

# LOTTE CHEMICAL CORPORATION

## COMPANY PROFILE





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# LOTTE GROUP

**LOTTE, a Lifetime Value Creator that enriches the lives of all.**

LOTTE continues to challenge beyond and pursue innovation across the diverse areas of food, retail, tourism and chemicals to offer the most up-to-date lifestyle.

LOTTE aims to create a flourishing future of shared growth for all, paired with a life of greater convenience and delight.



# New Today, Better Tomorrow

## VISION

Lifetime  
**Value** Creator

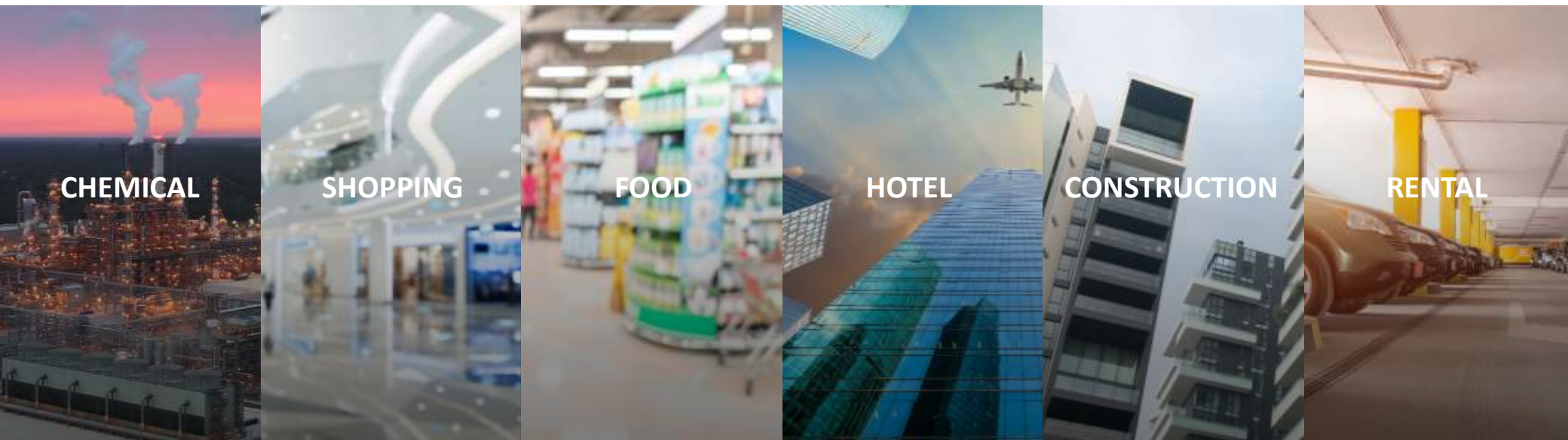
## MISSION

We enrich people's lives by providing superior products and services that our customers love and trust.

LOTTE possesses a stable financial structure that lays the foundation for continuous sustainable growth. Committed in a diversified business portfolio of chemical, shopping, food, hotel, construction, rental, and more.

Total revenue **64.9** trillion KRW (2020)

\* Since 2017, total revenue has been reported in financial accounting standards instead of management accounting standards.



**Subsidiaries**  
**86** (2021)



**Business ranking in Korea**  
**5<sup>th</sup>**



**Asset** <sup>(1)</sup>  
**125.7** trillion



**Sales** <sup>(2)</sup>  
**56.4** trillion

\* Source : May 2021 announcement by the Korea Fair Trade Commission

\* Note : Excluding public corporations and asset-based

(1) Fair assets (2) Fair sales (based on domestic market sales, excluding internal transactions)

# LOTTE GROUP's Chemical Head Quarter

**LOTTE Group Chemical Division leads the chemical industry in Korea built upon a history of challenges and innovation**

LOTTE Group's Chemical Division, consisted of LOTTE CHEMICAL, LOTTE FINE CHEMICAL, LOTTE ALUMINIUM, LC TITAN, LC USA, offers products that enhance the value of life ranging from basic materials to high value-added & specialty products, headed to become the world's best chemical company.



LOTTE Group's chemical unit has expanded to 22 countries across the globe, including Asia and Europe. Its business portfolio ranges from chemical raw materials to polymers, monomers, aromatics, synthetic rubbers, interior/construction materials, and even high-value businesses such as engineering plastics and fine chemicals.

## LOTTE GROUP's Chemical Head Quarter

- **LOTTE CHEMICAL**
- **LOTTE FINE CHEMICAL**
- **LOTTE ALUMINIUM**
- **LOTTE CHEMICAL TITAN**
- **LC USA**
- **LOTTE MCC**  
[JV with Mitsubishi Chemical (JPN)]
- **LOTTE MITSUI CHEMICALS**  
[JV with Mitsui Chemicals (JPN)]
- **LOTTE INEOS CHEMICAL**  
[JV with INEOS (UK)]
- **LOTTE Versalis Elastomers**  
[JV with Versalis (ITA)]
- **LOTTE GS Chemical**  
[JV with GS Energy (KOR)]



[LOTTE CHEMICAL]



[LOTTE ALUMINIUM ]



