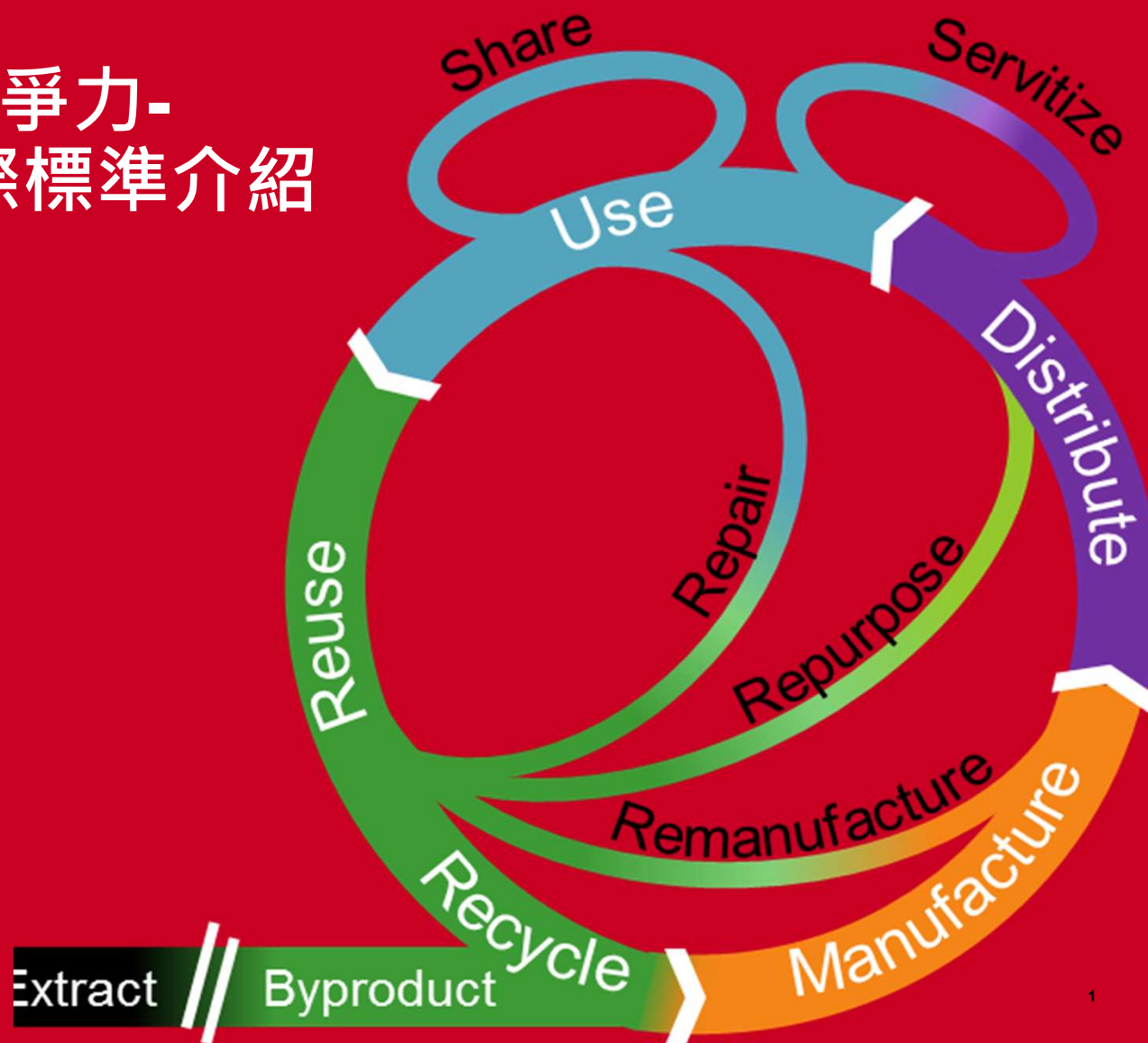


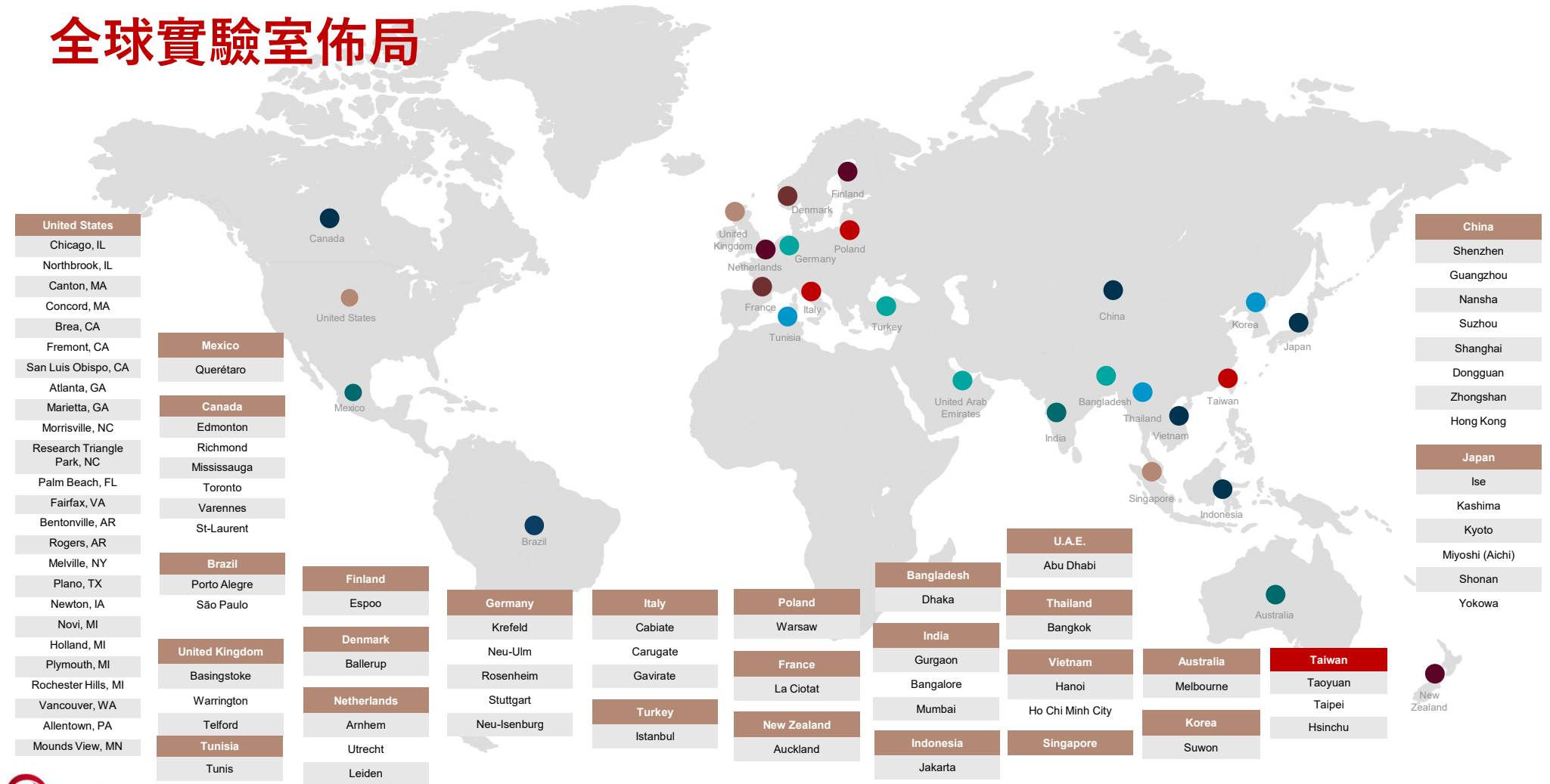
循環經濟下的企業競爭力- UL循環經濟相關國際標準介紹

UL2799 – 廢棄物零填埋驗證
UL2809 – 再生料含量驗證

Shawn Liang 梁詠翔
零售暨消費性產品事業部
業務行銷專案經理



全球實驗室佈局



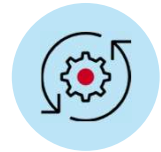
我們的服務



Certification



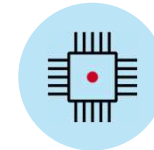
Verification
and validation



Testing



Auditing and
inspection



Software



Data insights



Advisory



Learning and
development



Field
evaluation

UL Solutions 台灣

成立於 1988



5+1

個服務
據點



1

美國以外唯一
標準研發
暨測試研究中心



850

名專業團隊



3,700+

個在地客戶





減碳與物料循環趨勢

UL 物料循環系列標準助力企業以科學數據達成減碳目標

循環經濟是 “一種透過設計來恢復和再生的經濟，它的目標是使產品、零部件和材料在任何時候都能達到最高的效用和價值。”

