



**Solus Advanced  
Materials**

**Solus Advanced Materials Co., Ltd.  
1Q24 Earnings Report**

April 24, 2024



# Disclaimer

The information herein has been prepared based on unaudited financial statements for your information purposes only and contains preliminary figures which may change depending on the external audit results.

All information about the company's financial performance contained in this material is based on consolidated financial statements in accordance with Korean IFRS.

This material also contains “forecasts” based on predictions, forecasts, plans and expectations for the future, and these “forecasts” may differ significantly from the company’s actual performance to be provided in the future due to their uncertain nature.

## **I. 1Q24 Earnings Report**

## **II. Summary Financial Statements**

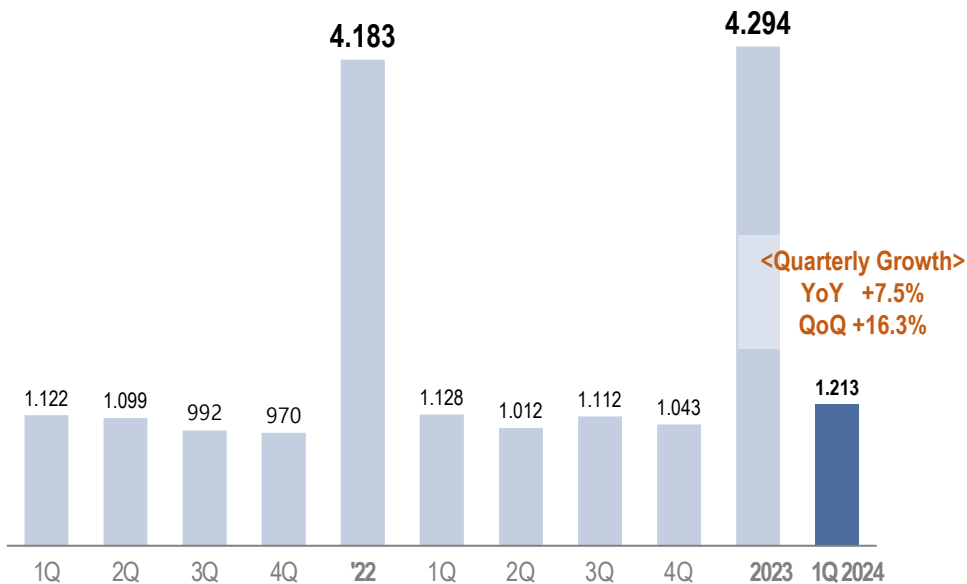
## **III. Appendix**

# 1Q 2024 Consolidated Performance

- **Sales** : Recorded sales of KRW 121.3 billion, an increase of 7.5% compared to the same period last year, and of 16.3% compared to the previous quarter, thanks to increased demand for battery foil from major customers, increased sales of high-end copper foil, and increased supply due to a recovery in global demand for electronic materials.
- **EBIDTA** : EBTDA turned into a surplus compared to the same period last year and was recorded as KRW 2.1 billion, up by 162.5% compared to the previous quarter, due to an increased supply of copper foil that resulted in a surplus compared to the previous quarter and increased profits for electronic materials due to a volume expansion in low-end smartphones.

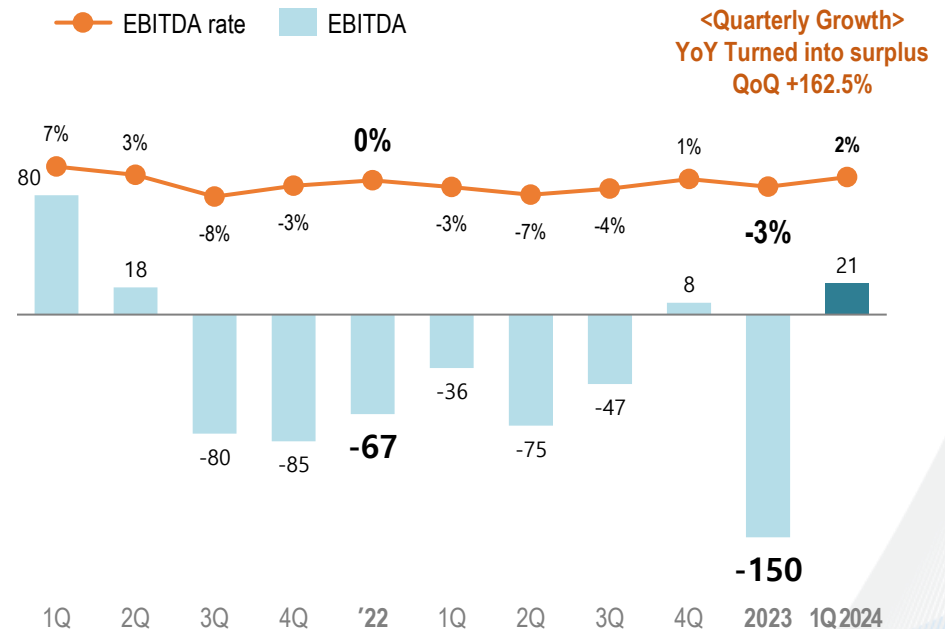
## Sales Trend

(KRW 100 million)



## EBITDA (rate) Trend

(KRW 100 million)



# 1Q 2024 Performance & 2Q Plan by Business division

## 1Q 2024 Performance

- **Battery foil:** QoQ +25.5% and YoY +15.2% due to increased supply to major customers despite a continued slowdown in global electric vehicle growth
- **Copper foil:** QoQ +13.8% and YoY -0.3% due to increased sales of high-end copper foil resulting from the recovery of the semiconductor industry
- **Electronic materials:** Sales of QoQ +14.2% and YoY +7.9% due to volume expansion in low-end smartphones and increased CPL supply

