

## MATERIAL SAFETY DATA SHEET TIN-PLATED COPPER BUSBAR

### 1. Product Identification

Trade Name : Tin-plated Copper Busbar  
 Manufacturer : 700/45 Amata Nakorn Industrial Estate, Klongtumru, Amphur Muang, Chonburi 20000  
 Formula : Cu / Sn  
 Effective : 30/01/2010  
 Revision : 0

#### Precautionary Labelling

Health : 0 None  
 Flammability : 0 None  
 Reactivity : 0 None  
 Contact : 1 Slight

Hazard ratings are 0 to 4 (0 = No Hazard ; 4 = Extreme hazard).

### 2. Hazardous Components

| Component | %           | Cas no.   |
|-----------|-------------|-----------|
| Copper    | 97.9 - 99.4 | 7440-50-8 |
| Tin       | 0.6 - 2.1   | 7440-31-5 |

### 3. Physical Data

Boiling Point : 2,595 C (Cu), 2,602 C (Sn) Vapor pressure (mm Hg) : N/A  
 Melting Point : 1,083 C (Cu), 232 C (Sn) Vapor density (Air=1) : N/A  
 Specific Gravity (H<sub>2</sub>O=1) : 8.9 (Cu), 5.7 (Sn) Evaporation rate (Butyl acetate = 1) : N/A  
 Solubility (H<sub>2</sub>O) : Negligible (Less than 0.1%) % Volatiles by bolume : 0  
 Appearance & Odor : Bright to dull silvery gray color. No odor.

### 4. Fire and explosion hazard data

Flash point (closed cup) : N/A  
 Flammable limits : Upper - N/A % Lower - N/A %  
 Fire extinguishing media : Use extinguishing media appropriate for surrounding fire.  
 Toxic gases produced : Copper fumes

### 5. Health hazard data

Threshold limit value : 1.0 mg/m<sup>3</sup> (Cu), 2.0 mg/m<sup>3</sup> (Sn)

#### Carcinogenicity

NTP : No Z LIST : No  
 IARC : No OSHA REG : No

Effects of Overexposure : Dust may cause sneezing and coughing.

Dust may irritate skin or eyes.

Prolonged exposure may cause dermatitis.

Ingestion may cause nausea, vomiting, headaches, dizziness, gastrointestinal irritation.

*Note : Fine powder, granules and fumes from welding or abrasive operations may pose a health hazard. When burned, soldered or brazed tin plated copper busbar and solder or brazing material may give off fumes that cause eye and/or respiratory irritation. Use adequate local exhaust to prevent irritation and maintain fume levels below OSHA ceiling limits.*

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Target organs : None identified  
 Medical conditions generally aggravated by exposure : None identified

Routes of entry : None indicated

Emergency and first aid procedures

Ingestion : If swallowed and the person is conscious, immediately give large amounts of water. Get medical attention.  
 Inhalation : If a person breathes in large amounts, move the exposed person to fresh air. Get medical attention.  
 Eye contact : Immediately flush with plenty of water for at least 15 minutes. Get medical attention.  
 Skin contact : Immediately wash with plenty of soap and water for at least 15 minutes.

### 6. Reativity data

Stability : Stable  
 Hazardous polymerization : Will not occur  
 Conditions to avoid : None  
 Incompatibles : Strong acids, Active halogen compounds, Chlorine, Fluorine, Iodine, Bromine, Ammonia  
 Decomposition products : Copper fumes

### 7. Disposal information

Product  
 Recommendation : Collect left-overs and return to manufacturer or scrap dealer.  
 Not to be discharged with the household waste.  
 Waste code number  
 Recommendation : 12 01 03 acc. to the European Waste Catalogue "Non-ferrous chips and cuttings".  
 The waste code number has been assigned according to the usual purpose of use and the constituents of the product. Depending on the branch and purpose of application another waste code number may possibly be relevant.

### 8. Exposure limitation and personal protection

Additional information on the design of technical equipment :  
 Filtering extractors are recommended if dusts or smoke are formed.  
 Constituents with monitored, workplace-related limiting values:

| CAS-No.   | Description    | Content | Type | Value | Unit              |
|-----------|----------------|---------|------|-------|-------------------|
| 7440-50-8 | Copper         | -       | MAC  | 1,0   | mg/m <sup>3</sup> |
| 7440-50-8 | Copper (smoke) | -       | MAC  | 0,1   | mg/m <sup>3</sup> |
| 7440-31-5 | Tin            | -       | -    | 2,0   | mg/m <sup>3</sup> |

Personal protection equipment

General protection and hygiene measures : Usual precautions for chemical processing must be taken.  
 If dust or fumes are emitted:  
 - Keep away from food and drink  
 - Wash hands before a break and after working period  
 - Store working clothes separately  
 - Remove contaminated clothing and launder before re-use  
 - Do not inhale powder, dust or fumes  
 - Do not eat, drink or smoke  
 Prevent long and intensive skin contact.

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Respiratory protection : Filter P3 when smoke or dusts are formed above MAC-Limits  
Hand protection : Protective gloves  
Eye protection : Goggles  
Body protection : Industrial safety clothing

### 9. Handling and storage

Information for safe handling : Filtering extractors and/or personal protection must be provided if dust or smoke are formed during processing (see No. 8). Do not breath in the dust or fumes.  
Information concerning fire and explosion protection : Have breathing apparatus/ respirator ready  
Requirements to store-rooms and tanks : No special requirements  
Information concerning storage with other products : Not applicable  
Further information concerning storage conditions : None  
Storage class : Not applicable

### 10. Transport information

General remarks : Dangerous goods transport regulations not required.

### 11. Other information

This Data Sheet defines our current knowledge concerning the environmental relevance and labour safety of our products in their as-shipped form.

However, the Data Sheet does not guarantee the assurance of certain properties in a legally binding sense.