“Circular Economy.” Ellen MacArthur Foundation. Web. Oct. 11, 2016



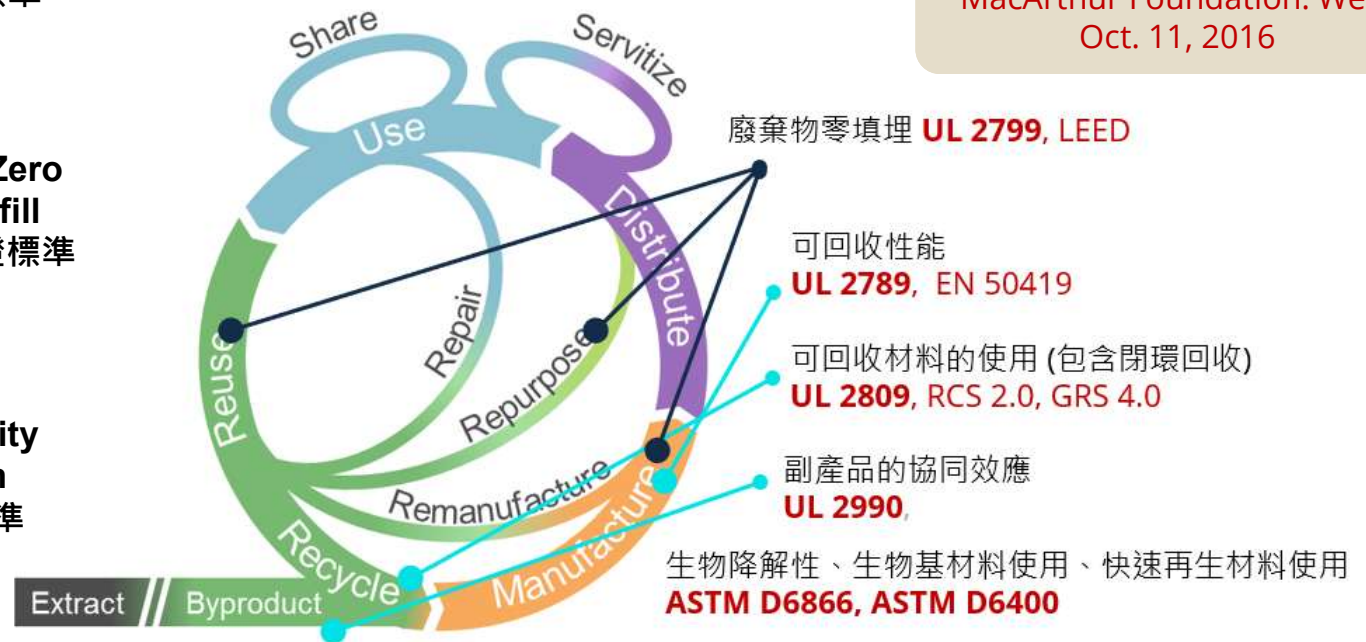
UL ECVP 2809
Recycled Content
再生料含量驗證標準



UL ECVP 2799 Zero
Waste to Landfill
廢棄物零填埋驗證標準



UL3600 Circularity
Facts Program
循環係數認證標準





零廢棄，讓明天更美好
- UL2799

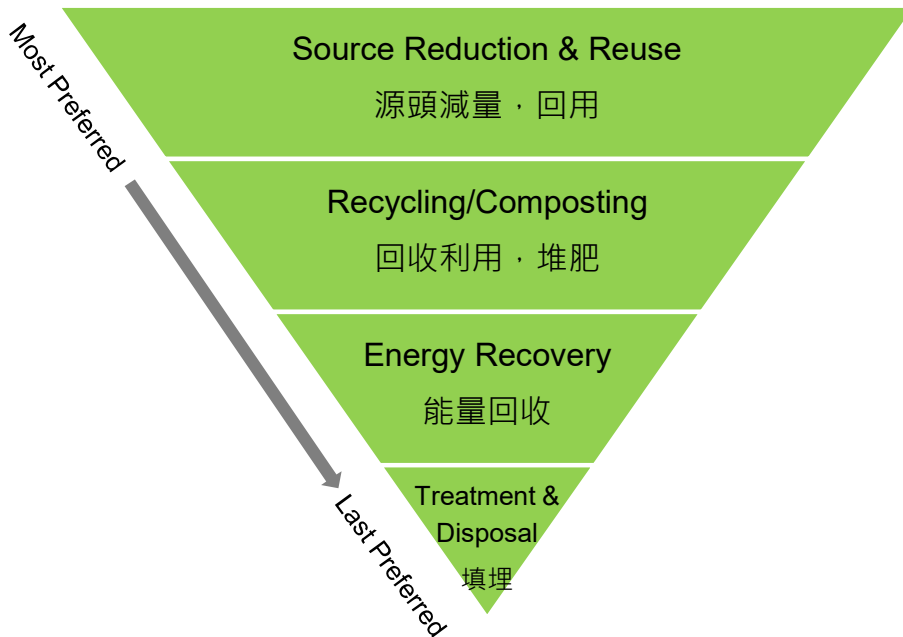


UL 2799 廢棄物零填埋 驗證介紹及要點

Operating Theory: More Diversion = Better

理論支持：轉化越多越好

Waste Management Hierarchy 廢棄物管理層級



US EPA美國環保署: Advancing Sustainable Materials Management: Facts and Figures 2013

Use less!

Eliminate / reduce packaging volume
Reduce overall consumption

少用！

消除/減少包裝量
減少總體消耗

Use again... and again!

Liquidate
Donate food / goods
Reuse materials for returns (e.g., cardboard boxes)

重複使用！

變賣
捐贈食品和物品
材料的重複使用（如紙板箱）

Give new life to used items!

Recycle materials that cannot be liquidated
Compost organics that cannot be donated
Derive energy from thermal technology methods
(e.g., incineration)

賦予舊物品新生命！

回收加工不能變賣的物料
對不能捐贈的有機物進行堆肥
通過熱技術方法獲取能量
（例如焚化）

Trash... responsibly!

