Your True Partner
Chunbo Co., Ltd.

2024 2Q
Investor Relations

September 23, 2024

Disclaimer

Your True Partner
Chunbo Co., Ltd.

The financial information in this document are consolidated earnings results based on K-IFRS.

This document is provided for the convenience of investors only, before the external review on our 2024 financial results is completed. The external review outcomes may cause some parts of this document to change.

This document contains "forward-looking statements" -that is, statements related to future, not past, events.

In this context, "forward-looking statements" often address our expected future business and financial performance, and often contain words such as "expects", "forecast", "anticipates", "intends", "plans", "believes", "seeks" or "will". "Forward-looking statements" by their nature address matters that are, to different degrees, uncertain.

The uncertainties may cause our actual results to be materially different from those expressed in this document.

Company Status

Your True Partner
Chunbo Co., Ltd.

Summary

Company Name	Chunbo Co., Ltd.
Establish	Oct 08, 2007
listing	February 11, 2019
Location	Chungju-si, Chungcheongbuk-do, Gunsan-si, Jeollabuk-do
History	2008 (Display) Process Materials 2009 Pharmaceutical Intermediates 2011 (Semiconductor) process materials 2013 (OLED) common layer material 2013 (Secondary Battery) Additive of Electrolyte 2016 (Secondary Battery) Lithium Salts 2017 Established a local subsidiary in China 2022 Appointed as the leading company in materials, parts and equipment 2023 Chungju plant completed for LIB materials 2024 Gunsan plant completed for LIB materials

CEO Profile

Sang-Ryul Lee (CEO)

- **Development of semiconductor process chemicals**
- **First localization of display etching materials**
- **Commercialization of LiFSI for the first time in the world**

2022. Awarded Gold Tower Order of Industrial Service Merit
2021. Established Chunbo BLS Co., Ltd.
2007. Established Chunbo Co., Ltd.
1997. Established Chunbo Fine Chemical Co., Ltd.
1992. Researcher, OCI Central R&D Center
1993. Master of Chemical Engineering, Hanyang University

Business positioning

Your True Partner
Chunbo Co., Ltd.

Secondary Battery


- Lithium (electrolyte) salts
- Additives of electrolyte

LG Energy Solution, SAMSUNG SDI, CATL 时代新能源, TESLA, SK on, Panasonic, BYD

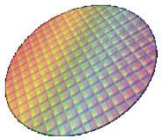
Display

- Additives of Cu etchant for LCD
- OLED common layers materials

SAMSUNG ELECTRONICS, LG Display, 京东方 BOE, SAMSUNG DISPLAY, AUO

CHUNBO

Semiconductor



- Additives of process-chemical (etchants, etc.)

