

Contents

Introduction of LG Chem



- / Introduction of LG Group
- / Introduction of LG Chem
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History

1947

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

1958

Established as
Goldstar Co.
(now LG Electronics)

1995

Established as a New
Corporate Identity
(Lucky Goldstar → LG)

1987

Completed
'Lucky Gold Star
Tower'

1996

Established as
LG Telecom
(now LG U+)

2003

Established as
LG Corp.

2017

LG Group's 70th
Anniversary

LG
Group

Introduction of LG Chem
Subsidiary



* Figures represent the number of affiliates
* Total of 68 including LG Corp.
* As of 2020

Chemicals

Electronics

Telecommunications & services

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

LG Electronics
LG Display
LG Innotek
etc.

LG U+
LG CNS
LG Sports
etc.

24

14

30



Introduction of LG Chem

Subsidiary



* As of 2020



Affiliates



Workforce



Sales

Total of **68**

258,000 (person)

USD **144** Billion



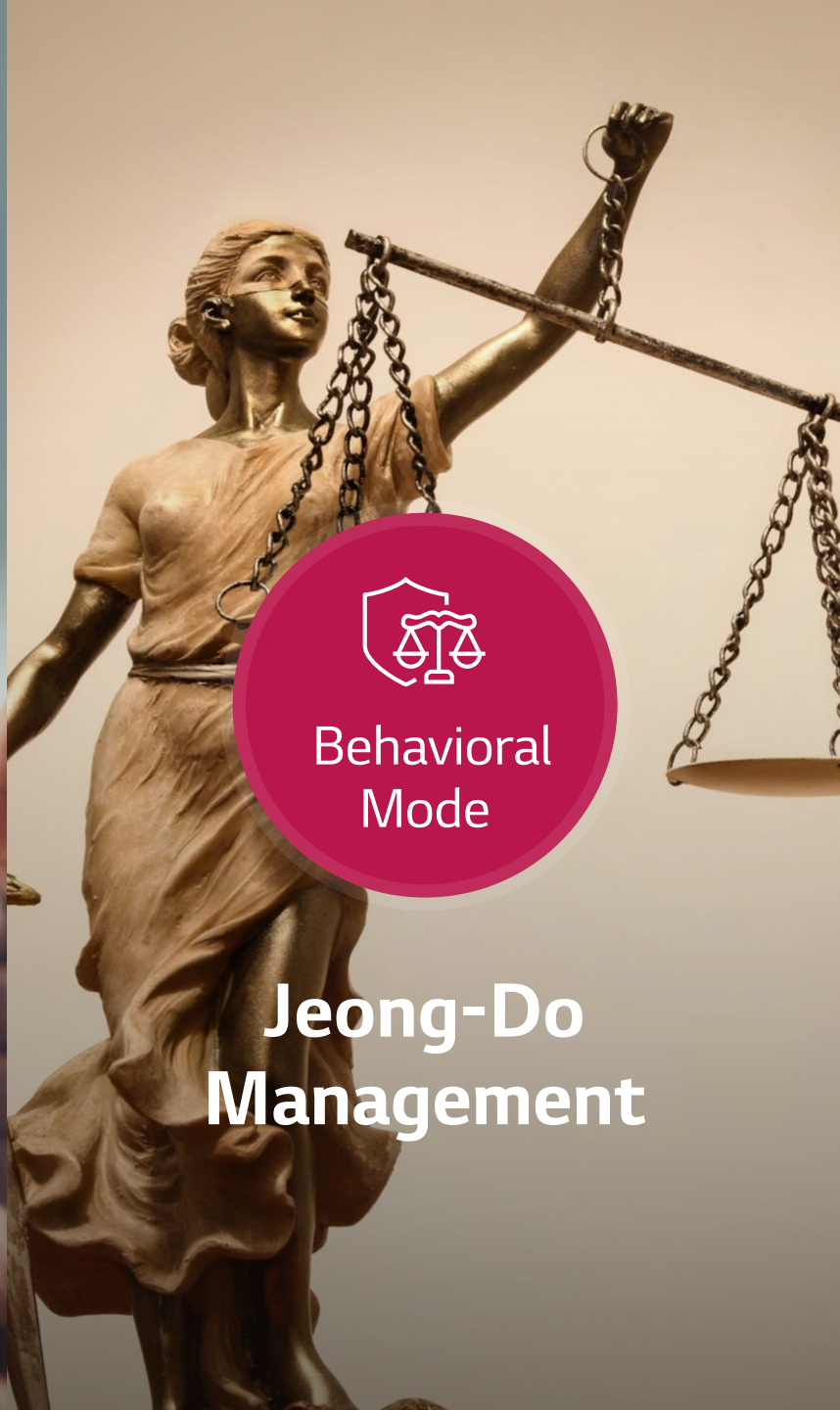
Introduction of LG Chem

LG Way



VISION

No. 1 LG




Behavioral Mode

Jeong-Do Management




Management Principles

Customer – Value Creation

People – Oriented Management

Introduction of LG Chem

LG Chem | Vision

We connect science to life for a better future



Customer Focus |

Agility |

Collaboration |

Passion |

Sustainability

LG Chem | Sustainability

LG Chem's Innovative Sustainability

Vision

Deliver advanced, innovative and sustainable solutions for our environment and society

Strategy items

Leading Sustainable Innovation for Customer

Managing the Impacts of Climate Change

Making a Positive Contribution to Society

Circular Economy

Climate Action

Responsible Supply Chain

Environment Protection

Renewable Energy

Human Rights / Diversity

Responsible Products

Water Management

Safety / Wellness

■ 5 Core tasks

2019 : The First Korean Chemical Company To Enter

GLOBAL TOP 10










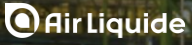
* By Chemical & Engineering News Published by ACS(American Chemical Society)



