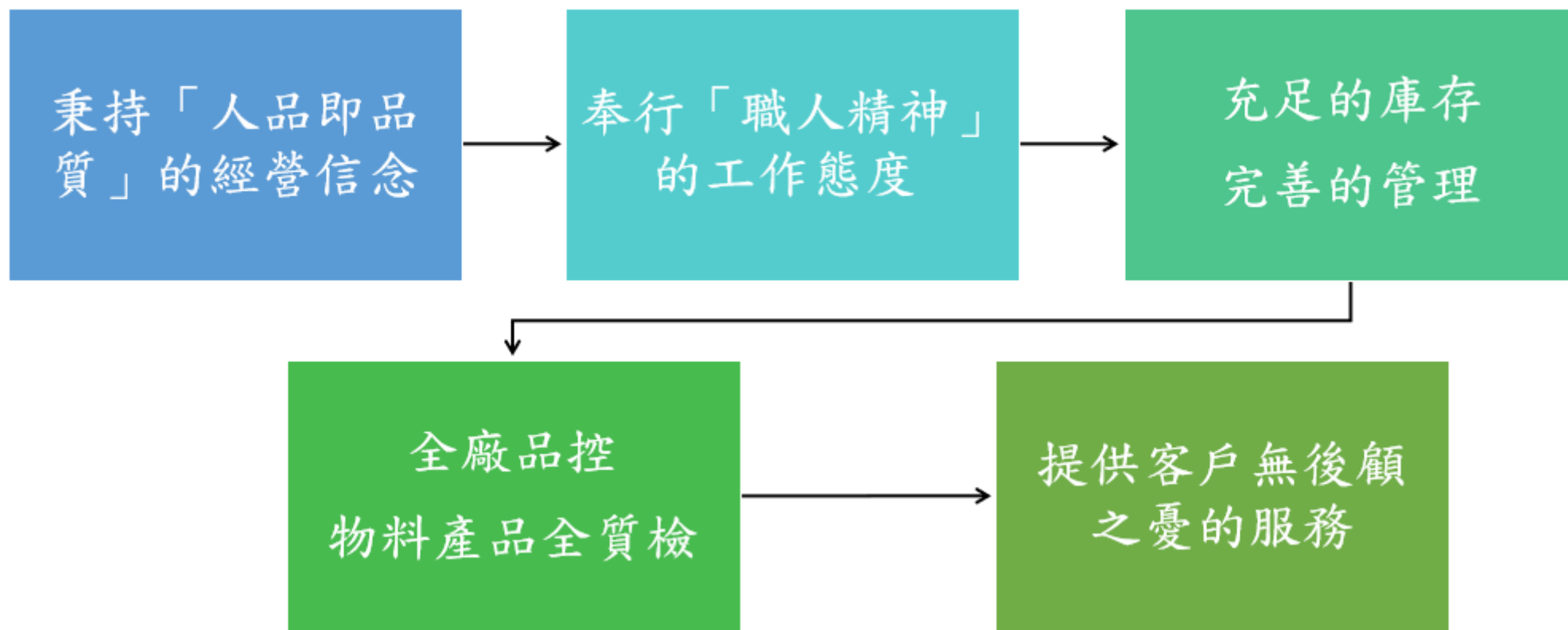




高純度 有色金屬蒸發料

公司簡介



專營項目：

高純度有色金屬蒸發料、
鈹與鈹鎢合金壓力加工製品

- ✓ 穩定可靠的產品：
 - 具科研背景與實務經驗的團隊
 - 數十年科研實務積累
 - 提供專精生產品項
- ✓ 客製化的開發服務：
 - 具熔煉提純→終端產品之製程
 - 具資源整合與檢測能力
 - 協助長期合作客戶新材料開發服務

