

Recommendations
for the Board from
Metrica Partners

Prices as of
3 September, 2021

SK Chemicals

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Who is Metrica Partners?

Explaining the publication of our recommendations for SK Chemicals

A Singapore-based investment manager founded in 2016

- Metrica Partners Pte. Ltd. is a Singapore-based investment management company, founded in 2016 by Damian L. Edwards and David Mulvenna
- As an ***independent firm*** not subject to the conflicts of interest often found at other investment managers, **Metrica regularly exercises its right to makes public proposals to its investee companies**
- These proposals take the form of **concrete, actionable steps** aimed at **improving corporate governance** and **boosting shareholder value**
- Metrica acts as a **force for good**, as its goal is to contribute to the growth of companies, industries and the wider economy
- Metrica's recommendations are intended to produce higher returns for investors, including **pension funds that manage the retirement assets of Korea's citizens**

Frequently asked questions:

1. Does Metrica publish negative research on companies to drive down their share price?
 - No. Metrica's recommendations are aimed at **raising the value** of its target companies
2. My company is the target of a Metrica campaign. What should I do?
 - There is no cause for alarm. Please respond to Metrica's recommendations seriously and in good faith
 - Rest assured that Metrica is **not alone** in its views. Metrica solicits and obtains the support from other shareholders before acting

We need to talk about the 83% discount

Addressing the gap between SK Chemicals' shares and its underlying value

Background / how did we get here?

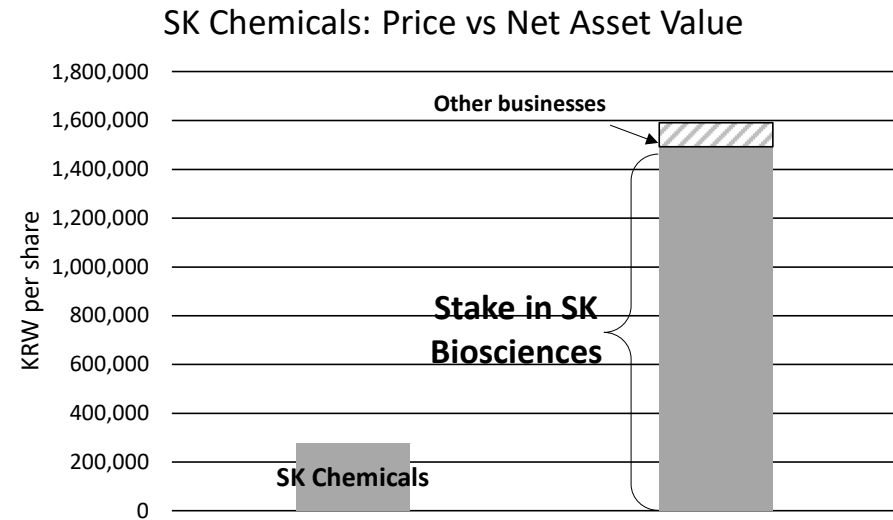
- SK Chemicals is a Korean chemicals and pharmaceuticals producer
- Its main subsidiary is **SK Biosciences**, a vaccine manufacturer
- SK Chemicals owns 68.43% of SK Bioscience worth ~~₩~~17.5 trillion, which is 5.4x SK Chemicals' market cap of ~~₩~~3.3 trillion
- SK Biosciences listed on the Korea Exchange in March 2021
- SK Chemicals sold 7.65 million shares of SK Biosciences in the IPO for ~~₩~~497 billion (\$422 million)
 - The IPO price was set at ~~₩~~65,000 by the lead manager NH Investment (source: prospectus)
- SK Biosciences' shares have risen dramatically since the IPO
 - On the first day of trading, the shares closed at ~~₩~~169,000 (2.6x IPO price)
 - Less than six months later, the shares are now at ~~₩~~335,000 (5.2x IPO price)
- Meanwhile SK Chemicals' shares have **fallen** 12.5% over the same period

Why has SK Biosciences gone up so much?

- Some analysts think the IPO was **underpriced**
 - The lead manager used Enterprise Value/Capacity as a benchmark
 - *“There are some concerns about this kind of valuation method ... [t]here is ... potential for underestimating the value of the company if the company is able to materially increase the production capacities (which appears likely for SK Bioscience in the next 12-24 months).”* (SmartKarma research, 25 Feb)
 - Three months after the IPO, SK Bioscience announced a ₩150 billion investment in capacity (source: Reuters)
- Other data points support this view
 - Just before the IPO, SK Bioscience shares were trading at ₩200,000 (**3.1x IPO price**) in the over-the-counter market (source: Korea Economic Daily, 11 March)
 - The IPO was **1,275x over-subscribed** by institutional investors (source: prospectus)
- Shares have benefited from **positive news flow**
 - The company has been developing a Covid-19 vaccine candidate
 - The company announced plans to seek approval for Phase III trials in February 2021
 - Approval was granted in August 2021
 - The company is also ramping up consignment production of the AstraZeneca Covid-19 vaccine
- The market is **confident** over the prospects for SK Biosciences’ vaccine
 - Will be the first “made-in-Korea” vaccine
 - Developed with the Institute for Protein Design at the University of Washington with support from GSK
 - R&D funded by the Bill & Melinda Gates Foundation and the Coalition for Epidemic Preparedness Innovations
 - Uses similar technology to Novavax
 - Phase III results expected in 1H 2022
 - Will be primarily exported to the COVAX facility for low-income countries

This leaves SK Chemicals at an 83% discount to net asset value

- SK Chemicals' remaining stake in SK Biosciences is now worth **5.4x its market capitalization**
- It also has profitable chemicals and pharmaceuticals businesses, but the valuation is **completely dominated** by the SK Biosciences stake
- SK Chemical's share price is at an **83% discount** to its net asset value, based on Metrica and securities company estimates



Source: Metrica. SK Biosciences stake valued at market.
Other businesses valued at average of sell-side analyst estimates

Does anyone care about the share price?

