



Global advanced materials company

LG Chem



Solution*Partner*

Contents

- / Introducing LG Group
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- / Business of LG Chem

LG Group

History

1947

Established as Lucky
Chemical Industrial Co.
(now LG Chem)

1958

Established as
Goldstar Co.
(now LG Electronics)

1987

Completed
'Lucky Gold Star Tower'

1995

Established as
New Corporate Identity
(Lucky Goldstar → LG)

LG Group

History

1996

Established as
LG Telecom
(now LG U+)

2003

Established as LG Corp.

2017

LG Group's 70th
Anniversary

LG Group

Subsidiary

* Figures represent number of affiliates

* Total of 71 including LG Corp.

26

Chemicals

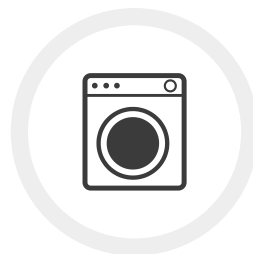
LG Chem
LG Hausys
LG Household & Healthcare
Farm Hannong
etc.



15

Electronics

LG Electronics
LG Display
LG Innotek
etc.



29

Telecommunications & services

LG U+
LG CNS
LG International
Serveone
etc.



LG Group

LG Way



VISION

No. 1 LG



Behavioral Mode

Jeong-Do
Management



Management Principles

Customer – Value Creation
People – Oriented Management



LG Chem
Vision

To Be a Global Leader

Growing with customers by providing innovative materials and solutions



Customer
Value Creation



Strong
Implementation



Mutual Respect

LG Chem

New
Growth
Business



ENERGY



WATER



BIO

LG Chem

New
Growth
Business



'Global Top 5' Chemical Company



LG Chem

History



2010's

- 2017 Merged with LG Life Sciences Co., Ltd
- 2016 Acquired Dongbu Farm Hannong (Farm Hannong)
- 2014 NanoH2O (water treatment filter manufacturer) acquired
- 2010 Started construction of automotive battery plant in Michigan, USA

2000's

- 2009 Industrial Materials Business spun off (LG Hausys)
- 2007 Merged with LG Petrochemicals Co., Ltd
- 2005 Established a polarizer back-end subsidiary in Poland
- 2004 Established LG Chem (China) Investment Co., Ltd
- 2004 Completed construction of Ochang Techno Park
- 2003 Acquired Hyundai Petrochemicals
- 2001 Split the company (LGCI, LG Chem, LG Household & Healthcare)

1990's

- 1998 Completed construction Cheongju plant for rechargeable batteries
- 1995 Completed construction of Tianjin PVC plant in China
- 1995 Renamed to LG Chem, Ltd.

1980's Earlier

- 1979 Opened the Daedeok Central R&D Center
- 1976 Completed the Yeosu PVC Paste Resin Plant
- 1974 Changed company name to Lucky Corporation
- 1969 Listed on Korea Stock Exchange
- 1947 Established as Lucky Chemical Industrial Corporation

LG Chem

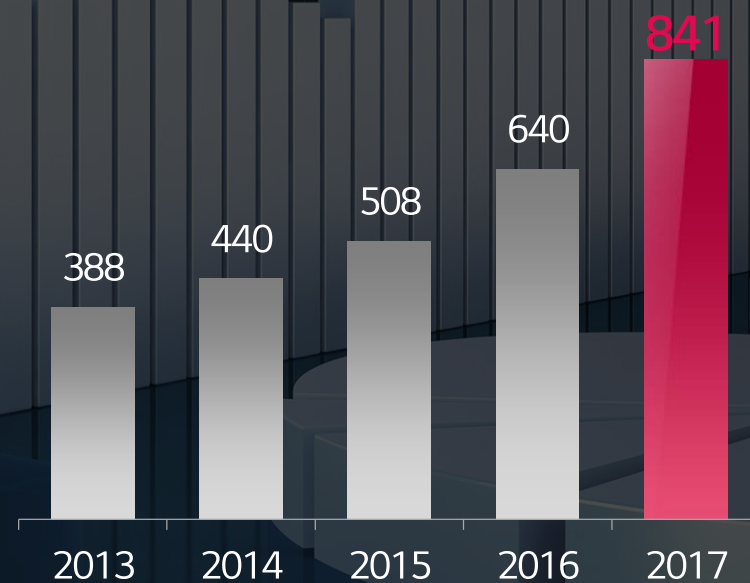
R&D Status

R&D Expense

(unit : million USD)