設備與產能

- 設備：

600瓩電子束熔煉爐

3000噸鍛壓設備

400噸軋板機

多型棒材精鍛機

高溫真空退火爐

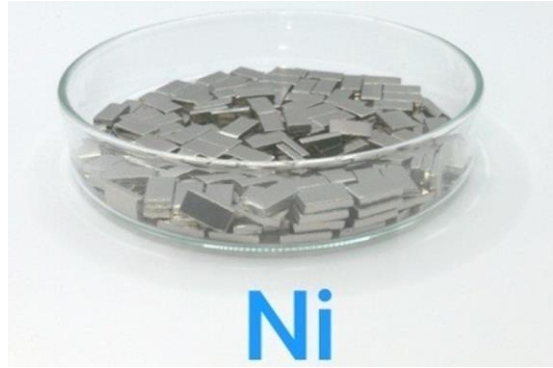
- 高純度有色金屬產能

顆粒與錠：30公噸/年。

Cr破碎粒：6公噸/年。



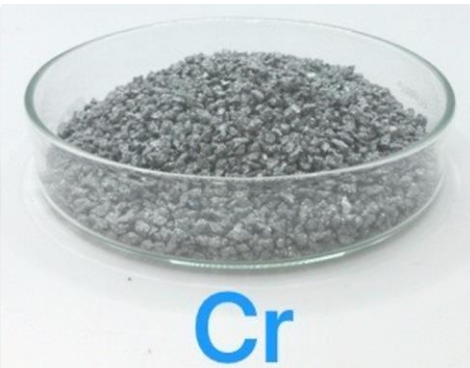
產品介紹(材質、形狀)