SAMSUNG ELECTRONICS

Pharmaceutical Intermediates

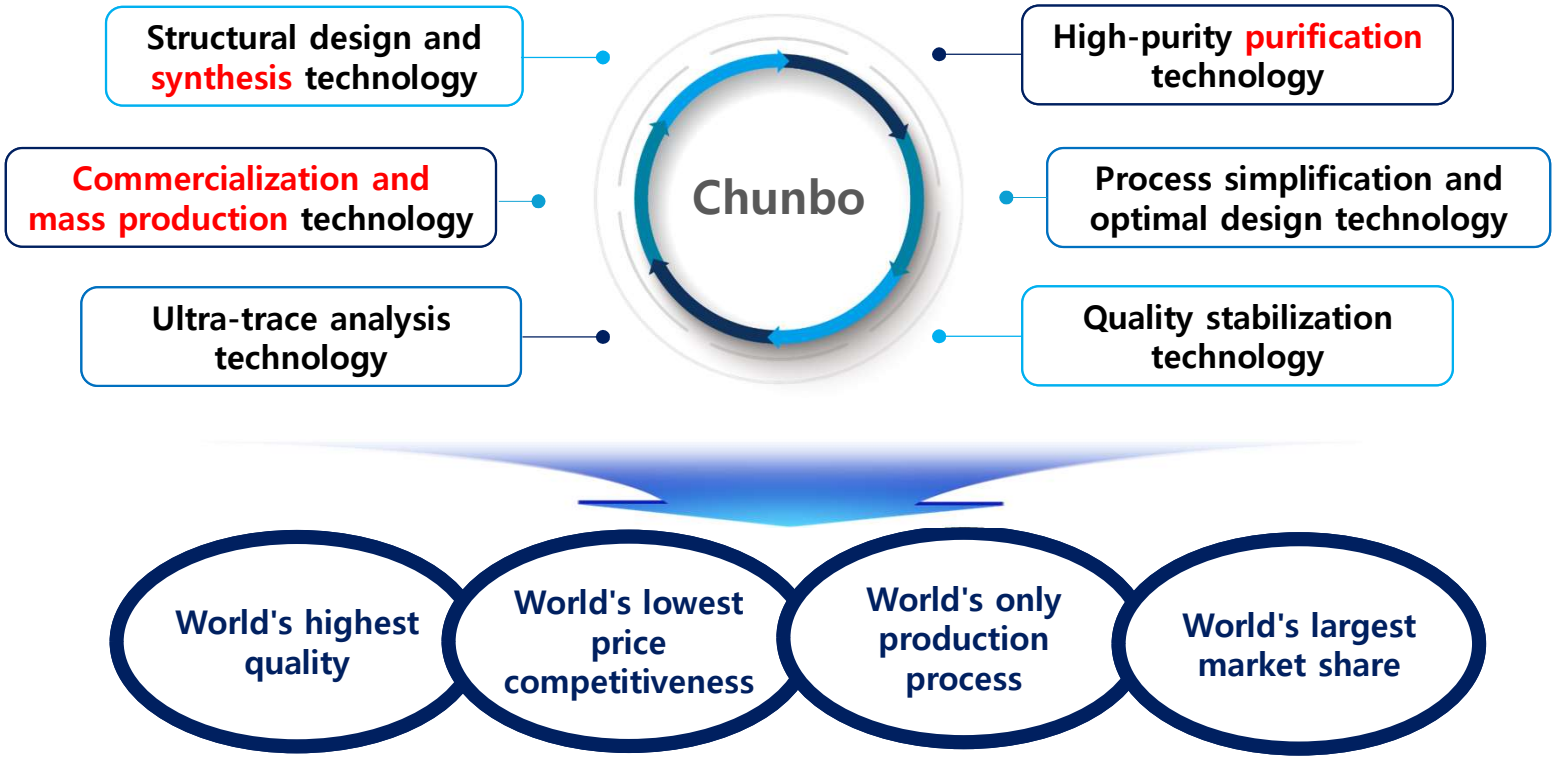
- Tuberculosis,
- Diabetes mellitus, Etc..

DONG-A ST, World Health Organization, LG Chem

Own technology

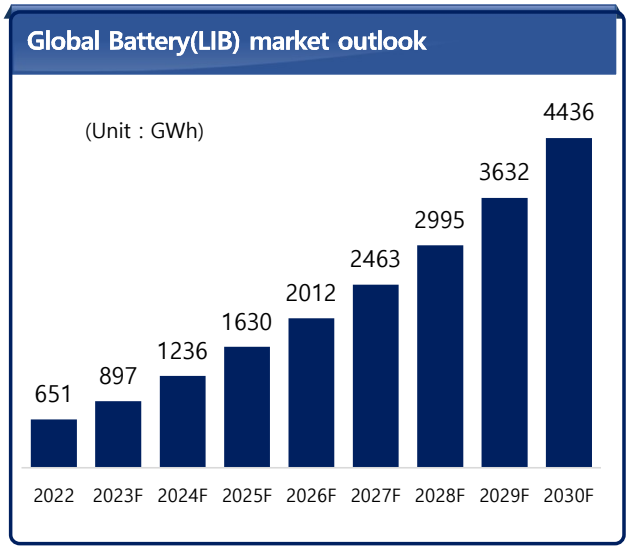
Your True Partner
Chunbo Co., Ltd.

