


1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION 化學品與廠商資料

Chemical name 化學品名稱: 18mm H99.99S Pure Solder Ball	
Other name: Plating Anode Ball 其他名稱：純錫圓球	
Product identifier 物品編號: 70927	
Suggest purpose: For plating process or wave soldering process. 建議用途及限制使用：適合電鍍或錫錫爐作業使用	
Manufacture: SHENMAO TECHNOLOGY INC. 製造者、輸入者或供應者名稱：昇貿科技股份有限公司	
Address: No.12-1 Gongye 2 nd Rd., Guanin industrial area, Taoyuan City 328, Taiwan 地址：桃園市觀音區工業二路 12-1 號	
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Website 公司網址: http://www.shenmao.com	

2. HAZARDS IDENTIFICATION 危害辨識資料

Hazard classification: Specific target organ toxicity – repeated exposure Category 2 化學品危害分類：特定標的器官系統毒性物質－重複暴露 第2級	
Indication content 標示內容:  Symbols : Health mark 象徵符號：健康危害 Signal word : Warning 警示語：警告 Warning information : May cause damage to organs through prolonged or repeated exposure 危害警告訊息：長期或重複暴露可能對器官造成傷害 Precautionary Statement : The body thinks not comfortably , Inquires of the medical service 危害防範措施：如遇意外或覺得不適，立即洽詢醫療	
Other hazard 其他危害: —	

3. COMPOSITION, INFORMATION OR INGREDIENT 成分辨識資料
 Pure substances 純物質:

Components name: Tin 中英文名稱：錫	
Other name 同義名稱:/	
CAS No 化學文摘社登記號碼： 7440-31-5	
Hazards composition (wt. %)危害成分(成分百分比)： 100%	

4. FIRST AID MEASURES 急救措施

First aid method in the different exposed way 不同暴露途徑之急救方法:	
Inhalation	1. Moves the patient to the fresh air place immediately.

吸入	2. If patient stop breathes, gives the artificial respiration. 3. Keep the patient to be warm and the rest. 保持患者溫暖及休息 4. Send him to the hospital immediately. 立即就醫 1. 立即將患者移至新鮮空氣處 2. 若呼吸停止，施予人工呼吸 3. 保持患者溫暖及休息 4. 立即就醫
Skin contact 皮膚接觸	1. Use the soap or the neutral cleanser and the water clean the skin immediately. 2. If seeps clothes, takes off clothes immediately, and uses the soap or the neutral cleanser and the water to cleans the skin. 3. If still had Irritation feeling, take medical treatment immediately. 1. 立即用肥皂或中性清潔劑及水清洗皮膚 2. 若滲透衣服，立即脫掉衣服，並用肥皂或中性清潔劑及水清洗皮膚 3. 若仍有刺激感，立即就醫
Eye contact 眼睛接觸	1. Clean eye by the massive clear water immediately and often opens the eyelid. 2. If still had Irritation feeling, take medical treatment immediately. 1. 立即以大量清水清洗眼睛，並不時地撐開上下眼皮 2. 如仍有刺激感，立即就醫
Ingestion 食入	1. If the patient soberly, drinks the massive water immediately. 2. If the patient is insensible, don't urge to vomit. 3. If still had Irritation feeling, take medical treatment immediately. 1. 若患者意識清醒，立即喝下大量的水 2. 若患者意識不清，勿催吐 3. 立即就醫
The most important symptoms and hazardous effect: Irritation feeling 最重要症狀及危害效應：刺激感	
The protection to first-aid: Should wear the level C protection equipment in the safe area implementation first aid. 對急救人員之防護：應穿著 C 級防護裝備在安全區實施急救。	
Notes to physicians: If the patient swallows, consideration gastric lavage and bowel movement. 對醫師之提示：患者吞食時，考慮洗胃。	

5. FIRE-FIGHTING MEASURES 滅火措施

Suitable fire extinguishing media: Water.CO2

適用滅火劑：水霧、二氧化碳

Specific hazards may be encountered during fire-fighting:

The tin is nonflammable.

滅火時可能遭遇之特殊危害：此物不燃。

Specific fire-fighting methods:

1. Move the container out to the safe area.

2. Cooling storing or container expose in a fire scene with water.

特殊滅火程序：

1. 在安全情況下將容器搬離火場。
2. 以水霧冷卻暴露火場的貯槽或容器。

Special equipment for the protection of firefighters: NA

消防人員之特殊防護設備: NA

6. ACCIDENTAL RELEASE MEASURES 洩漏處理方法

Personal precautions:

The man who without wear protect equipping or clothes forbidden enter in the let out area before clean.

個人應注意事項：在洩漏區及外洩區尚未清除乾淨前沒有穿戴防護裝備及衣物者禁止進入。

Environmental precautions: Ventilate to the let out area.

