

Safety Data Sheet

Metal Substrate for Leadframe EFTEC64-T/Ag

Revision date: Apr, 15, 2015

1. Substance and Company Identification

Identification of the product:

Metal Substrate for leadframe EFTEC64-T/Ag
Used for leadframe package

Company Identification:

Dai Nippon Printing Co.,Ltd. Fine Optronics Operations
2-2-1, Fukuoka, Fujimino-shi, Saitama 356-8507, Japan
Telephone Number: +81-49-278-1973 Fax: +81-49-264-7201

2. Hazards Identification

Hazardous in case of inhalation.

Slightly hazardous in case of skin contact (irritant, sensitizer), of eye contact (irritant), of ingestion.

GHS classification

Physical Hazards

- The product does not have danger of the general handling and the information of the harmful property for a safe solid. However, pay attention to vapor and dust to be occur from the process of melting, welding, cutting and grinding.

Health Hazards

- Note that dust and steam might stimulate eyes and respiratory organs. (When welding or cutting.)

Environmental Hazards

- There is no information about the product.

GHS labeling

- Not applicable

3. Composition

Copper Substrate: EFTEC-64T, Furukawa Electric Co., Ltd.

Chromium (CAS: 7440-47-3)	0.27 wt%
Tin (CAS: 7440-31-5)	0.25 wt%
Zinc (CAS: 7440-66-6)	0.20 wt%
Copper (CAS: 7440-50-8)	Bal.

Silver Plating

Silver (CAS: 7440-22-4) >99 wt%

4. First Aid Measures

Eye Contact:

Check for and remove any contact lenses. In case of contact, immediately flush eyes with plenty of water. Get medical attention if irritation occurs.

Skin Contact:

In case of contact, flush skin with plenty of water. Get medical attention if irritation occurs.

Inhalation:

If inhaled powder, remove to fresh air. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical attention.

Ingestion:

In case of ingest powder, immediately rinse mouth. Never give anything by mouth to an unconscious person. If large quantities of this material are swallowed, call a physician immediately. Loosen tight clothing such as a collar, tie, belt or waistband.

5. Fire Fighting Measures

Flammability of the Product: Non-flammable.

Auto-Ignition Temperature: Not applicable.

Flash Points: Not applicable.

Flammable Limits: Not applicable.

Products of Combustion: Not available.

Fire Hazards in Presence of Various Substances: Not applicable.

Suitable extinguishing media: Any type to be selected.

Special protective equipment for fire fighting: None needed.

6. Accidental Release Measures

Person related precautionary measures:

Avoid generation of dusty atmospheres. Do not inhale dusts.

Environmental protection measures:

No specific measures needed.

Procedures for cleaning/ absorption:

Pick up and replace in original container.

7. Handling and Storage

Handling:

Prevent the generation of inhalable dusts e.g. by the use of suitable ventilation. Do not inhale dusts. Wear appropriate nationally approved respirators if handling is likely to cause the concentration limits of airborne to exceed the locally prescribed exposure limits. Wear suitable protective clothing and gloves. As product may constitute a manual handling risk.

Storage:

Keep in the container supplied, and keep the container closed when not in use. Containers should be stored under cover in

8. Exposure Controls/Personal Protection

Exposure limit values:

Occupational exposure limits in inhalable particle size fraction:

	OSHA PEL (mg/m ³ *)	ICSC TLV (mg/m ³ *)
Copper (CAS: 7440-50-8)	1	1
Silver (CAS: 7440-22-4)	0.01	0.1
Chromium (CAS: 7440-47-3)	0.5	0.5
Tin (CAS: 7440-31-5)	2	2
Zinc (CAS: 7440-66-6)	5	-

Maintain airborne levels as low as possible.

Occupational exposure controls:

- a) *Respiratory protection:* As supplied this product does not pose a health hazard due to inhalation. Ventilation may be required if user operations change it to other physical or chemical forms, whether as end products, intermediates or fugitive emissions, which are inhalable.
- b) *Eye protection:* None.
- c) *Hand and skin protection:* Avoid skin contact. Wear suitable protective clothing and gloves, which should be selected specifically for the working place, dependant on the concentration and quantity of the hazardous material being handled. Wash skin thoroughly after handling and before eating, drinking or smoking. Launder clothing and gloves as needed.

