

## 安全資料表

### SAFETY DATA SHEET

#### 一、化學品與廠商資料/ CHEMICAL PRODUCT AND COMPANY IDENTIFICATION

化學品名稱 Chemical Name：矽磊晶圓

Name：Silicon Epi Wafer

其他名稱 Other name：N/A

建議用途及限制使用：適用半導體器件應用

Recommended use and restrictions on the use: For semiconductor device applications.

製造者、輸入者或供應者名稱、地址及電話/ Manufacturer or Supplier Name / Add / Tel：

製造商 / Manufacturer：環茂科技股份有限公司 PYNMAX TECHNOLOGY CO;LTD.

地址 / Add：高雄市永安區永工一路17-2 號

NO.17-2, Yong Gong 1st RD, Yong An District, Kaohsiung City 82841, Taiwan

緊急聯絡電話/傳真電話：TEL：886-7-624-3919 FAX：886-7-624-4719

#### 二、危害辨識資料/ HAZARDS IDENTIFICATION

化學品危害分類：依現有資料，於正常使用條件下，本產品未分類為危害性化學品

Hazard Classification: Not classified as a hazardous chemical under normal conditions of use

標示內容：無需 GHS 標示

Detail：No GHS label elements required

其他危害：產品破裂時可能產生尖銳碎片造成割傷；切割、研磨、破碎時可能產生粉塵，應避免吸入及接觸眼睛。

Other Hazard: Broken wafers may generate sharp fragments that can cause cuts. Dust may be generated during cutting, grinding, or crushing operations; avoid inhalation and eye contact.

#### 三、成分辨識資料/ COMPOSITION, INFORMATION ON INGREDIENTS

純物質/Pure substance：

中英文名稱(Name)：矽 Silicon

同義名稱(Synonymous name)：矽 Silicon

化學文摘社登記號碼(CAS No.)：7440-21-3

危害成分(成分百分比)：99.99-99.9999%

中英文名稱(Name)：砷 Arsenic

同義名稱(Synonymous name)：砷 Arsenic

化學文摘社登記號碼(CAS No.)： 7440-38-2

危害成分(成分百分比)： <0.06 %

中英文名稱(Name)：磷 Phosphorus

同義名稱(Synonymous name)：磷 Phosphorus

化學文摘社登記號碼(CAS No.)： 7723-14-0

危害成分(成分百分比)： <0.077%

中英文名稱(Name)：硼 Boron

同義名稱(Synonymous name)：硼 Boron

化學文摘社登記號碼(CAS No.)： 7440-42-8

危害成分(成分百分比)： < 0.007%

混合物 / Mixture：

化學性質(Chemical Characteristics)： NA

危害成分之中英文名稱 Name of hazard ingredient in English and Chinese	濃度或濃度範圍(成分百分比) Concentration or range of concentrations (% percentage)
NA	NA

#### 四、急救措施/ FIRST AID MEASURES

不同暴露途徑之急救方法/ First Aid Measures for different exposure pathway :

• 吸入：若因破裂、切割或研磨產生粉塵而吸入，應立即移至空氣新鮮處；如有不適，儘速就醫。

Inhalation: If dust generated from broken, cut, or ground wafers is inhaled, move the affected person to fresh air. Seek medical attention if symptoms occur.

• 皮膚接觸：若被碎片割傷，依一般外傷處理，清潔傷口並視需要就醫。

Dermal Exposure: If cut by broken fragments, treat as a general laceration. Clean the wound and obtain medical attention as necessary.

• 眼睛接觸：若碎片或粉塵進入眼睛，勿揉眼，立即以大量緩和流動清水沖洗至少 15 分鐘，如不適持續應就醫。

Eye Exposure: If particles or dust enter the eyes, do not rub. Rinse cautiously with clean running water for at least 15 minutes. Seek medical attention if irritation persists.

• 食入：正常使用下不太可能；若誤食或有不適，立即就醫。

Ingestion is not expected during normal use. If swallowed or discomfort occurs, seek medical attention.

最重要症狀及危害效應：產品破裂時可能產生尖銳碎片，造成皮膚割傷；若因破裂、切割或研磨產生粉塵，可能對眼睛及呼吸道造成機械性刺激。

Broken wafers may generate sharp fragments that can cause cuts. Dust generated during breakage, cutting, or grinding may cause mechanical irritation to the eyes and respiratory tract.