- SK Chemicals mentions **shareholder value** on their website several times:

“The company shall increase its own value so that the value of shareholders can be created, and to this end, it shall enhance transparency and conduct efficient management.”

“The Company shall maximize its corporate value through transparent and efficient management and constant innovation and share the results with shareholders.”

- Do they also care about the share price?
 - One school of thought is that company boards should focus on overseeing their businesses, and leave the markets to determine the appropriate share price
- However, in Metrica’s view, boards *have a **fiduciary duty** to care about the share price*:
 1. A higher share price lowers the company’s cost of capital
 2. It also makes it easier to do value-accretive acquisitions of other businesses
 - Both of the above create shareholder value and should be positive for the share price
- In any case, **independent shareholders, including funds advised by Metrica, own more than 66% of SK Chemicals** → **we care about the share price**

Metrica urges SK Chemicals to sell SK Bioscience shares on 18 September

- The board of SK Chemicals was happy to sell SK Bioscience shares during the IPO at ₩65,000
- They should be **ecstatic** now that they can sell at ₩335,000
- The IPO lock-up expires on **18 September**. SK Chemicals should **seize this opportunity to sell shares**
- **Metrica recommends selling up to an 18.3% stake for proceeds of ₩4.2 trillion**, assuming a 10% discount
 - This will leave SK Chemicals with a 50.1% stake, which is sufficient to maintain majority control of its subsidiary
- SK Chemicals should **return the proceeds to shareholders via a special dividend** of ₩357,000 per share, which is greater than the current share price of ₩278,000
- ***This would be very positive for shareholder value*** as it would result in a pay-out to shareholders greater than the current share price while retaining 50% ownership of a flagship vaccine business and 100% ownership of profitable green chemicals and pharmaceuticals businesses

SK Chemicals can also choose to buy back shares

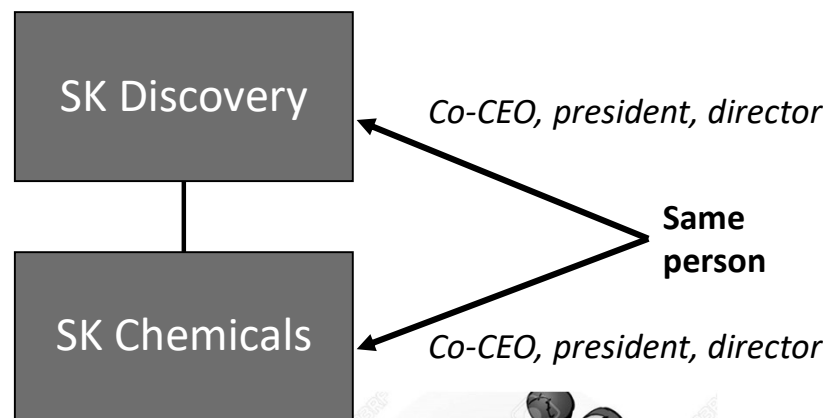
- SK Chemicals' board may be unwilling to sell as they see further upside in SK Biosciences' shares
- If so, Metrica urges SK Chemicals to **buy back its own shares** in the market, as this would increase the exposure to SK Bioscience at a very large discount

This would also be very positive for shareholder value at SK Chemicals, in Metrica's view

Metrica has additional recommendations to improve shareholder value

1. Reduce overlapping executive roles and directorships
2. Enhance board diversity

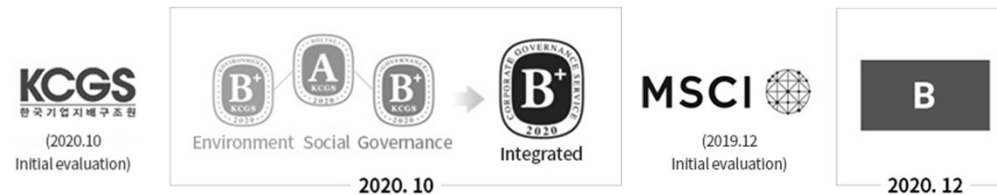
1. Reduce overlapping executive roles and directorships



- SK Chemicals should limit executives' ability to work for multiple companies
- For example, Mr. Kim, the Co-CEO of SK Chemicals, is also the Co-CEO and president of the parent company SK Discovery
 - Shareholders deserve a CEO who works full-time on their behalf
- SK Chemicals should also limit directors' eligibility to serve on multiple boards
- For example, Mr. Kim serves on the boards of both SK Chemicals and SK Discovery
 - Shareholders may not be confident that directors are always acting in their interest if they are also on the board of a major shareholder that is also a listed company

2. Enhance board diversity

- Metrica commends SK Chemicals' efforts to improve gender diversity, as stated on its website
- However, the board is still exclusively male (right)
- SK Chemicals must set the right tone for the whole company by increasing gender diversity at the board level
- This will improve SK Chemicals' ESG scores and boost the stock's attractiveness to investors with ESG mandates



- According to S&P Global Market Intelligence (*"When Women Lead, Firms Win"*), firms with high gender diversity on their board of directors have been more profitable and larger than firms with less gender diversity

Source: SK Chemicals



Independent Director
Moon Sung-
Hwan



Independent Director
Park Jeong-Soo



CEO and President
Kim Cheol



Independent Director
Cho Hong-Hee



CEO and President
Jeon Kwang-
Hyun



Independent Director
An Yang-Ho

Pledge

“Metrica will not:

1. sell its funds’ shares in SK Chemicals¹
2. cease its campaign for better governance at SK Chemicals