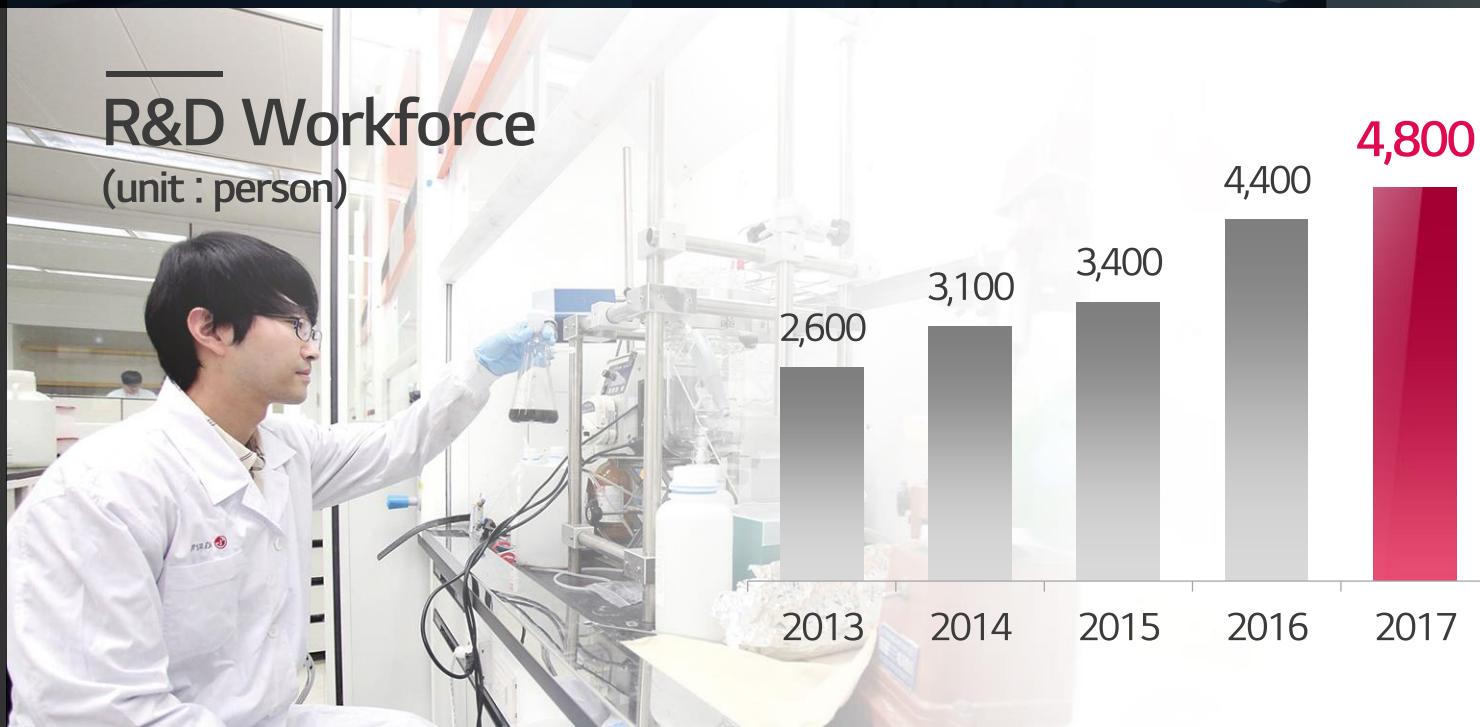
5.321

6.991



R&D Workforce

(unit : person)



LG Chem
R&D
Complex

The largest Convergence R&D Complex in Korea

LG Sciencepark



Total area
111.4 (ha)



Workforce
22,000 (person)
(LG Chem 2,050)