Synthesis and purification of chemicals (Fine chemistry)

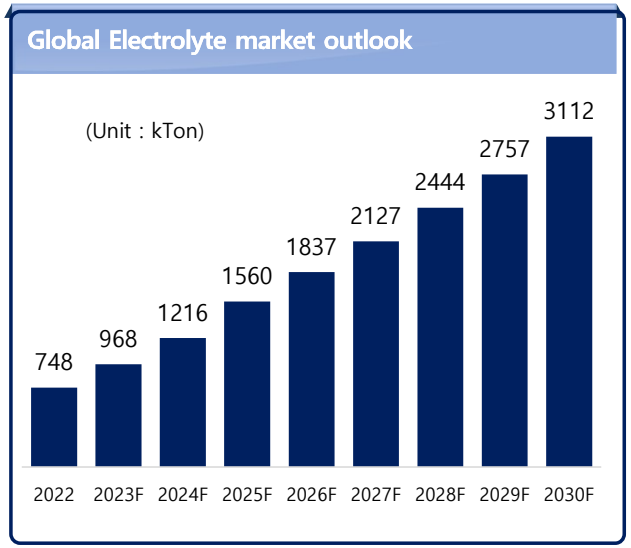


Lithium-ion Secondary Battery

Your True Partner
Chunbo Co., Ltd.



* Source : SNE Research (Feb. 2023)

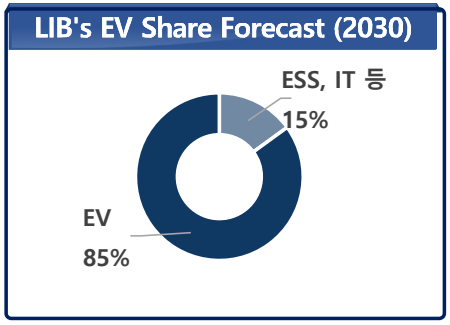


* Source : SNE Research (Aug. 2023)

2030 : EV 60% target
2035 : To ban the sale of internal combustion engines
2030 : GHG reduction by 55% (compared to 1990)

2032 : EV 67% target
2030 : Target to build 500,000 charging stations

Mandatory EV production share (2023 : 18%)
2035 : To ban the sale of internal combustion engines



Lithium-ion Secondary Battery

Your True Partner
Chunbo Co., Ltd.

Market and Customer Status

- LG ES
- SAMSUNG SDI
- SK ON
- SOULBRAIN
- SOULBRAIN E&I MYLAYSIA SDN
- JCEL
- ENCHEM
- DONGWHA Electrolyte
- MUIS KOREA

- SHENZHEN CAPCHEM TECHNOLOGY
- ZHANGJIAGANG GUOTAI HUARONG
- DONGGUAN SHANSHAN BATTERY
- LANGWEI CHEMICAL(DFD)
- Yundu New Energy Technology
- Guangzohu Tinci Materials Technology

- PANASONIC
- CENTRAL GLASS
- MUIS CHEMICAL

- LG ES
- SAMSUNG SDI
- SK ON
- TESLA
- SOULBRAIN MI
- ENCHEM AMERICA LLC
- MUIS CHEMICAL

- Northvolt
- MUIS CHEMICAL
- CENTRAL GLASS CZECH SRO
- SOULBRAIN HU KFT
- GUOTAI POLAND SP
- DONGWHA ELECTROLYTE HUNGARY
- ENCHEM POLAND SP
- CAPCHEM POLAND
- SOLVIONIC

Existing item CAPA Plan

Unit : Metric ton/year

Description	2023	2024	2025 Extension (P)	2026 Extension (P)	2027 Extension (P)	Accumulate CAPA (E)	SITE
LiFSI		2,500	2,500	5,000	20,000	30,000	Gunsan
FEC		1,000	2,000			3,000	〃
VC		1,000	2,000			3,000	〃
$LiPO_2F_2$	3,000			1,000	1,000	5,000	Chungju
LiBOB	500				500	1,000	〃
TDT	200	300		500		1,000	〃
D1 (22% Solution)	1,200					1,200	〃

To be released item CAPA Plan

Unit : Metric ton/year

Description	2023	2024	2025 Extension (P)	2026 Extension (P)	2027 Extension (P)	Accumulate CAPA (E)	SITE
PRS			300		300	600	Chungju
TDT2			300		500	800	〃
D2 (22% Solution)		1,200				1,200	〃
PIC		200		200		400	〃
$LiBF_4$		250	250		500	1,000	〃
CA01		100	100		100	300	〃

CHUNBO ADVANCED MATERIAL, CHUNBO BLS

Your True Partner
Chunbo Co., Ltd.