Brand value of chemical Companies "Global No.4"

* By Brand Finance Group in the UK

Top 10 Most Valuable Brands

1	 BASF We create chemistry	—	2020 : \$7,878m 2019 : \$8,253m	-4.5%
2	 DOW	—	2020 : \$4,843m 2019 : \$6,819m	-29.0%
3	 سابك سابك	—	2020 : \$4,334m 2019 : \$3,964m	+9.3%
4	 LG Chem	—	2020 : \$3,500m 2019 : \$3,338m	+4.9%
5	 Linde	NEW	2020 : \$2,861m	-
6	 lyondellbasell	—	2020 : \$2,637m 2019 : \$3,073m	-14.2%
7	 AsahiKASEI	▲ 3	2020 : \$2,368m 2019 : \$2,246m	+5.4%
8	 MITSUBISHI CHEMICAL	—	2020 : \$2,287m 2019 : \$2,535m	-9.8%
9	 DU PONT	▼ 4	2020 : \$2,200m 2019 : \$3,261m	-32.5%
10	 Air Liquide	▼ 3	2020 : \$1,982m 2019 : \$2,594m	-23.6%

LG Chem | History

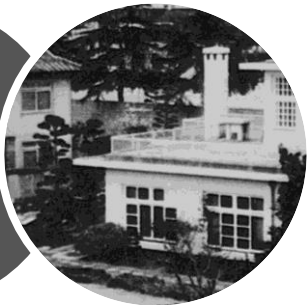


- 1947 Established as Lucky Chemical Industrial Corp.
- 1969 Listed on Korea Stock Exchange
- 1974 Renamed company to Lucky Corporation
- 1976 Completed the Yeosu PVC Resin Plant
- 1979 Opened the Daedeok Central R&D Center

1980's Earlier

1990's

- 1991 Developed the world's first 4th-generation cephalosporin antibiotics
- 1995 Renamed to LG Chem, Ltd.
Completed construction of Tianjin PVC plant in China



2000's

- 2001 Spun-off the company (LGCI, LG Chem, LG Household & Healthcare)
- 2003 Acquired Hyundai Petrochemicals
Factive received the first US FDA approval in Korea
- 2004 Established LG Chem (China) Investment Co., Ltd
- 2005 Established a polarizer back-end subsidiary in Poland
- 2007 Merged with LG Petrochemicals Co., Ltd
- 2009 Spun-off Industrial Materials Business (LG Hausys)



2010's

- 2016 Acquired Dongbu Farm Hannong (Farm Hannong)
- 2017 Merged with LG Life Sciences Co., Ltd
- 2019 Launched Osan Tech Center in China
- 2020 Spun-off Energy Solution Business (LG Energy Solution)



Introduction of LG Chem

LG Chem | Financial Results



Sales in 2020

USD **26.4** Billion



Workforce

18,113 Employees

Domestic **12,498**

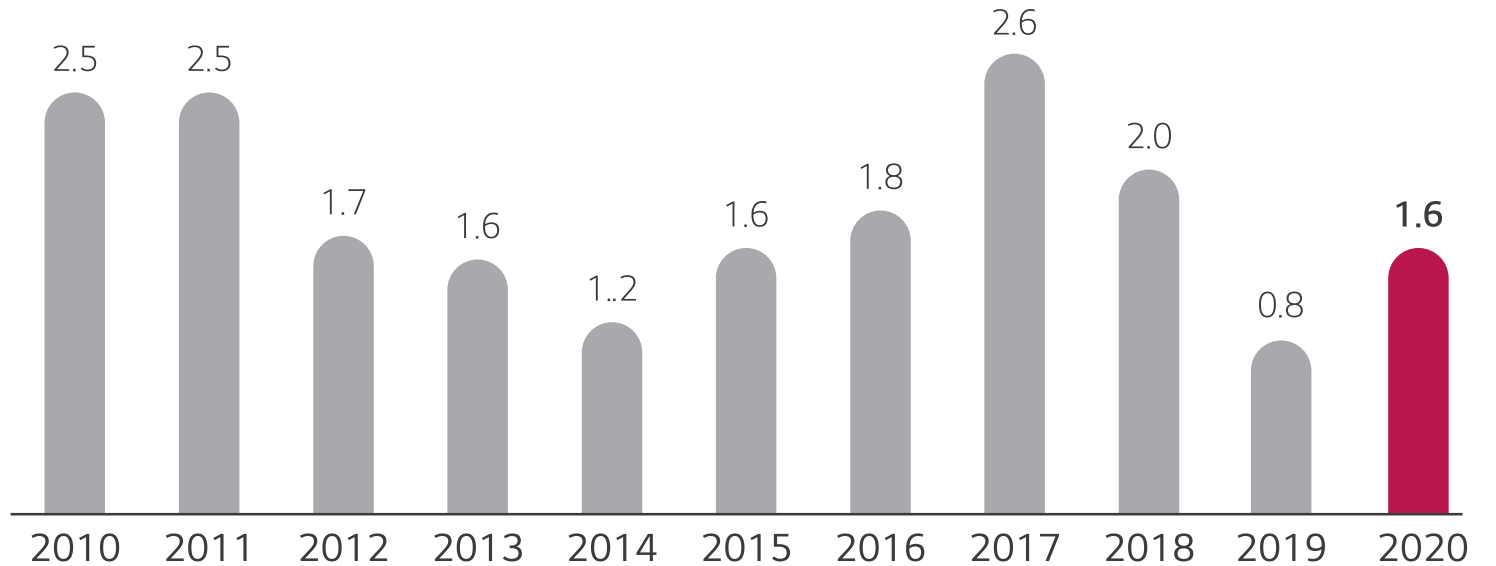
Overseas **5,615**

*Spun-off Energy Solution Business
(LG Energy Solution) basis

Sales
(Unit : Billion USD)



