

## SDS (Safety Data Sheet)

### 安全資料表

Section 01 Chemical Product and Company Identification 品名及廠商資料	
Product Name 品名	LEAD FRAME
GHS	NA
Product Code 物品編號	A194/C194, Ag Plating
Manufacturer 製造商	ASM Technology Singapore Pte Ltd.
Address 地址	2 Yishun Avenue 7 Singapore 768924
Telephone 電話	(65) 67526311
Fax Number 傳真	(65) 62577512
Emergency Telephone 緊急聯絡電話	(65) 67526311

Section 02 Hazard Identification 危害辨識資料	
GHS classification of the substances/ mixture and any national or regional information	<p>The leadframe products are <b>non hazardous</b> in their as-shipped form.</p> <p>However, incorrect handling of the leadframe, the products made thereof, or production scrap generated may lead to injuries. Operations generating dust or fumes, such as grinding, polishing, welding or melting, may create health hazards by inhalation or by irritation of the eyes.</p> <p>A reaction of a few chemical substances with this product, or its production scrap as well as dust or fumes generated during production, may produce poisonous substances or explosive gases.</p>
GHS label elements	N/A
Potential Health Effects 健康危害效應	<p>Eye 眼睛 : Classification not possible .</p> <p>Skin 皮膚 : Classification not possible .</p> <p>Ingestion 吞食 : Classification not possible .</p> <p>Inhalation 吸入 : Metallic taste, dryness of the throat, sneezing, respiratory tract irritation, mixed pneumoconiosis, chills, metal fume fever, short-ness of breath, chest pain, weakness, fatigue, cough, muscle and joint pain.</p>
HMIS CODE 危害物質資訊代碼	<p>Health 健康 : N / A</p> <p>Flammability 易燃性 : N / A</p> <p>Physical Hazard 物理危害 : N / A</p> <p>Personal Protection 個人防護 : N / A</p>
Environmental Effects 環境影響	<p>Hazardous to The Aquatic Environment (Acute) : Classification not possible</p> <p>Hazardous to The Aquatic Environment (Chronic) : CATEGORY 4</p>
Physical and Chemical Hazards 物理及化學的危害	<p>Copper :</p> <p>Irritation of upper airway (single exposure)</p> <p>Liver disease (long term or repeated exposure in a high aerial density)</p> <p>Metal hume fever (fume's inhalation) .</p>
Specific Hazards 特殊危害	N / A

Section 03 Composition and Information on Ingredients 成分辨識資料			
Chemical Ingredients (Main) 化學成分(主要)	CAS Number	Percent Weight (%)	OSHA PEL- TWA
Copper ( Cu )	7440-50-8	BALANCE	
Chemical Ingredients (Minor / Plating Layer) 化學成分(次要)	CAS Number	Percent Weight (%)	OSHA PEL- TWA
Iron (Fe)	7439-89-6	2.10 ~ 2.60	
Lead (Pb)	7439-92-1	0.01 Max.	
Phosphorus (P)	7723-14-0	0.015 ~0.150	
Zinc (Zn)	7440-66-6	0.050 ~0.200	
Silver (Ag)	7440-22-4	5.0 Max	Plating

Section 04 First Aid Information 急救措施	
First Aid Information in Different Exposed Way 不同暴露途徑之急救措施	<p>Eye CONTACT 眼睛接觸： Wash the eye for 15 minutes or more by a stream of clean water, and see a doctor.</p> <p>Skin Contact 皮膚接觸： Wash the affected part by soapy water, and flush it with clean water. If heated chips, etc., adhere to your skin to causing a minor burn, immediately allow the affected part to cool under plenty of running water.</p> <p>Ingestion 吞食： Wash the mouth well with water and, if possible, induce vomiting, then immediately arrange for medical treatment.</p> <p>Inhalation 吸入： When inhaled large amounts, transfer the patient to a fresh place or air at once. The patient should be kept warm and at rest while a doctor is sent for. Practice artificial respiration at once when respiratory difficulty or asphyxia is perceived.</p> <p>Hazards Effects 危害效應： In the situation handled with the machined product.</p> <p>Notes to Physicians 對醫師之指示： N / A</p>

Section 05 Fire Fighting Measures 滅火措施	
Flash point 發火點	N / A
Flammability Classification 易燃性分類	N / A
Extinguishing Media 適用滅火劑	N/A (stable, nonflammable substance)
Unusual Fire and Explosion Hazards 特殊火災及爆炸危害	Metal products do not present fire or explosion hazards under normal conditions.
Fire-Fighting Methods 滅火方法	Not specified
Hazardous Combustion Products 危險的燃燒產物	N / A

Section 06 Accidental Release Measures 洩漏處理方法	
Precautions and Equipment 預防措施及設備	Not applicable for the solid.
Methods For Clean-up 清潔方法	Not applicable for the solid.
Personal Precaution 個人防護措施	Not applicable for the solid.

