute toxicity: 0%

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

Substances Not applicable

Mixtures Substances in preparations / mixtures

Chemical identity of the substance	%W/W	CAS No.	EC No.	Hazard classification
Tin	95 - 100	7440-31-5	231-141-8	Not classified
Silver	< 5	7440-22-4	231-131-3	Hazardous to the aquatic environment, Acute, Category 1 Hazardous to the aquatic environment, Chronic , Category 1

SECTION 4: FIRST AID MEASURES

Description of first aid measures

Self-protection of the first aider	Do not breathe fumes. Wear suitable protective clothing. Wear suitable respiratory protective equipment if exposure to high levels of material are likely.
Inhalation	If breathing is difficult, remove victim to fresh air and keep at rest in a position comfortable for breathing.
Skin Contact	Wash with plenty of water. If irritation (redness, rash, blistering) develops, get medical attention. Molten material can cause severe burns. Do NOT try to peel molten material from the skin. Cool rapidly with water.
Eye Contact	Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice/attention.
Ingestion	Wash out mouth with water and give 200-300 ml (half a pint) of water to drink. Do not induce vomiting. If symptoms develop, obtain medical attention.
Most important symptoms and effects, both acute and delayed	Molten material can cause severe burns.
Indication of any immediate medical attention and special treatment needed	Treat symptomatically.
Notes to a physician:	In case of burns immediately cool affected skin as long as possible with cold water.

SECTION 5: FIRE-FIGHTING MEASURES

Extinguishing media

Suitable Extinguishing Media	As appropriate for surrounding fire.
Unsuitable extinguishing Media	Do not use water on fires when molten metal is present.
Special hazards arising from the substance or mixture	None.
Special protective equipment and precautions for fire fighters	Fire fighters should wear complete protective clothing including self-contained breathing apparatus. Do not breathe fumes. Keep containers cool by spraying with water if exposed to fire. Avoid run off to waterways and sewers.

SECTION 6: ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	Ensure adequate ventilation. Use personal protective equipment as required. See Section: 8. Melted solder will solidify on cooling and can be scraped up. Avoid breathing smoke fumes during soldering. Use caution to avoid breathing fumes if a gas torch is used to cut up large pieces.
Environmental precautions	Avoid release to the environment. Do not allow to enter drains, sewers or

watercourses.

Methods and material for containment and cleaning up — Allow product to cool/solidify and pick up as a solid. Transfer to a container for disposal. Recover or recycle if possible.

SECTION 7: HANDLING AND STORAGE

Precautions for safe handling — Avoid breathing smoke fumes during soldering. Use caution to avoid breathing fumes if a gas torch is used to cut up large pieces. Ensure adequate ventilation. Use personal protective equipment as required. See Section: 8. Do not eat, drink or smoke when using this product. Wash hands before breaks and after work. When molten: Keep from any possible contact with water.

Conditions for safe storage, including any incompatibilities — Store in a well-ventilated place.

Storage temperature — Ambient.

Storage life — Stable under normal conditions.

Incompatible materials — Store away from sources of sulfur. Keep away from: Acids, Chlorine and Strong oxidising agents.

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

Occupational Exposure Limits

SUBSTANCE	CAS No.	LTEL (8 hr TWA ppm)	LTEL (8 hr TWA mg/m³)	STEL (ppm)	STEL (mg/m³)	Note
Tin, metal	7440-31-5	-	2	-	-	NIOSH, OSHA, ACGIH
Silver (metal dust and soluble compounds, as Ag)	7440-22-4	-	0.01	-	-	NIOSH, OSHA
Silver, metal dust and fume	7440-22-4	-	0.1	-	-	ACGIH

Note: OSHA PELs 1910.1000 TABLE Z-1/ NIOSH RELs / ACGIH TLVs

Biological Exposure Indices — Not established

Appropriate engineering controls — Ensure adequate ventilation or use appropriate containment. Atmospheric levels should be controlled using the principles of good occupational hygiene practice.

