SDS

In compliance with HCS/HazCom 2012

HBK
HOTTINGER BRÜEL & KJÆR

SAFETY DATA SHEET

Product: LOT-LF

Revision: 00 | Date: 12/01/2021 | Pages: 1 /12

1 - IDENTIFICATION

Product identifier	LOT-LF
Product code	W110-801S-F00W-SXKW
Recommended use of the chemical and restrictions on use	Adhesives
Company	Hottinger Brüel & Kjaer
Address	19 Bartlett st. Marlborough, MA 01590
Telephone number	+1.508.804.3268
Emergency telephone number	Chemtrec: 1-800-424-9300. International: 1-703-527-3887
E-mail	support@hbm.com

2 - HAZARDS IDENTIFICATION

Classification of the chemical	Product not classified as hazardous by the Classification System used.
Signal word	Not applicable.
Hazard statement(s)	Not applicable.
Symbol(s)	Not applicable.
Precautionary statement(s)	Wash your hands after handling the product. Do not drink, eat, or smoke when handling the product. It is recommended to use suitable PPE's when handling the product. Obtain product information before handling. Store the product in a suitable place. In case of emergency, proceed as indicated by the SDS.
Classification system adopted	Hazard Communication Standard (HCS) 29 CFR: 1910.1200 - Appendix A. Adoption of the Globally Harmonized System of Classification and Labeling of Chemicals (GHS), United Nations, 9 ed.
Other hazards which do	The product has no other hazards.

not result in classification

3 – COMPOSITION / INFORMATION ON INGREDIENTS

MIXTURE

Impurities and stabilizing additives contributing to the hazard (%m):

Components	Concentration %	Number CAS	GHS Classification*
Tin**	10-100 %	7440-31-5	H319; H335; H372
Silver**	3 – 4%	7440-22-4	H370; H372; H400; H410
Copper **	0.5 – 0.9%	7440-50-8	H302; H400; H410

* Hazard statements are described in section 16.

**The ingredients are dangerous; however, the product is an alloy, and the dangerous ingredients will not be bioavailable to cause harmful effects to human health and the environment.

4 - FIRST-AID MEASURES

Inhalation	Remove the victim to a ventilated place.
Skin contact	Wash exposed skin with sufficient water to remove the material.
Eye contact	Rinse thoroughly with water for several minutes. If using contact lenses, remove them if it is easy. If eye irritation persists consult a doctor. Take this SDS.
Ingestion	If swallowed, rinse mouth with water (only if the person is conscious). Call a physician immediately. Put victim at rest, cover with a blanket and keep warm. Do NOT induce vomiting.
Most important symptoms and effects, acute and delayed	Symptoms and effects are not expected after exposure to the product.
Indication of any immediate medical attention and special treatment needed	If necessary, provide symptomatic treatment.

5 - FIRE-FIGHTING MEASURES

Extinguishing media	Suitable: Compatible with alcohol resistant foam, Carbon dioxide (CO_2), Extinguishing powder, Water mist. Unsuitable: Water jet directly under the burning product.
Specific hazards arising from the chemical product	Burning produces heavy smoke. The combustion of the chemical products or containers may form toxic and irritating gases such as carbon monoxide (CO), carbon dioxide (CO_2) and carbon black. Danger of serious damage to health by prolonged exposure.
Specific extinguishing methods	Self-contained breathing apparatus (SCBA) operated in positive pressure mode and complete protective clothing. Containers and tanks involved in the fire should be cooled with water laterally.

6 - ACCIDENTAL RELEASE MEASURES

Personal precautions	Do not smoke. Avoid contact with the product. If necessary, use personal protective equipment as described in section 8.
Protective equipment	Use protective equipment as described in Section 8.
Emergency procedures	Wear PPE complete with safety glasses, butyl rubber safety gloves, suitable protective clothing, and closed shoes. The material used must be waterproof. In case of leakage, where exposure is high, the use of a respirator with a for filter for fume. Isolate spills from ignition sources. Keep unauthorized persons away from the area. Stop the leak if it can be done without risk.
Environmental precautions	Prevent the product from reaching the soil and water courses. Notify the relevant authorities if the product has caused environmental pollution (if it has reached water courses or if it has contaminated the soil or vegetation).
Methods and materials for containment	Absorb the remaining product with dry sand, earth, vermiculite, or any other inert material.
Methods and materials for cleaning up	Collect spilled product and place in suitable containers. Place the adsorbed material in appropriate containers and remove

them to a safe place. For final destination, proceed according to Section 13 of this SDS.

7- HANDLING AND STORAGE

Precautions for safe handling	Handle in a ventilated area or with a general local ventilation / exhaust system. Avoid formation of fume. Avoid exposure to the product. Avoid contact with incompatible materials. Use personal protective equipment as described in section 8. Wash hands and face thoroughly after handling and before eating, drinking, smoking, or using the bathroom. Contaminated clothing must be changed and washed before reuse.
Conditions for safe storage, including any incompatibilities	Store in a well-ventilated, dry, cool place away from sunlight. Keep the packaging tightly closed and in an area accessible only to authorized persons. Keep away from sources of ignition and heat. Keep away from incompatible materials. The product may be incompatible with strong oxidizing agents.