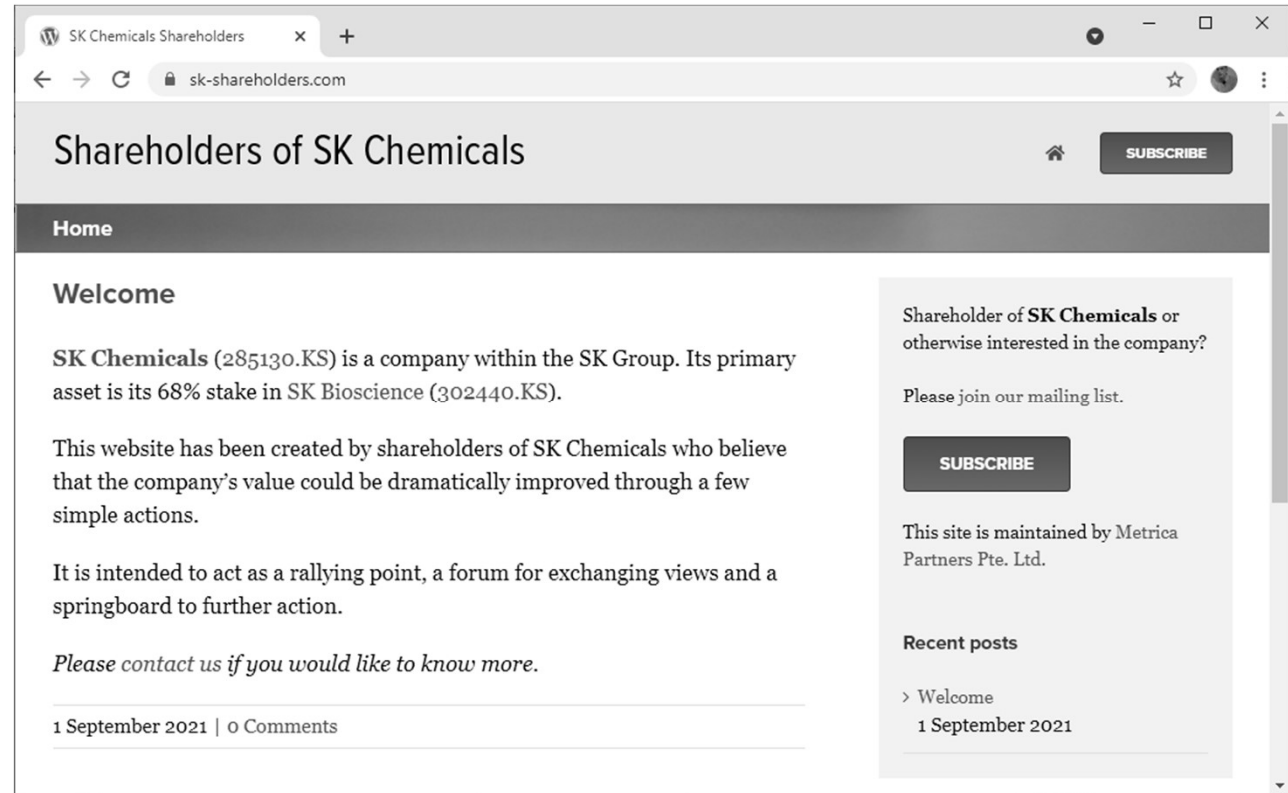
until SK Chemical’s board has addressed these issues,
or the share price fairly reflects the underlying value.”

Damian L. Edwards, CIO, Metrica Partners

¹subject to the funds’ mandates and capacities

Public website: sk-shareholders.com

- Metrica has today launched a public website to host this presentation
- Current and prospective shareholders and other interested parties are urged to sign up for the mailing list at sk-shareholders.com/subscribe/ to receive further updates



Thank you

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Overview of business and listed shares

Appendix 1: SK Chemicals



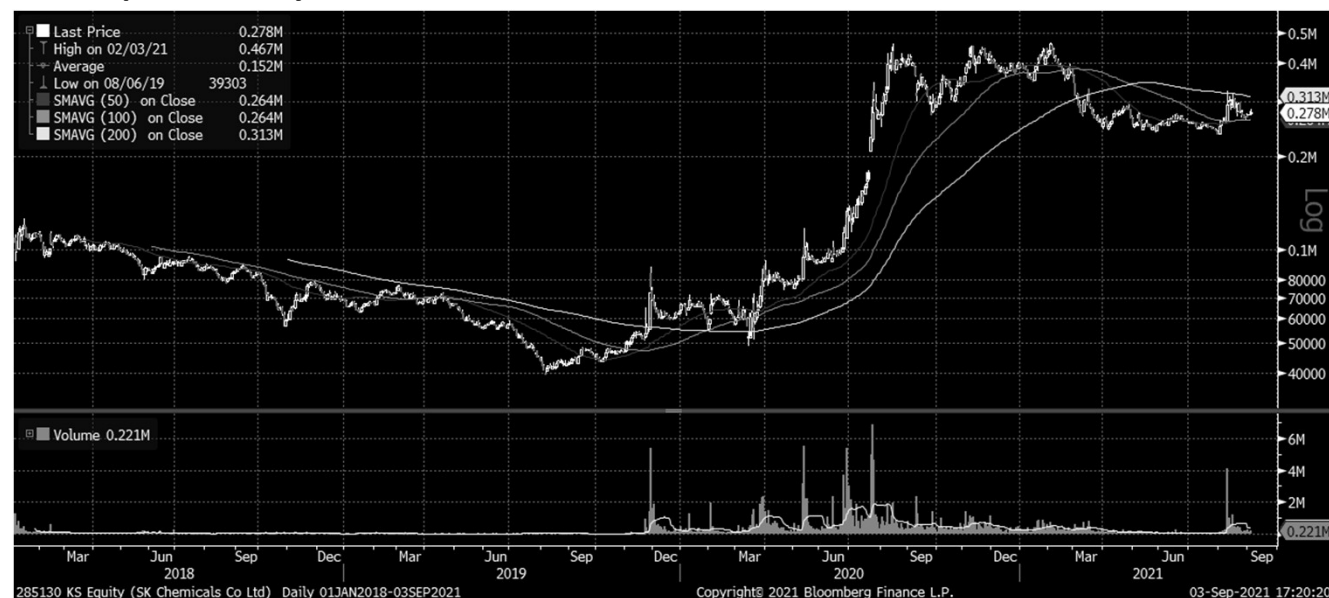
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SK Chemicals: Shares