Operating profit
(Unit : Billion USD)



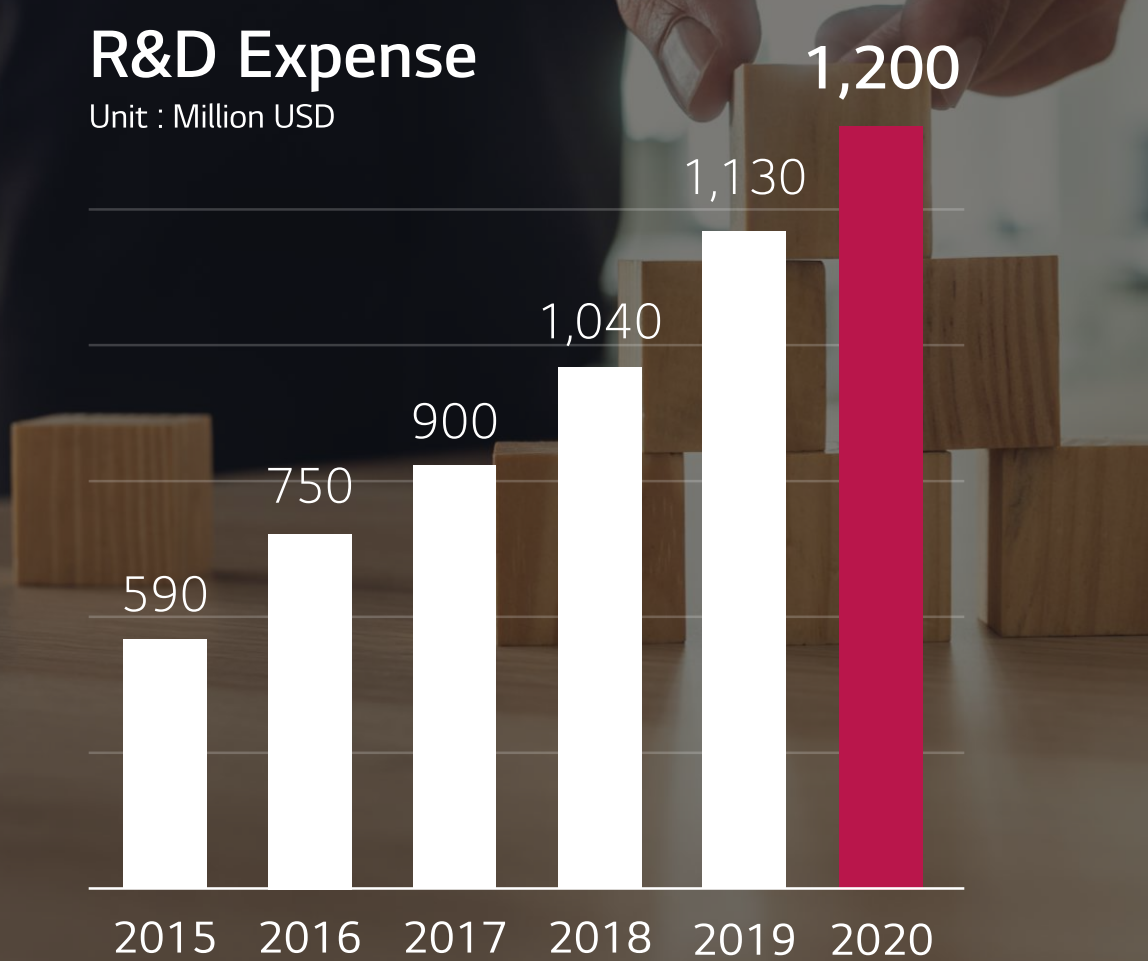
Introduction of LG Chem

LG Chem | R&D Status

*Subsidiaries included

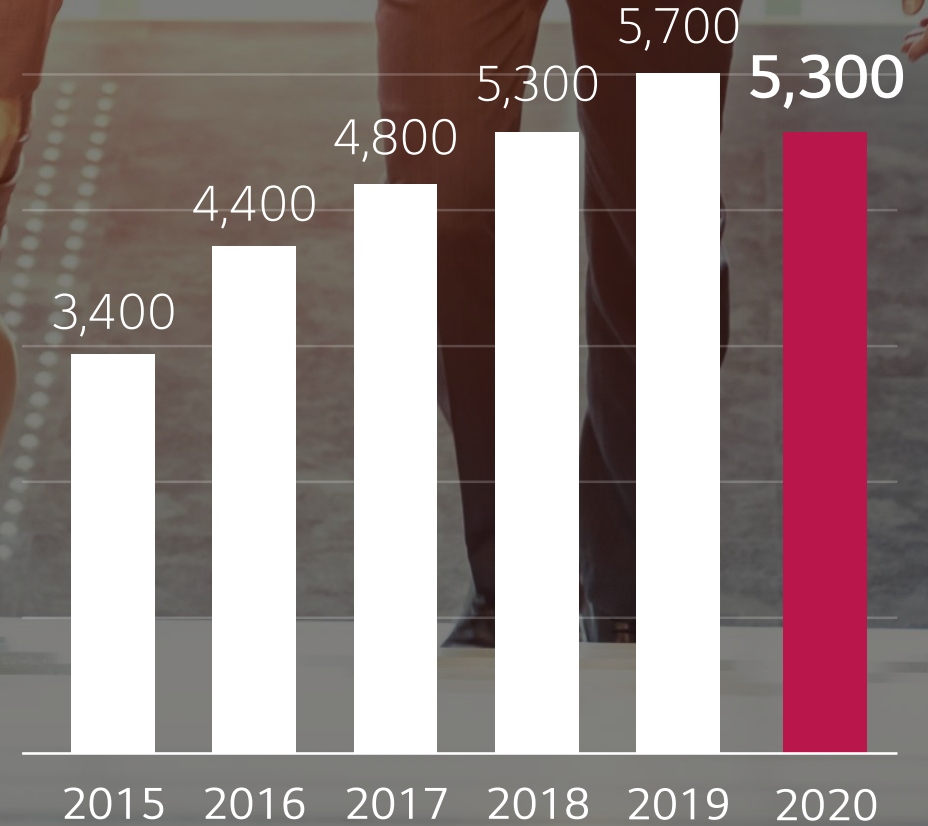
R&D Expense

Unit : Million USD



R&D Workforce

Unit : Person



LG Chem | Domestic Sites



Headquarter/R&D Campus Magok
(Est.1987/Est.2018)



Leadership Center / Tech Center
(Est.1991/Est.2019)



R&D Campus Daejeon
(Est.1979)



Osong Plant (Est.2009)
Bio Similar, Vaccine



Iksan Plant(3) (Est.1991/Est.1995/Est.2011)
EP, ABS / Pharmaceutical / Battery Materials



Naju Plant (Est.1984)
Octanol, Butanol, Plasticizers



Yeosu Complex (Est.1976)
NCC, PVC, ABS, SAP, PE, AA



Paju Plant (Est.2011)
LCD Glass



Daesan Complex (Est.2005)
NCC, SSBR, PVC



Ochang Plant (Est.2005)
Rechargeable Batteries, Polarizer, Stripper



Cheongju Complex (Est.1980)