Lithium bis(fluorosulfonyl)imide (LiFSI)

- Development of the new method (process that can reduce manufacturing cost by more than 50%)

  (This method does not use CSA, CSI, BA, and uses inexpensive raw materials such as H*, S**, U***, etc.), Exclusion of Chinese materials
- Optimization of refining technology and production processes, Quality uniformity
- Recycling of all by-products (cost reduction, environmental improvement)
- Excellent in stability, conductivity, lifespan, and temperature sensitivity compared to LiPF6
- Target to achieve 25% operating profit ratio

- Land area : 171,165㎡
- Government subsidy : approximately 10% of the investment amount
- Income tax : 100% reduction for 5 years after commercial production + 50% reduction for 2 years
- Commercial production begins in May of 2024

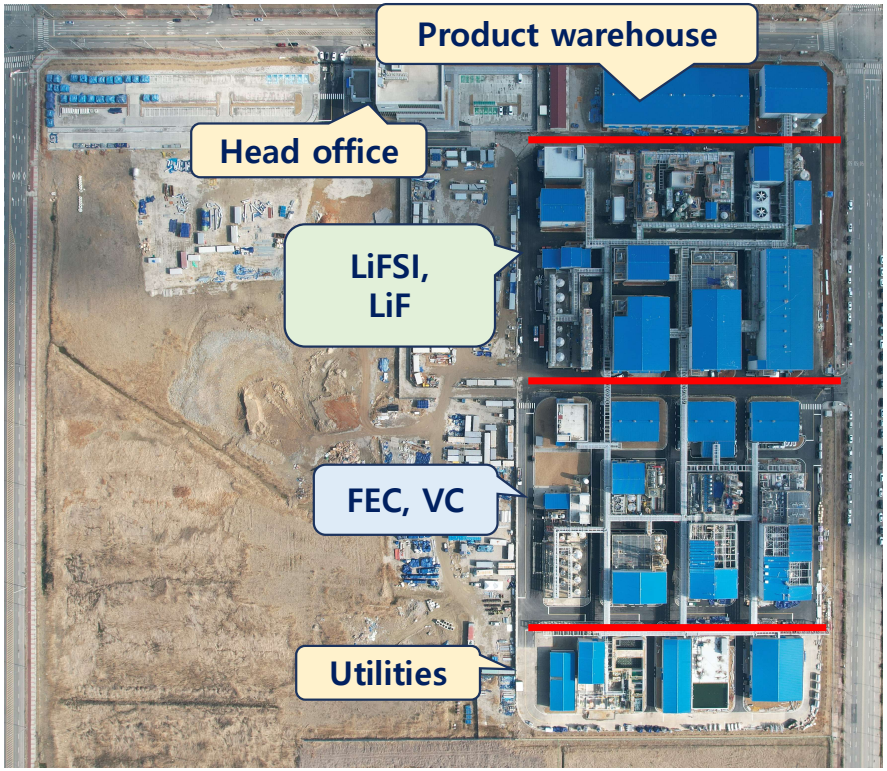
Lithium difluoro phosphate ($LiPO_2F_2$)

- Change of raw materials and the new process development, direct manufacturing of basic materials