LG Chem

Financial Results

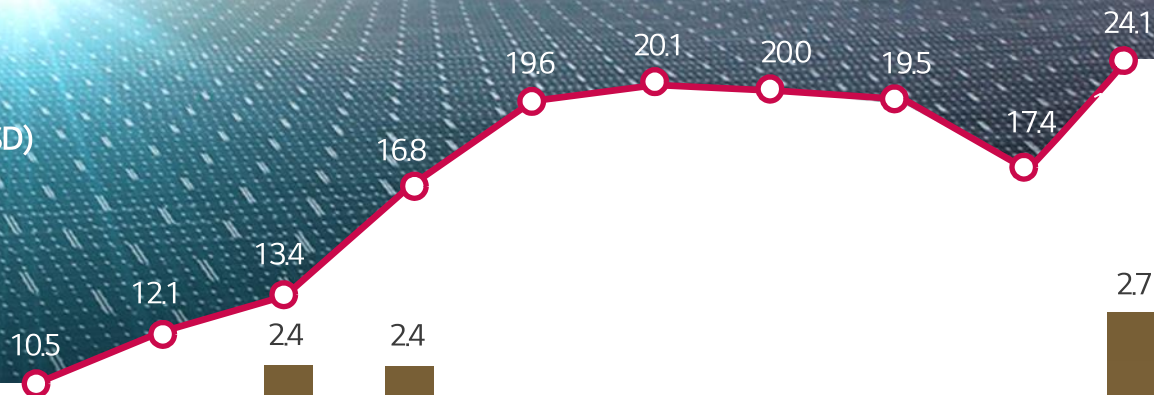


Sales in 2017
USD 24.1 Billion

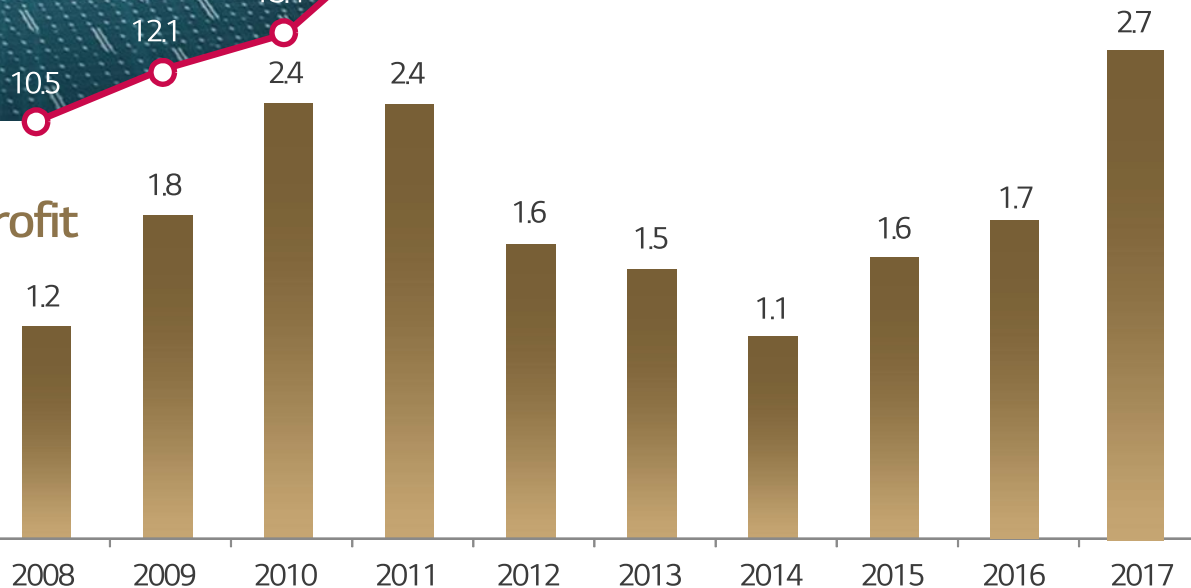


Workforce
29,573 Employees

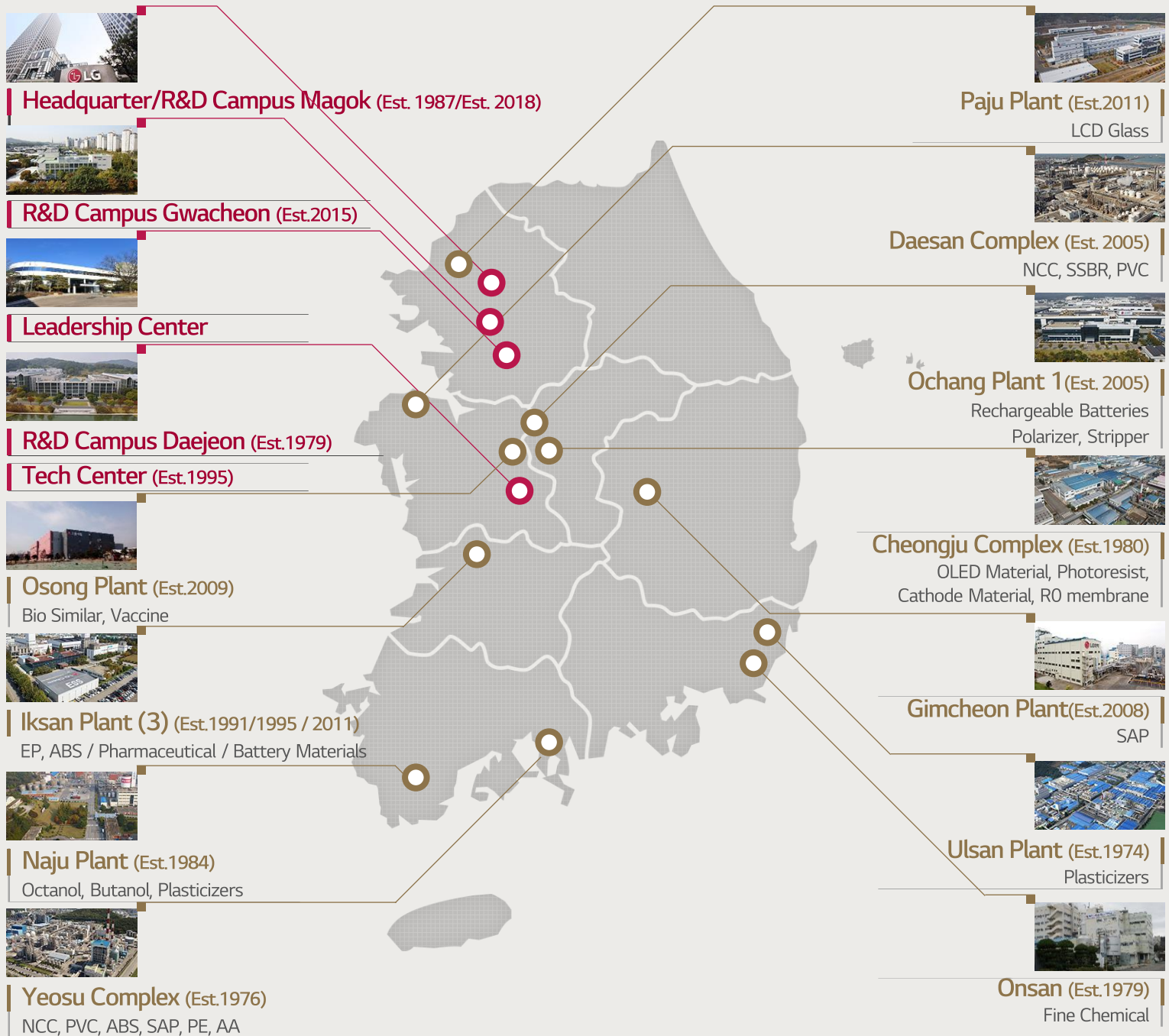
Sales (Billion USD)



