

MATERIAL SAFETY DATA SHEET

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1. PRODUCT AND COMPANY INFORMATION

Product name	SRC Solder Paste Sn63U SS4M		
Company name	Nihon Almit Co., Ltd.		
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Responsible section	Research & Development section		
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Arrangement number	QTM-3286350-USA	Issued by	Hideto Takayama

2. COMPOSITION AND INGREDIENT INFORMATION

Classification of single product or compound	: Compound					
Chemical name	: Solder Paste (Tin-Lead Solder , addition (Flux))					
Another name	: Cream Solder					
Ingredients and content	Ingredient	Chemical formula	CAS number	EC number	Registration to TSCA	Content
	Tin	Sn	7440-31-5	231-141-8	registered	53.55%
	Lead	Pb	7439-92-1	231-100-4	registered	31.45%
	Flux		—	—	—	15.00%

3. HAZARDS IDENTIFICATION

The most important hazard and harm	
Harm	: The inflammation might be caused by coming in contact with the skin. The inflammation might be caused to the respiratory system by inhaling vapor. Moreover, it might influence the central nerve, the alimentary system, the blood formation system, the liver, and the kidney by keeping inhaling. May cause harm to the unborn child. Risk of ruining fertility is thought. There is danger of accumulating in the body. (Lead)
Environmental harm	: Insoluble in water. Considerable bioaccumulation is caused by the feeding chain. The content chemical is not biodegradable.
Physical/chemical hazard	: Liable to catch fire by heating. Harmful fume is generated by heating and is emitted. This product may react with the oxidant and heat may be generated.
The main symptom	: Stimulation of eyes and respiratory organs by vapor inhalation. Headache, stomachache, anemia, vomiting, and paralysis (by absorbing Lead).
Category	: Acute toxicity material

4. FIRST AID MEASURES

Inhalation	: Remove the patient to a fresh air place at once, and provide rest and warmth, and get medical attention promptly. When breathing is difficult, properly trained personnel could assist the patient by administering 100% oxygen. If breathing stops, provide artificial respiration.
Skin contact	: Promptly remove polluted clothes, and flush the adhesion part skin enough at once in soap and a large amount of water. When the inflammation is caused in the skin, obtain medical attention.
Eye contact	: Promptly wash eyes by the stream water for 15 minutes or more, and obtain urgent medical attention.
Ingestion	: Give large amount of water or milk at once, and try to induce vomiting. If the patient is not conscious, do not give anything from the mouth and do not try to induce vomiting.

5. FIRE FIGHTING MEASURES

- Extinguishing media** : Water, powder, carbon dioxide (CO₂), dry sand, and bubble(for alcohol)
- Prohibited media** : None
- Special firefighting procedures** : The fire fighting is done from the windward. The fire fighting is done by cutting off the combustion source to the fire, and by using the extinguishing media.
Promptly inform to necessary locations and request assistance.
Move container to the place of safety promptly avoiding the surrounding fire.
If it's not possible to move container, water the container and surroundings for being cold.
If the container is in flames, do fire fighting by watering the container and surroundings.
Do the fire fighting by using bags of water, the powder, carbon dioxide, and the bubble (for alcohol).
Prohibit the entries other than parties concerned to the fire occurrence site surrounding.
- Protection of the person who extinguishes fire** : Wear self-contained breathing apparatus (SCBA) to prevent contact with thermal decomposition products.
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6. ACCIDENTAL RELEASE MEASURES

- Notes for human body** : Prohibit the entries other than parties concerned by stretching ropes to around the leaking place, and make the person in leeward take shelter.
Wear appropriate personal protective equipments (Refer to section 8) when clean-up working, avoid to adhere the spray etc. to the skin, and to inhale gases.
- Notes for environment** : Note to flowing out the leaking product from the drainage system. And note the influence to the environment.
Note not to flow out to the environment without processing the polluted drain when diluting it with volumes of water.
- Clean-up method** : Promptly sever the leakage source, and stop the leakage.
When the leakage is a small amount, collect it to sealable container by absorbing to the cotton waste. Afterwards, flush it with bags of water.
When the leakage is a large amount, after preventing the outflow by the fill etc. and leading it to the place of safety, collect it to the empty container as much as possible.
Afterwards, flush it with bags of water. Note not flowing out thick pollution fluid to the drainage system etc.
- Prevention plan of secondary disaster** : Promptly remove the near ignition source.
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7. HANDLING AND STORAGE