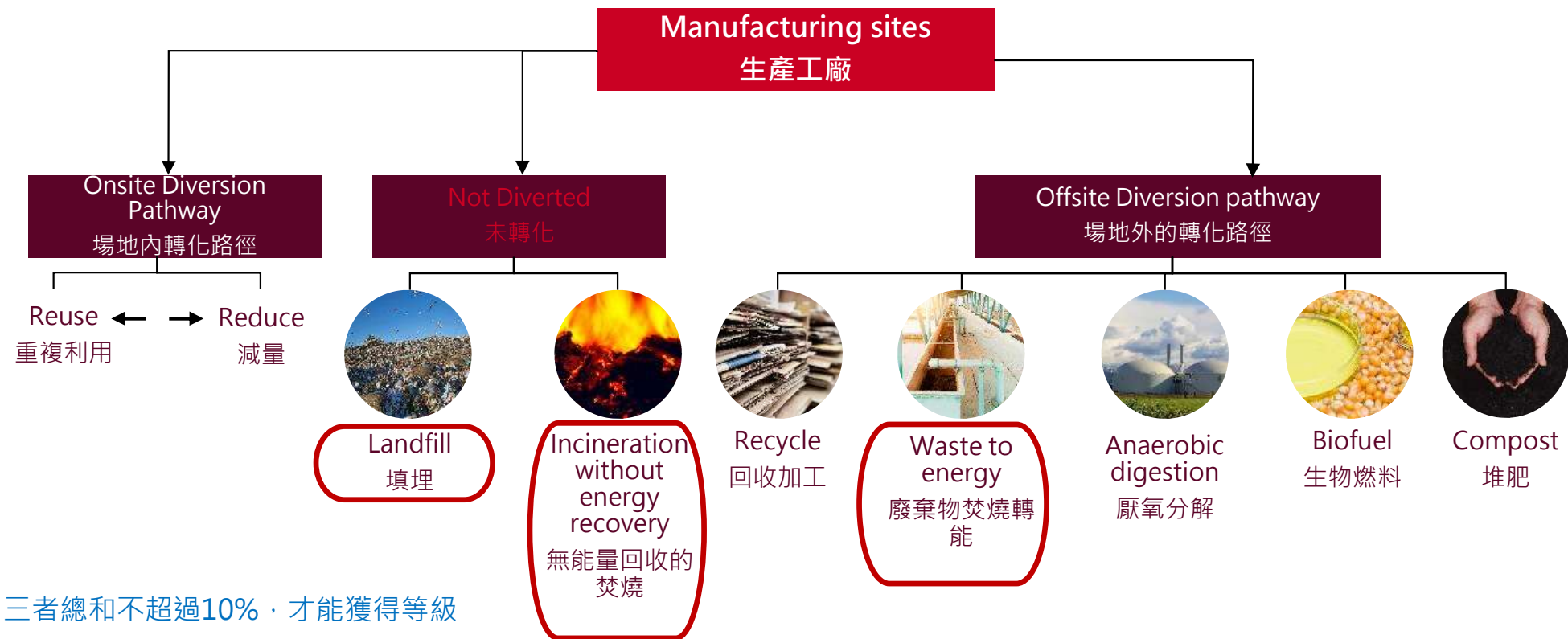
Dispose of hazards in accordance with the law
Make sure your “trash” and “recyclables” are clean – meaning no trash in recyclables, no recyclables in the trash

負責任地丟棄！

依法處置危險品
確保“垃圾”和“可回收物”是分開的，
這意味著可回收物中沒有垃圾，
垃圾中沒有可回收物

Waste Diversion and Disposal Routes

廢棄物轉化和處理方法



The “Diversion Equation” 轉化公式

- Basically, it is this:

$$\frac{\text{TOTAL Mass of all Materials that are “Diverted”}}{\text{TOTAL Mass of All Material that is “Discarded”}} = \text{Diversion Rate 轉化率}$$

所有被轉化廢棄物的總重量
所有產生的廢棄物的總重量

Discarded = Diverted + Disposed to Landfill + Incinerated without Energy Recovery
產生的廢棄物 = 被轉化的廢棄物 + 被填埋的廢棄物 + 被無能源回收焚燒的廢棄物

Designations and Transparency 等級和透明性

級別	Diversion		Non-diversion	
	轉化率	焚燒轉能 (WTE)	無能源焚燒	填埋
鉑金級	100%	$\leq 10\%$	0	
金級	95% - 99%	9%	1%	
		8%	2%	
		7%	3%	
		6%	4%	
		5%	5%	
銀級	90% - 94%	4%	6%	
		3%	7%	
		2%	8%	
		1%	9%	
		0	10%	

Note: UL requires at least 90%, diversion through methods other than waste to energy to achieve Zero Waste to Landfill (Silver, Gold, Platinum) designations.

UL要求至少90%的廢棄物通過非廢棄物發電的方法轉化，才能獲得UL廢棄物零填埋銀、金、或者鉑金級認證。

Designations and Transparency 等級和透明性

- Example Claims: 聲明示例：
- **Platinum:** Clean Industries has achieved Zero Waste To Landfill Platinum Operations, 100% diversion rate, with 10% Thermal Processing with Energy Recovery
- 鉑金級：Clean Industries獲得廢棄物零填埋鉑金級認證，轉化率為100%，其中有能量回收的熱處理占10%。
- **Gold:** Clean Industries has achieved Zero Waste To Landfill Gold Operations, 98% diversion rate, with 6% Thermal Processing with Energy Recovery
- 金級：Clean Industries獲得廢棄物零填埋金級認證，轉化率為98%，其中有能量回收的熱處理占6%。
- **Silver:** Clean Industries has achieved Zero Waste To Landfill Silver Operations, 94% diversion rate, with 4% Thermal Processing with Energy Recovery
- 銀級：Clean Industries獲得廢棄物零填埋銀級認證，轉化率為94%，其中有能量回收的熱處理占4%。
- **Certified Waste Diversion Rate:** Clean Industries has achieved a landfill diversion rate of 85%, with 20% Thermal Processing with Energy Recovery
- 認證的廢棄物轉化率：Clean Industries的廢棄物轉化率為85%，其中有能量回收的熱處理占20%。

Validation Process 驗證流程



Evidence Requirements

認證需要的文件

Categories of information you 'll provide include

所需要提供的資訊種類包括:

Material inventory (finished goods and waste)

詳細的材料清單 (包括成品和廢棄物的材料清單)

Calculation of diversion rate (including hauling records, waste processor information and processing methods)