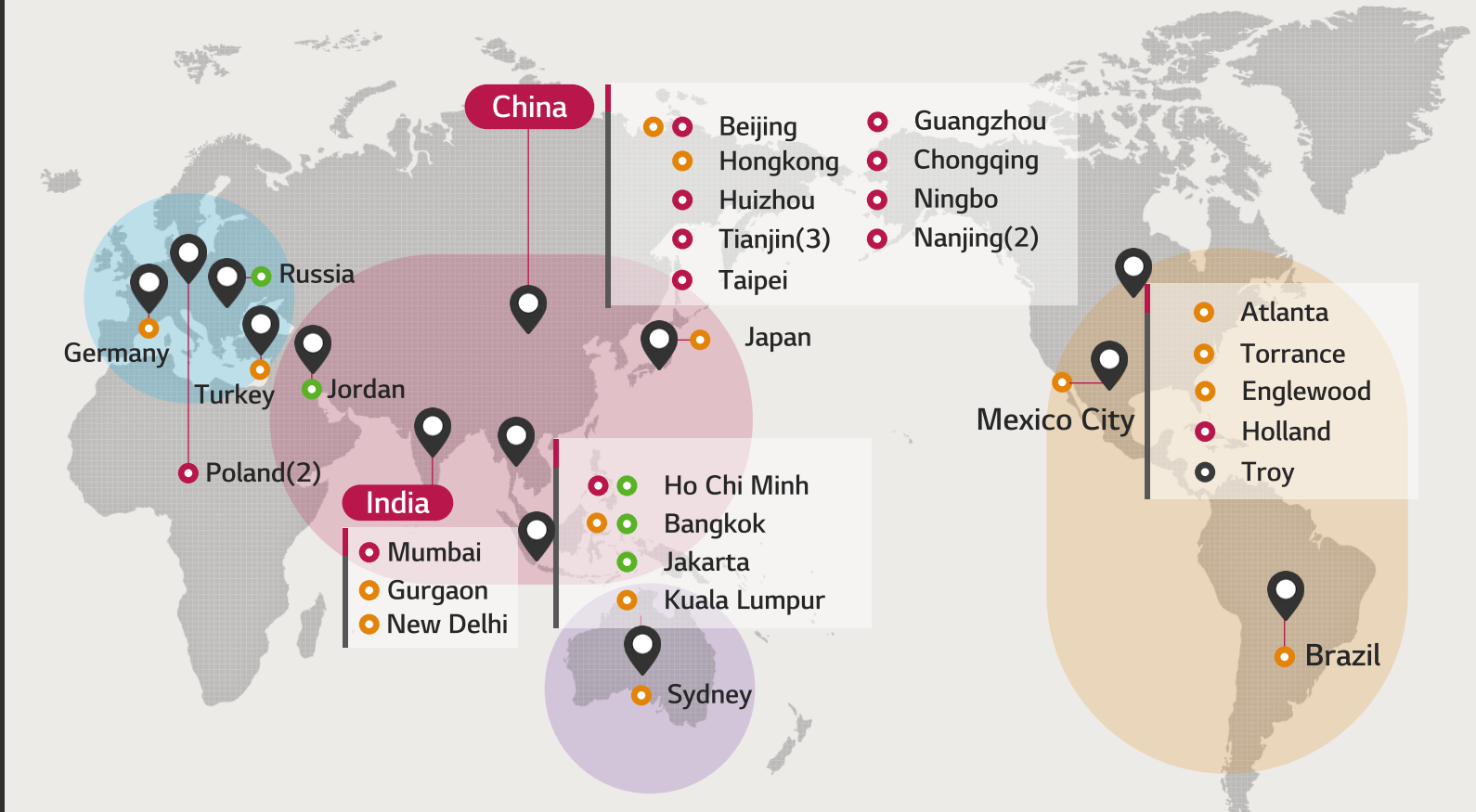
Operating profit
(unit : Billion USD)