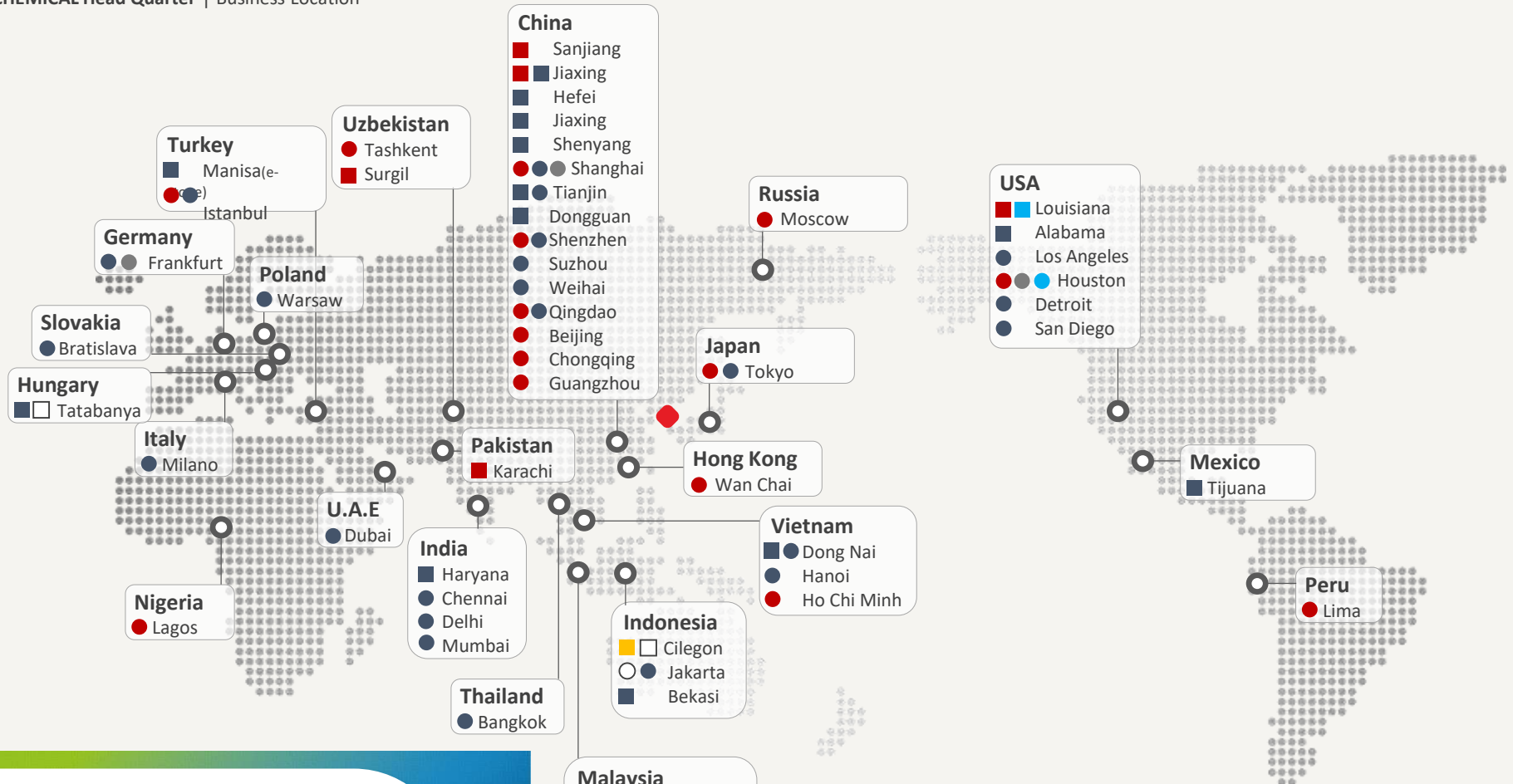
[LOTTE FINE CHEMICAL]



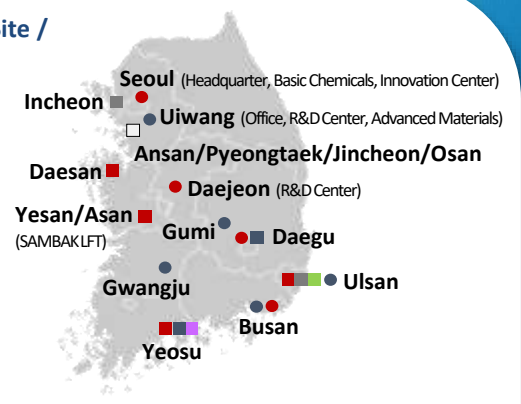
[LOTTE CHEMICAL TITAN]



[LC USA]



/ Domestic Site /



Company	Plant	Sales Office
LOTTE CHEMICAL (Basic Chemicals)	■	●
LOTTE CHEMICAL (Advanced Materials)	■	●
LOTTE FINE CHEMICAL	■	●
LOTTE CHEMICAL TITAN	■	●
LC USA	■	●
LOTTE MCC	■	●
LOTTE ALUMINIUM	□	○
LOTTE GS Chemical	■	●



# LOTTE CHEMICAL

**With leading technologies,  
LOTTE CHEMICAL creates an 'Enriched green world'**

We create a more convenient lifestyle for people, a better environment for nature, and create a tomorrow that is mutually beneficial for people and nature.

# Global leading chemical company

that creates a healthier humanity and enriches lifestyle through creative challenges and innovations



(2021)

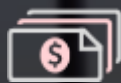


Employees

**10,765**

Domestic 4,981, Overseas 5,784

(Including major domestic & foreign subsidiaries)