OLED Material, Photoresist,
Cathode Material, RO membrane



Gimcheon Plant (Est.2008)
SAP

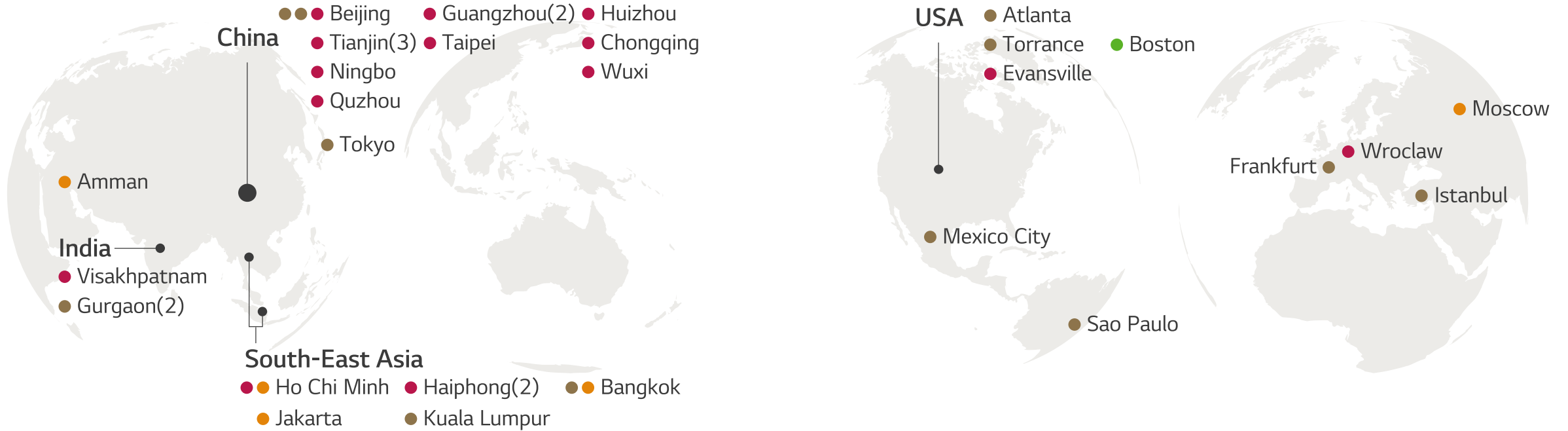


Onsan Plant (Est.1979)
Fine Chemical



LG Chem | Overseas Sites

● Manufacturing Subsidiaries (18) ● Sales Subsidiaries (13) ● Regional Branch Offices (5) ● R&D Center (1)



Asia

- Beijing (Est.2004) - Polarizer
- Tianjin (Est.2004) - EP (Est.2005) - PVC,VCM,EDC (Est.2009) - SBS
- Guangzhou (Est.2002) - EP (Est. 2018) - Polarizer
- Chongqing (Est.2015) - EP
- Ningbo (Est.1996) - ABS, SBL, EP

- Huizhou (Est.2009) - ABS
- Wuxi (Est.2018) - Cathode Material
- Quzhou (Est.2018) - Precursor
- Taipei (Est.2004) - Polarizer
- Tokyo

- India (Est.1996) - PS, EPS, Pharmaceuticals
- Haiphong (Est.2017) - Polarizer (Est.2018) - EP
- Ho Chi Minh (Est.1995) - Plasticizers
- Bangkok
- Jakarta
- Kuala Lumpur
- Amman