## 2Q 2024 Plan

- **Battery foil:** Productivity improvement and response to ensure timely supply in anticipation of increased sales volume due to increased demand from major customers
- **Copper foil:** Approval and mass production of high-end copper foils, such as ultra-low illuminance copper foil for AI servers and ultra-thin for semiconductors
- **Electronic materials:** Promotion of continuous response and adoption of the next model applied products of display customers

(KRW 100 million)

Category	1Q 2024	4Q 2023	QoQ	1Q 2023	YoY
<b>Sales</b>	<b>1,213</b>	<b>1,043</b>	<b>+16.3%</b>	<b>1,128</b>	<b>+7.6%</b>
Battery Copper Foil	463	369	+25.5%	402	+15.2%
Copper Foil	437	384	+13.8%	452	-0.3%
Electronic Materials	313	290	+7.9%	274	+14.2%

## ● Possession of ultra-low illuminance copper foil (HVLP) & Ultra Thin manufacturing technology

- Control of the drum that manufactures copper foil, the mixing of solutions for surface treatment, and control of the nozzle that sprays the solution are all important technologies
- A high level of technical expertise based on years of industrial capabilities is required for manufacturing and sales

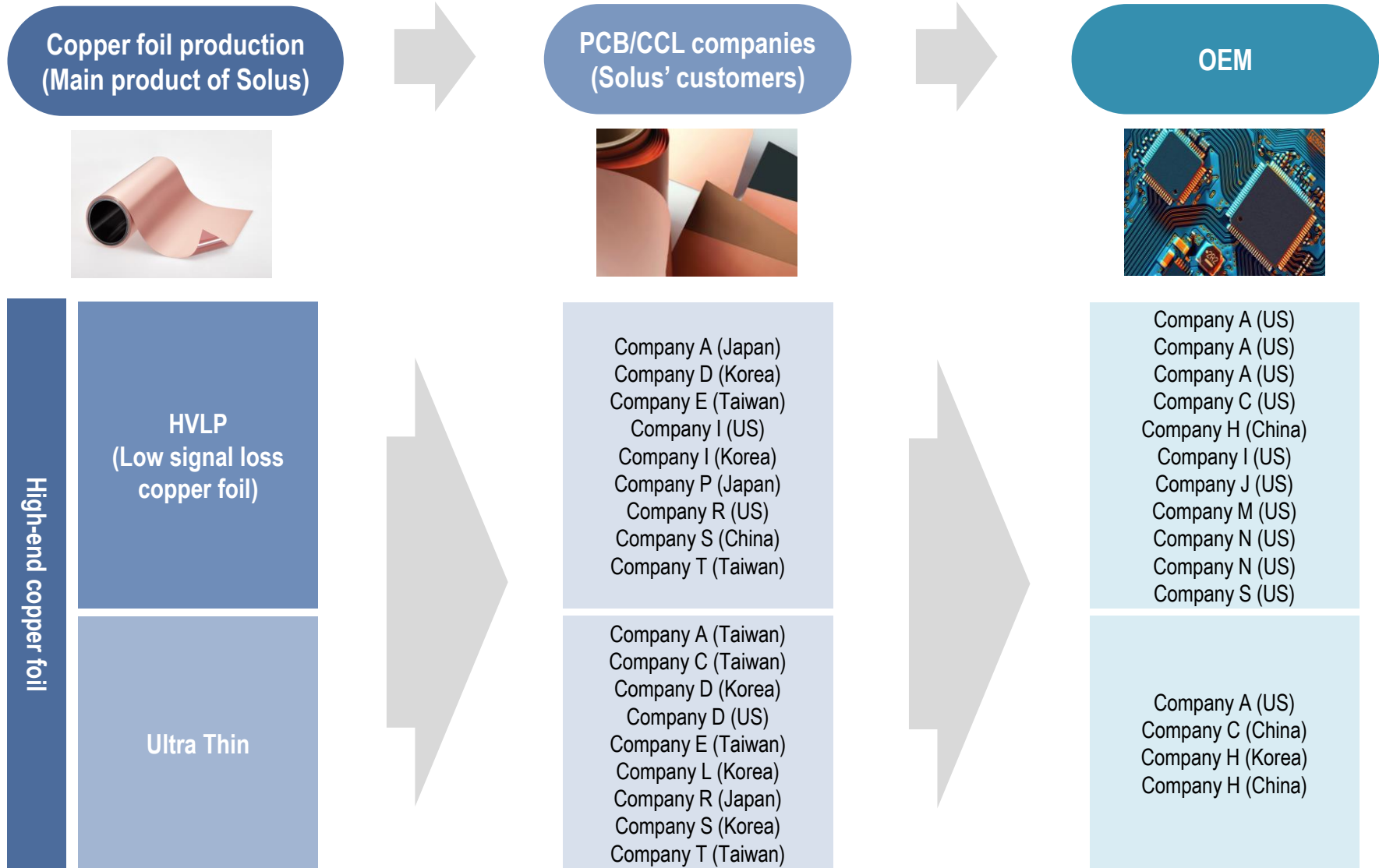
### Ultra-low illuminance copper foil (low signal loss)

- **Ultra-low illuminance copper foil (copper foil for high-performance multilayer printed circuit boards)**
  - High-end products that reduce surface roughness to 0.6 micrometers ( $\mu\text{m}$ ) or lower
  - Excellent technical skills in controlling surface roughness (illuminance) and surface treatment of copper foil to minimize signal loss
  - Scheduled to be mounted on next-generation AI accelerator\* (\*AI accelerator: Semiconductor package specialized for AI learning and inference)
- **Approval of copper foil for AI accelerator from North American GPU company**
  - Company N - Approved // Company I - Approved // Company A - Signal Integrity performance being tested
  - Korea's first consecutive entry into the copper foil market for AI accelerators, previously monopolized by Japan, and successful diversification of clients
  - Market for which technology gaps make entry difficult for new companies
- **Solus Advanced Materials expects to continue benefiting from future growth of AI semiconductor market**
  - AI semiconductor market expected to expand tenfold, from \$40 billion (approximately KRW 53 trillion) in 2024 → to \$400 billion (approximately KRW 533 trillion) in 2027 (Source: Deloitte)