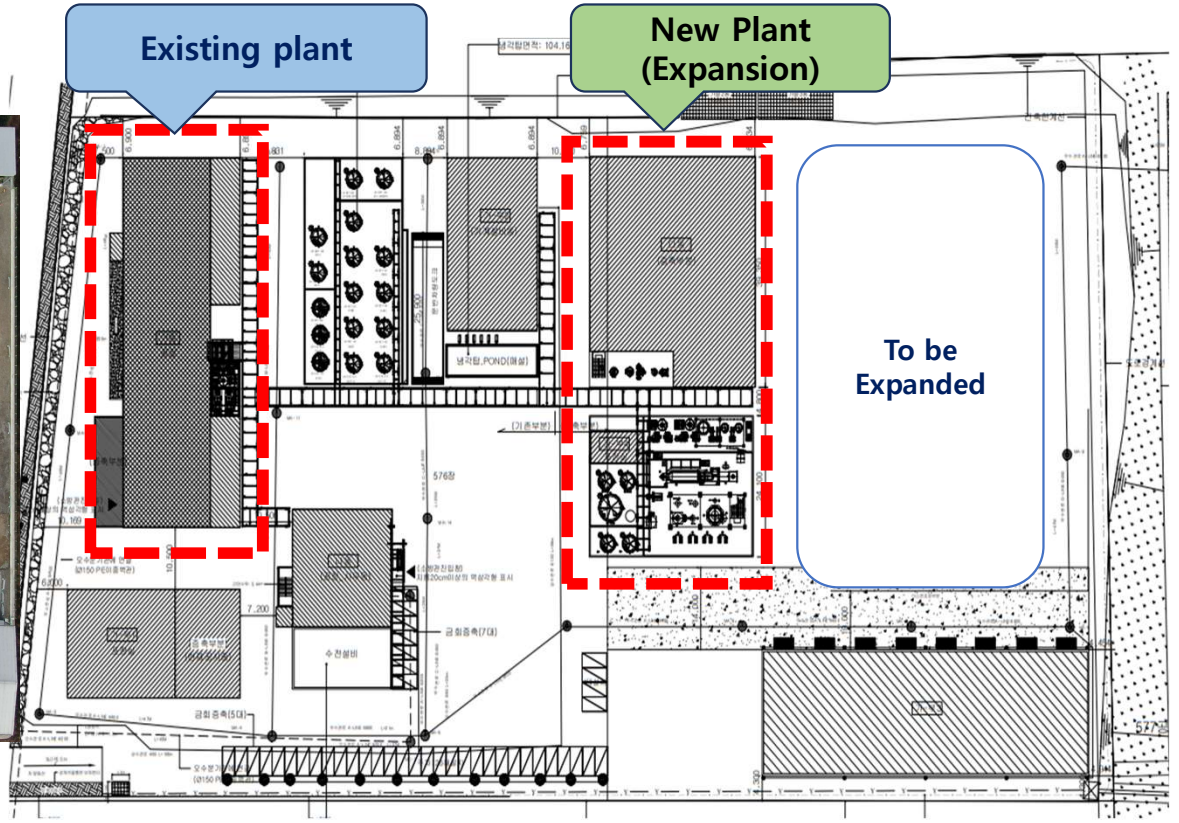
  (30% reduction in manufacturing cost by inexpensive raw materials without using $LiPF_6$), Exclusion of Chinese raw materials
- Resolving unstable supply of raw materials, stabilizing product prices
- Reuse of waste solvent, minimize waste
- Target to achieve 25% operating profit ratio

- Chungju Enterprise City Designated Area
- Recycling of by-products and solvents, Waste Zero
- Eco-friendly (solar, etc.) manufacturing
- Income tax : 50% reduction for 2 years from 2024
- Commercial production begins in January 2024

Saemangeum (Gunsan)



Yeongpyeong (Chungju)



LiFSI superiority

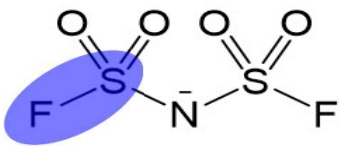
Comparison of physical properties

* Source : SNE Research

Item	LiFSI	LiPF6
Decomposition temperature	> 200 ℃	> 80 ℃
Oxidation voltage	≤ 4.5 V	> 4.5 V
Solubility	Excellent	Excellent
Conductivity	Very good	Good
Stability	Stable	Bad
Thermal stability	Good	Bad
Low temperature performance	Good	Average
Life cycle characteristics	Excellent	Average
High temperature performance	Excellent	Bad
Synthesis route	Complex (difficult)	Simple
Cost	High (Old method)	Average