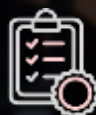
Sales Status

**18,120** billion KRW



Total Equity

**15,451** billion KRW

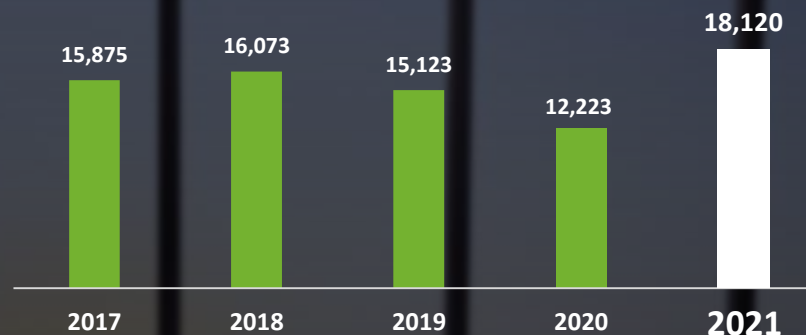


Operation Income

**1,536** billion KRW

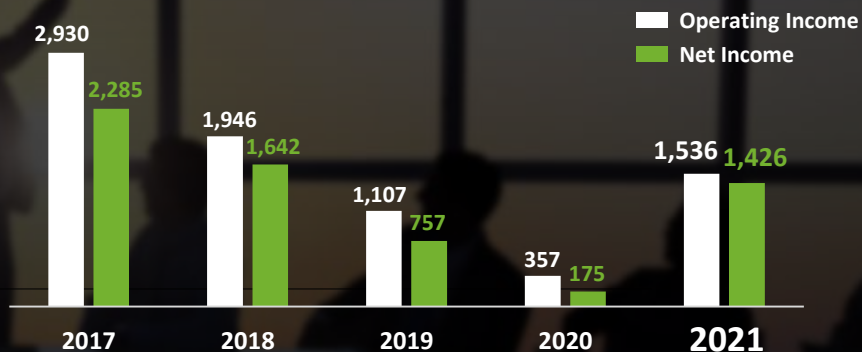
## Sales Status

(Unit : KRW 1 Billion)



## Operating Income/Net Income Status

(Unit : KRW 1 Billion)



## STOCK INFORMATION

As of February 25, 2022 (%)

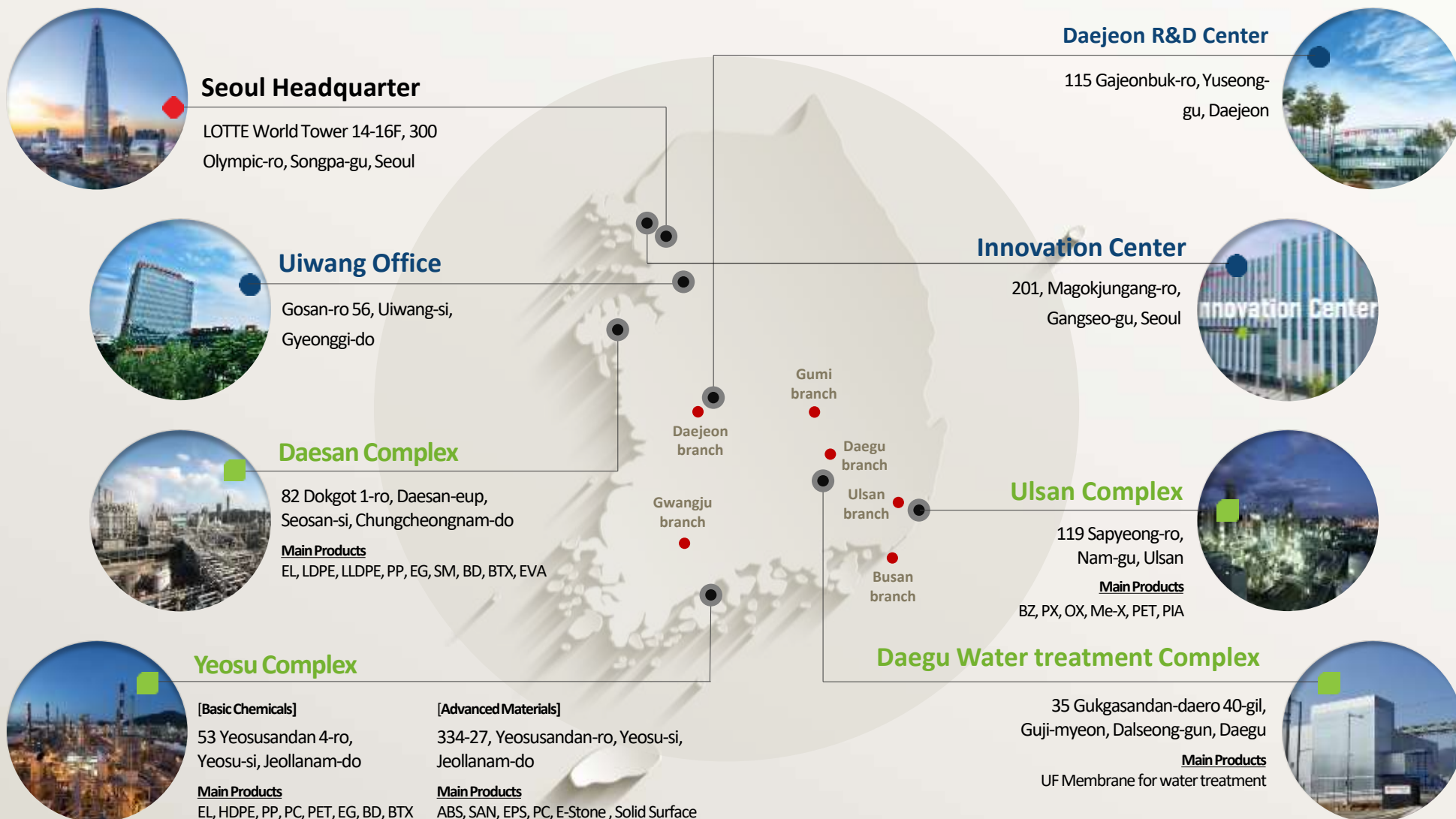
Other Stockholders  
46.69%

LOTTE Corporation  
(The largest shareholder)  
25.59%

LOTTE Property  
& Development  
20.00%

National  
Pension  
Service  
7.72%

LOTTE CHEMICAL is located in Seoul HQ, Uiwang Business Office, Magok/Daejeon Research Centers. And operates three major petrochemical complexes in Korea – Yeosu, Daesan and Ulsan.





[As of December 2020]



**22**  
countries



**26**  
Production  
Base



Exported to  
**120**  
countries

Manufacturing/sales  
Corporation

**18**

Basic Chemicals : 7  
Advanced Materials : 11

Manufacturing  
Corporation

**3**

Basic Chemicals : 2  
Advanced Materials : 1

Sales  
Corporation

**9**

Basic Chemicals : 3  
Advanced Materials : 6

Branch

**7**

Basic Chemicals : 7

Branch / Office

**22**

Basic Chemicals : 4  
Advanced Materials : 18

Overseas Business Site

LOTTE CHEMICAL is leading Korea's chemical industry through active changes and challenges, and will build the history of creation to become the world's top chemical company.