- Ticker: 285130.KS
- Market cap: ₩3.3 tr (\$2.8 bn)
- Average daily turnover: ₩64 bn (\$55 m)
- Major shareholders (Source: Bloomberg):
 - SK Discovery (33.45%)
 - National Pension Service (10.04%)
- Index membership:
 - KOSPI 200
 - MSCI Korea

Share price history



Source: Bloomberg

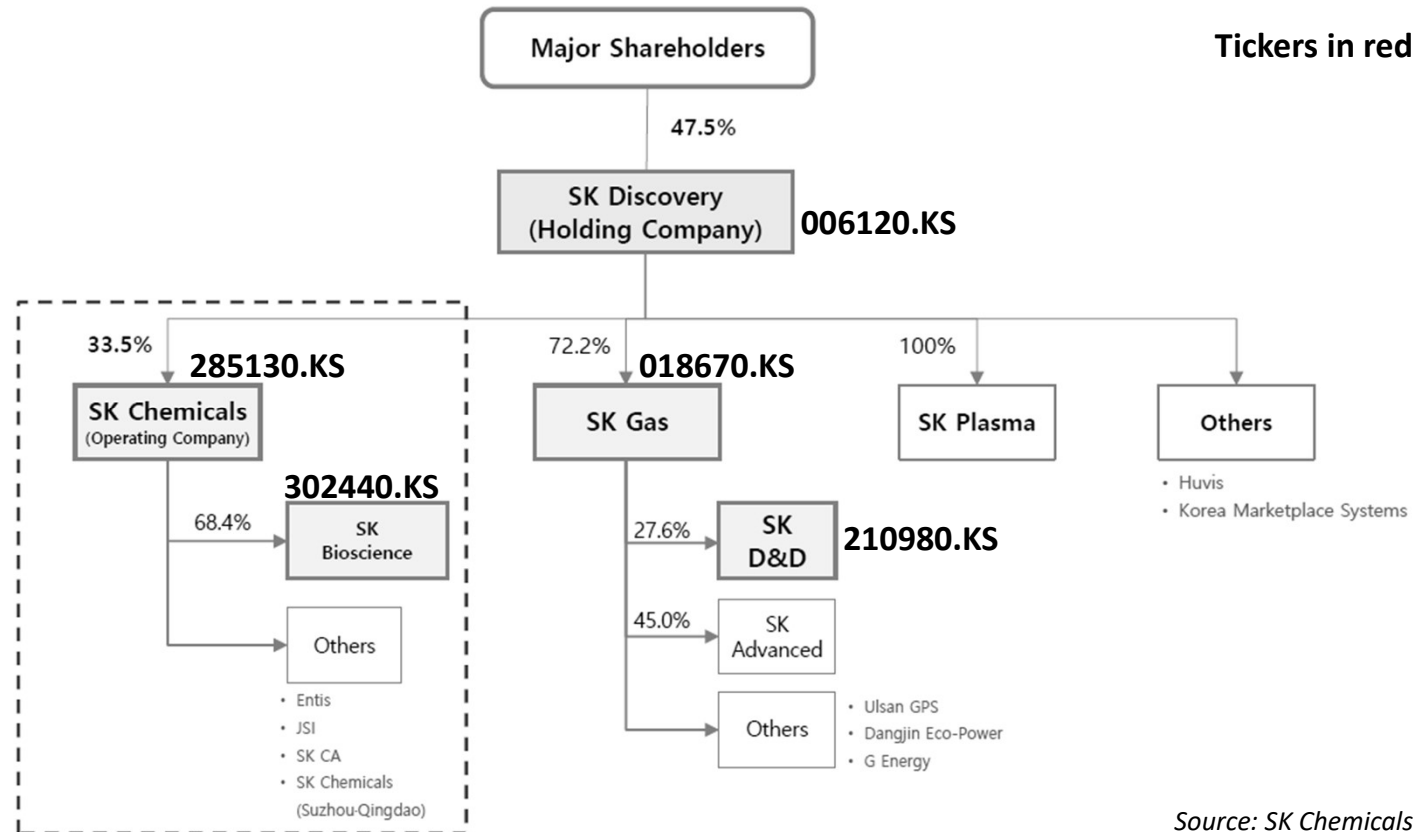
SK Chemicals: History

1969	Sunkyong Synthetic Fiber established
1976	Initial public offering on Korea Stock Exchange
1978	Developed PET resin for bottles for the first time in Korea
1980	Construction of Sunkyong Synthetic Fiber Research Institute
1985	Acquired Suwon Textile Factory
1987	Acquired Samshin Pharmaceutical
1989	Completed PTA/DMT plant. Established Life Science Research Center
1988	Name change to Sunkyong Industries
1990	Establishment of Petrochemical Research Center
1998	Name change to SK Chemicals
2000	Split off polyester fibre business into HUVIS JV
2005	Acquired SK Pharmaceutical
2006	Acquired Dongshin Pharmaceutical
2013	Established Initz JV with Teijin of Japan
2015	Establishment of SK Plasma
2017	Split into operating company (new SK Chemicals) and holding company (SK Discovery)
2018	Spun off vaccine business as SK Bioscience
2021	Listed SK Bioscience on Korea Exchange