LG Chem Domestic Sites



LG Chem Overseas Sites



Asia

- Beijing (Est.2004) - Polarizer
- Tianjin (Est.2004) - EP (Est.2005) - PVC,VCM,EDC (Est.2009) - SBS
- Guangzhou (Est.2002) - EP
- Chongqing (Est.2015) - EP
- Ningbo (Est.1996) - ABS, SBL, EP
- Nanjing (Est.2003) - Mobile Battery, Polarizer (Est.2014) - Automotive Battery (Est. 2017) - ESS Battery
- Huizhou (Est.2009) - ABS
- Taipei (Est.2004)-Polarizer
- Hongkong

Australia

- Tokyo
- India (Est.1996)-PS, EPS
- Haiphong (Est.2017)-Polarizer
- Ho Chi Minh (Est.1995)-Plasticizers
- Bangkok
- Jakarta
- Kuala Lumpur
- Amman
- Sydney

America

- Atlanta
- Torrance
- Troy
- Holland (Est.2000) - Automotive Battery
- Sao Paulo
- Mexico City

Europe

- Wroclaw (Est.2005)-Polarizer, EP (Est.2016)-Automotive Battery
- Moscow
- Frankfurt
- Istanbul

● Manufacturing Subsidiaries (18)
 ● Marketing Subsidiaries (15)
 ● Representative (5)
 ● R&D Center (1)

LG Chem Business Area



Basic Materials & Chemicals



- NCC
- PolyOlefins
- PVC/Plasticizers
- ABS
- Engineering Plastics
- Acrylates/SAP
- Rubber/Special Polymers

Energy Solution



- IT&New Application Battery
- Automotive Battery
- ESS Battery

IT & Electronics Materials



- Optical Materials
- Advanced Functional Materials
- LCD Glass Substrates
- RO Membrane

Advanced Materials



- Display Materials
- Battery Materials

Life Sciences



- Primary Drug
- Specialty Drug
- Vaccines



Introducing LG Chem

*Solution***Partner**

Basic Materials & Chemicals Company

Naphtha Cracking Center

LG Chem's naphtha cracking center(NCC) processes produce basic materials for the petrochemical industry, including ethylene and propylene. The raw materials produced from the BPA processes are used in polycarbonate(PC) resins and epoxy materials.

Naphtha Cracking Center

Ethylene/Propylene



BD



BTX



MTBE/Butene-1



SM



EO/EG



BPA



Applications

Poly Carbonate



Epoxy Resin



Polyolefins (PO)

LG Chem's polyolefin(PO) processes produce synthetic resins, such as polyethylene (PE) and polypropylene (PP) used in containers and packaging materials, which are recognized in the global market for their outstanding quality.

| LD / LLD/ HD / POE / EVA |

Applications



Medical Appliances



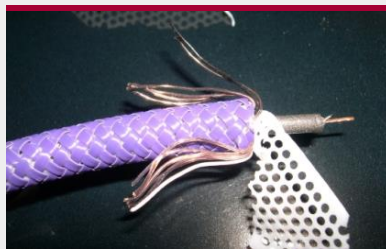
Korean Floor Heating System



Packing Materials



Cable Insulator



Solar Film



Exterior & Interior Decoration of a Car



PVC / Plasticizers

LG Chem's polyvinyl chloride(PVC) processes produce synthetic resins used for chassis and pipes, while plasticizers produce raw materials that add flexibility to the PVC.

PVC / Caustic Soda / Plasticizers



Applications

Wallpaper/Flooring



Artificial Leather



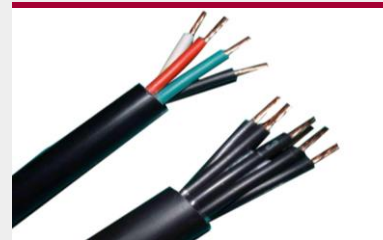
Pipe



Synthetic Textiles



Cable Sheath



PVC resin



Acrylonitrile Butadiene Styrene (ABS)

LG Chem's acrylonitrile butadiene styrene(ABS) processes produce high-performance materials used in automobiles, home appliances, and IT devices that have excellent heat resistance, impact resistance, and processibility.

ABS / SAN / PS / EPS

Applications



Exterior & Interior Decoration of a Car



Toy



Home Application Housing



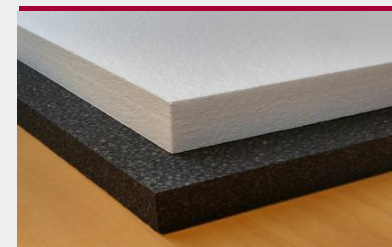
Kitchen Containers



Products Container



Building Insulator



Engineering Plastics (EP)

LG Chem's engineering plastics(EP) processes produce high-performance materials that are more intense and lighter than general plastics. These materials are used in various applications including automobiles and electronic parts.