8 - EXPOSURE CONTROLS AND PERSONAL PROTECTION

Permissible concentration

Occupational exposure limit:

Chemical name	TLV – TWA (ACGIH, 2021)	PEL – TWA (OSHA, 2019)	REL – TWA (NIOSH, 2019)
Tin, inorganic compounds	2 mg/m³	2 mg/m³	2 mg/m³
Silver metallic dust and fumes Silver soluble compounds	0.1 mg/m³ 0.01 mg/m³	0.01 mg/m³	0.01 mg/m³
Copper	0.2 mg/m³ fume 1 mg/m³ Dust and mists	1 mg/m³	1 mg/m³

Biological limit:	Not established.
Appropriate engineering controls:	Promote direct mechanical ventilation and exhaust system to the outside environment. These measures help reduce exposure to product.

Individual protection measures, such as personal protective equipment

Respiratory protection:	In case of dust formation, use respiratory protection equipment against fume. Based on the inhalation hazard of the product, a risk assessment must be carried out to adequately define respiratory protection in view of the conditions of use of the product.
Hand protection:	Nitrile rubber safety gloves, suitable protective clothing, and closed shoes.
Eye protection:	Safety glasses with side protection.
Skin and body protection:	Proper protective clothing and closed shoes are recommended.
Special precautions:	Not established.

9 - PHYSICAL AND CHEMICAL PROPERTIES

Information on basic physical and chemical properties

Appearance (physical state, color, etc.)	solid, alloy, silver.
Odour	Odorless.
Odour threshold	Not available.
pH	Not available.
Melting point/freezing point	Not available.
Boiling point, initial boiling, and boiling range	Not available.
Flashpoint	Not available.

Upper/lower flammability or explosive limits	Not available.
Vapour pressure	Not available.
Vapour density	Not available.
Relative density	7-9 g/cm³ (20°C).
Solubility(ies)	Not available.
n-octanol/water partition coefficient	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Odour threshold	Not available.
Evaporation rate	Not available.
Flammability	Not available.
Viscosity	Not available.
Other information	Not available.

10 - STABILITY AND REACTIVITY

Reactivity and Chemical stability	Product is stable under normal conditions of temperature and pressure.
Possibility of hazardous reactions	The product can react dangerously in contact with incompatible materials.
Conditions to avoid	High temperatures, heat, friction and contact with incompatible materials.
Incompatible material	The product may be incompatible with strong oxidizing agents.

Hazardous decomposition products	Decomposition of product may generate toxic gases such as CO, CO_2, and carbon black.

11 - TOXICOLOGICAL INFORMATION

Acute toxicity	The product is not expected to be toxic to the oral, dermal or inhalation routes. Tin: LD_{50} (oral, rats): > 2000 mg/kg. CL_{50} (inhalation, rats, 4h): > 4.75 mg/L. LD_{50} (dermal, rats): > 2000 mg/kg. Silver: LD_{50} (oral, rats): > 2,000 mg/kg. LD_{50} (dermal, rats): 2000 mg/kg. LC_{50} (inhalation, rats, 4h): > 5.16 mg/L. Copper: LD_{50} (oral, rats): 300 - 500 mg/kg. Acute Toxicity Estimate Mixture – ATE: ATEmix (oral): > 5,000 mg/kg.
Skin irritation/corrosion	The product is not expected to cause skin irritation. Tin: Key study skin, in vivo, rabbit (OECD 404): no adverse effect observed (not irritating).
Eye damage/irritation	The product is not expected to cause eye irritation. Tin: Key study eye, in vivo, rabbit (OECD 405): no adverse effect observed (not irritating).
Respiratory or skin sensitization	Exposure can cause allergic skin reactions with dermatitis and itching.
Reproductive cell mutagenicity	The product is not expected to have mutagenic potential. Tin: Bacterial reverse mutation assay – OECD 471, tin powder (2-11 µm) was found not to induce mutations in five histidine-requiring

	strains (TA98, TA100, TA1535, TA1537 and TA102) of *Salmonella typhimurium*.
Carcinogenicity	The product is not expected to have carcinogenic potential.
Reproductive toxicity	It is not expected that the product presents reproductive toxicity.
Specific target organ toxicity – single exposure	Is not expected that the product to cause target organ toxicity from single exposure.
Specific target organ toxicity – repeated exposure	Is not expected that the product to cause target organ toxicity from repeated exposure. Silver: The substance can cause a blue-gray discoloration of the eyes, nose, throat, and skin (argyrosis).
Aspiration hazard	It is not expected that the product presents aspiration hazard.