對急救人員之防護：急救人員應依實際暴露情況配戴適當個人防護裝備；處理破損碎片時，建議配戴防護手套及眼部防護具，避免割傷及粉塵接觸。

First-aiders should wear appropriate personal protective equipment depending on the exposure conditions. Protective gloves and eye protection are recommended when handling broken fragments or where dust may be present.

對醫師之提示：依暴露症狀給予支持性及對症治療；若為碎片割傷，依一般外傷處置；若粉塵進入眼睛或吸入後症狀持續，應進一步評估與治療

Notes to physician: Treat symptomatically and supportively. Manage cuts as general lacerations. If eye exposure or inhalation of dust results in persistent symptoms, further medical evaluation is recommended.

## 五、滅火措施 / FIRE FIGHTING MEASURES

適用滅火劑：可依周圍火災狀況使用水霧、二氧化碳、乾粉或泡沫滅火劑。

Suitable: Use water spray, carbon dioxide, dry chemical powder, or foam as appropriate for the surrounding fire.

滅火時可能遭遇之特殊危害：本產品於正常情況下無特殊火災爆炸危害；受熱或外力影響時可能破裂，產生尖銳碎片

When Fire Hazards: No unusual fire or explosion hazards are expected under normal conditions. Exposure to heat or external force may cause breakage and generate sharp fragments

特殊滅火程序：依周圍火災情況採取適當滅火措施。避免破損碎片飛散，火場後續處理時應小心收集破片

Special firefighting procedures: Use firefighting measures appropriate to the surrounding fire conditions. Avoid dispersion of broken fragments and handle fire residues with care

消防人員之特殊防護設備：消防人員應穿戴標準消防防護裝備及必要時配戴自給式呼吸防護具。

Special protective equipment for firefighters: Firefighters should wear standard protective firefighting gear and self-contained breathing apparatus, if necessary.

## 六、洩漏處理方法/ ACCIDENTAL RELEASE MEASURES

個人應注意事項：避免接觸破損尖銳碎片；必要時配戴手套及護目裝備

Personal Precaution: Avoid contact with sharp broken fragments. Wear gloves and eye protection as necessary.

環境注意事項：避免碎片及粉塵散布於環境中

Environmental Considerations: Avoid release of fragments or dust into the environment.

清理方法：小心收集破損碎片並置於適當容器；如有粉塵產生，應避免揚塵並妥善清除

Cleaning Methods: Carefully collect broken fragments and place them in an appropriate container. If dust is generated, avoid dispersal and clean up properly.

## 七、安全處置與儲存方法/ HANDLING AND STORAGE

處置：應小心拿取，避免掉落、撞擊或擠壓；建議配戴防護手套，避免接觸破損尖銳碎片。

Handling: Handle carefully to avoid dropping, impact, or crushing. Wear protective gloves as appropriate and avoid contact with sharp broken fragments.

儲存：應置於適當儲存容器或原包裝中，保持外袋密封或真空包裝，並避免受潮、污染及重壓。

Storage: Store in appropriate containers or original packaging. Keep the outer bag sealed or vacuum-packed, and protect from moisture, contamination, and excessive pressure.

## 八、暴露預防措施/ EXPOSURE CONTROLS, PERSONAL PROTECTION

工程控制：正常使用下無特殊要求；如有粉塵產生，應採局部排氣或集塵措施

Engineering Controls: No special controls are required during normal use. If dust is generated, use local exhaust ventilation or dust collection

控制參數：

Control Parameter

• 八小時日時量平均容許濃度/短時間時量平均容許濃度/最高容許濃度：無本產品特定資料；粉塵應依相關標準管理

Eight hours average allowable concentration / short time average allowable concentration / maximum allowable concentration: No specific data for the product as a whole; generated dust should be controlled in accordance with applicable standards

• 生物指標：無資料

Biological indicators: No data available

個人防護設備：

Personal Protective Equipment

• 呼吸防護：正常使用下通常不需要；有粉塵時配戴適當防塵口罩。

Respiratory: Normally not required; use appropriate dust protection if dust is generated.

• 手部防護：配戴適當防護手套；處理破損品時建議使用防割手套。

Hand: Wear protective gloves; cut-resistant gloves are recommended when handling broken product.

• 眼睛防護：有碎片或粉塵產生時配戴安全眼鏡或護目鏡。

Eye: Wear safety glasses or goggles if fragments or dust may be generated.

- 皮膚及身體防護：一般工作服即可，必要時加強防護。

Skin and body: Normal work clothing is sufficient; additional protection as necessary.

