



**Solus Advanced
Materials**

Solus Advanced Materials Co., Ltd. 2Q24 Earnings Report

July 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. 2Q24 Earnings Report

II. Summary Financial Statements

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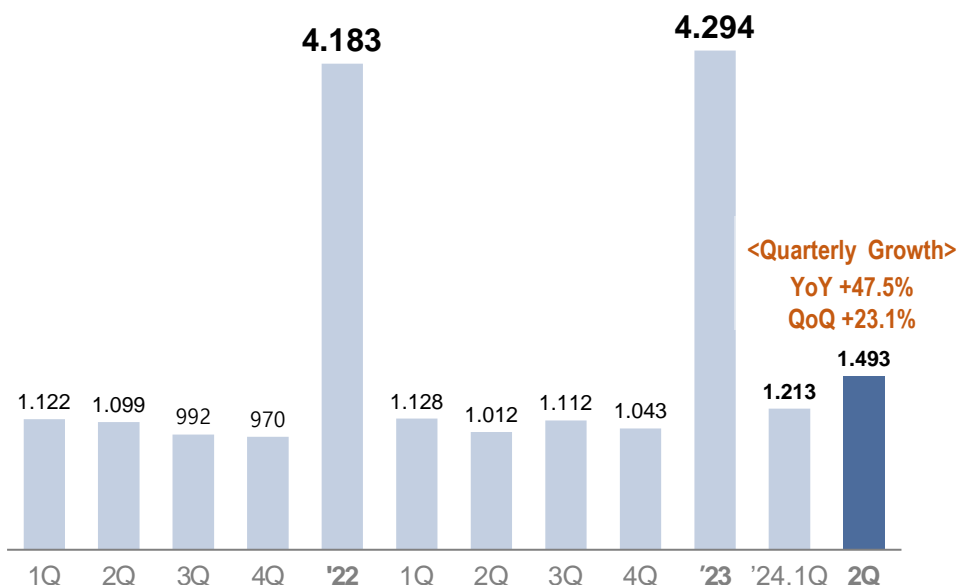
2Q 2024 Consolidated Performance

Investor Relations 2024

- **Sales:** Recorded the highest-ever quarterly sales of KRW 149.3 billion, up by 47.5% compared to the same period last year, and by 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 despite the off-season for electronic materials.
- **EBITDA:** EBITDA turned to a surplus compared to the same period last year, and was recorded as KRW 6.3 billion, up by 162.5% compared to the previous quarter, thanks to a reduced fixed cost burden due to increased sales resulting from the higher demand for battery copper foil, copper foil and electronic materials from our major customers.