Source: SK Chemicals

SK Chemicals: Position within the SK group

- SK Chemicals is an intermediate-level company within the SK Group
- It is 33.5%-owned by SK Discovery, the top-level listed holding company
- It owns 68.4% of SK Bioscience, a subsidiary that SK Chemicals listed in March 2021



Source: SK Chemicals

SK Chemicals: Financials

- Revenue is forecast to grow 77% year-on-year in 2021, according to consensus

Income statement

In Billions of KRW except Per Share	FY 2018	FY 2019	FY 2020	FY 2021 Est	FY 2022 Est
12 Months Ending	12/31/2018	12/31/2019	12/31/2020	12/31/2021	12/31/2022
Revenue	1,368	1,113	1,215	2,152	2,555
Gross Profit	272	271	350	802	980
Operating Income (Loss)	46	41	106	555	657
Pretax Income (Loss), Adjusted	15	-16	72	542	656
Pretax Income (Loss), GAAP	5	-14	19	542	656
Income (Loss) from Cont Ops	-16	-23	9	475	547
Income (Loss) Incl. MI	-16	5	255		
Net Income, GAAP	6	11	254	475	547
Basic EPS, GAAP	457	802	19,421	35,970	41,424

Source: Bloomberg. Estimates are Bloomberg consensus

Segment breakdown

In Billions of KRW	FY 2020	
12 Months Ending	12/31/2020	
Revenue	1,215	100%
Green Chemicals Biz.	878	72%
Life Science Biz.	490	40%
SK Bioscience	226	19%
Corporate	-153	-13%
Operating Income	106	100%
Green Chemicals Biz.	18	17%
Life Science Biz.	90	85%
SK Bioscience	38	36%
Corporate	-2	-2%
Assets	2,120	100%
Green Chemicals Biz.	1,174	55%
Life Science Biz.	737	35%
Corporate	208	10%

Geographic breakdown

In Billions of KRW	FY 2020	
12 Months Ending	12/31/2020	
Revenue	1,215	100%
South Korea	629	52%
China	163	13%
Europe	143	12%
America	97	8%
Asia	80	7%
Japan	64	5%
Rest of World	39	3%

SK Chemicals: Domestic locations



Source: SK Chemicals

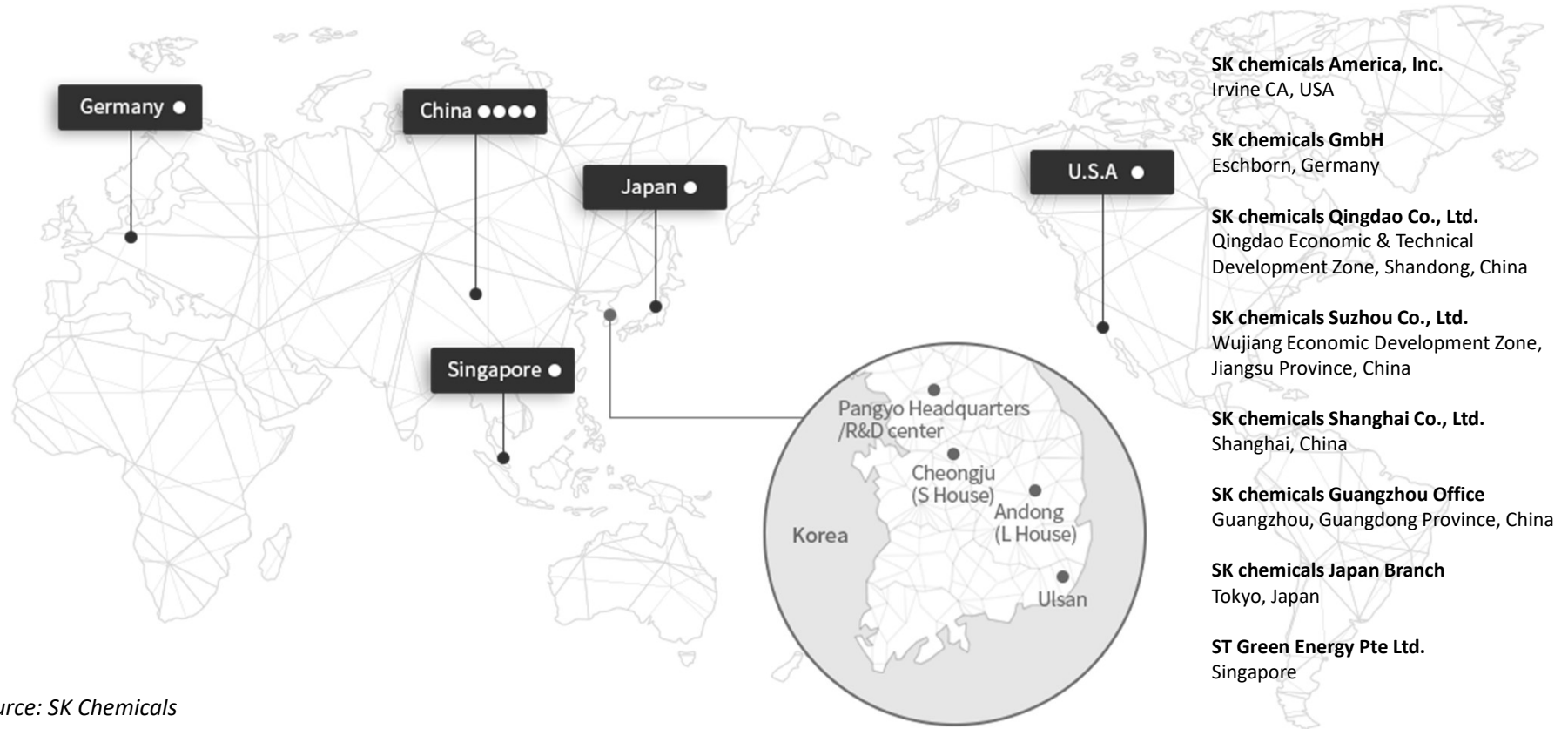
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SK Chemicals: Global locations