## 1970-2000

**1976.3**  
Established Honam Petrochemical

**1979.6**  
LOTTE Groups, Acquired Honam Petrochemical  
(Privatization completed)

**1979.12**  
Started commercial production at all plants

**1982.11**  
Achieved USD 100 Million Export

**1991.5**  
Initial public offering

**1991.6**  
Completed construction of the Daejeon R&D Center



## 2000-2010

**2003.6**  
Acquired Hyundai Petrochemical  
(LOTTE CHEMICAL Daesan Plant)

**2004.7**  
Acquired KP Chemical  
(LOTTE CHEMICAL Ulsan Plant)

**2006.7.**  
Established Honam Petrochemical Trading in Shanghai (The first subsidiary in China)

**2006.8.**  
Established LOTTE MCC  
(JV with Mitsubishi Chemical)

## 2010-2019

**2010.11.**  
Acquired TITAN Chemicals (LOTTE CHEMICAL TITAN)

**2011.11.**  
Established LOTTE MITSUI CHEMICALS

**2012.12**  
Merged KP Chemical and changed the corporation name to "LOTTE CHEMICAL"

**2014.4**  
Established Hyundai Chemical (JV with Hyundai Oil Bank)



**2015.10**  
Completed Uzbekistan gas project (UZ-Kor)

**2016.5**  
Acquired LOTTE ADVANCED MATERIALS, LOTTE FINE CHEMICAL from SAMSUNG Group

**2019.5**  
Completed construction of the Ethane Cracking Center and Ethylene Glycol Plant in U.S.



## 2020 - Present

**2020.1**  
Merged LOTTE Advanced Materials

**2020.2**  
Established LOTTE-GS CHEMICAL (JV with GS Energy)

**2021.2**  
Announcement of ESG Business strategy 'Green Promise 2030'

**2021.7**  
Announced the '2030 Hydrogen Growth Roadmap'

**2022.1**  
Investment in Indonesia LINE project (3.9 billion USD)

**2022.4**  
Establishment of 'Hydrogen energy division' and 'Battery materials division'



VISION/SLOGAN

We Lead Every Step for a Greener and Better Tomorrow

Every Step for **GREEN** 

BRAND VALUE



**People Oriented**

Value toward people –  
stability and harmony



**Forward Thinking**

Start of innovation –  
products and technology



**Life Enriching**

Abundant life  
and sustainable future

ESG VISION/STRATEGY

**GREEN PROMISE 2030**



**Net - Zero**

Carbon neutrality and  
eco-management



**Circulation and Coexistence**

creation of social values  
by circulation & coexistence



**Green Innovation**

Leading sustainable  
future industries

LOTTE CHEMICAL's research center is constructing an assorted product portfolio through ceaseless platform technology procurement and development of high-value products, while continuously strengthening its R&D infrastructure.

Furthermore, it is creating new value for the future by leading eco-friendly technology development.