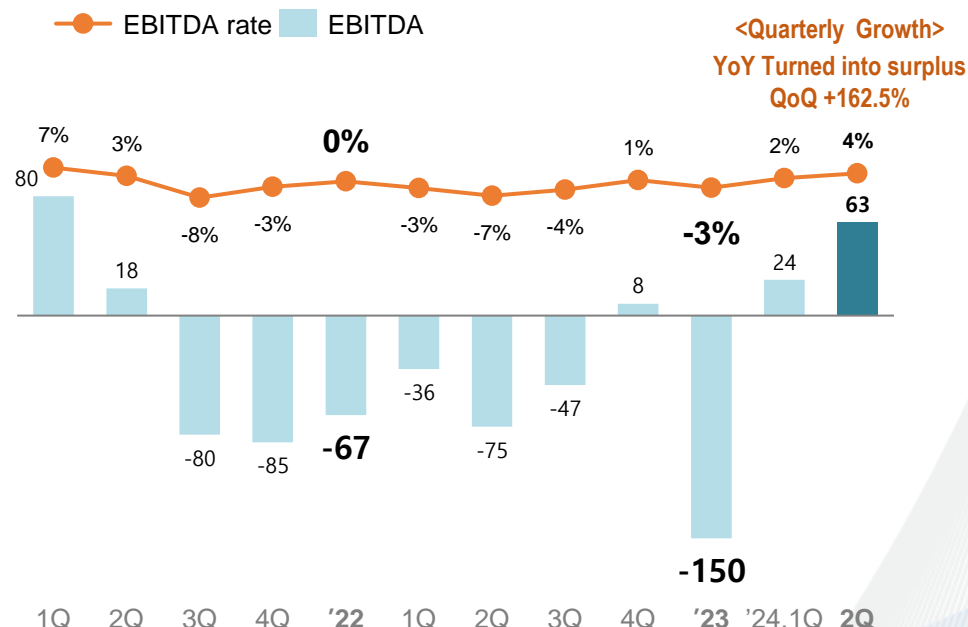
Sales Trend

(KRW 100 million)



EBITDA (rate) Trend

(KRW 100 million)



2Q 24 Performance & 3Q Plan by Business division

Investor Relations 2024

2Q 2024 Performance

- **Battery Copper Foil:** QoQ+44.3% and YoY+82.0% due to a timely response to the demand from major customers through productivity improvement and manufacturing stabilization
- **Copper Foil:** QoQ +14.9% and YoY +36.0% due to increased sales of high-end copper foil resulted from increased customer demand
- **Electronic Materials:** QoQ +3.2% and YoY +17.0% due to increased supply volume for mid- and low-priced smartphones and products for China

3Q 2024 Plan

- **Battery Copper Foil:** Respond to changes in existing customer supply considering the impact of the slowing growth of electric vehicles worldwide and expansion of customer diversification
- **Copper Foil:** Expand capacity and respond to the demand for High-end copper foils, such as the ultra-low illuminance copper foil for AI accelerator/switch and ultra-thin for semiconductors
- **Electronic Materials:** Respond to and engage in ongoing promotion of the adoption of the next model applied products of display customers

(KRW 100 million)

Type	2Q 2024	1Q 2024	QoQ	2Q 2023	YoY
Sales	1,493	1,213	+23.1%	1,012	+47.5%
Battery Copper Foil	668	463	+44.3%	367	+82.0%
Copper Foil	502	437	+14.9%	369	+36.0%
Electronic Materials	323	313	+3.2%	275	+17.0%

● The slowdown in electric vehicle growth is expected to be maintained, with a gradual recovery after 2025

- Global electric vehicle market expected to slow down in the second half of the year, but battery demand expected to continue to increase after OEM plan adjustment
- Customer diversification and proactive response plan for market demand technology to minimize the impact of slowing market growth

Prospects of demand for electric vehicles/battery¹⁾

(Unit: 10,000 cars, Gwh)

Type	2021	2022	2023	2024F	2025F
Sales of Electric Vehicles	637	1,046	1,409	1,688	2,056
YoY Growth	119%	64%	35%	20%	22%
Battery Demand	363	611	846	1,043	1,314
YoY Growth	105%	68%	38%	23%	26%

1) Marklines, Research Center of Hi Investment & Securities co., Ltd.

- Slowdown in demand for electric vehicles caused by a combination of factors, including reduction in subsidies for purchasing electric vehicles in some countries, prolonged trend of high interest rates and economic uncertainties worldwide, high vehicle prices compared to internal combustion engines, and changes in consumer preferences due to inconvenience of charging

Solus' First Half Performance & Second Half Plan

● First Half Performance

- Only battery foil manufacturer to maintain manufacturing stability since initial entry into Europe
- In the first half of the year, the supply of battery copper foil for North American customers increased by more than 5.6 times compared to the same period last year
- Monthly shipments of battery foil have surpassed 1,000 tons since April

● Second Half Plan

- Continuing to secure supply volume through mid- to long-term contracts with major core customers, and to diversify customers with the advantage of local supply
- Plans to continuously expand profitability by differentiating technology and increasing the proportion of High-end battery copper foil

