



MATERIAL SAFETY DATA SHEET

Prepared date: 1st November, 2005Revision date: 1st November, 2005

1. PRODUCT AND COMPANY INFORMATION

Product name	SRC Solder Paste LFM-48U MDA-5		
Company name	Nihon Almit Co., Ltd.		
Address	2-14-2, Yayoi-cho, Nkano-ku, Tokyo, 164-8666, Japan		
Responsible section	Research & Development section		
Telephone number	+81-3-3379-2277	Fax	+81-3-3374-2593
Emergency contact	Micro-Soldering Laboratory	Phone	+81-42-559-5611
Arrangement number	QTM-3-0003U-UK	Issued by	Junichi Okano

2. COMPOSITION AND INGREDIENT INFORMATION

Classification of single product or compound	: Compound					
Chemical name	: Solder Paste (Lead-free Solder , addition (Flux))					
Another name	: Cream Solder					
Ingredients and content	Ingredient	Chemical formula	CAS No.	EC No.	R-phrases	Content
	Tin	Sn	7440-31-5	231-141-8	—	81.02%
	Silver	Ag	7440-22-4	231-131-3	—	2.55%
	Copper	Cu	7440-50-8	231-159-6	—	0.43%
	Flux	—	—	—	R-37 , 43	15.00%
	See section 16 for explanations of R-phrases					

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 steam. Moreover, it might influence the central nerve, the alimentary system, the blood formation system, and the liver by keeping inhaling.
Environmental harm	: Insoluble in water. The living body accumulation (concentrate) is not expected. 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 steam inhalation.
Category	: Harmful 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 (CO ₂), 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.

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.

7. HANDLING AND STORAGE

Handling precautions

Technical strategies : Suppress the emanation of steam 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.

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.

Storage precautions

Appropriate storage condition : Prohibit the fire strict.
Store the container in the cool dark place (storage in refrigerator) sealing up the container, and avoid direct sunlight.
Do not put this product on the same place as oxidized material and organic peroxide, etc.
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 No.	Reference	LT Exp 8 Hrs	ST Exp 15 Min	Source
	Tin	7440-31-5	OES.	2 mg/m ³	4 mg/m ³	ACGIH(TWA)
	Silver	7440-22-4	OES.	0.1 mg/m ³	No std.	ACGIH(TWA)
	Copper	7440-50-8	OES.	0.2 mg/m ³	No std.	ACGIH(TWA)
	Flux	—	OES.	No std.	No std.	—

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)	: 220/217
	Flash point(°C)	: >150
	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)	: 3.77
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.
Reactiveness	: 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. There is no information on the fatal dose.
Sub-acute toxicity	: It might influence the central nerve, the alimentary system, the blood formation system, and the liver 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/long-term toxicity	: It might influence the central nerve, the alimentary system, the blood formation system, and the liver.
Carcinogenicity	: Not described to the list of IARC and NTP.
Mutation toxicity	: Not confirmed

12. ECOLOGICAL INFORMATION

Bioaccumulative potential	: The bioaccumulation (concentrate) is not expected.
Degradability	: The chemical is not biodegradable readily.
Biotoxicity	: Not confirmed


13. DISPOSAL CONSIDERATIONS

Disposal wastes	: Consign disposal to the organization who has the qualification of "Industrial Waste Disposal", and confirm the disposal method by local regulations.
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		Risk phrases	R-43 May cause sensitization by skin contact.
		Safety phrases	S-24 Avoid contact with skin. S-37 Wear suitable gloves.
Contains	silver tin rosin based flux		

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.