## / 연구분야 /

### Basic Chemicals

#### Polyolefin

PE, PP

#### Aromatic

PET, PIA, Polyol

#### Monomer

EO(A), EG

#### Catalyst & process

Computational Chemistry,  
New Process Development

#### Eco-friendly

Recycled/  
Bio plastic

#### Energy

Battery Materials

### Advanced Materials

#### Engineering plastics & Functional materials

PC, PC Compound, ABS, ASA, EPP, LFT, HMSPP, TPV, etc

#### Energy

Hydrogen  
storage

#### Construction & Interior Materials

#### UF Membrane for water treatment

### Innovation Center

#### Future business exploration

Future trend analysis

#### Provision of environmental solutions

Hydrogen Energy,  
Carbon Capture, Bio  
Next-generation Battery Materials

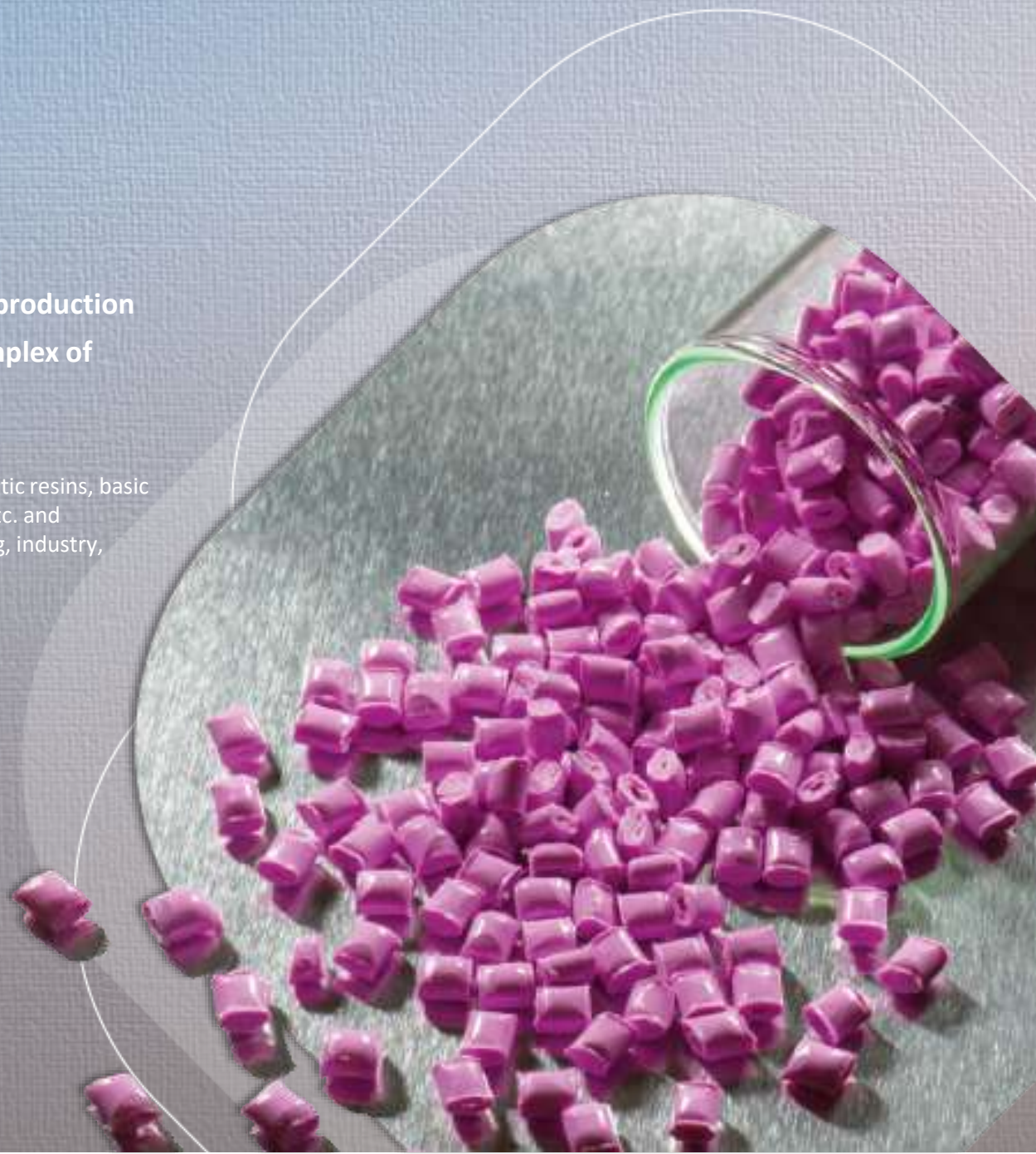


# OUR BUSINESS

**LOTTE CHEMICAL possesses international-scale production facilities in the major Korean petrochemical complex of Yeosu, Daesan and Ulsan**

The diverse product lineup of LOTTE CHEMICAL such as synthetic resins, basic petrochemicals, monomers, construction/interior materials, etc. and they are being applied in everyday goods as well as for farming, industry, medical products, automobiles, and advanced new materials.

<b>Basic Chemicals</b>	<ul style="list-style-type: none"><li>• Basic/Intermediate Petrochemicals</li><li>• Polymers, Monomers, Aromatics</li></ul>
<b>Advanced Materials</b>	<ul style="list-style-type: none"><li>• High Performed Plastics</li><li>• Construction Materials</li><li>• Water Treatment Membrane</li></ul>
<b>Hydrogen energy business</b>	<ul style="list-style-type: none"><li>• By-product / reformed hydrogen</li><li>• Clean hydrogen and ammonia</li><li>• Hydrogen energy utilization business</li></ul>
<b>Battery material business</b>	<ul style="list-style-type: none"><li>• LiB battery materials</li><li>• Solid-state battery materials</li><li>• Vanadium battery materials</li></ul>





## Basic Chemicals

LOTTE CHEMICAL's basic materials business possesses a wide-ranging product portfolio spanning across intermediate materials for petrochemical products, synthetic resins, and monomers based on the top ethylene production volume among Korean chemical companies at 4.5 million tons per year.



### Field of Business

Basic/Intermediate  
Petrochemicals,  
Polymers, Monomers,  
Aromatics



### Production Site

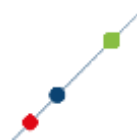
Korea, China,  
Malaysia, Indonesia,  
USA, Uzbekistan,  
Pakistan



### Employees

7,426  
Domestic 3,475  
Overseas 3,951

As of Dec. 31, 2021



# Basic / Intermediate Petrochemicals

LOTTE CHEMICAL has global petrochemical production bases in the US, Malaysia, Indonesia, Uzbekistan, as well as in Yeosu, Daesan and Ulsan, and it is producing a variety of chemical product materials using diversified petrochemical raw materials such as naphtha, LPG and ethane.

Basic	<ul style="list-style-type: none"><li>• Ethylene</li><li>• Mixed C4</li></ul>	<ul style="list-style-type: none"><li>• Propylene</li><li>• BD</li><li>• BTX</li></ul>
Intermediate	<ul style="list-style-type: none"><li>• Me-X</li><li>• PX</li></ul>	<ul style="list-style-type: none"><li>• OX</li><li>• SM</li></ul>

/ LOTTE CHEMICAL workplace ethylene production volume /

(Unit : Thousand tonnes)



[Daesan]



[Ulsan]



[Louisiana, USA] LC USA



[Malaysia, Indonesia] LC TITAN



[Yeosu]

[Uzbekistan] Uz-Ko

# Polymer / Monomer

Applied broadly in not only construction, textile and industrial products, but also everyday goods and even high-tech new materials to enhance the value of life.

Polymer	<ul style="list-style-type: none"><li>• HDPE</li><li>• PP</li></ul>	<ul style="list-style-type: none"><li>• LDPE</li><li>• PET</li></ul>	<ul style="list-style-type: none"><li>• LLDPE / EVA</li></ul>
Monomer	<ul style="list-style-type: none"><li>• EO</li><li>• PIA</li></ul>	<ul style="list-style-type: none"><li>• EG/GE</li><li>• MMA/PMMA (LOTTEMCC)</li></ul>	<ul style="list-style-type: none"><li>• EOA</li></ul>
Synthetic Rubber/ Other Products	<ul style="list-style-type: none"><li>• SSBR/EPDM (LOTTEVersalis Elastomers)</li><li>• MTBE</li><li>• IPM/DCPD/PIP</li></ul>		



## Advanced Materials

LOTTE CHEMICAL's Advanced materials offer specialized material solutions for innovating customer products throughout various businesses ranging from materials for household appliances and internal/external materials of IT devices, and high-tech materials for construction, medical devices, and automobiles.