- **Continuous growth expected due to increased demand and expansion of AI-applied products in the network and semiconductor markets**

- High growth is expected compared to the first half of the year due to increased investment in AI accelerators and data centers in the network market and expanded AI application in the semiconductor market
- Sales expansion and profitability improvement by achieving early dominance in network copper foil (ultra-low illuminance copper foil) leading market and new approval of ultra-thin materials for semiconductors

Market Prospects of HVLP & Ultra-Thin

- **Market Prospects of AI Accelerator**

- Entering second boom period with AI in the data center market, hyperscale data center*-oriented growth
 - * Massive data processing and rapidly scalable large-scale computing facilities
- Increased demand for network copper foil due to the need of high-speed equipment replacement including new investment / upgrade of existing equipment by AI service companies
- Shortened release cycle of new AI accelerators products (2 years → 1 year)

- **Ethernet Market Prospects**

- As network and communication technologies accelerate, Ethernet switch* manufacturers demand agility.
 - * Equipment that plays a role of helping signal transmission among devices in data centers
- More than 70% of global data centers (based on Omdia/Juniper in 2024) use Ethernet switches
- Accelerated application of next-generation copper foil to upgrade Ethernet market performance

Solus' First Half Performance & Second Half Plan

- **First Half Performance**

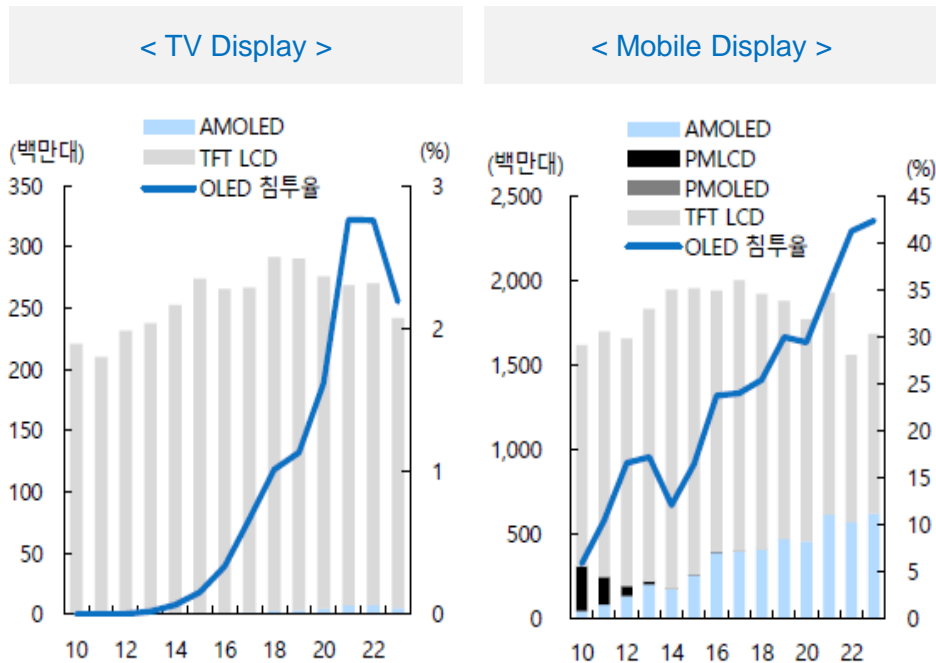
- Approval of copper foil for AI accelerator by 3 global GPU companies (Starting mass production in A company, approval of material in B company, SI test in C company)
- Securing approval for HVLP series from major Chinese customers
- Active response to the needs from ultra-thin products customers

- **Second Half Plan**

- Plans to expand capacity in order to quickly respond to the expected increase in the volume of high-end copper foil in the future
 - Expansion of high-end copper foil capacity by converting standard copper foil capacity / Renovation of existing facilities, etc.
- Focus on securing approval for next-generation copper foil products to preoccupy the leading market

- **Increased penetration rate of OLED amid slowing growth prospects, such as the slowing display market and delaying & holding investment at the beginning of the year**
 - Continued expansion of small and medium-sized OLED adoption rate, large panel markets have stagnated due to sluggish TV demand, but ultra-large OLED TV and gaming monitors are expected to grow
 - Continuous plan to expand sales due to entry of new items and increased operation rate of low-end models

Shipment of Global TV/Mobile Display¹⁾



1) OMDIA, Research Center of Hi Investment & Securities co., Ltd.