Source: SK Chemicals

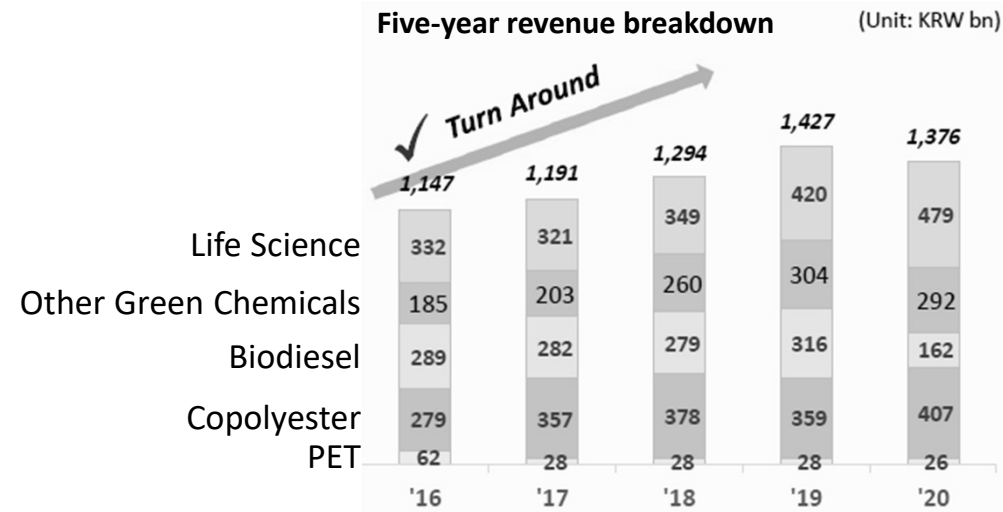
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SK Chemicals: Main divisions

- SK Chemicals' businesses are divided into:
 - Life Science (pharmaceuticals / vaccines)
 - Green Chemicals (copolyester, PET (polyethylene terephthalate), biodiesel etc.)



Source: SK Chemicals

03/09/2021

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Green Chemicals: Key products

Green Chemicals: Copolyester

- Amorphous resin with excellent transparency, chemical resistance, and processability
- Applications: cosmetic containers, household goods, and home appliances
- Compatible with PC, PVC
- Free from harmful bisphenol derivatives (BPA etc.) and phthalate-based plasticizers
- SK Chemicals global copolyester resin market share: 36% (2020, SK Chemicals estimate)
- Competitors: Eastman, DowDuPont, Evonik, Bostik



Source: SK Chemicals

Green Chemicals: Biomass-based transparent copolyester

- High heat resistance
- Bisphenol derivatives (BPA, etc.) and Phthalate-based plasticizer-free product
- Meets the requirements of food contact materials in Korea, the United States, Europe, China and Japan
- Applications: food containers, home appliances



Source: SK Chemicals

Green Chemicals: High molecular weight polyester resin

- Used as a binder and adhesive
- Excellent adhesion to various substrates such as metals, clothing, and plastics
- BPA-free
- Applications:
 - Can coating
 - Flexible packaging
 - Adhesive for thermal transfer films for clothing
 - Steel plate coating of household appliances
- Competitors: Mitsubishi Chemical, Dermal Material

Source: SK Chemicals

Green Chemicals: Other polyesters



PET (polyethylene terephthalate)

- A crystalline polyester resin featuring high transparency
- Applications:
 - Cosmetics
 - Water bottles
- Competitors: BASF, Amoco Polymers, Celanese, DAK American, DowDuPont, Eastman, Kolon Plastics

Polyester-based TPE (thermoplastic elastomer)

- Properties of rubber and plastic
- Applications:
 - Electrical components
 - Automotive
 - Films/fibers
- Competitors: Kraton, Dynasol, Teikoku Aque, Polyone

Source: SK Chemicals






Green Chemicals: Polyester raw materials

DMT (dimethyl terephthalate)

- Only DMT manufacturer in East Asia
- Raw material for CHDM
- Applications:
 - Fibers
 - Fibers
 - Engineering plastics
 - Adhesives
- Competitors: Eastman, Teijin Limited, China Petroleum & Chemical Corporation



Source: SK Chemicals

Green Chemicals: PPS (polyphenylene sulfide)

- A lightweight engineering plastic which can replace metal
- 280°C melting point and self-extinguishing without flame retardants
- SK developed the world's first chlorine-free PPS
- Applications: automotive (engine components, electrical systems, fuel systems), textiles
- Hybrid/electric vehicles use 3-4x as many PPS parts (source: Fuji Chimera Research)
- Competitors: DIC, Toray, Solvay, Celanese



Source: SK Chemicals

Green Chemicals: Polyester polyol

- 100% bio-based raw-material used to make polyurethane
- Superior to PTMEG (polytetramethylene ether glycol) in many applications
- Applications:
 - Elastomer
 - Textiles
 - Inkjet inks
 - Performance coating
 - Synthetic leather
- Competitors: DIC, BASF, Cargill, DowDuPont, Lanxess, Mitsui Chemicals