EPC / TPE /
Specialty Compound / PC

Applications

Exterior & Interior Decoration of a Car/ Engine Parts



TV/Mobile device



Billboards



Cable



Spectacle Lenses



Acrylates / SAP

LG Chem's acrylate processes produce raw materials used for paint, adhesives, and SAP. SAP effectively absorbs fluids in diapers and items for sanitary purposes.

Acrylates / SAP

Applications



Plasticizer/ SAP Resin



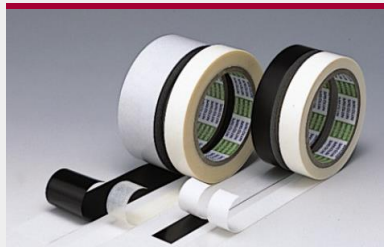
Baby Diapers



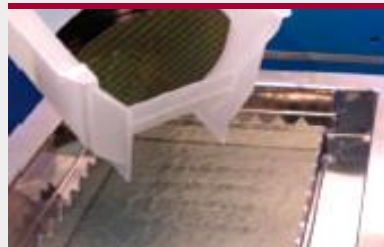
Paint



Adhesive Materials



Cleaning agent for Semiconductor



Acrylic Fibers



Rubber / Special Polymers

LG Chem's synthetic rubber processes produce raw materials used in tires and golf balls, whereas the specialty polymer processes produce special adhesive that are versatile.

BR / MBS / LATEX / SBS

Applications



Tire



Golf Ball



Shoe Insole



Impact Reinforcing Agent



Asphalt Modifying Agent



Medical Gloves





Introducing LG Chem

Energy Solution Company

SolutionPartner

IT & New Application Battery

LG Chem's IT & New Application Battery Division succeeded in manufacturing the first of domestic Lithium-ion Battery that is leading the global market with superior technology and productivity.

| Cylindrical, Prismatic, Polymer |

Applications

| Mobile Device



| Electric Tool



| Electric Bicycle



| Smart Watch



Major Customers



Advanced Automotive Battery

LG Chem produces world-renowned EV batteries, and has a product portfolio that encompasses all products related to car batteries from cells to modules, BMS, packs, and technical support.



Advanced Automotive Battery Solution

| Cell



| Module / Pack / Rack



| Battery Management System (BMS)



Major Customers



DAIMLER



ESS Battery

With superior lithium ion battery technology and global production capacity, LG Chem supplies battery systems for ESS batteries in many different fields including electrical grid, household, Commercial, and UPS (uninterruptible power supply).



ESS Battery Solutions

Cell



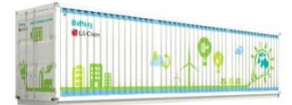
Module / Pack / Rack



Battery Management System (BMS)