Solus' First Half Performance & Second Half Plan

● First Half Performance

- Continued sales expansion due to increased demand for low-end models from major customers
- Continued mass production for Chinese customers

● Second Half Plan

- Obtained approval for mass production of new products in addition to existing products for major customers
- Developed future technology product line to proactively respond to demand for next-generation display technology

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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	4,977
Non-current assets	2,636	3,908	6,171	9,530	11,424	12,769
Total assets	4,942	8,412	10,116	14,610	17,067	17,746
Current liabilities	1,840	1,674	2,926	4,221	5,680	5,755
Non-current liabilities	1,696	1,839	1,968	1,208	805	1,203
Total liabilities	3,536	3,513	4,894	5,429	6,485	6,958
Capital stock	40	40	40	45	45	91
Total shareholders' equity	1,406	4,899	5,222	9,181	10,582	10,788
Debt ratio	251%	72%	94%	59%	61%	64%
[Borrowings]						
Borrowings	1,837	2,484	2,995	3,520	3,746	4,837
Cash	946	3,056	1,396	1,628	2,741	1,683
Net borrowings	891	-572	1,599	1,893	1,006	3,154

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

Summary Consolidated Comprehensive Income Statement

Investor Relations 2024

(KRW 100 million)

Classification	'20	'21	'22	'23					'24	
				1Q	2Q	3Q	4Q	Total	1Q	2Q
Sales	2,902	3,803	4,612	1,128	1,012	1,112	1,043	4,294	1,213	1,493
Battery foil	9	378	1,127	402	367	409	369	1,546	463	668
Copper foil	1,655	2,036	1,805	452	369	430	384	1,636	437	502
Electronic materials	815	950	1,251	274	276	273	290	1,112	313	323
Bio	423	440	429	-	-	-	-	-	-	-
Cost of sales	1,934	3,028	4,158	1,081	1,047	1,089	905	4,122	1,108	1,379
Gross profit	967	775	454	47	-36	24	138	172	105	114
SG&A	664	725	906	237	202	227	238	904	245	218
Operating profit	304	50	-452	-190	-238	-203	-100	-732	-140	-105
(%)	10.5%	1.3%	-9.8%	-16.9%	-23.5%	-18.3%	-9.6%	-17.0%	-11.5%	-7.0%
Gains (losses) on interest	-58	-45	-67	-34	-55	-41	-34	-163	-41	-50
Gain (losses) on foreign currency transactions	-70	81	113	2	-2	4	-6	-3	-5	2
Gain (losses) on foreign currency translation	-163	15	58	1	6	97	-111	-7	121	82
Net income before corporate tax	-23	36	-367	-230	-301	2,953	-537	1,884	-73	-81
Corporate tax	87	9	71	-16	-43	792	-108	625	17	18
Profit (losses) from continuing operations	-	27	-438	-213	-258	2,161	-430	1,259	-91	-99
Profit (losses) from discontinued operations	-	-25	-34	-1	8	0	1	9	-	-
Net income	-110	2	-472	-214	-250	2,161	-429	1,268	-91	-99
Net Income of controlling shareholders	-110	119	-113	-110	-132	2,273	-156	1,875	17	3

※ 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 1,774.6 billion (As of end of June '24)
<u>Employees</u>	1,178 (As of end of June '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]