### Ultra Thin

- **Ultra Thin**
  - 1.5 $\mu\text{m}$  ultra-thin product for semiconductors with next-generation microcircuit manufacturing method (MSAP) applied.
  - Applied to various fields of IT such as Substrate for semiconductors (DRAM, SiP, AiP)
- **This product breaks the monopoly held by Japanese manufacturers in the ultra-thin market, and contributes to the domestic production of advanced materials.**
  - Acquired material/product approval from global semiconductor manufacturers, contributing to miniaturization, integration, and high performance of semiconductors.
  - Mass production/approval continuously expanding due to demands from semiconductor PCB (Printed Circuit Board) companies in the Chinese region, including China and Taiwan.

# Copper Foil: Main Customers



## ● Solus Advanced Materials' high refraction CPL

- All CPLs of Solus Advanced Materials are being adopted in global smartphones (G phones, A phones, etc.)
- In addition to Company S, the M/S (market share) of Company L has also been expanding recently

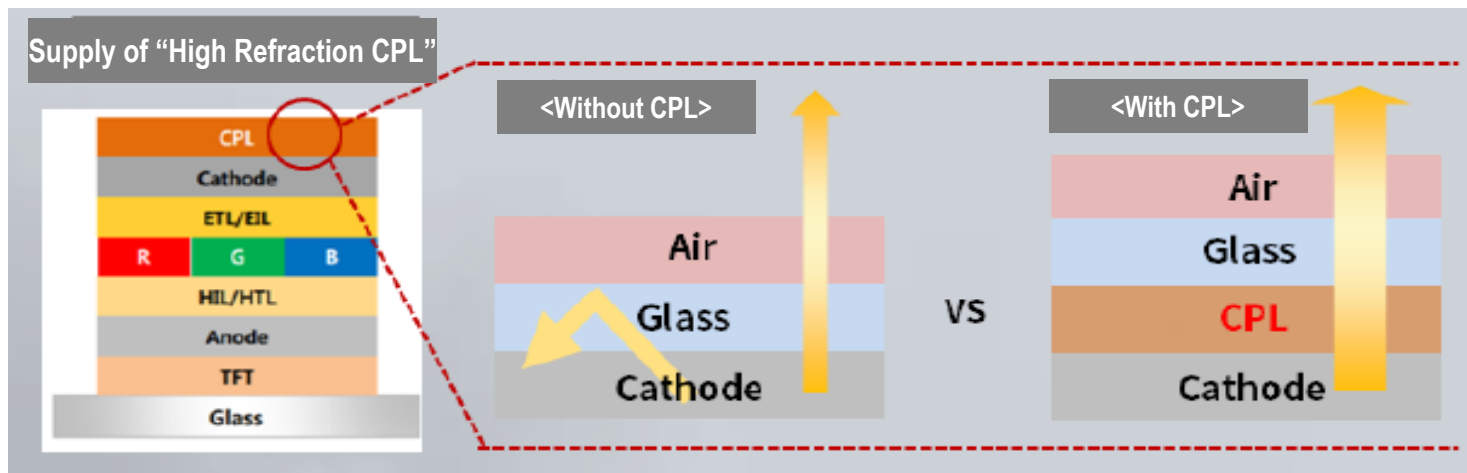
### CPL (Capping Layer)

#### • Function and role of CPL (Capping Layer)

- Auxiliary layer material deposited on top of the cathode of OLED panels
- Light extraction increased through CPL, which has the function of protecting the deposited organic material from external moisture and foreign substances
- Power consumption can be reduced by using materials with a higher refractive index than normal CPL

#### • Competitiveness of Solus Advanced Materials' high refraction CPL

- External quantum efficiency maximized with light extraction effect, and luminous efficiency improved by minimizing repeated reflection of light
- : Seeking to improve the power efficiency of the panel and its lifespan by increasing the refractive index of light coming from the OLED panel, while achieving optimal optical characteristics of the OLED panel by suppressing light absorption





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# Summary Consolidated Statement of Financial Position

Investor Relations 2024

(KRW 100 million)

Classification	Dec. 2019	Dec. 2020	Dec. 2021	Dec. 2022	Dec. 2023	Mar. 2024
Current assets	2,306	4,504	3,945	5,080	5,643	5,761
Non-current assets	2,636	3,908	6,171	9,530	11,424	12,235
<b>Total assets</b>	<b>4,942</b>	<b>8,412</b>	<b>10,116</b>	<b>14,610</b>	<b>17,067</b>	<b>17,995</b>
Current liabilities	1,840	1,674	2,926	4,221	5,680	5,767
Non-current liabilities	1,696	1,839	1,968	1,208	805	1,529
<b>Total liabilities</b>	<b>3,536</b>	<b>3,513</b>	<b>4,894</b>	<b>5,429</b>	<b>6,485</b>	<b>7,296</b>
Capital stock	40	40	40	45	45	91
<b>Total shareholders' equity</b>	<b>1,406</b>	<b>4,899</b>	<b>5,222</b>	<b>9,181</b>	<b>10,582</b>	<b>10,699</b>
Debt ratio	251%	72%	94%	59%	61%	68%
[Borrowings]						
Borrowings	1,837	2,484	2,995	3,520	3,746	4,654
Cash	946	3,056	1,396	1,628	2,741	2,647
<b>Net borrowings</b>	<b>891</b>	<b>-572</b>	<b>1,599</b>	<b>1,893</b>	<b>1,006</b>	<b>2,007</b>

※ The current quarter data is based on unaudited financial statements.