Individual protection measures, such as personal protective equipment (PPE) — General hygiene measures for the handling of chemicals are applicable. Avoid breathing smoke fumes during soldering. Use caution to avoid breathing fumes if a gas torch is used to cut up large pieces. Wash hands before breaks and after work. Do not eat, drink or smoke at the work place.

Eye/face protection — When molten: Goggles or full face shield.

Skin protection — Hand protection: (When molten) Wear impervious gloves (EN374). The gloves type used must be chosen based on the work activity and duration as well as concentration/quantity of material being handled. Breakthrough time of the glove material: refer to the information provided by the gloves' producer.

Body protection: (When molten) Wear impervious protective clothing, including boots, lab coat, apron or coveralls, as appropriate, to prevent skin contact.

Respiratory protection — In case of inadequate ventilation wear respiratory protection. Open system(s): Wear suitable respiratory protective equipment.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance	Silver - Grey metal in wire form
Odor	Not available.
Odor Threshold	Not available.
pH	Not available.
Melting Point/Freezing Point	Not available.
Initial boiling point and boiling range	Not available.
Flash Point	Not applicable.
Evaporation rate (Butyl acetate = 1)	Not applicable.
Flammability (solid, gas)	Non-flammable.
Upper/lower flammability or explosive limits	Not applicable.
Vapour pressure	Not available.
Vapour density	Not available.
Relative density	>1 (H2O = 1)
Solubility(ies)	Insoluble in water.
Partition coefficient: n-octanol/water	Not available.
Auto-ignition temperature	Not available.
Decomposition Temperature	Not available.
Viscosity	Not available.

SECTION 10: STABILITY AND REACTIVITY

Reactivity	Stable under normal conditions.
Chemical stability	Stable under normal conditions.
Possibility of hazardous reactions	Reacts vigorously with chlorine and oxidising agents.
Conditions to avoid	None known.
Incompatible materials	Store away from sources of sulfur. Keep away from: Acids, Chlorine and Strong oxidising agents. When molten: Keep from any possible contact with water.
Hazardous decomposition product(s)	None known.

SECTION 11: TOXICOLOGICAL INFORMATION

Information on toxicological effects (Substances in preparations / mixtures)

Acute toxicity - Ingestion	Based upon the available data, the classification criteria are not met. Acute Toxicity Estimate Mixture Calculation: Estimated LC50 > 2000 mg/kg bw/day.
Acute toxicity - Inhalation	Based upon the available data, the classification criteria are not met. Acute Toxicity Estimate Mixture Calculation: Estimated LC50 >5.0 mg/l.
Acute toxicity - Skin Contact	Based upon the available data, the classification criteria are not met. Acute Toxicity Estimate Mixture Calculation: Estimated LC50 > 2000 mg/kg bw/day.
Skin corrosion/irritation	Based upon the available data, the classification criteria are not met.
Serious eye damage/irritation	Based upon the available data, the classification criteria are not met.
Respiratory or skin sensitization	Based upon the available data, the classification criteria are not met.
Germ cell mutagenicity	Based upon the available data, the classification criteria are not met.
Carcinogenicity	Based upon the available data, the classification criteria are not met.
Reproductive toxicity	Based upon the available data, the classification criteria are not met.
STOT - single exposure	Based upon the available data, the classification criteria are not met.
STOT - repeated exposure	Based upon the available data, the classification criteria are not met.
Aspiration hazard	Based upon the available data, the classification criteria are not met.

Information on likely routes of exposure	
Inhalation	Possible – accidental exposure
Ingestion	Unlikely – accidental exposure
Skin Contact	Possible – accidental exposure
Eye Contact	Unlikely – accidental exposure
Early onset symptoms related to exposure	Molten material can cause severe burns.
Delayed health effects from exposure	None known
Other information	
NTP Report on Carcinogens	All chemicals are not listed
IARC Monographs	All chemicals are not listed
OSHA Designated Carcinogen	All chemicals are not listed

SECTION 12: ECOLOGICAL INFORMATION

Ecotoxicity	Hazardous to the aquatic environment, Acute, Category 1; Very toxic to aquatic life. Estimated Mixture LC50 <1 mg/l (Fish) Hazardous to the aquatic environment, Chronic , Category 1; Very toxic to aquatic life with long lasting effects. Estimated Mixture LC50 <1 mg/l (Fish)
Persistence and degradability	The product is not biodegradable (metals).
Bioaccumulative potential	The product has low potential for bioaccumulation (metal in wire form).
Mobility in soil	The product is predicted to have low mobility in soil (metal in wire form).
Other adverse effects	None known.