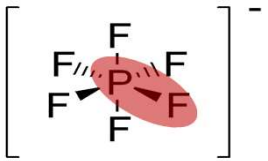
Chemical structure

LiFSI (Anion structure)



S-F connection is strong

$LiPF_6$ (Anion structure)



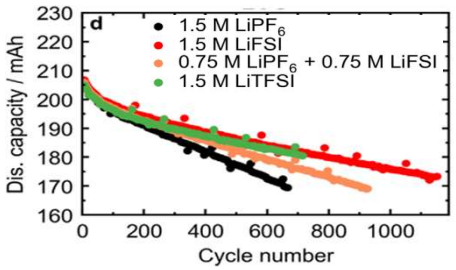
P-F connection is weak
→ 'F' easily detached
→Created of HF

→ LiPF6 is easily decomposed at high temperatures and is sensitive to moisture, making it difficult to use in high-temperature and high-voltage power fields.

→ LiFSI has excellent conductivity, stability, low-temperature resistance, and has advantages in energy density per unit, so LiFSI will be widely used in the future.

Applied to newly developed batteries of LiFSI

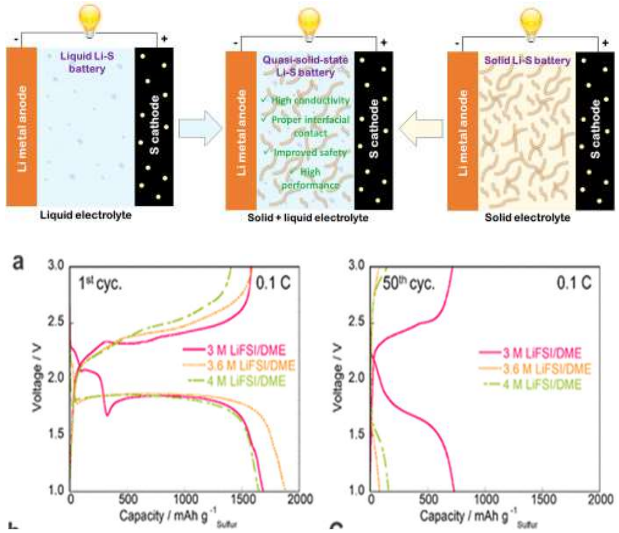
LFP battery



J. Electrochem. Soc., ***2022****, 169, 040560, 재가공*

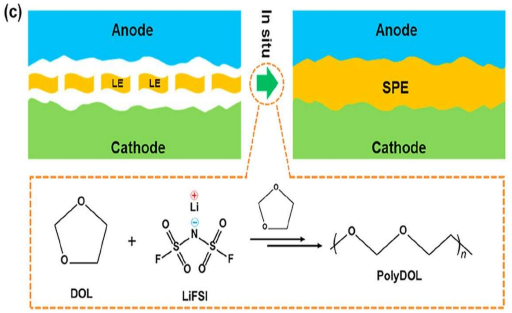
When checking the battery life at high temperatures (40 degrees and 55 degrees), LFP/Graphite electrodes are superior depending on the lithium salt type/concentration.

Li-S battery



ACS Appl. Mater. Interfaces, ***2023****, 15, 31, 37467–37476*

Semi-solid battery



Materials Today Energy, ***2021****, 20, 100623*

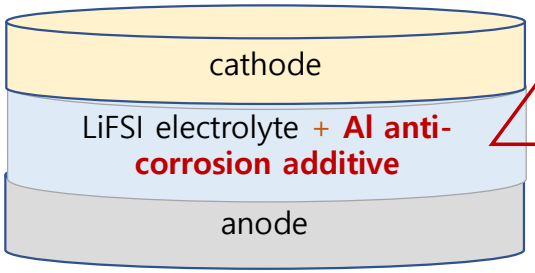
Application as a gel polymer electrolyte and charge transfer material of polymer electrolyte

Lithium-ion Secondary Battery

Your True Partner
Chunbo Co., Ltd.