America

- Atlanta
- Torrance
- Boston
- Evansville (Est.2018) - Sealant
- Sao Paulo
- Mexico City

Europe

- Wroclaw (Est.2005) - EP
- Moscow
- Frankfurt
- Istanbul

LG Chem | Business Area



Petrochemicals

- NCC
- Polyolefins
- PVC/Plasticizers
- ABS
- Acrylates/SAP
- HPM
- Catalyst
- CNT

Advanced Materials

- Engineering Material
- IT Materials
- Battery Materials
- RO Filter
- Semiconductor Materials

Life Sciences

- Primary Care
- Specialty Care
- Aesthetic

Subsidiaries

LG Energy Solution

- Automobile Battery /
Mobility & IT Battery / ESS Battery

Farm Hannong

- Crop Protection Products / Seed / Fertilizer

01



Petrochemicals Company



Petrochemicals Company

Establishment (Year)

1976

Sales (\$)

12.7 Billion * As of 2020

Workforce (Person)

Domestic 5,757 / Overseas 2,317

Business Area

Petrochemical Products

2019

Launched Osan Tech Center

2015

Launched Hwanam Tech Center in Nanjig, China

2010

Acquired Dow Polycarbonate business

Established Manufacturing Subsidiary in China
(Rubber / Special Polymers)

2007

Merged with LG Petrochemicals Co., Ltd.

2003

Acquired PVC Business of Hyundai Petrochemicals Co., Ltd.

1995 ~ 1998

Established Manufacturing Subsidiary in
China / India / Vietnam (PVC, ABS)

1976

Completed Yecheon PVC resin factory
Entry into the petrochemical business

Production Capacity (As of 2020)

Unit : KTA

Ethylene	2,480	HDPE	550	Oxo- Alcohol	299
Propylene	1,460	LDPE/EVA	460	Acrylic Acid	715
BD	347	POE	300	SAP	495
BTX	831	PP	380	ABS	2,100
SM	702	PVC	1,239	PS	142
EG	180	VCM	1,363	EPS	136
Phenol	710	CA/EDC	1,176	Specialty Resin	504
BPA	496	Plasticizer	239	Synthetic Rubber	530



Naphtha Cracking Center (NCC)

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



BPA



Applications





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



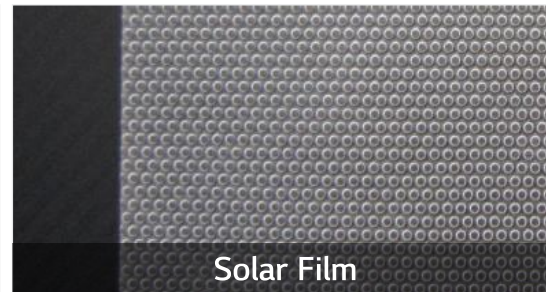
Korean Floor Heating System



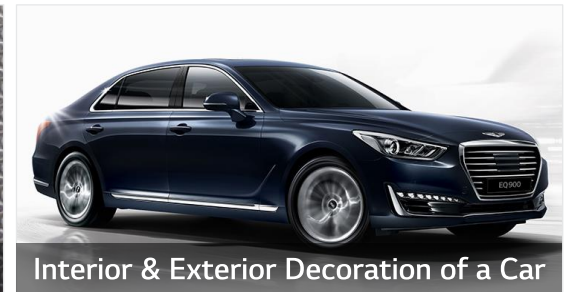
Packing Materials



Cable Insulator



Solar Film



Interior & Exterior Decoration of a Car



PVC / Plasticizers

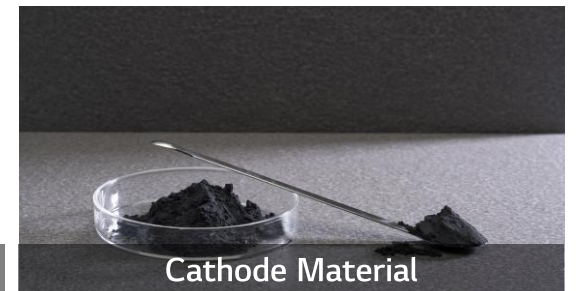
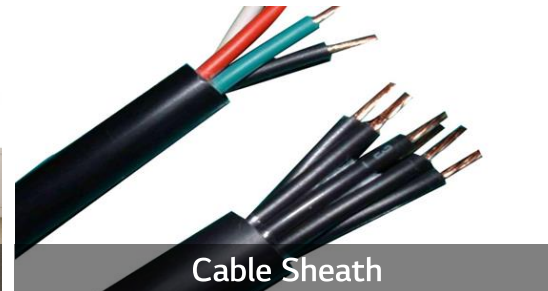
LG Chem's polyvinyl chloride(PVC) processes produce synthetic resins used for chassis and pipes, while plasticizers produce raw materials that add flexibility to the PVC. LG Chem's CNT processes produce Carbon Nanotubes which have superior electrical, thermal, and mechanical properties

- 01 Petrochemicals Company
- 02 Advanced Materials Company
- 03 Life Sciences Company

PVC / Caustic Soda / Plasticizers



Applications





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 processability.

01 Petrochemicals Company
02 Advanced Materials Company
03 Life Sciences Company

ABS / SAN / PS / EPS



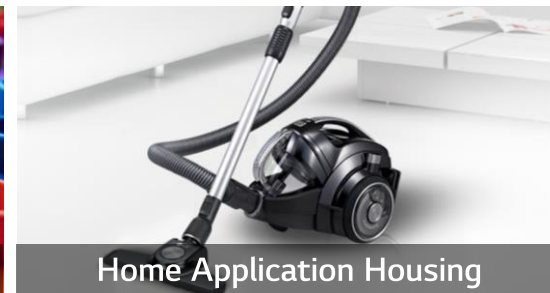
Applications



Interior & Exterior Decoration of a Car



Toy



Home Application Housing



Kitchen Container



Products Container



Building Insulation Material



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.