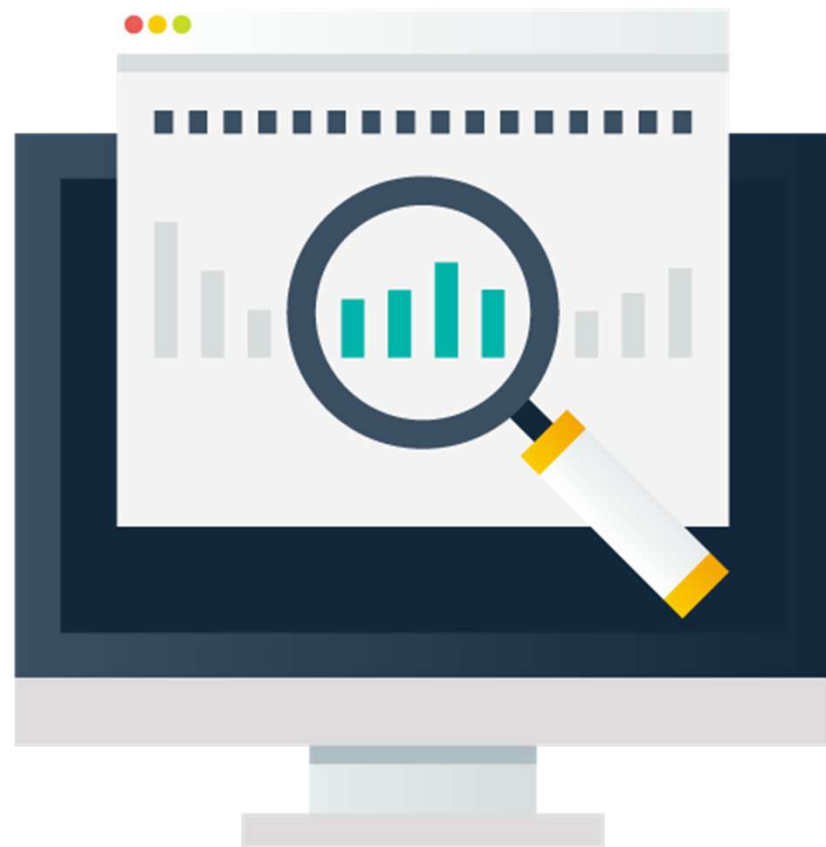
轉化率的計算 (包括運輸記錄、廢物處理資訊和處理方法)

Manufacturing location and processes

製造地點和製程

Quality systems/Waste Management SOP (and documentation of any estimation methods)

品質體系/廢棄物管理SOP (和估算方法的文件)



The Deliverables 認證交付成果

Environmental Claim Validation

Certificate

405267-4160

Issue Date

12 Jun 2025

Expiration Date

12 Jun 2026

UL

VALIDATED

ANAB

IAF

Renee Valles

Renee Valles

Director and General Manager

UL Verification Services Inc.

2211 Newmarket Parkway, Ste 106

Maricopa, CA 90067 USA

UL Verification Services does hereby certify that an independent assessment has been conducted on behalf of:

Swire Coca-Cola Beverages Limited., Taiwan Branch

for the following facility:

Swire Coca-Cola Beverages Limited., Taiwan Branch

The facility has been evaluated and meets the requirements for:

UL ECVP 2799, Environmental Claim Validation Procedure (ECVP) for Zero Waste to Landfill, Edition 4.0, Issue Date July 9, 2024

Claim: Swire Coca-Cola Beverages Limited., Taiwan Branch has achieved Zero Waste to Landfill Platinum Operations, 100% diversion, with 6% Thermal Processing with Energy Recovery.

Facility:

46 Xingbang Rd Taoyuan District Taoyuan, 330457, Taiwan

UL Solutions evaluated representative samples of the identified product, process or facility to the identified Standard or other requirements in accordance with the agreements and any applicable program service terms in place between UL Solutions and the Client (collectively "Agreement"). The Client is authorized to use the UL Mark for the identified Product, process or facility covered by this certificate, in accordance with the terms of the Agreement. This Certificate is void for the identified dates unless there is non-compliance with the Agreement. This certificate is subject to modification, suspension and withdrawal by UL Solutions see SPOT ul.com to authenticate the certificate.

UL Solutions SPOT

Customer Portal Resources Why Choose SPOT? News Help And Support

LIANG

Sustainable Products of Trust database

SPOT is now more than 180,000 product families strong.

Search

advanced search

Products Catalog

546 results

Save Search Share Search Sort By: BY RELEVANCE

Clear All Filters

Already Applied Filters

Certification

Zero Waste to Landfill - Claim Validation

Manufacturer / Brands

Product Type

MasterFormat®

Rating Systems/Sustainable Credits

Standard Number

Region Sold

Region Manufactured

SINBON ELECTRONICS CO LTD

SINBON ELECTRONICS CO LTD

GP Batteries (Malaysia) Sdn. Bhd.

SENAI site

GP Batteries (Malaysia) Sdn. Bhd.

HD HYUNDAI INFRACORE

Incheon Plant

HD HYUNDAI INFRACORE CO., LTD

KGC 한삼공사

Korea Ginseng Corporation Buyeo Factory

Tianjin Samsung SER CO., Ltd.

Tianjin Samsung SDI CO., Ltd.

Marian (Shenzhen) Co., Ltd.

Mailiao (Shenzhen) Co., Ltd.