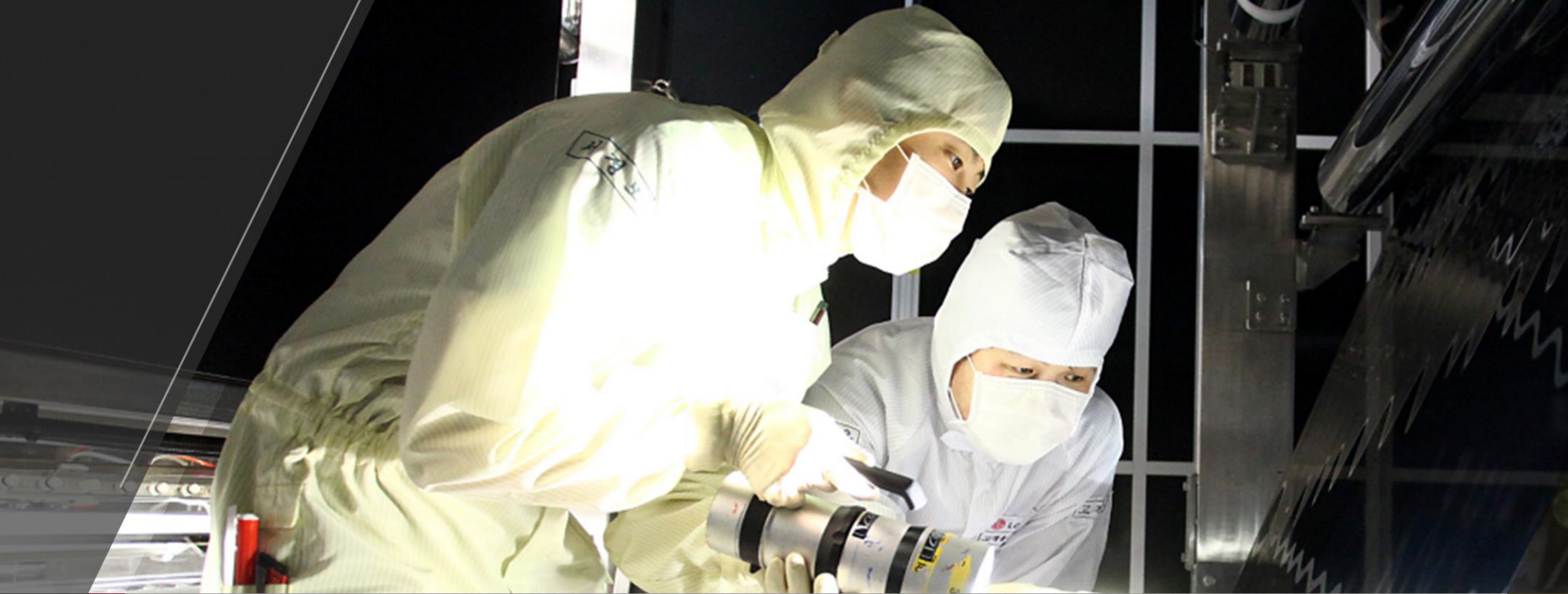


Container



Major Customers





Introducing LG Chem

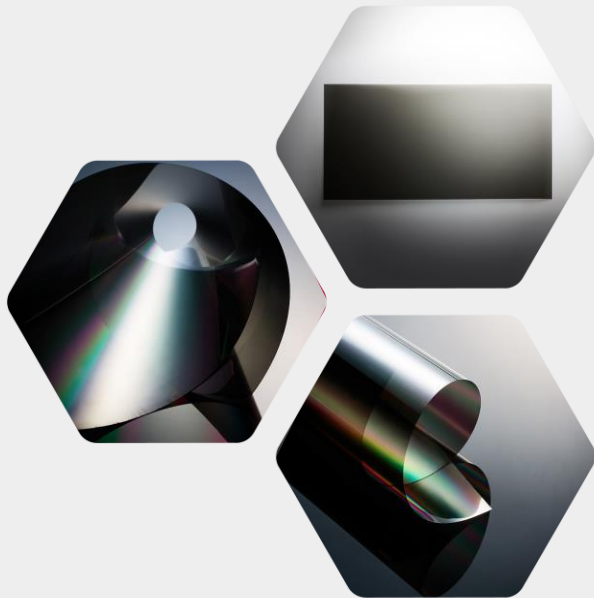
IT&E Materials Company

Solution*Partner*

Optical Materials

LG Chem produces the core materials for display products, such as polarizers.

Polarizer



Applications

TV/ Monitor



Laptop/ Tablet



Smart Phone



Automotive Display



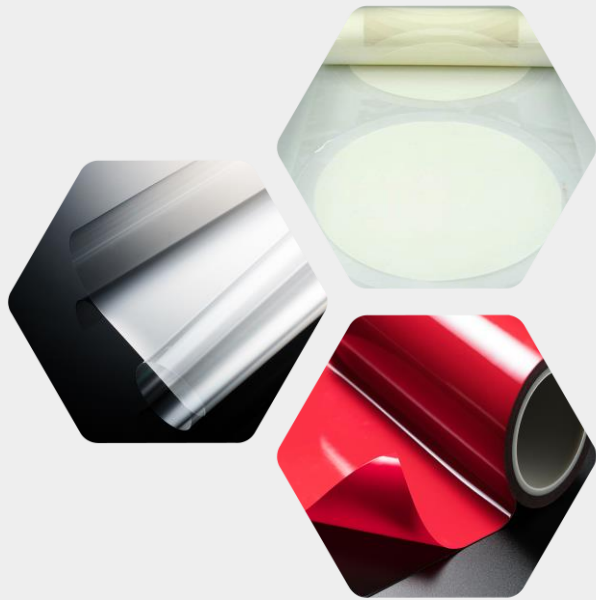
Major Customers



Advanced Functional Materials

LG Chem produces various materials for products including circuits/semiconductors, and advanced functional films such as barrier films for display devices.