衛生措施：作業後洗手，污染衣物應更換清洗。

Hygiene Measures: Wash hands after handling. Contaminated clothing should be changed and cleaned.

### 九、物理及化學性質/ PHYSICAL AND CHEMICAL PROPERTIES

外觀：固體，圓盤狀，灰色 Appearance: Solid, disc-shaped, gray color.	氣味：無味 Odor: Odorless.
嗅覺閾值：不適用 Odor Threshold: N/A.	熔點： 1410~1420°C Melting Point: 1410~1420°C
pH 值：不適用 pH: N/A.	沸點/沸點範圍：不適用 Boiling Point / Boiling Point Range: N/A
易燃性(固體、氣體)：不易燃 Flammability (solid, gas): Not flammable.	閃火點：不適用 Flash Point: N/A
分解溫度：不適用 Decomposition Point: N/A.	爆炸界限：不適用 Explosion Limits: N/A.
自燃溫度：不適用 Auto-ignition Temp: N/A.	蒸氣密度：不適用 Vapor Density: N/A.
蒸氣壓：不適用 Vapor Pressure: 1mm @1724 °C	溶解度：不溶於水 Solubility: Insoluble in water.
密度： 2.33 g/cm <sup>3</sup> Density: 2.33 g/cm <sup>3</sup>	揮發速率：不適用 Volatilization Rate: N/A.
辛醇/水分配係數(log Kow)：不適用 Octanol / Water Partition Coefficient (log Kow): N/A.	

### 十、安定性及反應性/ STABILITY AND REACTIVITY

安定性：正常狀況下安定。

Stability: Stable under normal conditions.

特殊狀況下可能之危害反應：受外力撞擊、掉落或擠壓時可能破裂，並產生尖銳碎片造成割傷。

Special Conditions of hazardous reactions: The product may break when subjected to impact, dropping, or crushing, generating sharp fragments that may cause cuts.

應避免之狀況：避免撞擊、掉落、擠壓及其他可能造成破裂之情況

Conditions to Avoid: Avoid impact, dropping, crushing, and other conditions that may cause breakage

應避免之物質：無特定資料

Materials to Avoid: No specific data available

危害分解物：正常使用下無已知危害分解產物

Hazardous Decomposition Products: No known hazardous decomposition products under normal conditions of use

#### 十一、毒性資料/TOXICOLOGICAL INFORMATION

暴露途徑：正常使用下不預期有明顯暴露；破損、切割或研磨時，可能經由吸入粉塵、眼睛接觸或皮膚接觸碎片而暴露

Exposure Pathway: No significant exposure is expected during normal use. Exposure may occur through dust inhalation, eye contact, or contact with broken fragments during breakage, cutting, or grinding.

症狀：破片可能造成割傷；粉塵可能對眼睛及呼吸道造成機械性刺激

Symptom: Broken fragments may cause cuts. Dust may cause mechanical irritation to the eyes and respiratory.

急毒性：正常使用下不預期有急性毒性危害；無本產品整體特定資料

Acute Toxicity: No acute toxic effects are expected under normal conditions of use; no specific data are available for the product as a whole.

慢毒性或長期毒性：正常使用下不預期有慢性或長期毒性危害；無本產品整體特定資料

Chronic Toxicity or Long-term Toxicity: No chronic or long-term toxic effects are expected under normal conditions of use; no specific data are available for the product as a whole.

## 十二、生態資料/ ECOLOGICAL INFORMATION

生態毒性：目前無本產品整體之特定生態毒性資料

Ecological toxicity: No specific Eco toxicological data are available for the product as a whole.

持久性及降解性：本產品為固體製品，於環境中不易快速分解

Persistence and degradability: As a solid article, the product is not expected to degrade rapidly in the environment.

生物蓄積性：目前無本產品整體之特定生物蓄積性資料。

Bioaccumulation: No specific data are available regarding the bio accumulative potential of the product as a whole.

土壤中之流動性：本產品為不溶性固體，正常情況下於土壤中流動性低。

Soil Mobility: As an insoluble solid article, the product is expected to have low mobility in soil under normal conditions.

其他不良效應：目前無已知其他重大不良生態效應；惟仍應避免任意排放至土壤、水體或環境中

Other adverse effects: No other significant adverse environmental effects are known. However, the product should not be released into soil, water, or the environment indiscriminately.