NO IMAGE AVAILABLE

Back to Top

UL

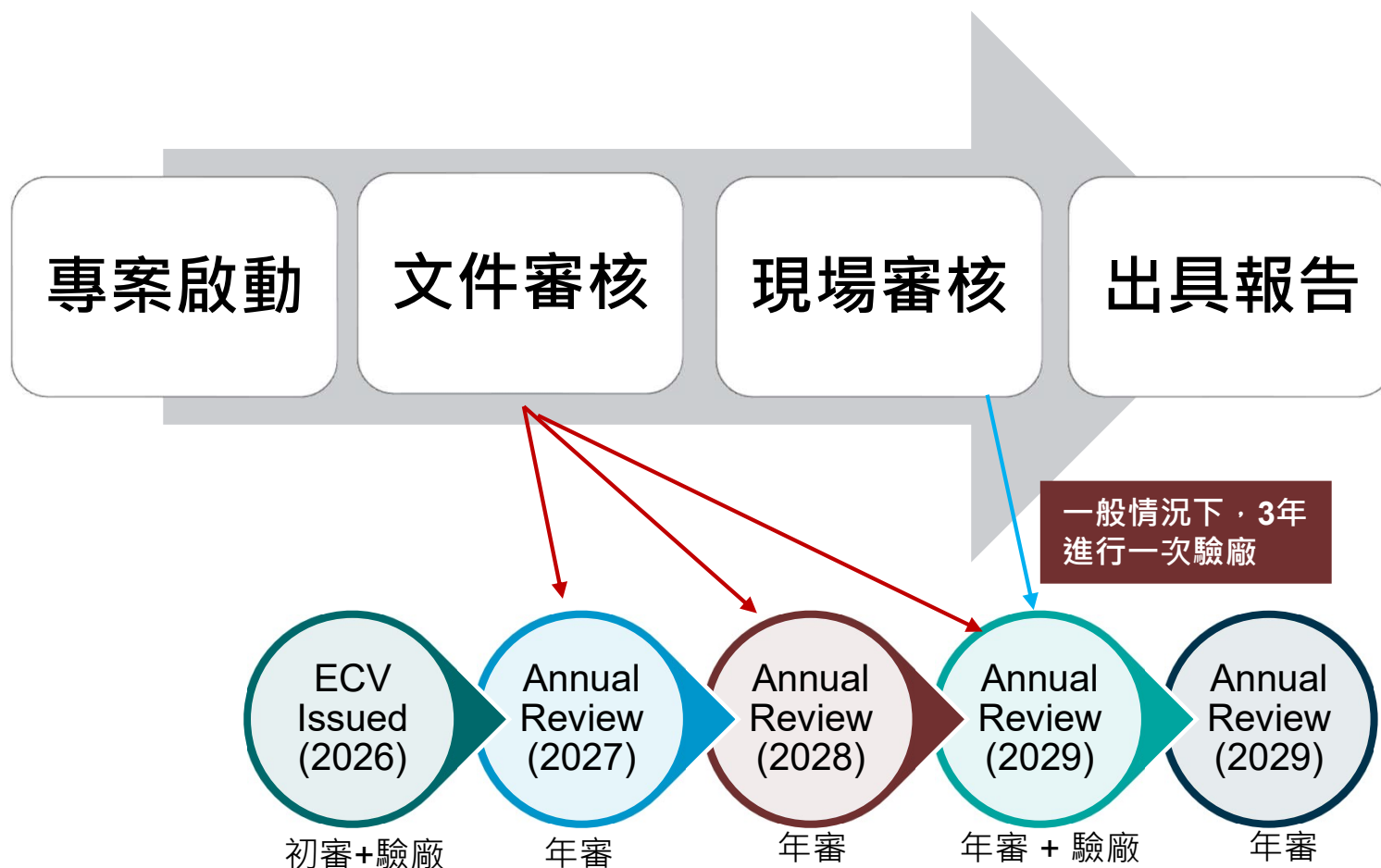
VALIDATED

• XYZ FACILITY HAS ACHIEVED ZERO WASTE LANDFILL GOLD OPERATIONS, 98% DIVERSION RATE, WITH 6% THERMAL PROCESSING WITH ENERGY RECOVERY