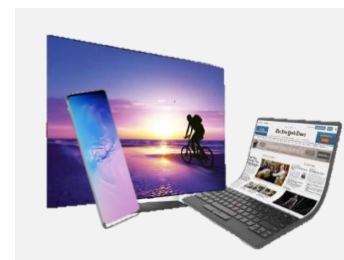
EV battery
Core materials



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



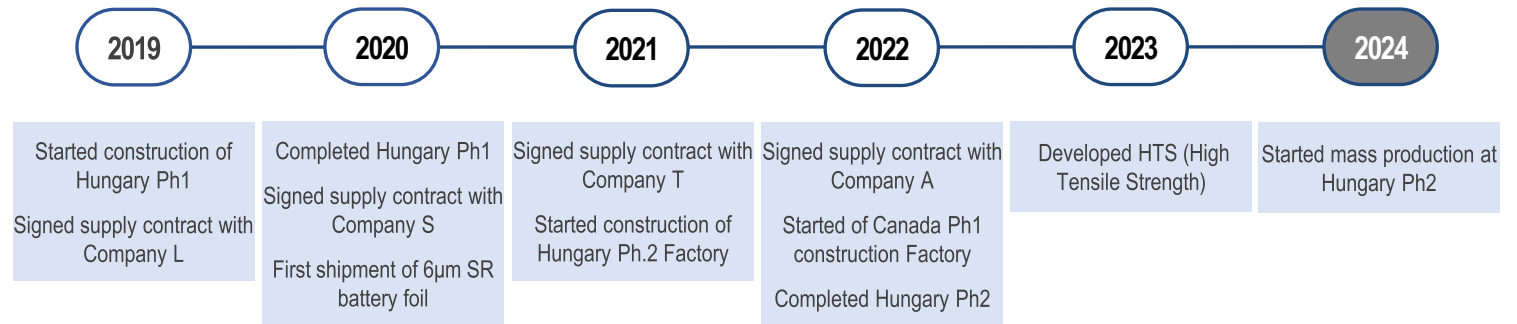
Electronic devices for mobile
devices and TVs
OLED display
Core materials