# Summary Consolidated Comprehensive Income Statement

Investor Relations 2024

(KRW 100 million)

Classification	2019	2020	2021	2022	2023					2024
					1Q	2Q	3Q	4Q	Total	1Q
<b>Sales</b>	<b>700</b>	<b>2,902</b>	<b>3,803</b>	<b>4,612</b>	<b>1,128</b>	<b>1,011</b>	<b>1,112</b>	<b>1,043</b>	<b>4,294</b>	<b>1,213</b>
Battery foil	-	9	378	1,127	402	367	409	369	1,546	463
Copper foil	399	1,655	2,036	1,805	452	369	430	384	1,636	437
Electronic materials	168	815	950	1,251	274	275	273	290	1,112	313
Bio	133	423	440	429	-	-	-	-	-	-
Cost of sales	464	1,934	3,028	4,158	1,081	1,047	1,089	905	4,122	1,108
Gross profit	236	967	775	454	47	-36	24	138	172	105
SG&A	134	664	725	906	237	202	227	238	904	245
<b>Operating profit</b>	<b>102</b>	<b>304</b>	<b>50</b>	<b>-452</b>	<b>-190</b>	<b>-238</b>	<b>-203</b>	<b>-100</b>	<b>-732</b>	<b>-140</b>
<b>(%)</b>	<b>14.6%</b>	<b>10.5%</b>	<b>1.3%</b>	<b>-9.8%</b>	<b>-16.9%</b>	<b>-23.5%</b>	<b>-18.3%</b>	<b>-9.6%</b>	<b>-17.0%</b>	<b>-11.5%</b>
Gains (losses) on interest	-7	-58	-45	-67	-34	-55	-41	-34	-163	-41
Gain (losses) on foreign currency transactions	-6	-70	81	113	2	-2	4	-6	-3	-5
Gain (losses) on foreign currency translation	-29	-163	15	58	1	6	97	-111	-7	121
<b>Net income before corporate tax</b>	<b>69</b>	<b>-23</b>	<b>36</b>	<b>-367</b>	<b>-230</b>	<b>-301</b>	<b>2,953</b>	<b>-537</b>	<b>1,884</b>	<b>-73</b>
Corporate tax	24	87	9	71	-16	-43	792	-108	625	17
Profit (losses) from continuing operations	-	-	27	-438	-213	-258	2,161	-430	1,259	-91
Profit (losses) from discontinued operations	-	-	-25	-34	-1	8	0	1	9	-
<b>Net income</b>	<b>45</b>	<b>-110</b>	<b>2</b>	<b>-472</b>	<b>-214</b>	<b>-250</b>	<b>2,161</b>	<b>-429</b>	<b>1,268</b>	<b>-91</b>
Net Income of controlling shareholders	<b>45</b>	<b>-110</b>	<b>119</b>	<b>-113</b>	<b>-110</b>	<b>-132</b>	<b>2,273</b>	<b>-156</b>	<b>1,875</b>	<b>17</b>

※ The current quarter data is based on unaudited financial statements.

※ Due to the disposal of Solus Biotech, discontinued business (bio) was excluded from sales from 1Q 2023 and classified as discontinued operating profit (losses).

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## [Company Overview]

<u>Company Name</u>	Solus Advanced Materials Co., Ltd.
<u>CEO</u>	Daeje Chin & Keunman Kwak
<u>Established</u>	October 1, 2019
<u>Listed</u>	October 18, 2019 (KOSPI)
<u>Total Assets</u>	KRW 1,799.5 billion (As of end of Mar '24)
<u>Employees</u>	1,209 (As of end of Mar '24)
<u>Headquarters</u>	627 Seodong-ro, Iksan-si, Jeollabuk-do
- <u>Battery foil</u>	Hungary and Canada (development, production and sales)
- <u>Copper foil</u>	Luxembourg (development, production and sales)
- <u>Electronic materials</u>	Seongnam (development and sales), Iksan (production), China (production and sales)

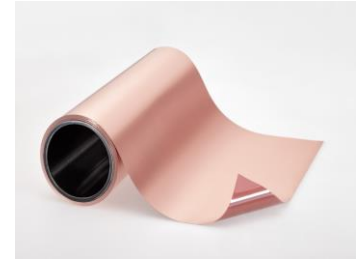
## [Business Introduction]



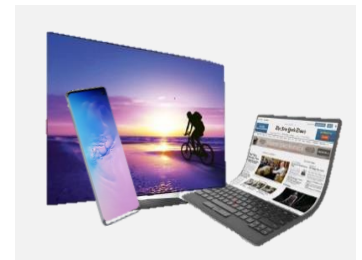
EV battery  
Core materials



Electronic circuit boards for  
semiconductors,  
communication equipment,  
smartphones, self-driving  
cars, aircraft, etc.  
Core materials



Electronic devices for mobile  
devices and TVs  
OLED display  
Core materials



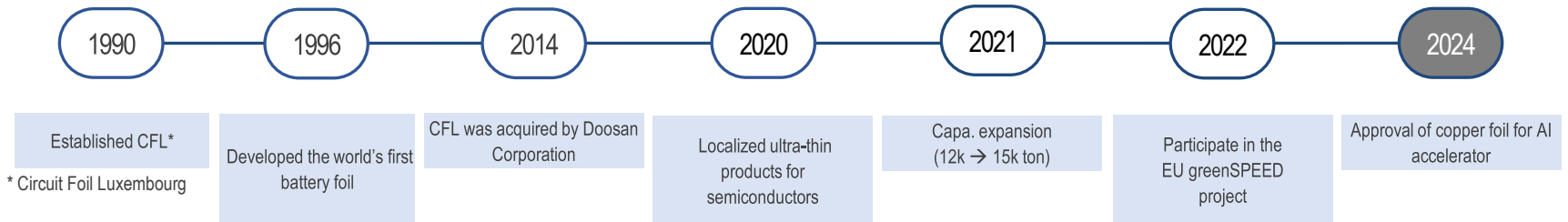
※ Asset size is based on unaudited financial statements.