UL.COM/ECV

<https://spot.ul.com>

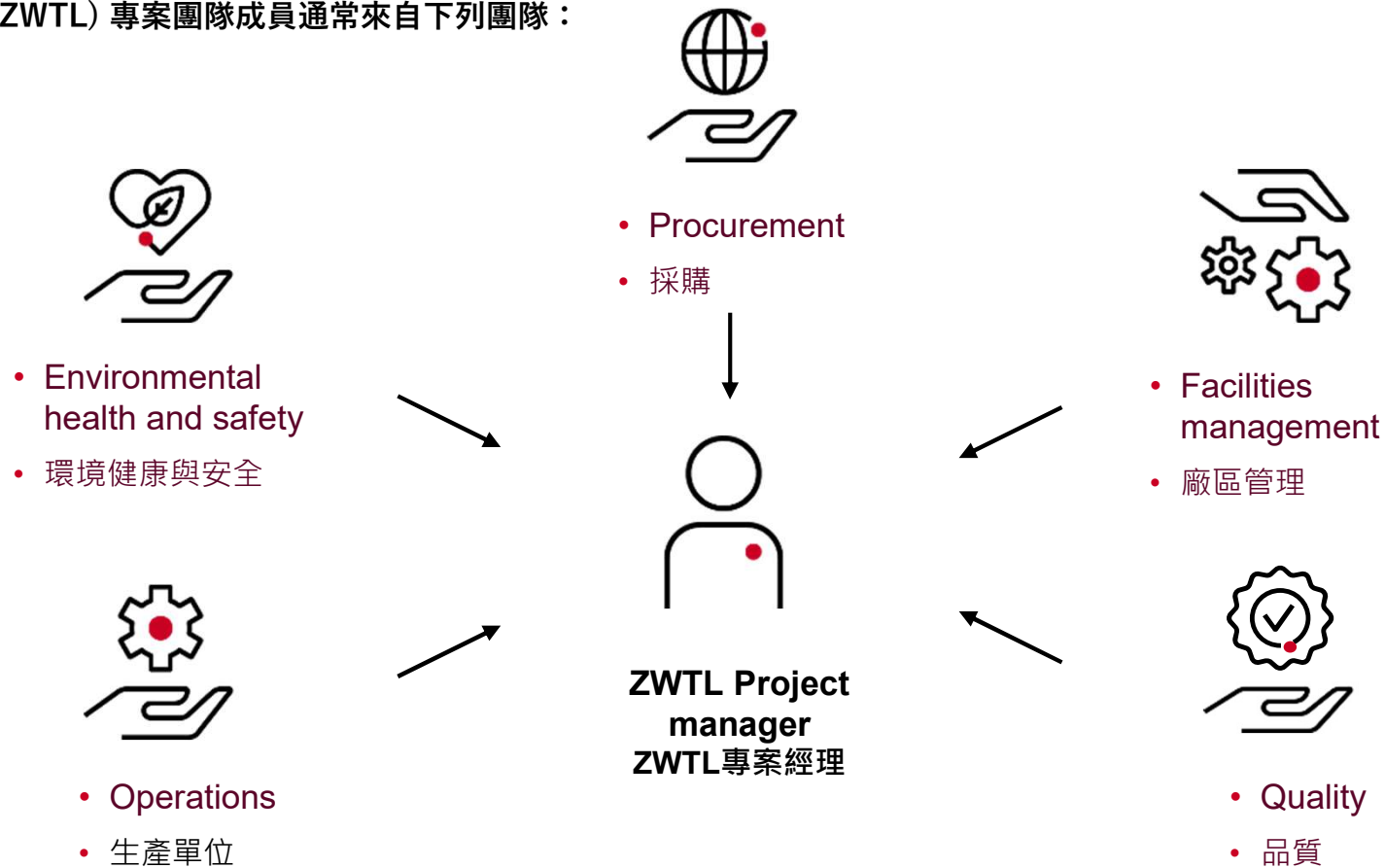
認證流程 與 年審計劃-持續合規



Stakeholder engagement 利益相關者參與

Often Zero Waste to Landfill (ZWTL) Project team members come from the following teams:

廢棄物零填埋 (ZWTL) 專案團隊成員通常來自下列團隊：



Why Pursue “Waste Diversion” Certification?

取得廢棄物分流驗證的好處

- Improve cost savings 進一步節約成本
- Reduce environmental impacts 減少環境影響
- Reduce risks and monitor vendors 降低風險並供應商監管
- Green your supply chain 綠化供應鏈
- Enhance competitiveness 提升競爭力
- Enhance your reputation 提高企業聲望
- Increase employee awareness 提高員工意識



UL2809 再生料含量驗證



UL 2809 回收材料含量認證

- 驗證目的：
使用回收料的目的是延長材料的使用壽命，減少自然消耗資源，可獲得可觀的環境效益。
- 再生料來源種類
 - Post-Consumer Recycled 消費後回收材料
 - ✓ Ocean Plastics 海洋塑膠
 - ✓ Ocean-Bound Plastics 趨海塑膠
 - ✓ IT & WEEE recycled plastics 和電信設備衍生之再生塑料
 - ✓ Close Loop System 閉環系統回收材料
 - Post-Industrial Recycled 工業後回收材料
 - By-product synergy 副產品協同、reused components回用料件、refurbished components翻新料件、biomass sources of materials生質材料....



