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|  | Sumiko Leadframe (Thailand) Co., LTD We are a subsidiary of Sumitomo Metal Mining Asia Pacific Pte Ltd | Date Prepared: 27/07/06 |
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Section 1: Chemical Product and Company Identification

Product Name : **Ag Finished Leadframe B/F (A194)**

Manufacture's Name : **Sumiko Leadframe (Thailand) Co., Ltd 1/49 Rojana Industrial Park,
Moo 5, Tambol Kanham, Amphur Uthai Ayutthaya 13210 Thailand
Tel. 035 – 226 -303 ~ 7
Fax. 035 – 226 -308**

Section 2: Composition and Information on Ingredients

| Chemical Ingredients (Main) | CAS Number | Percents Weight (% by wt) | OSHA PEL | ACGIH TLV | Other Limits |
|------------------------------|----------------------|---------------------------|----------|-----------|--------------|
| Copper (Cu) | 7440 – 50 - 8 | 94.791 | - | - | - |
| Chemical Ingredients (Minor) | CAS Number | Percents Weight (% by wt) | OSHA PEL | ACGIH TLV | Other Limits |
| Silver (Ag) | 7440 – 22 – 4 | 3.124 | - | - | - |
| Iron (Fe) | 7439 – 89 - 6 | 2.052 | - | - | - |
| Zinc (Zn) | 7440 – 66 - 6 | 0.048 | - | - | - |
| Phosphorus (P) | 7723 – 14 - 0 | 0.014 | - | - | - |

Section3: Hazard Identification

3.1 Emergency Overview:

Not a fire hazard in open areas

3.2 Potential Health Effects:

3.2.1 Eye : **N/A**
 3.2.2 Skin : **N/A**
 3.2.3 Ingestion : **N/A**
 3.2.4 Inhalation : **N/A**

3.3 HMIS Code:

3.3.1 Health : **N/A**
 3.3.2 Flammability : **N/A**
 3.3.3 Physical Hazard : **N/A**
 3.3.4 Personal Protection : **Rubber Glove**

3.4 Environmental Effects:

**Fish on toxicity TLm 48 hr.on CuSO₄, Salmogairdeneri: 0.038~0.8 ppm,
Oryzias Latipes: 2.1 ~ 24 ppm**

3.5 Physical and Chemical Hazard : **N/A**

3.6 Specific Hazard : **N/A**

Section 4: First Aid Information


First Aid Information in Difference Exposed Way;

4.1 Eye Contact : **N/A**
 4.2 Skin Contact : **N/A**
 4.3 Ingestion : **N/A**
 4.4 Inhalation : **N/A**
 4.5 Hazard Effects : **N/A**
 4.6 Notes to Physicians : **N/A**

Section 5: Fire Fighting Measures

5.1 Flash point : **N/A**

5.2 UEL : **N/A**

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5.3 LEL : N/A
 5.4 Flammability Classification : N/A
 5.5 Extinguishing Media : N/A (stable, nonflammable, substance)
 (Use media appropriate for the surrounding fire such as Dry chemical, CO2)

5.6 Unusual Fire and Explosion Hazards:
Metal product do not present fire or explosion hazard under normal conditions.

5.7 Fire Fighting Method:
**(General: Wear Self-Contained breathing Apparatus -SCBA if fully involved in a fire)
 Not Specified**

5.8 Hazardous Combustion Products : N/A

Section 6: Accidental Release Measures

6.1 Precautions and Equipment : N/A
 6.2 Methods for Clean up : N/A
 6.3 Personal Precaution : N/A

Section 7: Handling and Storage

7.1 Handling:
Should be put the safety gloves on to protect your hands from edges of coil which might cut your hands and should be put the safety shoes on when handling heavy coils.

7.2 Storage:
**The environment of storage areas should be free from acid, alkali, chloride, sulfide and other corrosive chemical to prevent from rusting or corrosion
 Store in dry area with general area ventilation.**

Section 8: Exposure Controls and Personal Protection

8.1 Eye:
Should be the wear safety glasses when metal power is expected to be generated in the work.

8.2 Skin:
Should be put the gloves on the protect your hands from edges of coil which might cut your hands and should be put the safety shoes on when handling heavy coils.

8.3 Ingestion:
The wearing a mask be recommended in the work such as abrasion and buffing and which generates metal power or chips.

8.4 Inhalation:
The wearing a mask be recommended in the work such as abrasion and buffing and which generates metal power or chips.


8.5 Engineering Control:
Should be the safety shoes on when handling heavy coils

8.6 Exposure Limits

| Exposure Guidelines (mg/m ³) | | |
|--|-------------|------------|
| Component | ACDIH (TLV) | OSHA (PEL) |
| N/A | N/A | N/A |

Section 9: Physical and Chemical Properties

9.1 Appearance : **Brown – Red (Solid): Odor - None**
 9.2 p H : **N/A**
 9.3 Boiling Point : **2630 ° C for Copper, 2212 ° C for Silver,
 2861 ° C for Iron
 907 ° C for Zinc, 277 ° C for Phosphorus**
 9.4 Decomposition : **N/A**
 9.5 Temperature : **Melting Point 1075 deg (°C)**

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9.6 Flash Point : **N/A**
 9.7 Auto – Ignition Temperature : **N/A**
 9.8 Explosion Properties : **N/A**
 9.9 Vapor Pressure : **N/A**
 9.10 Vapor Density (Air = 1) : **N/A**
 9.11 Specific Gravity : **N/A**
 9.12 Solution in Water : **N/A**

Section 10: Stability and Reactivity

10.1 Chemical Stability : **Stable**
 10.2 Conditions to Avoid : **N/A**
 10.3 Material to Avoid : **N/A (Corrosive substance)**
 10.4 Hazardous Decomposition Products : **N/A**

Section 11: Toxicological Information

11.1 Acute Toxicity : **N/A**
 11.2 Local Effects : **N/A**
 11.3 Sensitization : **N/A**
 11.4 Chronic Toxicity : **N/A**

Section 12: Ecological Information

12.1 Mobility : **N/A**
 12.2 Eco Toxicity : **N/A**

Section 13: Disposal Information

13.1 Wastes from Residues:
Collect scrap for re-melting (Recycle)

Section 14: Transportation Information

14.1 Shipping basic Description : **N/A**
 14.2 UN No. : **N/A**
 14.3 Internal Transportation:
When received bare frame from supplier Material Storage to handling by forklift and Power Crane and Product Storage to handling for shipping to customer by hand lift or forklift.
 14.4 Note : **N/A**

Section 15: Regulatory Information

Follow all regulations in your country.

Section 16: Other Information

N/A

Reference data prepared by:

**Sumiko Leadframe (Thailand) Co., Ltd 1/49 Rojana Industrial Park, Moo 5, Tambol Kanham,
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