New product development

LiFSI Electrolyte Al Corrosion Inhibitor



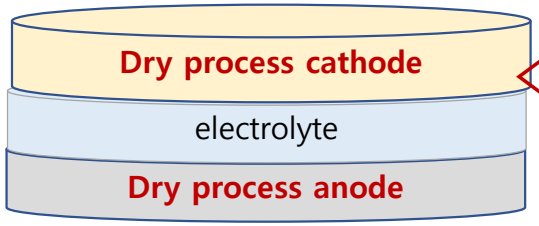
AS-IS

Corroded Al film

- High voltage response difficulty
- Accelerated deterioration

- Check the anti-corrosion function of each structure
- Corrosion inhibitor through new structural design secure

Binder development for dry process

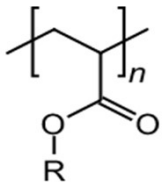


AS-IS

Wet Process

- Difficulty in high-capacity back film coating
- High facility investment cost for drying
- High energy consumption

- Acrylic base Binder



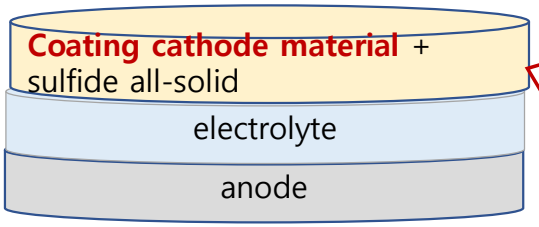
: Cost Reduction
: Ease of introduction of functional groups
: Low need for additional processing
- Fibrillation
- Current collector adhesion Primer

Lithium-ion Secondary Battery

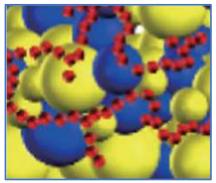
Your True Partner
Chunbo Co., Ltd.

New product development

Cathode material coating for sulfide all-solid



AS-IS



Cathode

Electrolyte salt

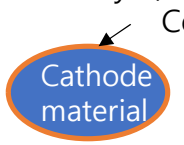
Conductive material

- Misreaction in cathode and electrolyte
  - Resistance increase
  - Decreased capacity/decreased lifetime

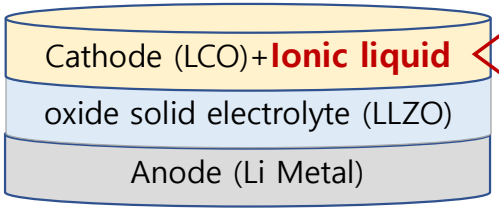
- Formation of a stable CEI layer on the cathode surface

[Methodology]
Coating formed on the cathode surface
(Electrochemical → CEI layer)

- Dry Coating
- Wet Coating

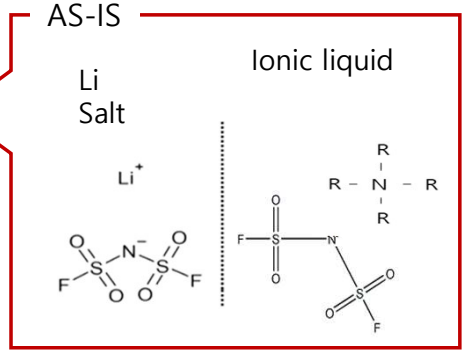


Ionic liquid for Oxide Batteries



LLZO : Li7La3Zr2O12

AS-IS



- Development of low viscosity ionic liquid

: LiFSI
+ **New Low viscosity Ionic liquid (X^+FSI^-)**

- F-based solvent mixing

: LiFSI
+ **Ionic Liquid + F-Solvent**

Consolidated Financial Report

Your True Partner
Chunbo Co., Ltd.