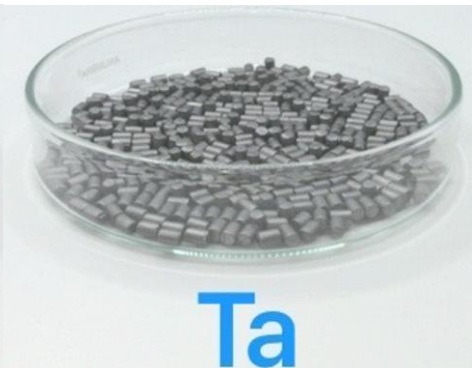
Ni



Ti



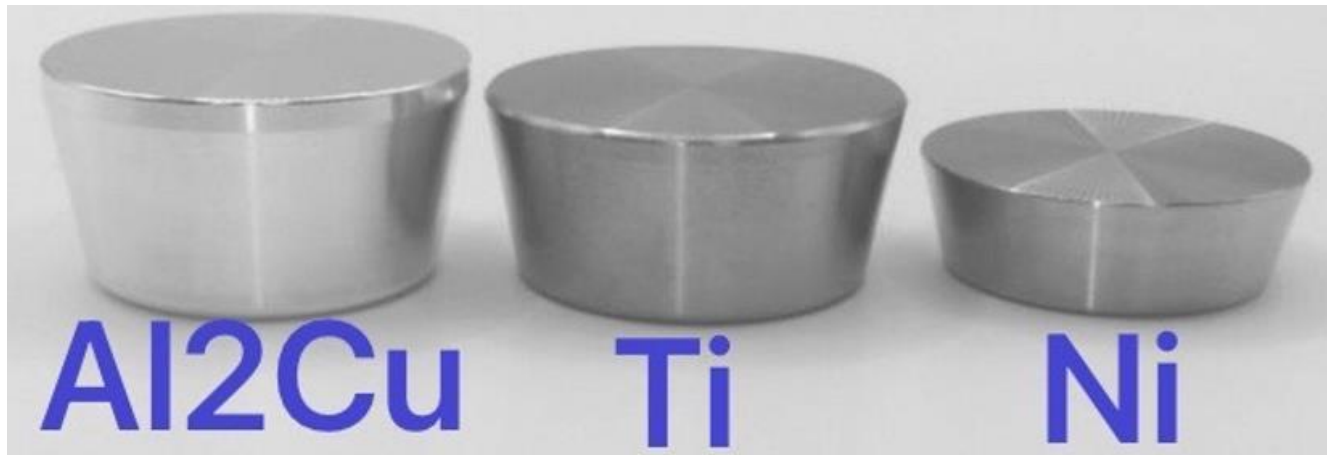
Cr



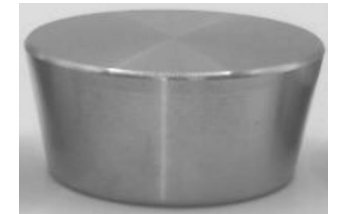
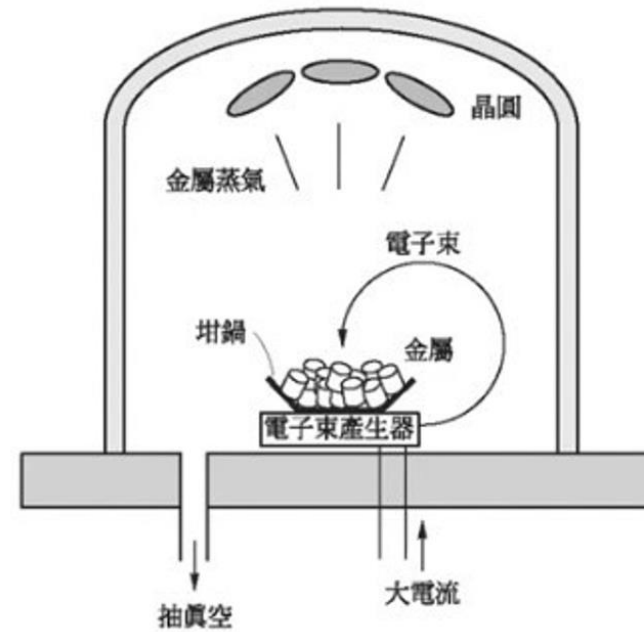
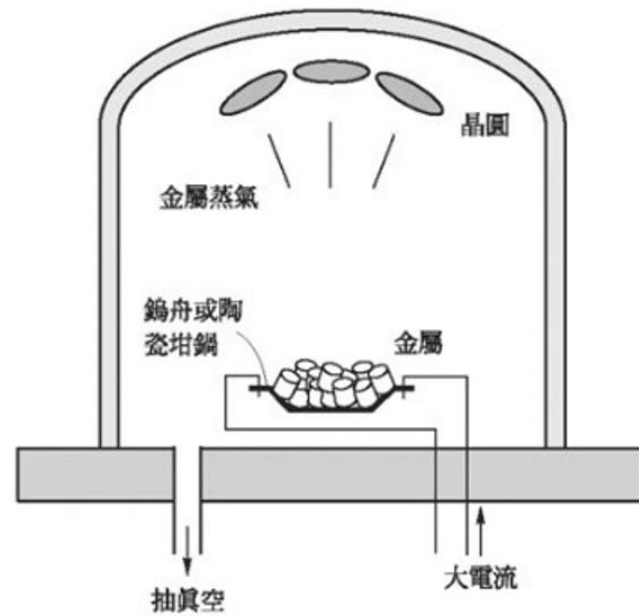
Ta



Al



用途(熱蒸鍍、電子束蒸鍍)



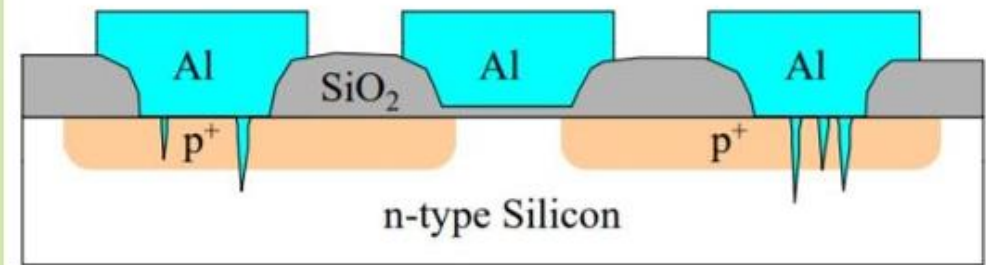
(ref.全華圖書)

高純有色金屬蒸鍍顆粒應用(鋁銅合金顆粒)

電遷移抵抗

- 當少量的銅與鋁形成合金,鋁的電遷移抵抗會被顯著地改善
- 銅扮演鋁晶粒間的黏著劑且保護他們避免遷移而造成離子轟擊
- 鋁矽銅合金被使用
- 鋁銅 (0.5%)合金最常被使用