### Field of Business

Plastics,  
Construction Materials,  
Water Treatment Membrane



### Production Site

Korea, China, Mexico,  
Hungary, Vietnam,  
India, Turkey



### Employees

3,339  
Domestic 1,506  
Overseas 1,833

As of Dec. 31, 2021



## High Performanced Plastics

LOTTE CHEMICAL's Advanced material business offers specialized material solutions for innovating customer products throughout various businesses ranging from materials for household appliances and internal/external materials of IT devices, and high-tech materials for construction, medical devices, and automobiles.

**storex<sup>®</sup>**

### Styrene & General Product

ABS, ABS Alloy, ASA, PP

**INFINO<sup>®</sup>**

### Engineering plastics

PC, PC Alloy, PBT, mPPE,  
PA, PPA, PPS, PCT

**Popelen. Supran. Howpol.  
Lottmer. Adpoly**

### Olefin-based resin & functional compound

LFT, PP Compound, EPP, LOTTMER, ADPOLY

Applications



## Construction / Interior Materials & Water Treatment Membrane

The construction/interior materials of LOTTE CHEMICAL supplements the weaknesses of native rocks and it is applied in various spaces by enhancing aesthetics and functionality to create a beautiful and pleasant living space.

Furthermore, LOTTE CHEMICAL offers clean and safe water based on the world's best water-treating separation membrane technologies..

### Construction / Interior Materials

**staron®**

Acrylic solid surface

*Radianz®*

Natural quartz engineered stone

*Locelain®*

Engineered porcelain surface

### Water Treatment Membrane

**MEMBRIO**

UF Membrane for water treatment

#### Product

Membrane, Module, Cassette

Every Step for



## Hydrogen energy division

LOTTE CHEMICAL is pursuing the hydrogen business for supplying global clean energy and for carbon-reduced growth.

We will continue to procure sovereignty for the Korean hydrogen industry through mid- to long-term investments such as constructing infrastructure for the production, distribution and utilization of domestic and foreign clean hydrogen, and by building partnerships with relevant companies.

### Strengths of LOTTE CHEMICAL's hydrogen business

Expand hydrogen infrastructure based on experience in hydrogen business

1

Networks with major strategic partner companies

2

Competency for carrying out global hydrogen project

3

Sufficient investment capabilities

4

### LOTTE CHEMICAL's hydrogen/ammonia business goals for 2030



Production volume

Hydrogen  
1.2 million tons



Revenue

5 trillion KRW



Total investments

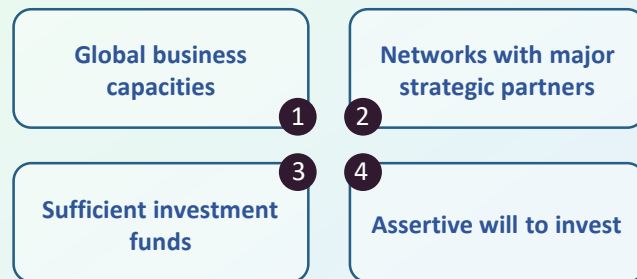
6 trillion KRW

# Every Step for Batteries

## Battery materials division

LOTTE CHEMICAL is expanding its battery materials business to keep pace with the growing demand for batteries and eco-friendly mobility. We will grow into a global supplier specializing in battery materials by collaborating with subsidiaries in the LOTTE Group's Chemical Unit and companies possessing core technologies, and through the multifaceted development of battery

### Strengths of LOTTE CHEMICAL's Battery materials business



### LOTTE CHEMICAL's Battery materials business goals for 2030



Business

- **Lithium-ion battery materials**  
(anodes, cathodes, separation membranes, electrolyte organic solvents)
- **Next-generation solutions**  
(lithium metal cathodes, vanadium liquid electrodes, ESS battery business)