- Handling precautions**
- Technical strategies** : Suppress the emanation of vapor as much as possible, and try to adjust the working environment to less than the permissible concentration (Refer to section 8).
Wearing the appropriate protection equipments when working, avoid to adhere the spray etc. to the eyes, skin, clothes and to inhale gases.
Prohibit the fire strict. Avoid the high temperature and the fire. Avoid contact to the strong acid.
Do not do uncouth handling as for rolling and dropping the container, and the addition of the impact, etc.
The person who is influenced easily by the allergic reaction should not handle this product.
The woman while being getting pregnant or suckling must never handle this product.
- Notes** : Handle this product in the place where the limited part exhaust device was set up.
It is preferable to handle this product near the eyewashing station.
- Safety handling notes** : Handle this product so as not to come in contact with oxidized material and the fire, etc.
Isolate this product from food, feedstuffs, fertilizers and other sensitive materials.
- Storage precautions**
- Appropriate storage condition** : Prohibit the fire strict.
Store the container in the cool dark place (storage in refrigerator: 0-10°C) sealing up the container, and avoid direct sunlight.
Do not put this product on the same place as oxidized material and organic peroxide, etc.
Isolate this product from food, feedstuffs, fertilizers and other sensitive materials.
The used empty containers must be collected in the decided fixed place and be accumulated.
- Safe container material** : The airtight container

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

- Equipment strategies** : Set up the limited part exhaust device and manage the work atmosphere below the amount of the permissible exposure.
: Provide the safety shower, the washroom, and the eyewashing station near the handling place, and plainly display those positions.

Permissible concentration (management concentration)

Element	CAS number	Reference	Permissible conc.	Source
Tin	7440-31-5	OES.	2mg/m ³	ACGIH (TWA)
Lead	7439-92-1	OES.	0.05mg/m ³	ACGIH (TWA)
Flux	—	OES.	—	ACGIH (TWA)

•OES =Occupational Exposure Standards (EH40).

•TWA =Time-Weighted Average : The concentration is judged not to be the adverse effect even if the element exposes to human in 8hr/day or 40hr/week level.

Protective equipments



Respiratory protection

: Combination filter (dust filter + gas filter) antidust mask

Protective gloves

: Impermeable rubber gloves

Eye protection

: Goggle type protection glasses

Skin & body protection

: Protection clothes (long sleeve work clothes), protection boots, defensive clothes, etc. as protection against splashing and contamination.

Hygienic work management

: Promptly take off polluted clothes, and flush the adhesion skin enough at once in soap and a large amount of water.

Wash hands at the end of each work shift, and before eating, smoking and using rest room.

Use special working-clothes etc., and distinguish from usual clothes completely.

9. PHYSICAL AND CHEMICAL PROPERTIES

Physical state	Appearance	: Paste or slurry (metal powder + flux)
	Color	: Gray
	Odour	: Mild
Physical state change temperature/range	Boiling point(°C)	: >350
	Melting/freezing point(°C)	: 183
	Flash point(°C)	: >160
	Auto ignition point(°C)	: >300
Explosion properties	Flammability limit(%)	: —
Chemical properties	Vapor pressure	: <0.01 mmHg
	Vapor density (air=1)	: 6.0
	Density (g/ml)(20°C)	: 4.45
Solubility description	Dissolubility to water	: Insoluble in water.
	Dissolubility to solvent	: Soluble in many kinds organic solvents such as alcohol. (flux)

10. STABILITY AND REACTIVITY

- Stability** : Normally stable.
- Reactivity** : May react in contact with the strong oxidizers.
- Self-reactiveness** : None
- Explosiveness** : None
- Condition that should be avoided** : Avoid contact with strong oxidizers.
- Hazardous decomposition product** : In usual temperature (<400°C), dangerous decomposition products are not generated.