環境注意事項：對洩漏區通風換氣。

Methods for cleaning up:

1. Recycle the material or bury with the qualified method in most convenient and safe way.
2. The liquid can be absorbed with the vermiculite, sand, soil or similar material.

清理方法：

1. 以最方便和安全方式回收洩漏物質或以合格衛生掩埋法處理。
2. 液體可用蛭石、乾沙、土或類似物質吸收。

7. HANDLING AND STORAGE 安全處置與儲存方法

Handling: During work avoids producing the dust.

處置：作業時避免產生粉塵。

Storage:

1. storagr temp : <40°C
2. Storage to suitably container which has the label.
3. Storage it in a coolly, dryly and ventilate well place.

儲存：

1. 儲存溫度：<40°C
2. 儲存於適當有標示的容器。
3. 置於陰涼、乾燥、通風良好區。

8. EXPOSURE CONTROLS AND PERSONAL PROTECTION 暴露預防措施

Engineering control:

1. Partial air exhaust device.
2. Whole air exhaust device.

工程控制：

1. 局部排氣裝置。
2. 整體換氣裝置。

Control parameters 控制參數:

Hazardous ingredients 危害物成分	八小時日時量平均 容許濃度 TWA	短時間時量平均 容許濃度 STEL	最高容許濃度 CEILING	生物指標 BEIs
錫 Tin	2 mg/m ³	—	—	—

Personal protective equipment:

Respiratory protection: 0~10 mg/m³: Dustproof breathing mask.

20 mg/m³: 1. Dustproof breathing mask. 2. Air supply type breathing mask.

50 mg/m³: 1. Dustproof and air filter breathing mask.

2. Continuous air supply type breathing mask.

100 mg/m³: 1. Contain high performance filter and air filter breathing mask.

2. Continuous air supply type breathing mask.

Unknown consistency: Continuous air supply type breathing mask.

Escape: 1. Contain high performance filter and air filter breathing mask.

2. Continuous air supply type breathing mask.

Hand protection: Rubber or plastic glove.

Eye protection: 1. The safe goggles which can defend splash. 2. Face guard in an all-round way. 3. Don't wear the contact lenses.

Skin and body protection: Apron, long sleeves clothes.

個人防護設備：—

呼吸防護：10 mg/m³ 以下：防塵及霧滴之呼吸防護具。

20 mg/m³：1.防塵及霧滴之呼吸防護具。2.供氣式呼吸防護具。

50 mg/m³：1.防塵及霧滴之動力式空氣濾清式呼吸防護具。2.連續流動式供氣式呼吸防護具。

100 mg/m³：含高效率濾材之動力型空氣淨化式、全面型自攜式或供氣式呼吸防護具。

未知濃度：正壓自攜式呼吸防護具、正壓全面型供氣式呼吸防護具輔以正壓自攜式呼吸防護具。

逃生：高效率濾材之全面型呼吸防護具、逃生型自攜式呼吸防護具。

手部防護：橡膠或塑膠的手套。

眼睛防護：1.防濺之安全護目鏡。2.全面罩。3.不要戴隱形眼鏡。

皮膚及身體防護：圍裙、長袖衣物。

Hygiene measures:

1. Take off the clothes of pollution as soon as possible after the work, wear or abandon after cleaning, and tell the person about the pollutant who washing the clothes.

2. Forbid smoking or diet in the workplace.

3. After work, must wash hands completely.

4. Keep the workplace clean.

衛生措施：

1.工作後儘速脫掉污染之衣物，洗淨後才可再穿戴或丟棄，且須告知洗衣人員污染物之危害性。

2. 工作場所嚴禁吸煙或飲食。
3. 處理此物後，須徹底洗手。
4. 維持作業場所清潔。

9. Physics and chemical property 物理及化學性質

Appearance(physical state, color): Silver gray solid 外觀 (物質狀態、顏色等): 銀灰色金屬固體	Odor: Tasteless 氣味: 無味
Odor threshold 嗅覺閾值: —	Melting point 熔點: 232 °C
pH: —	Boiling point/Boiling point range 沸點/沸點範圍: —
Flammability (solid, gas) 易燃性 (固體、氣體): —	Flash Point 閃火點: —
Decompose temperature 分解溫度: —	Test Method(open cup or close cup) 測試方法(開杯或閉杯): —
Auto-ignition temperature 自燃溫度: —	Explosion Limit 爆炸界限: —
Vapor Pressure 蒸氣壓: 0 mmHg @ 20°C	Vapor Density 蒸氣密度: —
Density 密度: 7.3g/cm ³ (20°C)	Solubility: Difficult to mix with water 溶解度: 不溶於水
Partition coefficient(n-octanol/water,log Kow) 辛醇/水分 配係數: —	Evaporation rate 揮發速率: —