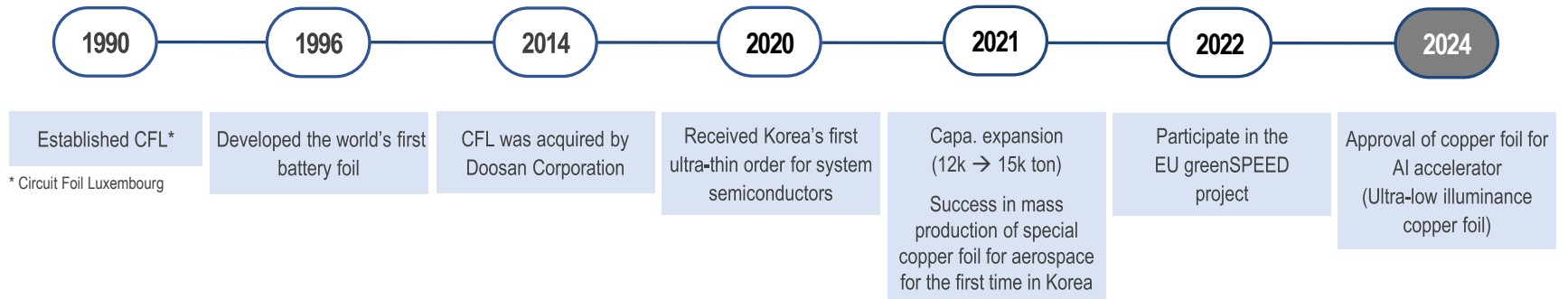
Company History

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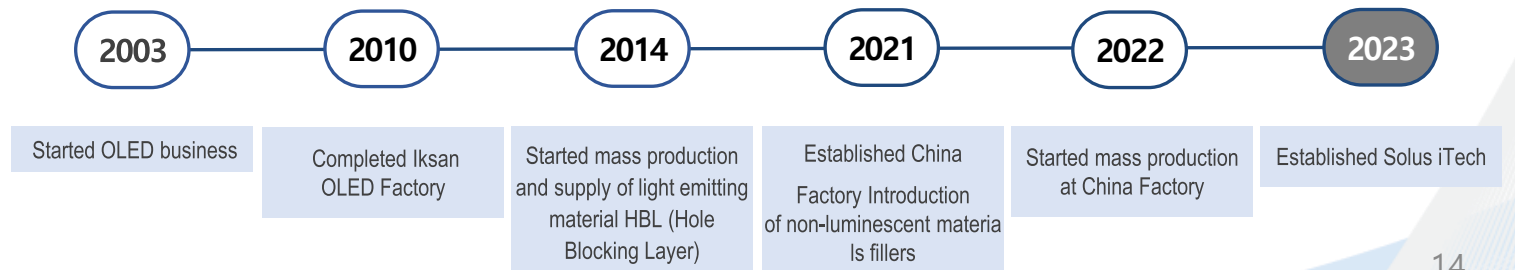
Battery foil