11. TOXICOLOGICAL INFORMATION

- Acute toxicity** : By contact with the skin the inflammation might be caused.
By inhaling vapor the inflammation to the respiratory system might be caused.
By absorbing Lead may cause quadriplegia, colic, pallor, vomiting, diarrhoea, bloody excrement, palpitation, and kidney trouble.
As results, there is a possibility of dying in several days.

•Fatal dose : Abdominal cavity – rat

LDL₀ = 1000mg/kg

Abdominal cavity – guinea pig LD₃₃ = 100mg/kg*4month**Sub-acute toxicity**

: It might influence the central nerve, the alimentary system, the blood formation system, the liver, and the kidney when exposed to vapor for a long time.

Local effect**Skin causticity**

: By contact with the skin for a long time or by repetition contact it might cause the dermatitis.

Stimulation

: Vapor stimulates eyes, respiratory organs, and the skins.

Chronic toxicity/

: Lead is accumulated in the inside of the body, and causes the trouble to the brain and the nervous system by absorbing for a long term or repeat.

long-term toxicity

It might influence the central nerve, the alimentary system, the blood formation system, the liver, and the kidney.

Carcinogenicity: Lead IARC Rank 2B There is a possibility of showing the carcinogenicity to human.
EPA Rank B2 Carcinogenicity is confirmed by the animal experiment though the relation to human is uncertain.
ACGIH Rank A3 Carcinogenicity is confirmed by the animal experiment though the relation to human is uncertain.**Mutation toxicity**

: Not confirmed

Gene toxicity

: The inherited gene trouble might be caused.

Reproductive toxicity

: There is a possibility of causing the embryo the trouble.

12. ECOLOGICAL INFORMATION**Bioaccumulative potential**

: Lead : A considerable biological accumulation is caused by the feeding chain.

Degradability

: The chemical is not biodegradable readily.

Biotoxicity

: Lead : The concentrate and accumulation are confirmed in fishes & shellfishes.

13. DISPOSAL CONSIDERATIONS**Disposal wastes**

: Consign disposal to the organization who has the qualification of "Special Industrial Waste Disposal", and confirm the disposal method by local regulations.

Lead The law of chemical release grasp management acceleration group-1 1-230 (Japanese Law)

Disposal containers

: Dispose after completely removing contents when abandoning empty containers.

14. TRANSPORT INFORMATION**Restriction by Japanese Law**

: Not dangerous according to Fire Defense Law, Law for management of poison and deleterious substance, Law for Safety of Vessels, and Aviation Law.

Restriction by International Law

: Not dangerous according to ADR, RID, IMDG, and IATA.

Specific strategies for safety and conditions: Confirm there is no leakage of the container. And, load it so that there are neither falling, rolling nor damage. And, prevent the collapse of cargo piles and dispersion surely.
Avoid direct sunshine and the high temperature and the high humidity.
Do the freeze transportation in principle.**15. REGULATORY INFORMATION****Symbol****Law of PRTR**

The first kind specification chemical 230 Lead(Pb) 31.45% content

Air-pollution control law

Government ordinance of harmful air pollutant Article 1-4

Lead(Pb) 31.45% content

Harmful air pollutant report 106 Tin(Sn) 53.55% content

Clean-Water Law

Harmful water pollution material The government ordinances article 2-4

Lead(Pb) emission standard : 0.1mg/L

Industrial Safety and Health Law

Ordinance on Prevention of Lead Poisoning

※ All of above mentioned are Japanese laws.

16. OTHER INFORMATION

※ **Though this Material Safety Data Sheet is issued based on various information, it necessarily is not the document to cover all information. Therefore, please note handling enough. Moreover, the descriptions of the content, the physical/chemical properties, the danger/harmful properties, and etc. are just only informations, and they do not do any guarantee. Notes are the one intended for usual handling, please execute measures for safety corresponding to the usage when you do special handling.**