尖凸現象



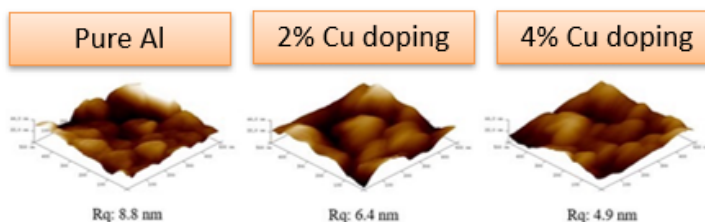
擷自網路，僅供參考

獨家開發 -新穎鋁銅合金蒸發料



- ✓ 獨家生產高含銅量之鋁銅合金蒸發料。
- ✓ 應用於高頻、高功率半導體元件之金屬薄膜電極蒸鍍，例如表面聲波濾波器。
- ✓ 已有導入終端消費性電子通訊產品實績。

- 與純鋁陰極元件相比，含銅量4wt%，壽命可從75hr提升至263hr
- 在1,000 cd/m²，含銅量4wt%，效率可提升31%，從32lm/W提升至42lm/W
- 含銅量增加，可抑制通電子遷移導致尖刺產生以及更光滑的鋁界面



經過7V通電15分鐘後的表面型態

項目	影響量化%	
	電極含2%銅	電極含4%銅
壽命	+105	+250
效率	+31	+31
表面平整度	+48	+53
抑制電子遷移	+27	+44
Work function	+7	+10
片電阻	-3	-17
反射率	-3	-4

Minor Copper-Doped Aluminum Alloy Enabling Long-Lifetime Organic Light-Emitting Diodes

Yun-Jie Lin,[§] Chia-Sheng Huang,[§] Pei-Chung Tsai, Yu-Lun Hsiao, Cheng-Yu Chen,* and Jwo-Huei Jou*

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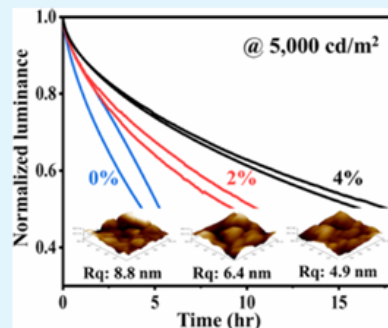
Metrics & More

Article Recommendations

Supporting Information

ABSTRACT: Aluminum has been extensively used as a conductor material in numerous electronic devices, including solar cells, light-emitting diodes (LEDs), organic LEDs (OLEDs), and thin-film transistors. However, its spiking surface and easy electromigration have limited its performance. To overcome this, a trace amount of nonprecious copper dopant has been proven effective in enhancing device reliability. Nevertheless, a comprehensive investigation regarding the effect of copper doping on the morphology at the aluminum conductor–organic interface is yet to be done. We had hence fabricated a series of green OLED devices to probe how copper doping affected the aluminum conductor, morphologically and electrically, and the corresponding device's efficiency and lifetime performance. We found 4 wt % copper doping to be highly effective in enabling a spike-less and smoother aluminum interface, which in turn enabled the fabrication of devices with much higher efficiency and lifetime. Specifically, the corresponding power efficacy at 1000 cd/m² was increased from 32 to 42 lm/W and the lifetime increased from 75 to 263 h, an increment of 250%. Atomic force microscopy confirmed that the copper doping did help smooth out the conductor interface as deposited and reduce electromigration upon operation.

KEYWORDS: minor copper-doped aluminum cathode, spike-less, electromigration, lifetime, efficiency, OLED



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Complete contact information is available at: <https://pubs.acs.org/10.1021/acsami.2c18275>

Author Contributions

[§]Y.-J.L. and C.-S.H. contributed equally to this paper

Notes

The authors declare no competing financial interest.

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合作項目

- 高純度有色金屬蒸發顆粒



材質	純度	尺寸(mm)
Ni	4N5, 5N	D3x3, D3x6, D6x6, 10x10x2, 10x5x2
Ti	4N5, 5N	D3x3, D3x6, D6x6, 10x10x2, 10x5x2
Cr	3N5	1~3(piece)
Al	5N, 5N5, 6N	D3x3, D3x6, D6x6
Al ₂ Cu, Al _x Cu(x>8)	5N	D3x3, D3x6, D6x6
Ta	4N5	>D3
Cu	6N	D3x4.5

p.s. 可客製化>D3 尺寸顆粒