12 - ECOLOGICAL INFORMATION

Environmental effects, behavior, and fate of the product

Ecotoxicity	The product is not expected to be harmful to aquatic organisms. Tin: LC_{50} (Pimephales promelas, 96h): > 12.4 µg/L. Silver*: LC_{50} (*Pimephales promelas*, 96h): 0.0012 mg/L. LC_{50} (*Daphnia magna*, 48h): 0.00022 mg/L. Copper*: LC_{50} (Fish, 96h): 0.2 mg/L. EC_{50} (Crustacea, 48h): 0.041 mg/L. NOEC (Fish, chronic): 0.01 mg/L. *The ingredients are dangerous; however, the product is an alloy, and the dangerous ingredients will not be bioavailable to cause harmful effects to the environment.
Persistence and degradability	The product is not expected to show persistence, it is expected to be rapidly degraded.
Bioaccumulative potential	It is expected that the product has low bioaccumulative potential

	in aquatic organisms.
Mobility in soil:	Not available.
Other adverse effects	There are not known adverse environmental effects of the product.

13 - DISPOSAL CONSIDERATIONS

Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging:	Must be disposed of as hazardous waste in compliance with local regulations. The treatment and disposal should be evaluated for each specific product. Keep product residues in their original containers and properly closed. Disposal should be in accordance with the regulations for the product. Do not reuse empty containers. These may contain product residues and should be kept closed and sent for appropriate disposal as established for the product.

14 - TRANSPORT INFORMATION

International regulations

Land:	UN – “United Nations” Recommendations on the TRANSPORT OF DANGEROUS GOODS. Model Regulations DOT - U.S. Department of Transportation
Sea:	IMO – International Maritime Organization International Maritime Dangerous Goods Code (IMDG Code)
Air:	IATA – International Air Transport Association Dangerous Goods Regulation (DGR)
UN number:	Not classified as dangerous according to transport modes.
Transport in bulk according to MARPOL 73/78, Annex II, and the IBC Code:	Consult regulations: - International Maritime Organization. MARPOL: Articles, protocols, annexes, unified interpretations of the International

	Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto, consolidated edition. IMO, London, 2006. - International Maritime Organization. IBC code: International code for the construction and equipment of shipping carrying dangerous chemicals in bulk: With Standards and guidelines relevant to the code. IMO, London, 2007.
Special precautions:	There is no need of special precautions.

15 - REGULATORY INFORMATION

Safety, health, and environmental regulations/legislation specific for the substance or mixture	International Labor Organization C170 Chemicals Convention, from June 25th, 1990: Occupational Safety and Health – Toxic Substances and Agents. Hazard Communication Standard (HCS) 29 CFR: 1910.1200 - Appendix A, B, C, D, E, F. GLOBALLY HARMONIZED SYSTEM OF CLASSIFICATION AND LABELLING OF CHEMICALS (GHS). 9. rev. ed. U.S. Federal Regulations: United States inventory (TSCA): Tin is listed. Silver is listed. Cooper is listed. California Proposition 65: Ingredients are not listed.

16 - OTHER INFORMATION

This SDS was prepared based on current knowledge about the proper product handling and under normal conditions of use, in accordance with the application specified on the packaging. Any other use of the product involving their combination with other materials, and use various forms of those indicated, are the responsibility of the user. Warns that the handling of any chemical substance requires the prior knowledge of its hazards for the user. In the workplace it is for the user company's product promotes training of its collaborators about the possible risks arising from exposure to the chemical.

SDS elaborated in December 2021.

Hazard phrases described in section 3:
H302 Harmful if swallowed.
H319 Causes serious eye irritation.
H335 May cause respiratory irritation.
H370 Causes damage to respiratory system.
H372 Causes damage to lung and skin through prolonged or repeated exposure.
H400 Very toxic to aquatic life.
H410 Very toxic to aquatic life with long lasting effects.

Abbreviations:
ACGIH – American Conference of Governmental Industrial Hygienists
CAS – Chemical Abstracts Service
LC_{50} – Lethal Concentration 50%
LD_{50} – Lethal Dose 50%
ERPG - Emergency Response Planning Guidelines
NIOSH – National Institute of Occupational Safety and Health
OSHA – Occupational Safety & Health Administration
PEL – Permissible Exposure Limit
REL – Recommended Exposure Limit
STEL – Short Term Exposure Limit
TLV – Threshold Limit Value
TWA – Time Weighted Average

Bibliographic references:

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IARC. INTERNATIONAL AGENCY FOR RESEARCH ON CANCER. Available in: <http:/monographs.iarc.fr/ENG/Classication/index.php>. Access in: Dec. 2021.

NIOSH. NATIONAL INSTITUTE OF OCCUPATIONAL AND SAFETY. International Chemical Safety Cards. Available in: <http:/www.cdc.gov/niosh/>. Access in: Dec. 2021.

NJ. STATE OF NEW JERSEY - Department of Health. Available in: <http:/nj.gov/health/eoh/rtkweb/odispubr.shtml>. Access in: Dec. 2021.

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