Advanced Functional Film



Applications

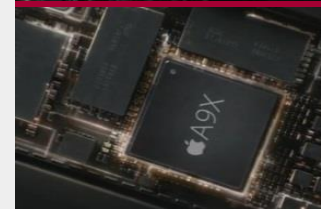
Polarizer Materials



Display Materials



Semiconductor Materials



Automotive Materials



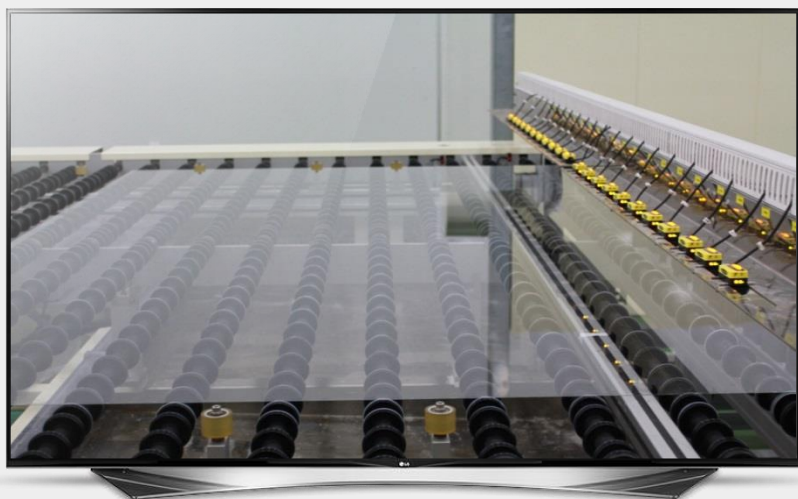
Major Customers



LCD Glass Substrates

LG Chem began to mass-produce LCD thin glass substrates since 2012.

LCD Glass Substrates



Applications

TV



RO Membrane

LG Chem's RO Membrane is the world's top water-treatment filter that increases 99.85% of salt removal rate and 20% of flow rate. LG Chem leads the global water treatment filter market with core technology and competitiveness.

RO Membrane

Applications

Seawater desalination



Industrial/Municipal use



Household use



Major Customers



GE Power & Water





Introducing LG Chem

Advanced Materials Business Unit

SolutionPartner

Display Materials

LG Chem provides unique solutions for various display materials such as OLED materials, pigment dispersed photoresist for LCD and strippers for TFT.

Display Materials



Applications

OLED TV



LCD TV



Smart Phone



Smart Watch



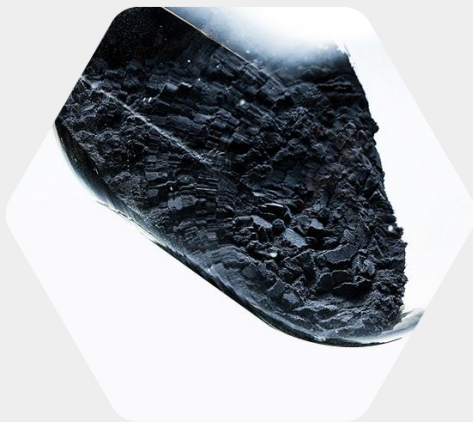
Major Customers



Battery Materials

LG Chem produces one of the key materials for secondary batteries, namely the material for positive electrodes, and concentrate on the development of high-capacity cathode material for Mobile battery, electric vehicle, and energy storage battery markets as well.

Cathode Material



Applications

Mobile Battery



Automotive Battery



ESS Battery



Major Customers



LG Chem

* Energy Solution Company



Introducing LG Chem

Life Sciences Company

Solution*Partner*

Primary Drug (PD)

LG Chem has developed Zemiglo, a diabetes medicine, and Synovian, an arthritis medicine, for the first time in Korea, increasing its competitiveness in Korea as well as in overseas, and has expanded its efforts to develop new drugs and cooperate with other companies through partnership in the fields of diabetes and cardiovascular, musculoskeletal, and autoimmune diseases.

Representative Products



Diabetes
(Zemiglo, Zemimet SR)



Cardiovascular Disease
(Espogen, Leavacalm)



Musculoskeletal Disease
(Hyruan One)

Specialty Drug (SD)

LG Chem has successfully developed Eutropin, a drug containing growth hormone, and has focused on the research and development of drugs for special diseases. Also, LG Chem has been recognized for its product competitiveness with the development of a hyaluronic acid filler and has increased its share in the global market.

Representative Products



Growth Hormone
(Eutropin)



Hyaluronic Filler
(YVOIRE)



Ovulation Inducer
(Follitrope)

Vaccines

Based on the skills and technology LG Chem developed in connection with the HepB vaccine, the first vaccine to obtain the WHO Pre-Qualification in Korea and the successful domestic production of the Hib vaccine, LG Chem was able to successfully develop and launch the pentavalent vaccine and increase its competitiveness in the global market.

Representative Products



Hepatitis B
(Euvax)



Haemophilus Influenza
type b(Hib)
(Euhib)



Pentavalent Combination
(Eupenta)



Diagnostic Kits

Farm Hannong

Farm Hannong, LG Chem's affiliate company, is the top domestic agricultural company holding the first place in the agricultural chemicals and the second place in the fertilizer & seed in market shares, and aims to be the leading green company in the international market with technology encompassing agriculture and ICT industry.



Crop Protection Products



Fertilizer



Seed

**Farm
Hannong**

Domestic Market Share No.1
– Crop Protection Products

Domestic Market Share No.2
– Fertilizer

Domestic Market Share No.2
– Seed

A nighttime cityscape featuring two prominent skyscrapers with illuminated windows. In the foreground, a highway shows light trails from moving vehicles. A river and a bridge are visible in the background under a dark blue sky.

A Company that enriches human life

Thank you



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