# Company History

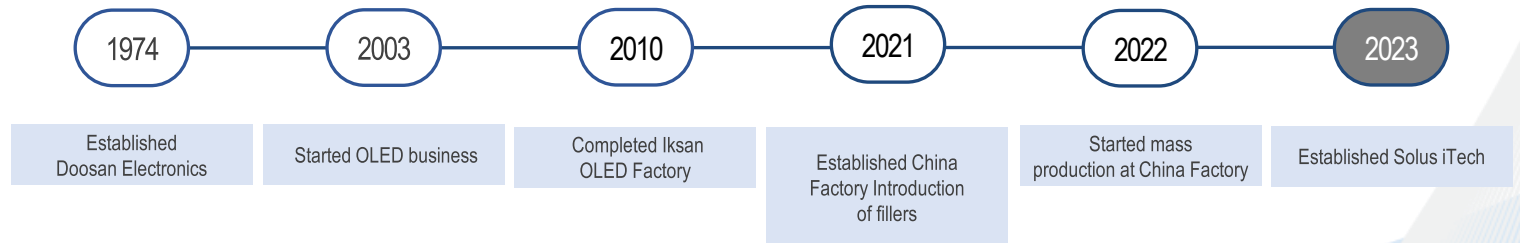
## Battery foil



## Copper foil

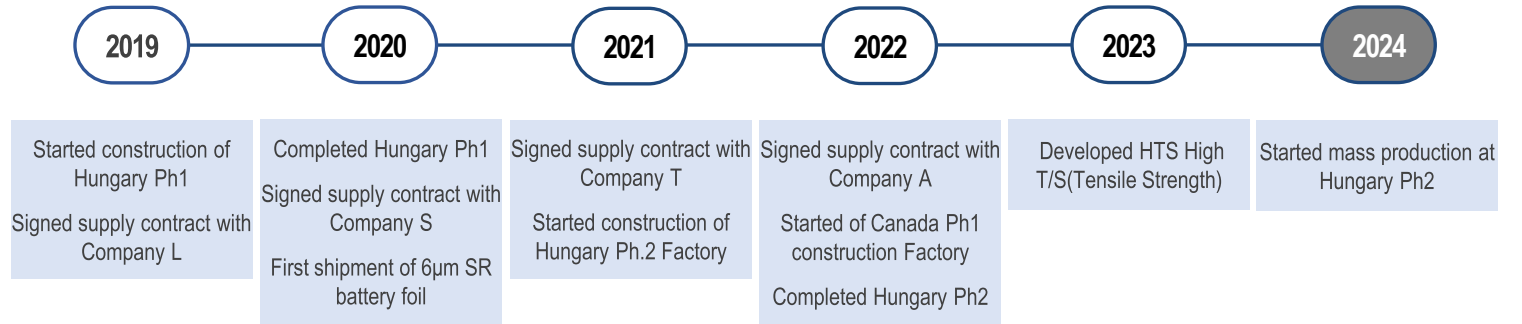


## Electronic materials

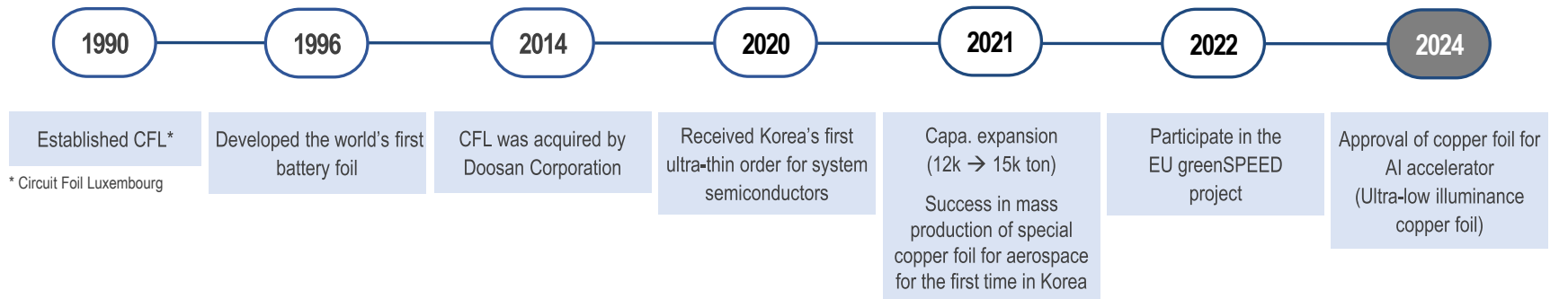


# Company History

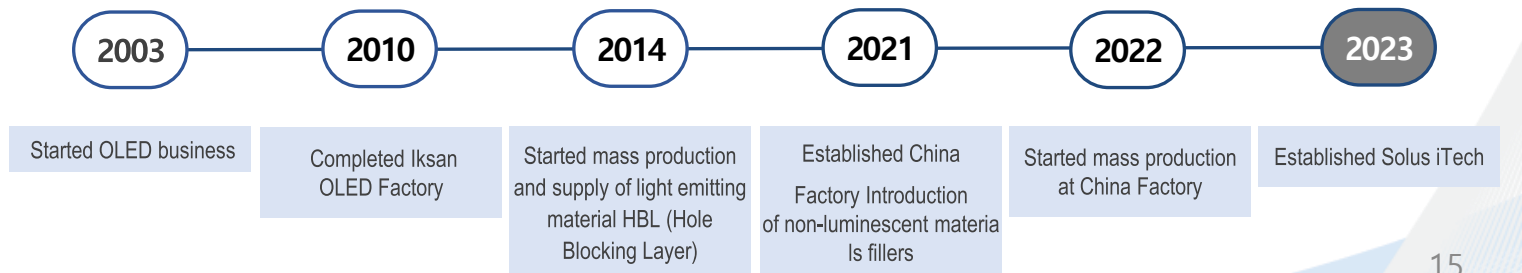
## Battery foil



## Copper foil

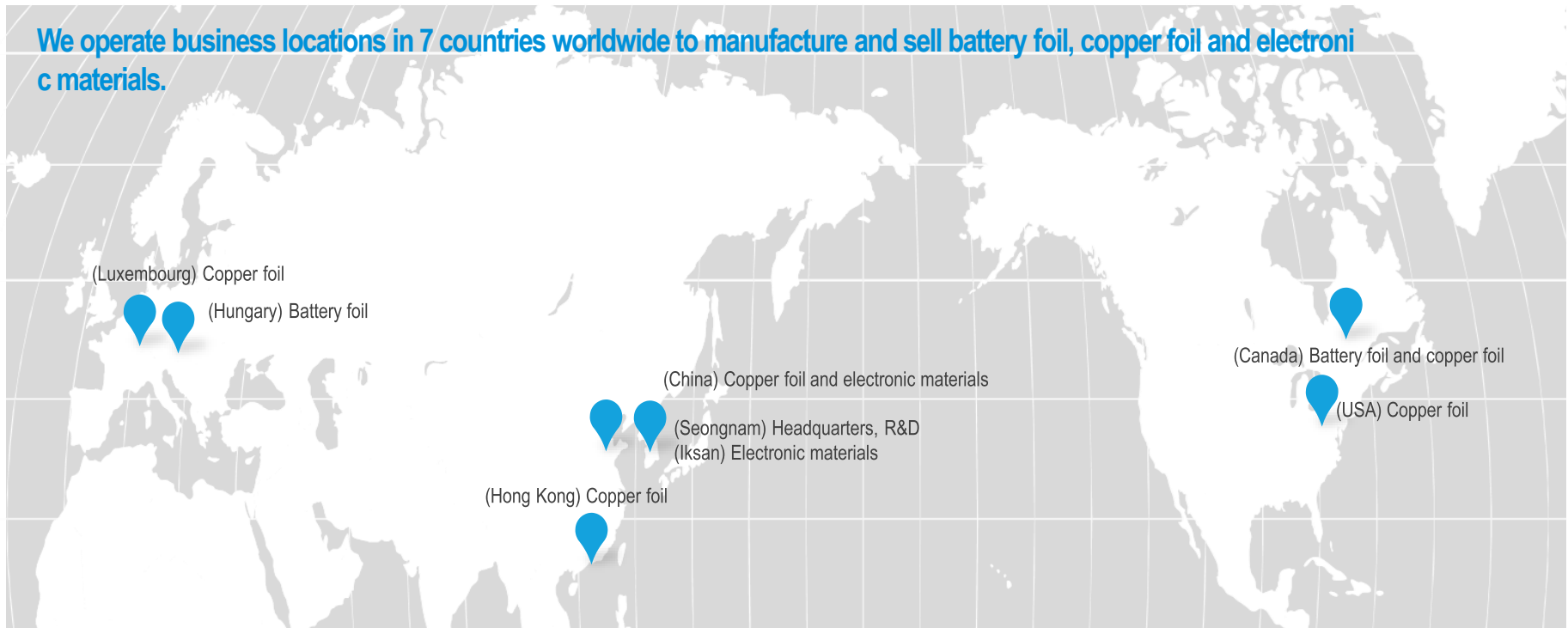


## Electronic materials



# Main Business Locations

We operate business locations in 7 countries worldwide to manufacture and sell battery foil, copper foil and electronic materials.



(Luxembourg) Copper foil



(Hungary) Battery foil

(China) Copper foil and electronic materials



(Seongnam) Headquarters, R&D  
(Iksan) Electronic materials

(Hong Kong) Copper foil



(Canada) Battery foil and copper foil



(USA) Copper foil



Iksan, Korea (Electronic materials)