10. STABILITY AND REACTIVITY 安定性及反應性

Stability: Stable under the normal state, the powder state will be oxidized in the air. 安定性: 正常狀況下安定, 粉末狀態於空氣中會氧化。
Possible hazardous reactions under specific conditions: 1. Metal tin and turpentine contact will produce fire and explode. 2. Plastics, rubber. 3. Acid, soda, oxide, sulphur, halogens. 4. When the tin powder mixed with sodium peroxide, contact with the moisture will produces the fire; contact the carbon dioxide or ammonium nitrate (higher than 200°C) will produces explode. 5. Carbon tetrachloride Tetrachloromethane (moisture existence), halide, cupric nitrate solution, potassium peroxide. 特殊狀況下可能之危害反應: 1. 金屬錫與松節油接觸會產生火災和爆炸。 2. 塑膠、橡膠和塗膜。 3. 酸、鹼、氧化物、硫、鹵素。 4. 粉末狀的錫與過氧化鈉混合時, 遇到濕氣會起火; 與二氧化碳或硝酸銨薰煙 (超過 200°C 時) 會起爆炸性反應。 5. 四氯化碳 (濕氣存在下)、鹵化物、硝酸銅溶液、二氧化鉀。
Conditions to avoid: The powder state will be oxidized in the air. 應避免之狀況: 粉末狀態於空氣中會氧化。
Materials to avoid:

1. Metal tin and turpentine contact.
2. Plastics, rubber.
3. Acid, soda, oxide, sulphur, halogens.
4. Tin powder mixed with sodium peroxide, carbon dioxide or ammonium nitrate (higher than 200°C).
5. Carbon tetrachloride Tetrachloromethane (in moisture existence), halide, cupric nitrate solution, potassium peroxide.

應避免之物質：

1. 金屬錫與松節油接觸。
2. 塑膠、橡膠和塗膜。
3. 酸、鹼、氧化物、硫、鹵素。
4. 粉末狀的錫與過氧化鈉，二氧化碳或硝酸銨薰煙（超過 200°C 時）。
5. 四氯化碳（濕氣存在下）、鹵化物、硝酸銅溶液、二氧化鉀。

Hazardous decomposition products: —

危害分解物：—

11. TOXICOLOGICAL INFORMATION 毒性資料

Routes of exposure 暴露途徑：—

Symptoms 症狀：—

Acute toxicity:

1. May cause the irritation of eyes, nose, throat, skin.
2. It is nonpoisonous to eat. But it will let the stomach to be uncomfortable by irritation.

急毒性：

1. 可能造成眼睛、鼻子、喉、皮膚的刺激。
2. 吞食一般而言無毒，但大量會因刺激而造成腸胃不適。

Chronic toxicity or long term toxicity:

1. The person who has the following conditions is easy to be endangered: Dermatitis, breathe disease chronically.
2. In animal's experiment, it can increase the meat swollen probability.

慢毒性或長期毒性：

1. 有下列病況者，易受危害：皮膚病、慢性呼吸疾病。
2. 動物實驗中，會增加肉腫的機率。

12. ECOLOGICAL INFORMATION 生態資料

Ecotoxicity 生態毒性：—

Persistent and biodegradable 持久性及降解性：—

Bio-accumulative potential 生物蓄積性：—

Mobility in soil 土壤中之流動性：—

Other adverse effects 其他不良效應：—

13. DISPOSAL CONSIDERATIONS 廢棄處置方法

Methods of waste disposal: Bury with qualified hygiene.

廢棄處置方法：以合格衛生掩埋法處理。

14. TRANSPORTS INFORMATION 運送資料

UN No 聯合國編號.: —
UN Proper shipping name 聯合國運輸名稱: —
Transportation hazard classification 運輸危害分類: —
Packing group 包裝類別: —
Marine pollutant (Yes/No) 海洋污染物 (是/否): —
Specific transport measures and precautionary conditions 特殊運送方法及注意事項: —

15. REGULATORY INFORMATION 法規資料

Applicable regulations: 1. Occupational safety and health facilities rules. 2. Laborer operating environment permits the thickness standard 3. Industrial waste storage cleaning dispose method and facility standard 4. Hazardous chemicals labeled general rule 適用法規： 1.職業安全衛生設施規則 2.勞工作業場所容許暴露標準 3.事業廢棄物貯存清除處理方法及設施標準 4.危害性化學品標示及通識規則

16. OTHER INFORMATION 其他資料

Reference 參考文獻	Occupational Safety and Health Administration , Ministry Of Labor, GHS inquiry system 勞動部職業安全衛生署 GHS 查詢系統	
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Issued date 制/修訂日期	2019/10/28	

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