9. Physical and Chemical Properties

Copper substrate covered with Silver. Appearance is Metallic Silver color and plate shape.

Smell: None

Specific Gravity: 8.9~10.5

Solubility: None of water

Auto flammability: None

Table Individual metal properties

	Copper	Silver	Chromium	Tin	Zinc
Molecular weight	63.56	107.9	52.00	118.7	65.41
pH	N/A	N/A	N/A	N/A	N/A
Boiling Point	1084	962	1857	232.8	419.5
Melting Point	2567	2162	2672	2602	907
Flash Point	N/A	N/A	N/A	N/A	N/A
Auto flammability	N/A	N/A	N/A	N/A	N/A
Explosive Properties	Not explosive	Not explosive	Not explosive	Not explosive	Not explosive
Oxidizing properties	Not oxidizing	Not oxidizing	Not oxidizing	Not oxidizing	Not oxidizing
Vapor pressure	N/A	N/A	N/A	N/A	N/A
Solubility - cold water	Insoluble	Insoluble	Insoluble	Insoluble	Insoluble
Solubility - hot water	Insoluble	Insoluble	Insoluble	Insoluble	Insoluble
Partition coefficient	N/A	N/A	N/A	N/A	N/A
Viscosity	N/A	N/A	N/A	N/A	N/A
Specific gravity g/cm ³	8.9	10.4	7.14	7.31	7.14

10. Stability and Reactivity

Stability: The product is stable.

Instability Temperature: Not available.

Conditions of Instability: Not available.

Incompatibility with various substances: Not available.

Corrosivity: Non-corrosive in presence of glass.

Special Remarks on Reactivity: Not available.

Special Remarks on Corrosivity: Not available.

Conditions to be avoided: None.

Substances to be avoided: This product can react vigorously with acids to liberate hydrogen, which can form explosive mixtures with air.

Hazardous decomposition products: None

11. Toxicological Information

COPPER

Routes of Entry: Absorbed through skin. Eye contact. Inhalation. Ingestion.

Toxicity to Animals: Acute oral toxicity (LD50): 100 mg/kg [Mouse].

Chronic Effects on Humans: Not available.

Other Toxic Effects on Humans: Very hazardous in case of ingestion, of inhalation.

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Not available.

Special Remarks on other Toxic Effects on Humans: Not available.

SILVER

Routes of Entry: Absorbed through skin. Eye contact. Inhalation. Ingestion.

Toxicity to Animals: LD50: Not available. LC50: Not available.

Chronic Effects on Humans: The substance is toxic to lungs, mucous membranes.

Other Toxic Effects on Humans: Very hazardous in case of ingestion. Hazardous in case of inhalation. Slightly hazardous in case of skin contact (irritant).

Special Remarks on Toxicity to Animals: Not available.

Special Remarks on Chronic Effects on Humans: Human: passes through the placenta, excreted in maternal milk.

Special Remarks on other Toxic Effects on Humans: Not available.

12. Ecological Information

This material is not readily degradable and is not classified as dangerous or harmful to the environment.

Ecotoxicity: Not available.

BOD5 and COD: Not available.

Products of Biodegradation: Possibly hazardous short term degradation products are not likely. However, long term degradation products may arise.

Toxicity of the Products of Biodegradation: The products of degradation are as toxic as the original product.

Special Remarks on the Products of Biodegradation: Not available.

13. Disposal Considerations

This material is normally collected to recover each metal values. Should disposal be deemed necessary follow local regulations.

14. Transport Information

DOT Classification: Not a DOT controlled material (United States).

Identification: Not applicable.

Special Provisions for Transport: Marine Pollutant (Copper)

15. Regulatory Information

Not applicable(notes)

Exclusion from application of “Industrial Safety and Health Law of Japan” and “PRTR Law of Japan”, because this product is solid and does not become in a state of powder or granular in a process of handling by worker.

16. Other Information

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no event shall we be liable for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if we has been advised of the possibility of such damages.