(Luxembourg) Copper foil



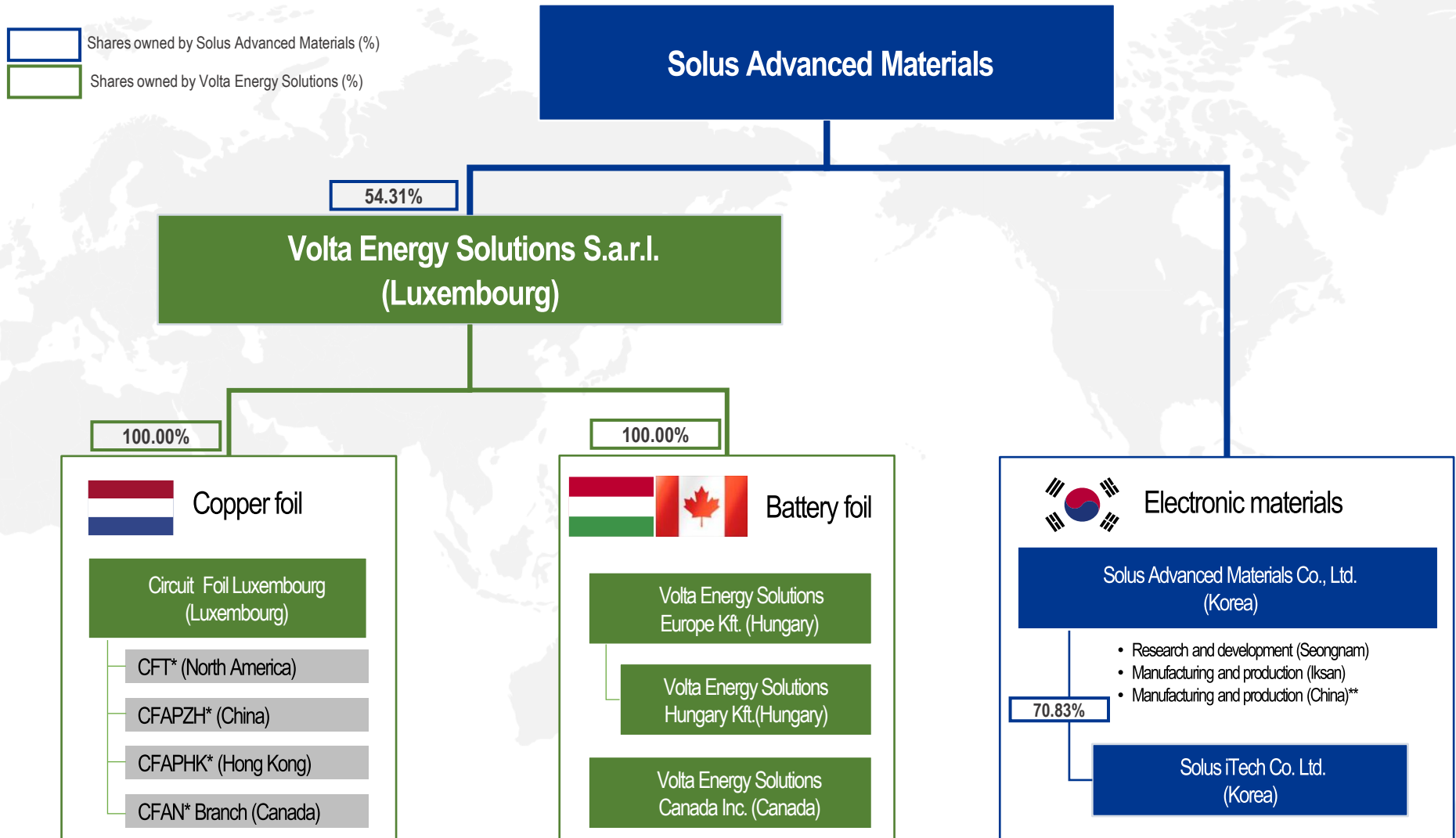
Hungary (Battery foil)



Canada (Battery foil)



# Korean and Overseas Subsidiaries



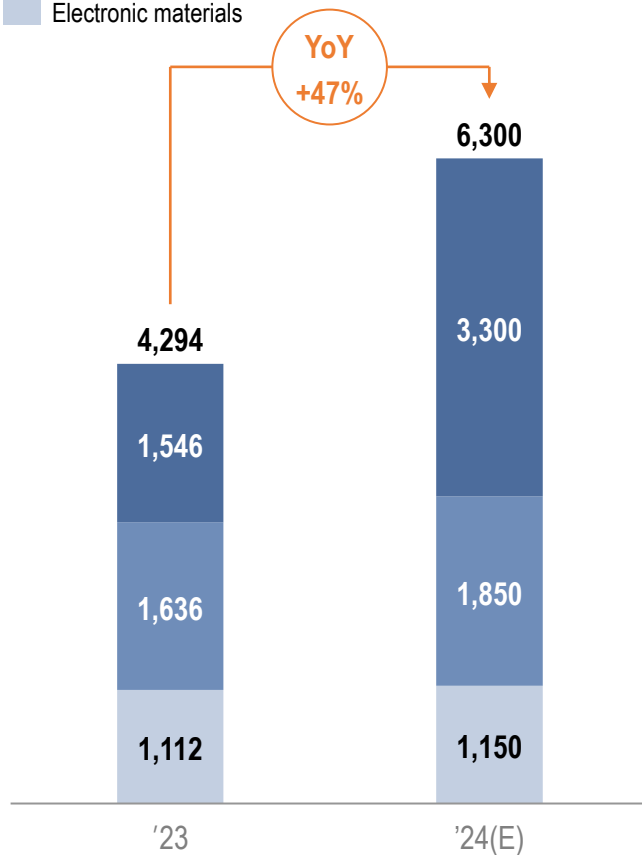
\* CFT(Circuit Foil Trading Inc.) / CFAPZH(Circuit Foil Asia Pacific Zhangjiagang) / CFAPHK(Circuit Foil Asia Pacific Hong Kong) / CFAN(Circuit Foil d' Amérique du Nord)

\*\* Solus Advanced Materials (Changshu) Co., Ltd.

## Sales Forecast for 2024

(KRW 100 million)

- Battery foil
- Copper foil
- Electronic materials



### Battery foil: Sales growth target of 113%

- **Increase of capacity by starting the Phase2 mass production in Hungary**
  - Starting the Phase 2 Production in Hungary to increase capacity (38k tons) in 2024
- **Increase of orders by customers' request**
  - Increase of orders by additional contracts with customers and requests for escalated supply volume
- **Increase of supply based on products that meet the customers' needs**
  - Stabilizing yield rate, securing quality stability and increasing supply of high-end battery copper foil

### Copper foil: Sales growth target of 13%

- **AI server, network equipment, and semiconductor markets expected to continue growing**
  - Market demand is expected to recover and high-growth applications (AI accelerators, etc.) will increase.
- **Plan to increase supply of high-end copper foil**
  - Promoting supply of low loss, thin and ultra thin foil

### Electronic materials business: Sales growth target of 3%

- **The growth of the display market is expected to slow due to the global economic downturn.**
  - Responding to fluctuating demand due to delays in investment in TVs and changes in pricing policies of major customers
- **Establishing a business structure for sustainable growth**
  - Expansion of non-luminescent emitting business, customer diversification, continuous introduction of new products, etc.