Copper foil



Electronic materials

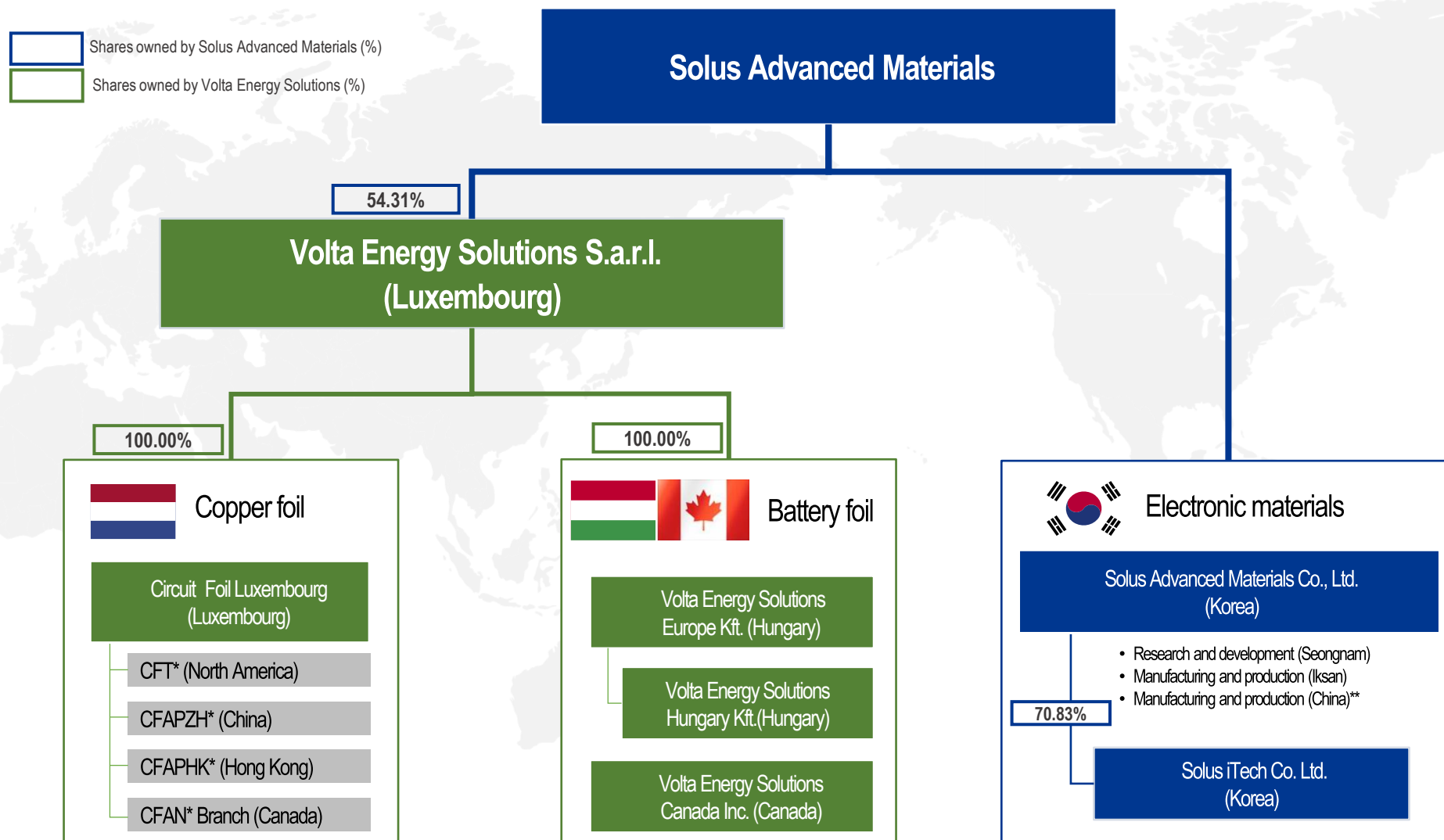


Main Business Locations



Korean and Overseas Subsidiaries

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* 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.

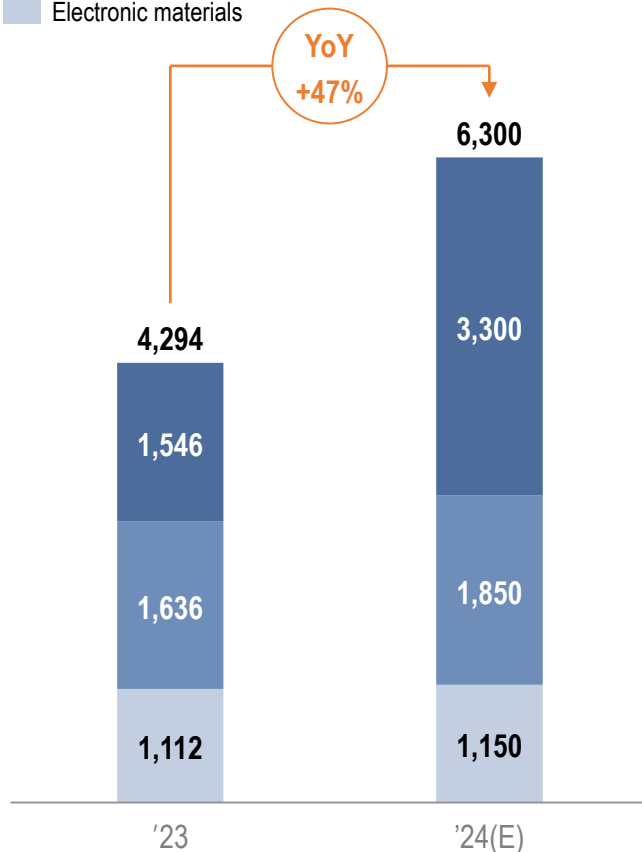
Sales Forecast and Plan for 2024

Investor Relations 2024

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

Investor Relations 2024

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 μ 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