## 十三、廢棄處置方法/ DISPOSAL CONSIDERATIONS

廢棄處置方法：廢棄物不得任意棄置於土壤、水體或排水系統中，應依當地相關法規辦理處置。

Disposal considerations: Do not dispose of the product into soil, water bodies, or drainage systems. Disposal shall be carried out in accordance with applicable local laws and regulations

## 十四、運送資料/ TRANSPORT INFORMATION

聯合國編號：非危險品，未列管

UN-No: Not regulated.

聯合國運輸名稱：非危險品，未列管

UN Shipping Name: Not regulated.

運輸危害分類：非危險品，未列管

Transport Hazard Classification: Not regulated.

包裝類別：不適用

Package Classification: N/A.

海洋污染物(是/否)： 否

Marine Pollutant (Yes/No): No

特殊運送方法及注意事項：運送時應避免撞擊、掉落、擠壓及包裝破損

Special Transport Method and Attentions: Avoid impact, dropping, crushing, and damage to the packaging during transport.

### 十五、法規資料/ REGULATORY INFORMATION

適用法規 Applicable Regulatory：

本安全資料表所列產品之管理，應依相關適用法規辦理，包括但不限於下列規定

Handling, storage, transport, and disposal of this product shall comply with applicable laws and regulations, including but not limited to the following:

1. 職業安全衛生設施規則

Occupational Safety and Health Facilities Rules

2. 危害性化學品標示及通識規則

Regulations for the Labeling and Hazard Communication of Hazardous Chemicals

3. 道路交通安全規則

Road Traffic Safety Regulations

4. 事業廢棄物貯存清除處理方法及設施標準

Standards for the Storage, Clearance, Treatment and Facilities of Industrial Waste

### 十六、其他資料/ OTHER INFORMATION

參考文獻	危害化學物質中文資料庫 環保署	
製表單位 Prepared Dep.	名稱：環茂科技股份有限公司-品質部 Name: PYNMAX TECHNOLOGY CO; LTD. - Quality Department	
	地址 / Add： 高雄市永安區永工一路 17-2 號 NO.17-2, Yong Gong 1st RD, Yong An District, Kaohsiung City 82841, Taiwan	
	電話 / TEL： 886-7-624-3919	
製表人	職稱：工程師	姓名：包始惇

Prepared by	Title : Engineer	Name: Stanley Pao	
製表日期 Prepared Date	2026/3/20	版次	3.0

安全資料表應列內容項目說明：

一、化學品與廠商資料：

化學品名稱、其他名稱、建議用途及限制使用、製造者、輸入者或供應者名稱、地址及電話、緊急聯絡電話/傳真電話。

二、危害辨識資料：

標示內容、其他危害、化學品危害分類。

三、成分辨識資料：

純物質：中英文名稱、同義名稱、化學文摘社登記號碼(CAS No.)、危害成分(成分百分比)。

混合物：化學性質、危害成分之中英文名稱、濃度或濃度範圍(成分百分比)

四、急救措施：

不同暴露途徑之急救方法、最重要症狀及危害效應、對急救人員之防護、對醫師之提示。

五、滅火措施：

適用滅火劑、滅火時可能遭遇之特殊危害、特殊滅火程序、消防人員之特殊防護設備。

六、洩漏處理方法：

個人應注意事項、環境注意事項、清理方法。

七、安全處置與儲存方法：

處置、儲存。

八、暴露預防措施：

工程控制、控制參數、個人防護設備、衛生措施。

九、物理及化學性質：

外觀(物質狀態、顏色)、氣味、嗅覺閾值、pH 值、熔點、沸點/沸點範圍、易燃性(固體、氣體)、分解溫度、閃火點、自燃溫度、爆炸界限、蒸氣壓、蒸氣密度、密度、溶解度、辛醇/水分配係數(log Kow)、揮發速率。

十、安定性及反應性：

安定性、特殊狀況下可能之危害反應、應避免之狀況、應避免之物質、危害分解物。

十一、毒性資料：

暴露途徑、症狀、急毒性、慢毒性或長期毒性。

十二、生態資料：

生態毒性、持久性及降解性、生物蓄積性、土壤中之流動性、其他不良效應。

十三、廢棄處置方法：

廢棄處置方法。

十四、運送資料：

聯合國編號、聯合國運輸名稱、運輸危害分類、包裝類別、海洋污染物(是/否)、特殊運送方法及注意事項。

十五、法規資料：

適用法規。

十六、其他資料：

參考文獻、製表單位、製表人、製表日期。

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