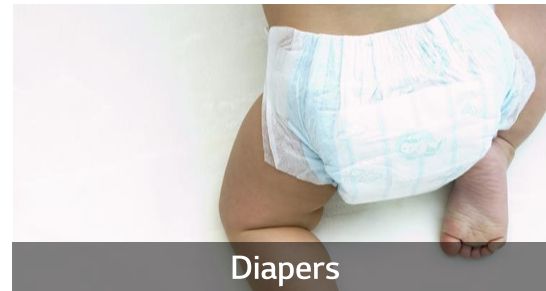
Acrylates / SAP



Applications



Plasticizer/ SAP Resin



Diapers



Paint



Adhesives



Cleaning agent for Semiconductors



Acrylic Fibers



High Performance Materials (HPM)

Specialty Polymer acts as a special additive with various functions. Synthetic rubber meanwhile is used as a raw material for tires and golf balls.

Latex / SBS / MBS / SSBR



Applications



Medical Gloves



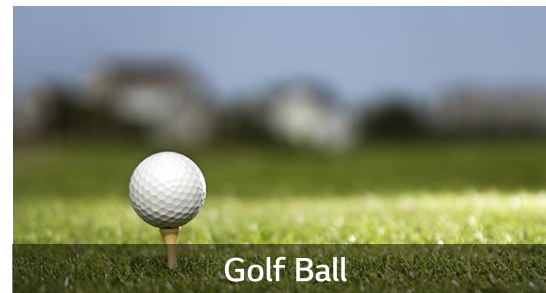
Impact Reinforcing Agent



Tire



Asphalt Modifying Agent



Golf Ball



Shoe Insole



Catalyst

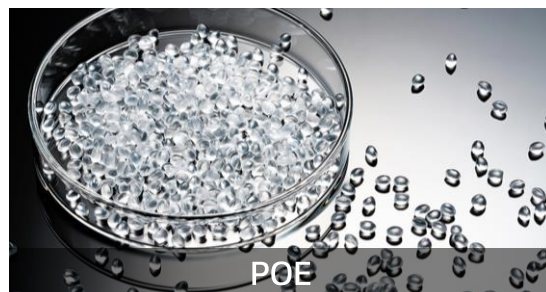
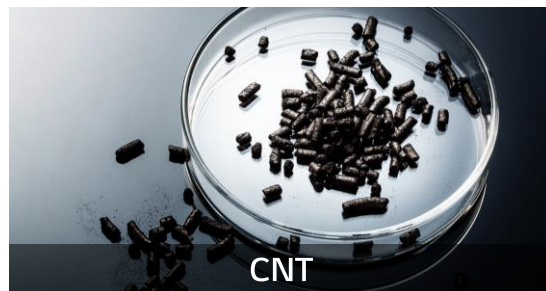
LG Chem has commercialized various catalysts for petrochemical processing, starting with the independent development of acrylic acid manufacturing catalysts for the first time in Korea and the fourth in the world. We performed this commercialization of crosslinking agents through developing high-efficiency production processing technology for organic synthesis, purification, and separation based on our proprietary metallocene catalyst technology that controls polymer structures.

- 01 Petrochemicals Company
- 02 Advanced Materials Company
- 03 Life Sciences Company

Polymer Catalyst / Process Catalyst



Applications





Carbon Nanotube (CNT)

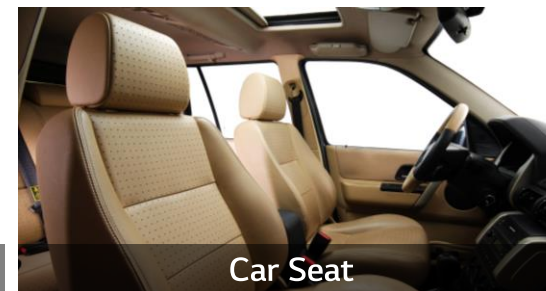
Carbon Nanotube (CNT) is a tube-shaped carbon allotrope with a diameter in nanometers (nm). Because of its excellent electrical, thermal, and mechanical properties, it is used as a material for conductive products that require antistatic characteristics and the control of electromagnetic interference. It is also used for lithium-ion battery cathodes.