UL 2809 回收材料含量驗證查核要點

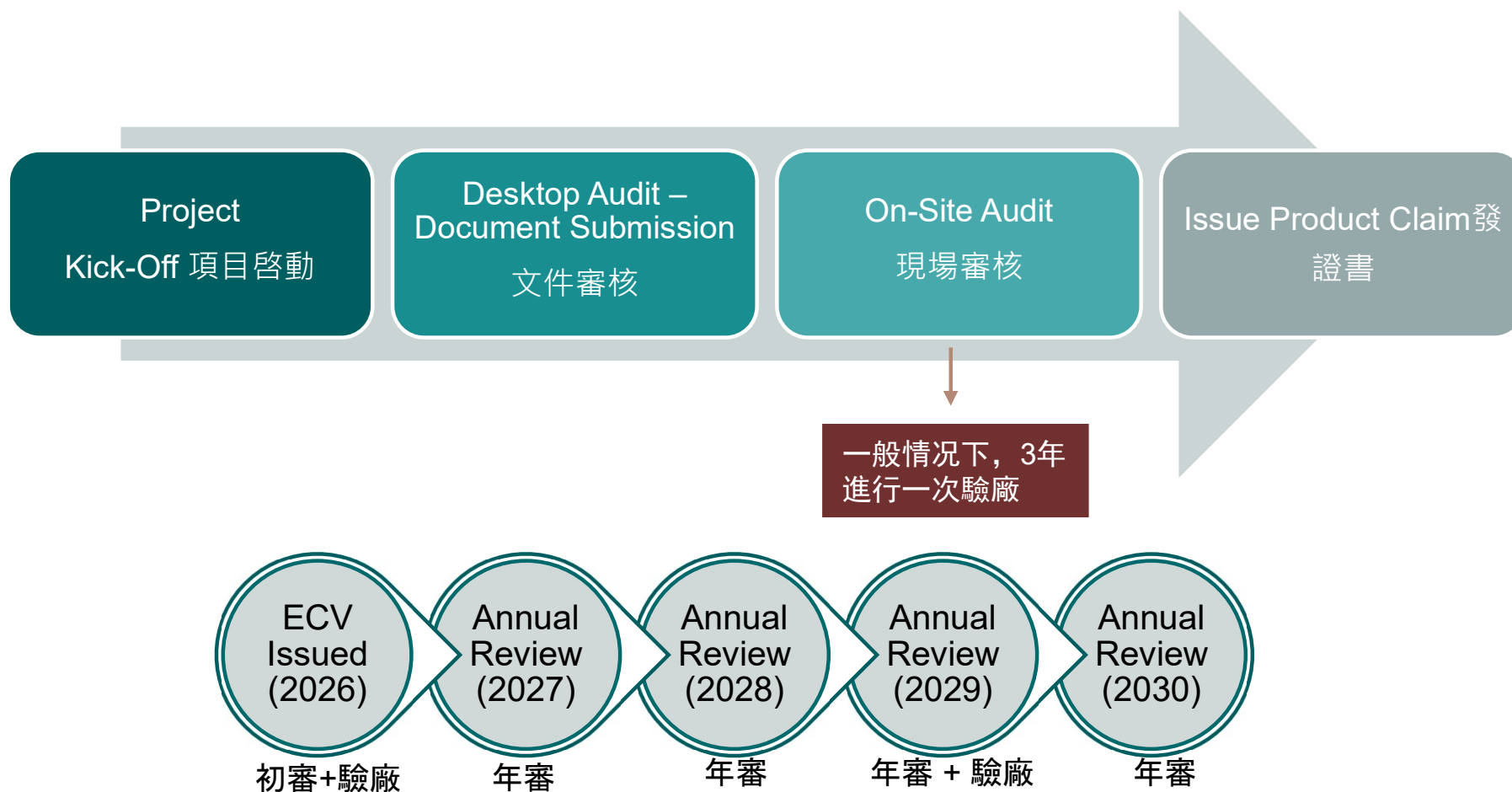
文件查核：

- 完整的產品組成規格
- 回收材料 / 成品之組成
- 生產流程圖
- 透過回收材料供應商聲明來評估供應鏈
- 生產記錄
- 回收比例計算
- 回收料的接收紀錄及供應商的發貨紀錄
- 品質管控 (含入料品質、製程品質、成品品質、供應商評鑑紀錄...等)

On site audit 工廠審核：

- 物料管控：從原料接收到成品儲存
- 確認材料清單和生產記錄
- 秤量工具(天平/磅秤等)校正紀錄及標示
- 品質系統文件檔、程序確認
- 認證檔中所提到的具體資料要求
- 通常需要一天完成現場查核

驗證流程 與 年審計劃-持續合規



環保聲明驗證交付內容

驗證交付：

- 結案確認信(Letter report)
- 永續數據庫列名(SPOT)
- 環境驗證聲明標籤
- 環境驗證聲明使用指導
- 結案報告

- ✓ 通過每年的年審來維護證書的有效性
- ✓ UL標籤可以用在產品，說明書，網頁，企業社會責任報告上
- ✓ UL會根據聯邦貿易協會綠色指南 (FTC 16 CFRPart 260) 開發專屬產品的環境聲明驗證宣言



UL2702

再生材料永續標準





Introducing Recycled Content Certification

As your buyers grow more wary of sustainable product claims, it's important to combat greenwashing through certification to UL 2702: Sustainability Criteria for Recycled Content in Products.

UL Solutions evaluates your finished products to determine recycled content across a range of categories including:

- Total recycled content
- Post-consumer recycled content
- Pre-consumer (post-industrial) recycled content
- Closed-loop recycled content

Successful certification earns the UL Certified Mark for recycled content. This is a powerful and recognizable symbol of your commitment to product circularity and environmental stewardship.



Safety. Science. Transformation.™



Transparent classification system

Recycled content certification is based on an easy-to-understand classification system aligned to the percentage of recycled content by weight in your product. The silver, gold and platinum classifications also offer a quick understanding for your customers and the broader marketplace.

Minimum recycled content requirements for the classification (wt. - %)

Product type	Classification		
	Silver	Gold	Platinum
Mono-material and multi-material products	30	50	80
Assembled products	5	15	25

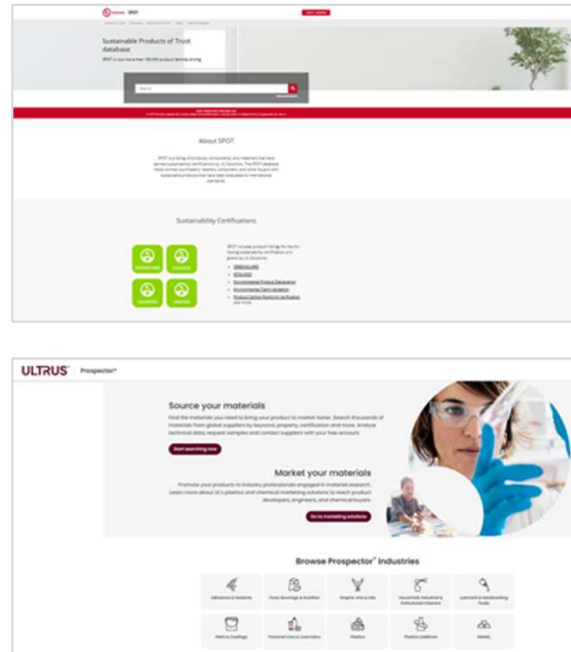
[UL.com/Solutions](https://www.ul.com/Solutions)

證書交付內容

1



2



3





Thank you

SPOT--- <https://spot.ul.com>

Shawn Liang| T: +886 2 77373366 /E: Shawn.Liang@ul.com

[UL.com/Solutions](https://ul.com/Solutions)

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