# Battery Copper Foil: Competitiveness That Secures Market Dominance

## Geographical advantage

- **The company has the only local production base in Europe and North America.**
  - No impact on logistics disruption due to local production and supply. Expected benefits of IRA/CRMA
  - Priority among vendors through rapid response to customer needs
  - Securing major global customers for OEMs and battery cells

## Product competitiveness

- **The superiority of our high-end products based on the world's first in-house developed battery copper foil**
  - Full-fledged sales of high-end battery copper foil, including 6 $\mu$ m, high elongation, and high strength products
  - Rapid supply and excellent quality stability through local production
  - Yield stability secured in Hungary Phase 1

## Growth potential

- **Market advantage secured by preoccupying the local market**
  - "Europe's first" production at the end of 2020, with a CAGR of +311% over 3 years from 2021 to 2023
  - Dominating the market in advance with a Canadian production base to respond to the growth of EVs in North America
  - Plan to maximize sales and profitability through stable production and increased manufacturing efficiency

## Battery Copper Foil Production Capacity and Future Plans



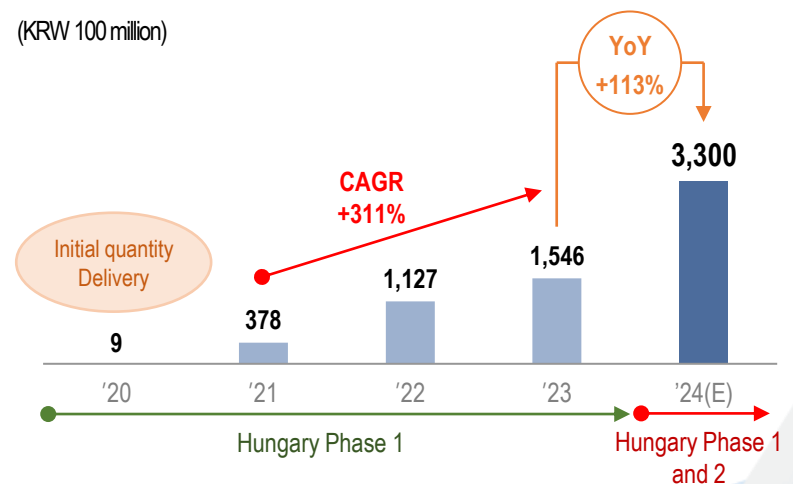
- **Total 100,000 tons planned for Hungary (Europe)**
  - PH1 (15,000 tons): First shipment in November 2020
  - PH2 (23,000 tons): Mass production begins in 2024
  - PH3 (62,000 tons): Expected volume when demand increases



- **63,000 tons per year planned for Canada (North America)**
  - PH1 (25,000 tons): Mass production begins in 2025
  - PH2 (38,000 tons): When demand increases
  - Maximizing manufacturing efficiency by expanding automation

## Sales Trends of Battery Copper Foil

(KRW 100 million)



## Expansion of business into non-luminescent materials sector

- Ongoing challenge to introduce high refractive index fillers for existing customers' TVs
- Dominating the TFE and QD business market in advance
- Introduction of DIPM\* and continuous development of new markets for non-luminous products

\* Direct Inkjet Printing Materials

## Customer diversification

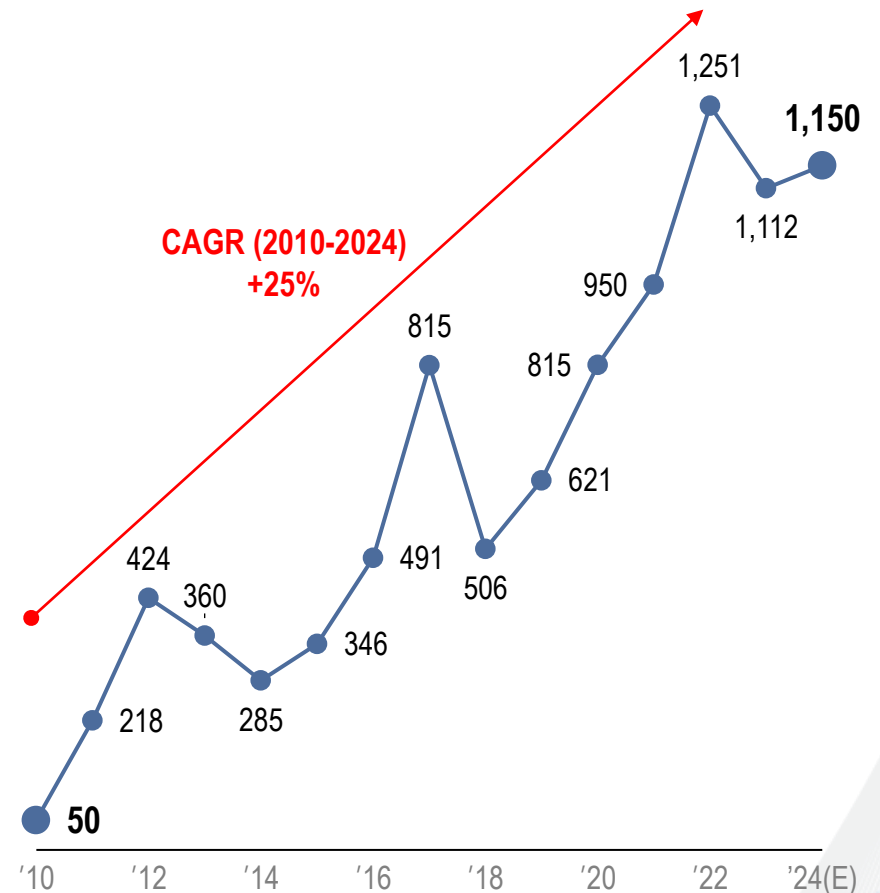
- Diversifying the product line of organic materials
- Introduction of non-luminescent materials to domestic/Chinese customers other than existing customers
- Market diversification by introducing entry-level models to China

## Continuous introduction of new products

- Introduction of new models for mobiles/IT/TVs
- Product diversification such as green phosphorescence and ETL
- Development of future technology products to respond in advance to next-generation display technology

## Electronic Materials Sales Trends

(KRW 100 million)



**Solus Advanced Materials Co., Ltd.**

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