01 Petrochemicals Company
02 Advanced Materials Company
03 Life Sciences Company

CNT



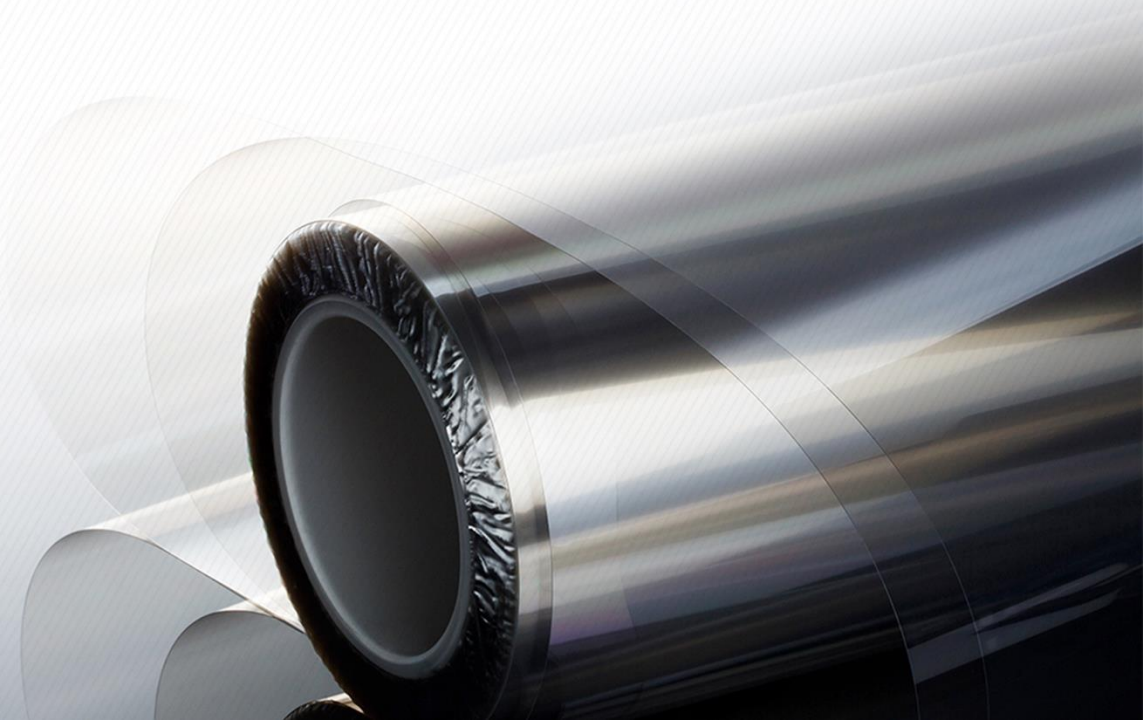
Applications



02



Advanced Materials Company



Advanced Materials Company

Establishment (Year)

1999

Sales (\$)

3.2 Billion * As of 2020

Workforce (Person)

Domestic 3,099 / Overseas 1,510

Business Area

Engineering Materials / IT Materials /
Battery Materials

2019

Reorganized the Advanced Materials Company

2018

Established Chinese joint venture for manufacturing
Precursor and cathode material

2016

Acquired GS E&M, a renowned cathode manufacturer

2013

Commercialized OLED polarizer

2003

Established IT&E Manufacturing Subsidiary in Nanjing, China

2000 ~ 2004

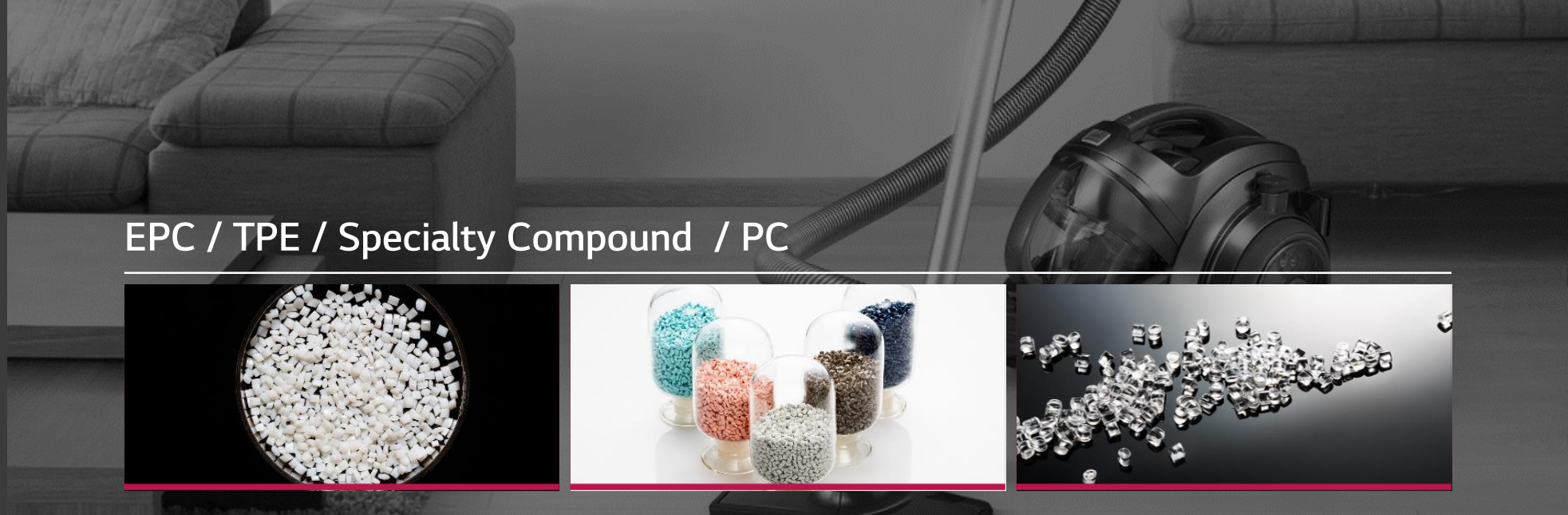
Commercialized LCD, OLED, Process materials



Engineering Material

LG Chem is striving to provide the number one product in the automotive industry through stronger and lighter materials.

01 Petrochemicals Company
02 Advanced Materials Company
03 Life Sciences Company



EPC / TPE / Specialty Compound / PC



Applications



Exterior & Interior Decoration of a Car/ Engine Parts

Major Customers



IT Materials

LG Chem produces unique solutions for IT devices with products such as OLED materials, display materials and various high-functional films and semiconductors.