Source: SK Chemicals






Green Chemicals: Others

Polymer-based compounds

- Excellent resistance to chemicals, heat, and scratches
- Improves the reactivity of polymer compounds
- Improves thermal stability and corrosion resistance
- Applications:
 - Automotive interior materials
 - Meter housings, bottles, OA equipment, solar junction box
- Competitors: Eastman, Nikko Rica, Kellin Chemicals

Source: SK Chemicals

Green Chemicals: Others

Reagents

- Via technical partnership with Honeywell

Electronic chemicals

- High functional materials for displays and semiconductors
- Competitors: Linde, DowDuPont, BASF, Hitachi Chemical

Pre-preg

- A short type intermediate material made by adding epoxy resin to carbon fibers
- Competitors: Celanese, Cytec, Solvay Group, Mitsubishi Rayon, Teijin, Toray

Source: SK Chemicals

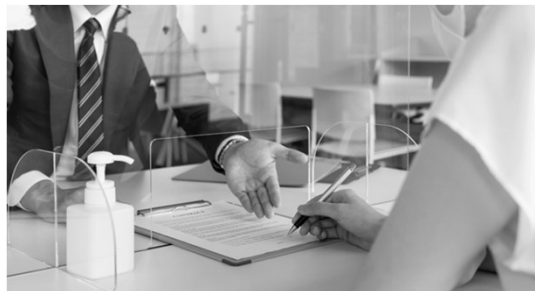





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Source: SK Chemicals



K-series

- Transparent plastic.
- Applications: cosmetics, decorative films, construction materials, beverages, food containers

S-series

- Complies with the ISO 10993-1 medical certification guidelines

PN-series

- Injection-only grade that boasts the best fluidity among the SKYGREEN series
- Suitable for thin and small objects.

J-series

- Excellent impact strength. Good for household items.

Shrink film

- Various packaging applications. Can replace PVC etc.

3d printing

- Can replace PLA, ABS

Green Chemicals: Biomass-based transparent copolyester

- High heat resistance.
- Bisphenol derivatives (BPA, etc.) and Phthalate-based plasticizer-free product.
- Meets the requirements of food contact materials in Korea, the United States, Europe, China and Japan
- Applications: food containers, home appliances



Source: SK Chemicals

T-series

- Various heat resistance grades.
- Applications: sport bottles, food containers, cosmetics, home appliances

HF-series

- Higher heat resistance than PET
- Does not require a bottleneck crystallization step

WPC-series

- Can be mixed with wood powder to make wood-plastic composite
- Applications: flooring, decking

ECOZEN CLARO brand

- A copolyester that can be recycled in the PET recycling stream
- Applications: consumer goods, cosmetics, beverages



Green Chemicals: High molecular weight polyester resin

- Used as a binder and adhesive
- Excellent adhesion to various substrates such as metals, clothing, and plastics
- BPA-free
- Applications:
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 - Adhesive for thermal transfer films for clothing
 - Steel plate coating of household appliances
- Competitors: Mitsubishi Chemical, Eternal Material



Source: SK Chemicals



ES-series

- Dissolves in organic solvent
- Used as a binder for can coating and for steel plate coating of home appliances

EW-series

- Water-soluble
- Used for water-based coating and bonding of fibers

EH-series

- Crystalline resin that does not require solvents
- Used in thermal transfer films for clothing and in automobile filters

Green Chemicals: Other polyesters

PCT (*polycyclohexylenedimethylene terephthalate*)

- A super engineering plastic
- High heat resistance, light resistance, and excellent electrical characteristics.
- Excellent thermal stability and reflectivity
- Applications:
 - LED reflectors for TVs and lighting
 - Oven trays
 - Heat resistant films,
 - SMT connectors
- Competitors: Celanese, Eastman, LyondellBasell, Lanxess

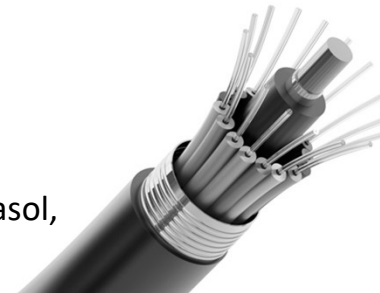
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CHDM (*cyclohexanedimethanol*)

- Bi-functional alcohol monomer
- Applications:
 - Polyester resin
 - Polyurethane resin
- Competitors: Eastman, Kangheng Chemical, Feixiang Group



Source: SK Chemicals

Green Chemicals: PPS (*polyphenylene sulfide*)