Revenue

5 trillion  
KRW

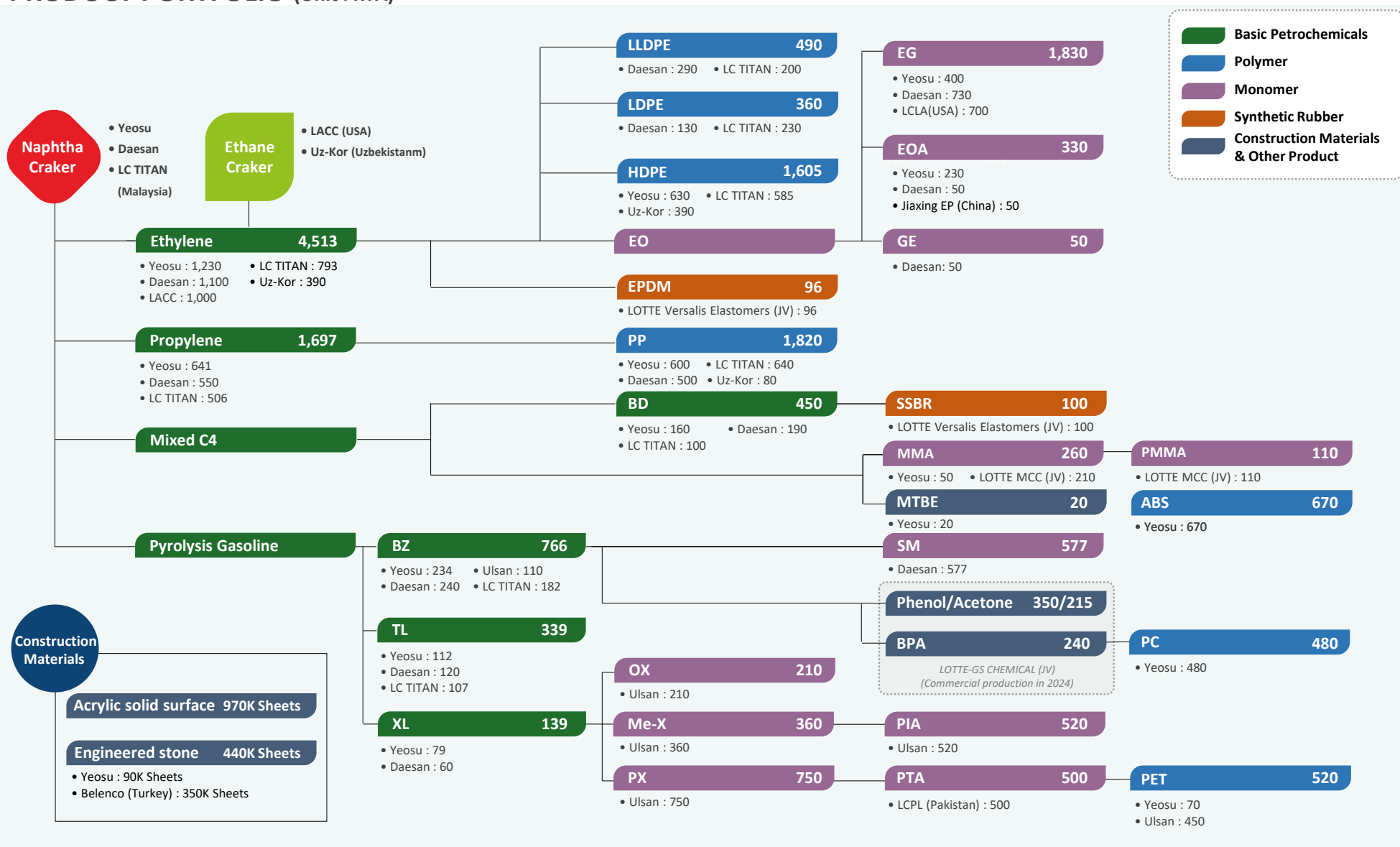


Total investments

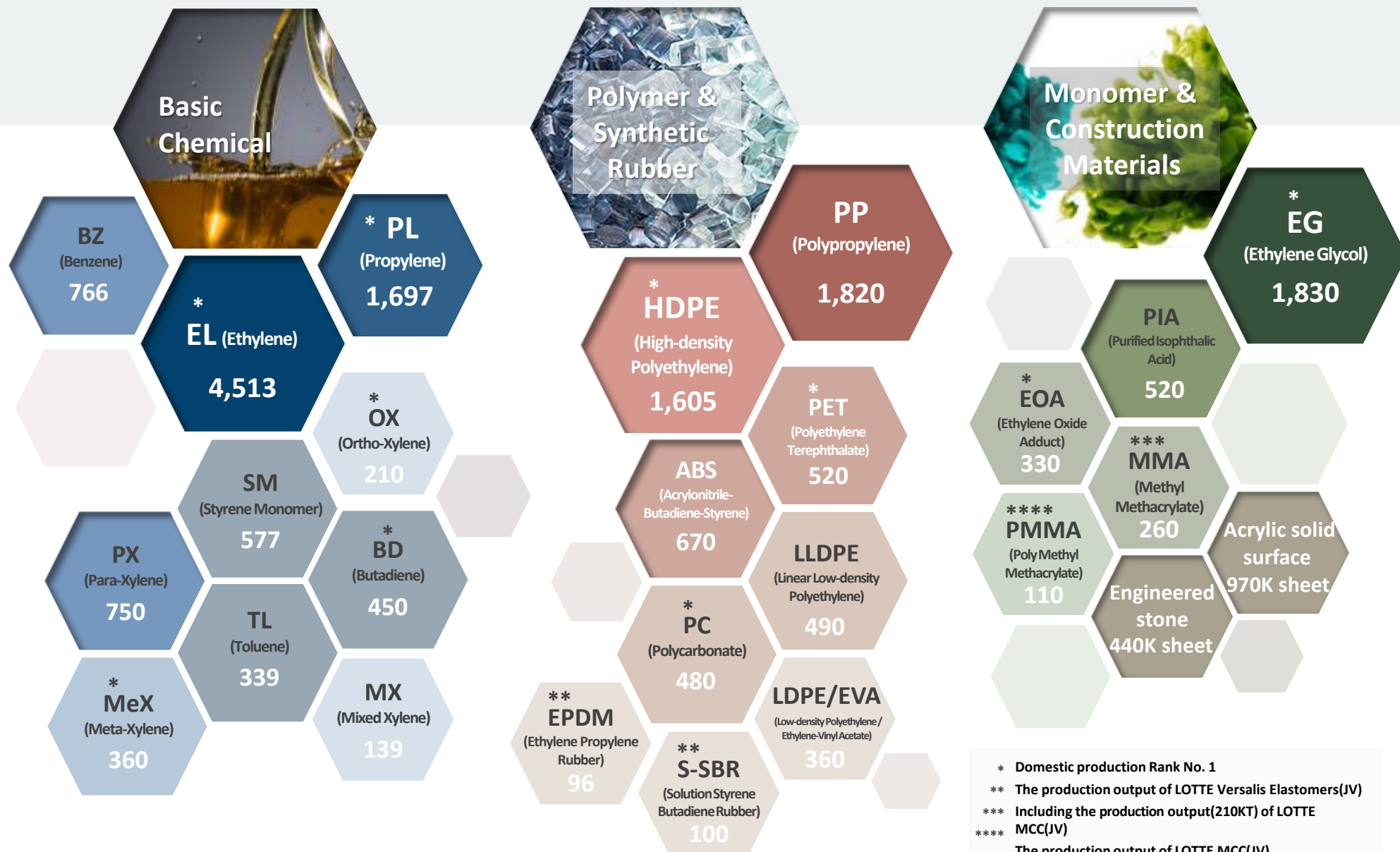
4 trillion  
KRW



## PRODUCT PORTFOLIO (Unit : KTA)



## CAPACITY (Unit : KTA)



## New Business / Joint Venture

### Joint venture with Hyundai Oilbank in the HPC Project

<b>Business Contents</b>	Investment in construction of ethylene plant and petrochemical complex based on petroleum residuum
<b>Total Investment cost</b>	3,364 billion KRW
<b>Products</b>	Ethylene 950KTA, Propylene(PL) 510KTA PE 850KTA, PP 500KTA, BD 185KTA
<b>Commercial Production</b>	2022