OLED Materials / Display Materials / Advanced Functional Film



Applications



OLED Display Materials



Rollable TV

Major Customers



- 01 Petrochemicals Company
- 02 Advanced Materials Company
- 03 Life Sciences Company



Battery Materials

LG Chem produces one of the key materials for secondary batteries, namely the material for positive electrodes, and concentrates 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

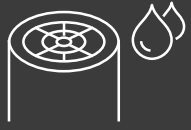


ESS Battery

Major
Customers

 LG Energy Solution

HITACHI



RO Filter

LG Chem's seawater desalination and industrial RO filter is a water treatment filter that applies our proprietary nanotechnology called TFN (Thin-Film Nanocomposite). This product is leading the global market with an unrivaled removal efficiency of 99.89%.

SW R/ES/GR/SR



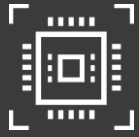
Applications



Major
Customers



01 Petrochemicals Company
02 Advanced Materials Company
03 Life Sciences Company



Semiconductor Materials

LG Chem produces semiconductor substrate materials and films for post-processing, the core components for manufacturing semiconductors.

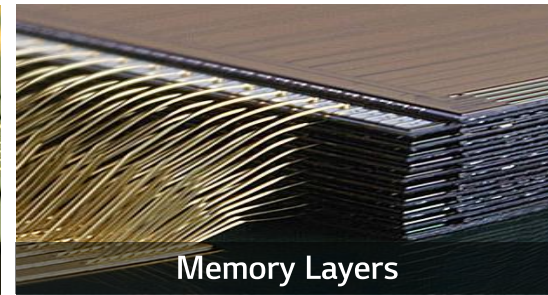
CCL / PPG / BGT / DAF



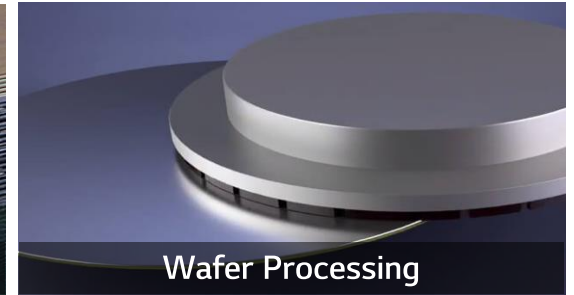
Applications



Board for Semiconductor Packages



Memory Layers



Wafer Processing

Major Customers



SAMSUNG ELECTRO-MECHANICS



03

Life Sciences Company



Life Sciences Company

Establishment (Year)

1984

Sales (\$)

0.6 Billion * As of 2020

Workforce (Person)

Domestic 1,730 / Overseas 134

Business Area

Pharmaceuticals, Vaccines, Aesthetic

2019

Established Life Sciences Innovation Center in Boston, USA

2012

Developed 1st Korean diabetes medicine, 'Zemiglo'

2003

1st Korean NCE approved by US FDA(Factive)

1996

1st Korean hepatitis B vaccine 'Euvox' approved by WHO PQ

1991

Developed World's first 4th generation Cephalosporin

1984

Start of pharmaceutical business
(Established Pharmaceuticals business division)

1961

Acquire of manufacturing license pharmaceuticals products



Primary Care

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

- 01 Petrochemicals Company
- 02 Energy Solution Company
- 03 Advanced Materials Company
- 04 Life Sciences Company



Representative Products



Diabetes
(Zemiglo, Zemimet SR)



Cardiovascular Disease
(Rovatitan)



Musculoskeletal Disease
(Hyruan One)



Autoimmune Disease
(Eucept)



Specialty Care

LG Chem is the first company in Korea that has successfully developed a drug for growth hormones and is also concentrating on the R&D of drugs for special diseases.

Throughout the hepatitis B and pentavalent combination(5-in-1) vaccine that has been approved by the World Health Organization(WHO), LG Chem has been strengthening competitiveness in the global market.



Representative Products



Grow Hormone
(Eutropin)



Ovulation Induction
(Follitrope)



Hepatitis B
(Euvax)



Pentavalent Combination
(Eupenta)



Aesthetic

YVOIRE, the first hyaluronic acid filler developed by LG Chem with authentic in-house technology in Korea, is expanding its market shares with the recognition of superior product quality.

- 01 Petrochemicals Company
- 02 Energy Solution Company
- 03 Advanced Materials Company
- 04 Life Sciences Company



Representative Products



Hyaluronic Filler
(Y-SOLUTION)



Hyaluronic Filler
(YVOIRE)



Hyaluronic Filler
(伊婉 in China)



Subsidiaries





LG Energy Solution

LG Energy Solution was the 1st in Korea to mass-produce Li-ion batteries and provides a wide-ranging portfolio of all products related to automotive batteries, from batteries, modules, BMS, pack development to technical support.

We also supply battery systems for ESS batteries in various fields, such as power grids, residential and commercial areas, and UPS (Uninterruptible Power Supply).

LG Energy Solution



Automobile Battery

Global Market Share No. 1
in Automotive Batteries



Mobility & IT Battery

1st in Korea to Succeed in
Mass Production of
Small Li-ion batteries



ESS Battery

World's Top Quality
ESS Batteries



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 through agriculture and ICT industry technologies.

Farm Hannong



Crop Protection Products

Domestic
Market Share No.1



Fertilizer

Domestic
Market Share No.2



Seed

Domestic
Market Share No.2

A group of diverse people, including a woman, a man, a young girl, a boy, and an elderly woman, are running happily in a park. The scene is set at sunset, with warm golden light filtering through the trees. A large, dark circular graphic is overlaid on the right side of the image, containing the text.

A Company
That Enriches
Human Life

Thank you

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