CONSOLIDATED BALANCE SHEETS

Unit : Million (Korean Won)

Description	12/31/2022	12/31/2023	06/30/2024
CURRENT ASSETS	439,442	281,863	207,705
NON-CURRENT ASSETS	379,214	651,827	734,986
TOTAL ASSETS	**818,656**	**933,690**	**942,691**
CURRENT LIABILITIES	148,425	233,399	521,647
LONG-TERM LIABILITIES	275,390	349,762	119,420
TOTAL LIABLILITIES	**423,815**	**583,161**	**641,067**
CAPITAL STOCK	5,060	5,060	5,060
CAPITAL SURPLUS	119,439	119,559	119,560
RETAINED EARNINGS	218,577	171,950	126,526
NON-CONTROLLING INTEREST	51,765	53,960	50,478
TOTAL STOCKHOLDERS' EQUITY	**394,841**	**350,529**	**301,624**

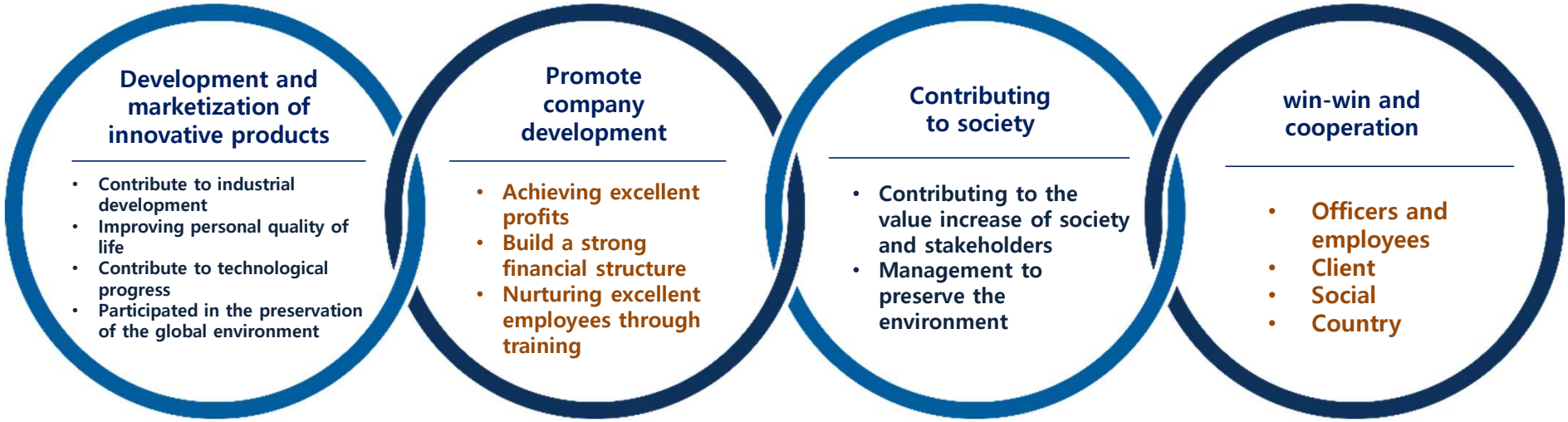
CONSOLIDATED INCOME STATEMENTS

Unit : Million (Korean Won)

Description	2022/Year	2023/Year	2024/2Q
SALES	**328,859**	**182,698**	**75,678**
COST OF SALES	263,928	183,067	97,435
GROSS PROFIT	**64,931**	**-369**	**-21,757**
SELLING AND ADMINISTRATIVE EXPENSES	7,368	7,676	4,478
OPERATING INCOME	**56,473**	**-8,045**	**-26,235**
NON-OPERATING REVENUES	18,727	17,259	7,378
NON-OPERATING EXPENSES	39,123	51,603	37,622
INCOME BEFORE INCOME TAX EXPENSES	36,077	-42,389	-56,479
NET INCOME	**42,836**	**-45,466**	**-48,909**

Company's core values

Your True Partner
Chunbo Co., Ltd.



- Facilitate application to forward and backward industries for carbon neutrality
- Contributed to related industries and economic development
- Pursuing eco-friendliness (RE100, etc.), strengthening competitiveness in related industries, and creating added value by inducing large-scale investment
- Reinforcing research cooperation with related universities and research institutes
- Practice social responsibility by returning profits to society