

Material Safety Data Sheet

IDENTITY(As Used on Label and List)

Lead-free Resin Flux Cored Solder Wire “EVASOL R 4 – H F C – 4”

1. Chemical Product and Company Identification

Product Name : Lead-free Resin Flux Cored Solder Wire “EVASOL R4-HFC-4”

Manufacturer's Name : ISHIKAWA METAL CO., LTD.

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2. Composition/Information on Ingredients

The product is preparation of **A**, **B**, **C** and **D**.

Component	Chemical Name	Mass%	CAS No.
A	Tin(Sn)	95.0%	7440-31-5
B	Copper(Cu)	0.67%	7440-50-8
C	Silver(Ag)	0.29%	7440-22-4
D	Activated Rosin	3.85%	8050-09-7

3. Hazards Identification Emergency Overview

Emergency overview:

Not available.

Potential health effects: (Primary route of exposure)

Inhalation : May cause respiratory tract irritation. The toxicological properties of this substance have not been fully investigated.

Eye contact : May cause eye irritation.

Skin contact: May cause skin irritation.

Ingestion : The toxicological properties of this substance have not been fully investigated. May be harmful if swallowed.

4. First Aid Measures

Inhalation : Remove from exposure to fresh air immediately. If not breathing, give artificial respiration. If breathing is difficult, give oxygen. Get medical aid.

Eyes : Flush eye well with plenty running water for 15 minutes, occasionally lifting the upper and lower lids. Get medical aid.

Skin : Get medical aid. Flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes.

Ingestion : Get medical aid immediately. Wash mouth out with water.

5. Fire Fighting Measures

Flammable properties:

No information available

Extinguishing media:

Dry chemical, carbon dioxide, chemical form or sand.

Fire fighting instructions:

Use self-contained breathing apparatus and full protective clothing for fires in enclosed areas.

6. Accidental Release Measures

Sweep up, then place into a suitable container for disposal.

If molten metal spilled, steam explosion which can be occurred.

7. Handling and Storage

Handling:

Heating can release harmful fume. Avoid breathing dust, vapor, mist or gas.

Avoid contact with skin and eyes.

Do not have any food, drink or smoke during soldering. Wash hands before eating or smoking after handling solder.

Storage:

Store in a cool, dry place prevent from direct sun shine.

8. Exposure Controls/Personal Protection

Engineering controls:

Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Personal protective equipment:

Use protective gloves, safety glasses or goggles, and appropriate protective clothing to prevent exposure.

Exposure guidelines:

Sn: 2 mg/m³ (OSHA : PEL, TWA)

Sn: 2 mg/m³ (ACGIH: TLV-TWA)

Sn: 2 mg/m³ (AUSTRALIA, BELGIUM, DENMARK, FINLAND, GERMANY, NETHERLAND, SWITZERLAND, PHILIPPINES, THAILAND: OEL-TWA)

Ag: 0.01 mg/m³ (OSHA : PEL,TWA)

Ag: 0.1 mg/m³ (ACGIH: TLV-TWA)

Ag: 0.01 mg/m³ (DENMARK, GERMANY, SWITZERLAND: OEL-TWA)

Ag: 0.1 mg/m³ (BELGIUM, FINLAND, FRANCE, UNITED KINGDOM: OEL-TWA)

Cu: 1 mg/m³ (OSHA : PEL, TWA)

Cu: 1 mg/m³ (ACGIH: TLV-TWA)

Cu: 1 mg/m³ (FINLAND, GERMANY, SWITZERLAND, THAILAND: OEL-TWA)

Rosin: Reduce to expose as low as possible. Thermal decomposition products, as resin acid – colophony, are sensitizer (ACGIH)

9. Physical and Chemical Properties

Appearance/Color : Gray solid wire.

Odor : Odorless

Boiling Point : Sn: 2270°C, Cu: 2582°C, Ag:2155°C, Rosin:approx.200°C

Melting Point : Alloys: 217~226°C, Rosin: approx.70°C

Specific Gravity : Alloys: approx.7.3 (H₂O=1 at 20°C)

Solubility in Water : Insoluble

10. Stability and Reactivity

Chemical Stability:

Stable under normal temperatures and pressures.

Conditions to Avoid:

Strong oxidants.

Incompatibilities with other Materials:

Strong oxidizing agents, acids.

Hazardous Decomposition Products:

Not available.

Hazardous Polymerization:

Will not occur.

11. Toxicological Information

Inhalation Effects:

Soldering fumes can respiratory irritation, kidney and liver damage.

Skin Effects:

May cause irritation, dermatitis.

Eyes Effects:

Can cause irritation and abrasion.

Ingestion Effects:

May cause kidney and liver damage.

12. Ecological Information

No information available.

13. Disposal Considerations

Dispose of in a manner consistent with federal, state, and local regulations.

14. Transport Information

US DOT Hazard Class : Not regulated

US DOT ID number : Not applicable

Keep away from direct sunlight and contact with water. Avoid overturn, fall-down and any other damage on loading and transporting.

Transport material under competent regulations in your country.

15. Regulatory Information

European/International Regulations:

European Labeling in Accordance with EC Directives for Tin(Sn), Silver(Ag) and Copper(Cu).

Hazard Symbols: Not available.

Risk Phrases : Not available..

Safety Phrases : S 24/25 Avoid contact with skin and eyes.

Please refer to any other national measures that may be relevant.

16. Other Information

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