SECTION 13: DISPOSAL CONSIDERATIONS

Waste treatment methods	Solder can be reclaimed. Dispose of contents in accordance with local, state or national legislation.

SECTION 14: TRANSPORT INFORMATION

	ADR/RID	**IMDG**	**IATA**
UN number	UN 3077	UN 3077	UN 3077
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Silver)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Silver)	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, SOLID, N.O.S. (Silver)
Transport hazard class(es)	9	9	9
Packing group	III	III	III
Environmental hazards	Environmentally hazardous substance	Classified as a Marine Pollutant.	Environmentally hazardous substance
Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code	Not applicable		
Special precautions for user	See Section: 2		

SECTION 15: REGULATORY INFORMATION

Safety, health and environmental regulations/legislation specific for the substance or mixture

US Federal Regulations

TSCA (Toxic Substance Control Act)	Tin: Subject to 25,000 lb reporting threshold Silver: Subject to 25,000 lb reporting threshold
EPCRA/SARA Section 302 Extremely Hazardous Substances	All chemicals are not listed

EPCRA Section 313 Toxics Release Inventory (TRI) Program	Silver: De Minimis limit: 1%
NIOSH Occupational Carcinogen List	All chemicals are not listed
OSHA List of highly hazardous chemicals, toxics and reactives	All chemicals are not listed
NTP Report on Carcinogens (RoC) List	All chemicals are not listed
Poison Prevention Packaging Act	All chemicals are not listed
US State Regulations	
California State, Proposition 65 List	All chemicals are not listed
California State, Safer Consumer Products Regulations	Tin: Initial Candidate Chemicals List Silver: Candidate Chemicals List
Maine State, Toxic Chemicals in Children's Products Act	All chemicals are not listed
New Jersey State Worker and Community RTK Act	Tin: RTKHSL. SHHSL Silver: RTKHSL. SHHSL
Pennsylvania State, Worker and Community RTK Act	Tin: Hazardous Substance List Silver: Hazardous Substance List. Environmental Hazard List
Rhode Island State, Hazardous Substances RTK Act	Tin: Hazardous Substance List Silver: Hazardous Substance List
Non-Regional	
IARC Monographs, List of Classifications	All chemicals are not listed

SECTION 16: OTHER INFORMATION

The following sections contain revisions or new statements: Updated substance / mixture classification. New SDS Regulation compliant with HazCom 2012 format, all sections have been updated to include new information. Please review SDS with care.

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References:
Existing Safety Data Sheet (SDS), and EU Data: Existing ECHA registration(s) for Tin (CAS# 7440-31-5) and Silver (CAS# 7440-22-4).

GHS Classification of the substance or mixture	Classification Procedure
Hazardous to the aquatic environment, Acute, Category 1	Summation Calculation
Hazardous to the aquatic environment, Chronic , Category 1	Summation Calculation

LEGEND

ACGIH: American Conference of Governmental Industrial Hygienists
BEI: Biological Exposure Indices (ACGIH)
IARC: International Agency for Research on Cancer
Irr: Irritation
NIOSH: National Institute of Occupational Safety and Health
NTP: National Toxicology Program
OSHA: The Occupational Safety & Health Administration
PBT: Persistent, Bioaccumulative and Toxic
PEL: Permissible exposure limit
REL: Recommended exposure limit
SCL: Specific Concentration Limit
Skin": Risk of overexposure via dermal contact
STEL: Short Term Exposure Limit
TLV: Threshold Limit value
TSCA: Toxic Substance Control Act
TWA: Time Weighted Average
URT: Upper respiratory tract
vPvB: very Persistent and very Bioaccumulative

Training advice: Consideration should be given to the work procedures involved and the potential extent of exposure as they may determine whether a higher level of protection is required.

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