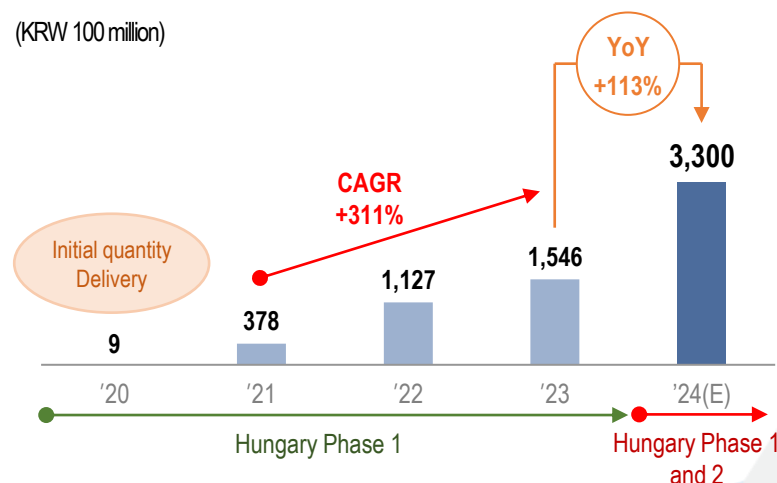
- **Total 100,000 tons planned for Hungary (Europe)**
 - PH1 (15,000 tons): First shipment in November 2020
 - PH2 (23,000 tons): Mass production begins in 2024
 - PH3 (62,000 tons): Expected volume when demand increases



- **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)



● 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 (μm) 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 A – Approved // Company B - Approved // Company C - 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 μm 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.

Electronic Materials: Establishing a Business Structure for Sustainable Growth

Investor Relations 2024

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

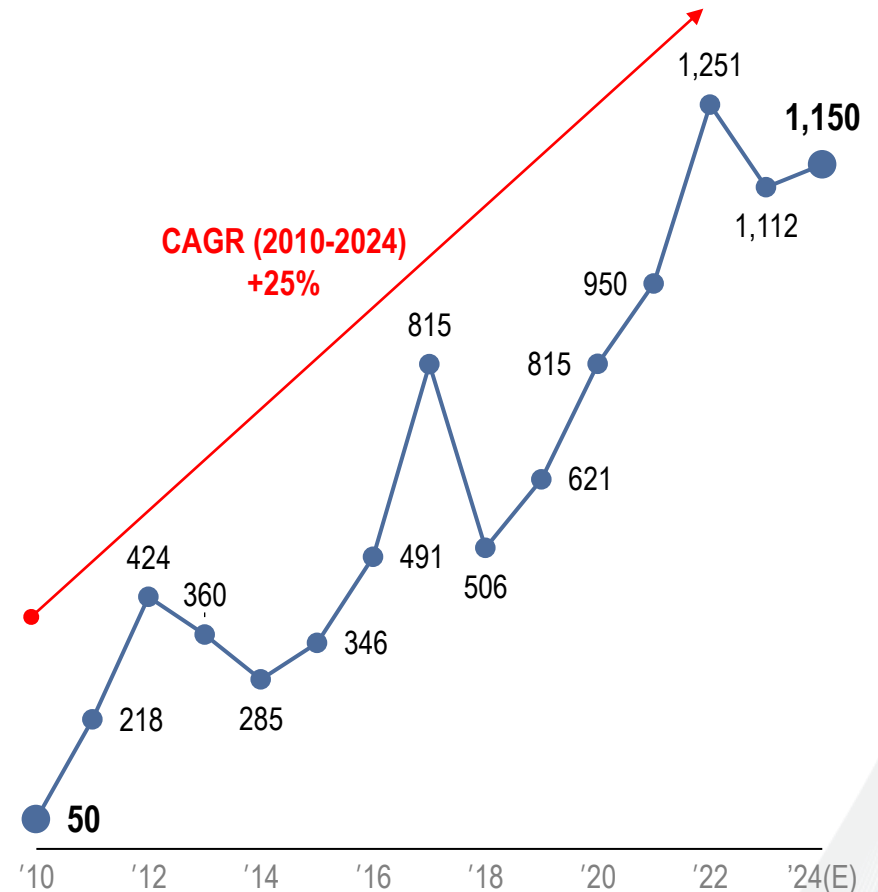
- Diversifying the product line of organic materials
- Introduction of non-luminescent materials to domestic/Chinese customers other than existing customers
- Market diversification by introducing entry-level models to China

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)



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