<b>Section 07 Handling And Storage 處置及儲存</b>	
Handling 處置	Put safety gloves on to protect your hands from edges of coils which might cut your hands. Wear safety glasses when metal powders or chips are expected to be generated in the work. Put safety shoes on when handling heavy coils
Storage 儲存	The environment of stocking area should be free from acid, alkali, chloride, sulfide and other corrosive chemicals to prevent from rusting or corrosion.

<b>Section 08 Exposure Controls And Personal Protection 暴露控制及個人防護</b>			
Eye 眼睛	Protective goggles are recommended, depending upon how the semis are further processed.		
Skin 皮膚	Use rubber glove to prevent mechanical injury		
Ingestion 吞食	Wearing a mask are recommended in the work such as abrasion and buffing. which generates metal powders or chips		
Inhalation 吸入	None normally needed. If exposure exceeds the PEL/TLV, use NIOSH approved respiratory protection equipment.		
Engineering Control 工程控制	Put safety shoes on when handling heavy coils.		
Exposure Limits 暴露限度	Exposure Guidelines 暴露指標 (mg/m3)		
	Components	ACGIH (TLV-TWA)	OSHA (PEL)

<b>Section 09 Physical And Chemical Properties 物理及化學特性</b>	
Appearance 外觀	Solid
Odor 氣味	Odorless
Odor threshold 氣味極限	Odorless
PH 酸鹼值	Not applicable
Boiling Point 沸點	Not applicable
Decomposition 分解	Not applicable
Melting Point 熔點	Not applicable
Flash Point 發火點	Not applicable
Auto-ignition Temperature 自燃溫度	Not applicable
Explosion Properties 爆炸特性	Not applicable
Viscosity 流動性	Not applicable
Vapor Pressure 蒸氣壓	Not applicable
Vapor Density (Air=1) 蒸氣密度	Not applicable
Specific Gravity (H2O=1) 比重	8.8 ( g / cm )
Solubility In H2O 水中溶解度	Insoluble

<b>Section 10 Stability And Reactivity 安定性及反應性</b>	
Chemical Stability 化學安定性	Stable
Reactivity 反應性	Nothing
Possibility of hazardous reactions 危害反應可能性	Nothing
Conditions To Avoid 應避免狀況	Nothing
Materials To Avoid 應避免物質	Nothing
Hazardous Decomposition Products 危害分解物	Nothing

<b>Section 11 Toxicological Information 毒性資料</b>	
Acute Toxicity 急毒性	There is no information on the toxicity of this material. Under normal handling and use of the solid form of this material there are few health hazards.
Carcinogenicity 致癌性	Copper is classified into D (material that cannot be classified into human carcinogenicity) by EPA(1991).
Sensitization 過敏性	Skin Sensitization : Copper is classified into the second crowd of skin sensitization (Material which might have sensitization to person) by the Japan Society for Occupational Health (Recommendation; 2004).
Chronic Toxicity 慢性毒性	Data none

<b>Section 12 Ecological Information 生態資料</b>	
Mobility 移動性	N / A
Eco Toxicity 生態毒性	No data is available on this product. Individual constituents are as follows: Copper: The toxicity of copper to aquatic organisms varies significantly not only with the species, but also with physical and chemical characteristics of the water, such as its temperature, hardness, turbidity and carbon dioxide content. Copper concentrations varying from 0.1 to 1.0 mg/L have been found by various investigators to be not toxic for most fish. However, concentrations of 0.015 to 3.0 mg/L have been reported as toxic, particularly in soft water to many kinds of fish, crustaceans, mollusks, insects and plankton.
Persistence and degradability	No degradation
Bioaccumulative potential	N/A
Mobility in soil	N/A
Other adverse effects	N/A

<b>Section 13 Disposal Information 處理資料</b>	
Waste From Residues 廢棄處置方法	Collect as a metal, the substance that comprises the product is recyclable. Consign it to the authorized disposal contractor in the local country affected.

<b>Section 14 Transport Information 運送資料</b>	
Shipping Basic Description 運送基本描述	N / A
UN No. 聯合國編號	N / A
Internal Transport 國內運輸規定	N / A
Notes 注意事項	N / A

<b>Section 15 Regulatory Information 法規資料</b>	
Data none	

<b>Section 16 Other Information 其他資料</b>		
Additional Information 補充說明	This information in this document is believed to be correct as of the date issued. However, no warranty of merchantability, fitness for any use, or any other warranty is expressed or is to be implied regarding the accuracy or completeness of this information, the results to be obtained from use of this information or the product, the safety of this product, or the hazards related to its use. This information and the product are furnished on the condition that the person receiving them shall make their own determination as to the suitability of the product for their particular purpose and on the condition that they assume the risk their use thereof.	
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