\* HPC : Heavy Feed Petrochemical Complex

### Investment in production facilities of Battery electrolyte organic solvent

<b>Business Contents</b>	Implementation of eco-friendly EV battery electrolyte organic solvent production facility
<b>Total Investment cost</b>	EC/DMC 210 billion KRW EMC/DEC 140 billion KRW
<b>Products</b>	EC/DMC 48KTA EMC/DEC 68KTA
<b>Commercial Production</b>	EC/DMC 2023 EMC/DEC 2024

\* EC : Ethylene Carbonate / DMC : Dimethyl Carbonate  
EMC : Ethyl Methyl Carbonate / DEC : Di Ethyl Carbonate

### D-EOA Expansion Project

<b>Business Contents</b>	High-value specialty material EOA for construction and expansion of raw material HPEO production line
<b>Total Investment cost</b>	250 billion KRW
<b>Products</b>	HPEO 250KTA, EOA 150KTA
<b>Commercial Production</b>	2023

\* HPEO : High Purified Ethylene Oxide / EOA : Ethylene Oxide Adduct

### GS Energy joint venture 'LOTTE-GS Chemical'

<b>Business Contents</b>	New joint venture business for stable procurement of PC product raw material(C3 product) and to increase C4 petrochemical products
<b>Total Investment cost</b>	950 billion KRW
<b>Products</b>	[C3] Phenol 350KTA, Acetone 215KTA, BPA 240KTA [C4] BD 90KTA, TBA 70KTA, BN-1 40KTA, MTBE 15KTA
<b>Commercial Production</b>	[C3] 2024 / [C4] In trial production

### Implementation of CCU Equipment

<b>Business Contents</b>	Construction of carbon dioxide collection and liquefaction facilities for reducing carbon emissions
<b>Products</b>	High purity Carbon Dioxide 100KTA
<b>Total Investment cost</b>	60 billion KRW
<b>Commercial Production</b>	2023

\* CCU : Carbon Capture Utilization

### Chemical Recycling PET Project

<b>Business Contents</b>	Waste PET chemical recycling plant for plastic Circular economy
<b>Total Investment cost</b>	
<b>Products</b>	BHET 45KTA, C-rPET 110KTA
<b>Commercial Production</b>	2024

\* BHET : bis-hydroxyethyl terephthalate  
(process for converting polymers to raw materials)

\* C-rPET : Chemical recycling PET

### Indonesia LINE Project

<b>Business Contents</b>	Construction of first naphtha cracking center(NCC) in Indonesia and vertical integration with existing Polyethylene (PE) plant
<b>Total Investment cost</b>	4,877 billion KRW (3.9 billion USD)
<b>Products</b>	Ethylene 1,000KTA, PL 520KTA, PP 250KTA, etc
<b>Commercial Production</b>	2025

\* LINE Project : LOTTE Indonesia New Ethylene Project

Cilegon  
(Banten, Indonesia)

 New Business  
 Joint Venture

## AWARD & CERTIFICATION



### SPE Award



[2014]

**Non-stamped metallic materials** Luminous PC/ABS

Application in the 2015 Ford Mondeo

[2017]

**Dual injection dimensional patterns** Luminous ABS+PC

Application in the 2018 Ford Fiesta



### IR52 Jang Young Sil Award



[2013]

**Interior**

LFT rear seat cushion frame

[2018]

**Engine room**

thermal aging blocking PPA

[2017, 2020, 2021]

**PC alloys for TVs**

thin film/highly-durable materials

### NET new technology certification



[2013]

**strengthening long-fiber compound material**

Development of carbon fiber

[2015]

**Automobile interior**

dual injection dimensional patterns technology

**Automobile interior**

non-stamping foaming injection technology

[2016]

**Engine room**

thermal aging blocking PPA technology

[2017]

**Automobile injection stiffener**

3D-tow insert technology

[2020]

**Floating** eco-friendly foaming polypropylene technology



### iF Design



[2015, 2016]

- Touch, paper texture, emotional materials
- Starex® extrusion ABS, thin film vacuum molding resin
- Resin with colors changed by LED



### reddot Award



reddot design award

[2016, 2017, 2018, 2020, 2021]

- starex® Luminous XM
- Metal contact plastic PBT/GF
- Color Blending Effect in Plastics
- Meeting space that applied anti-bacterial Staron®
- Natural lighting and plastic for peace of mind



## Desired Qualities of Employees

### Vision 2030



#### *Challenger*

##### Top talents driving execution

Top talents in their fields who take on New opportunities and tough challenges with high energy and enthusiasm

- Attracts Top Talent
- Action Oriented

#### *Harmonizer*

##### Harmonious talents respecting diversity

Talents who recognize values of different perspective and culture to organization therefore collaborate for shared objectives

- Collaborates
- Values Differences

#### *Expert*

##### Talents with business Insight and Strategic Mindset

Talents who anticipates future possibilities and build strategies within knowledge of business and the marketplace to reach organizational goal

- Strategic Mindset
- Business Insight

#### *Motivator*

##### Talents who are self-developer under responsibility

Talents who do their best to achieve organizational goal based on sense of ownership and accountability

- Drives Engagement
- Ensure Accountability



## MISSION

We enrich people's lives by providing  
superior products and services that  
our customers love and trust



05551

LOTTE World Tower 14-16F, 300 Olympic-ro, Songpa-gu, Seoul

Tel 02.829.4114

[www.lottechem.com](http://www.lottechem.com) (LOTTE CHEMICAL Website)

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