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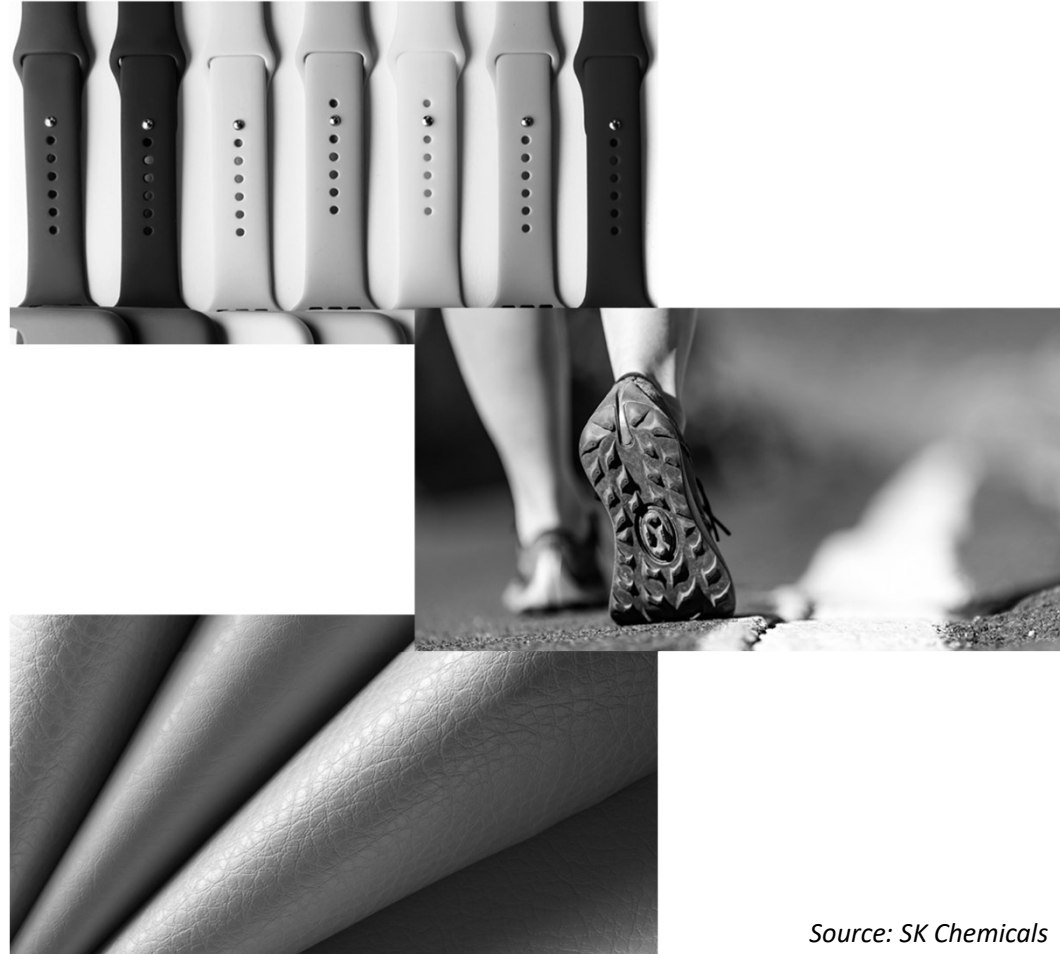


Source: SK Chemicals



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 - Performance coating
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Source: SK Chemicals

Green Chemicals: Others

Polymer-based compounds

- Excellent resistance to chemicals, heat, and scratches
- Applications
 - Automotive interior materials
 - Motor insulator, bobbin, OA equipment, solar junction box

Source: SK Chemicals



DMCD (*dimethyl cyclohexanedicarboxylate*)

- Improves the reactivity of polymer compounds
- Improves thermal stability and corrosion resistance
- Applications:
 - Polyester
 - Polyamide
 - Plasticizer synthesis
 - Pharmaceutical intermediates
- Competitors: Eastman



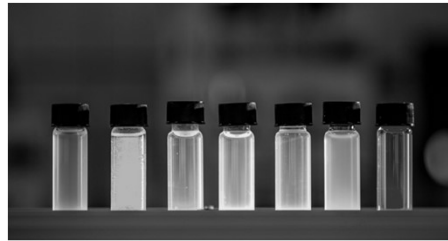
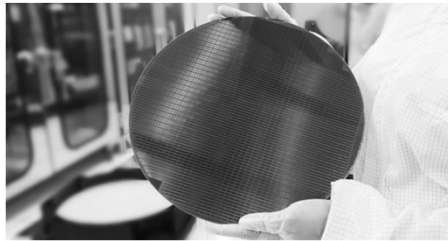
CHDA (*cyclohexanedicarboxylic acid*)

- Applications:
 - Engineering plastics
 - Pharmaceutical intermediate
 - Resins for Coil Coating and Powder Coating
 - Polyester Polyols for Polyurethane Coating
- Competitors: Eastman, Nikko Rica, Kellin Chemicals

Green Chemicals: Others

Electronic chemicals

- High-functional materials for displays and semiconductors
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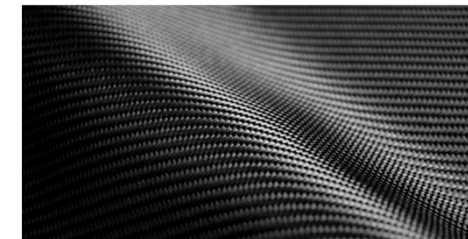
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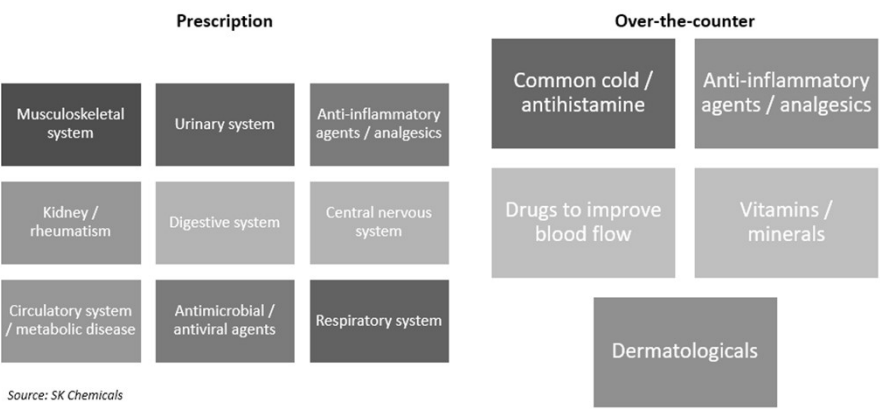
- A sheet-type intermediate material made by adding epoxy resin to carbon fibers
- Competitors: Celanese, Cytec, Solvay Group, Mitsubishi Rayon, Teijin, Toray



Source: SK Chemicals

Life Science: Two subdivisions

Life Science: Pharmaceuticals



Source: SK Chemicals

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Life Science: Vaccines

Appendix 2: SK Bioscience

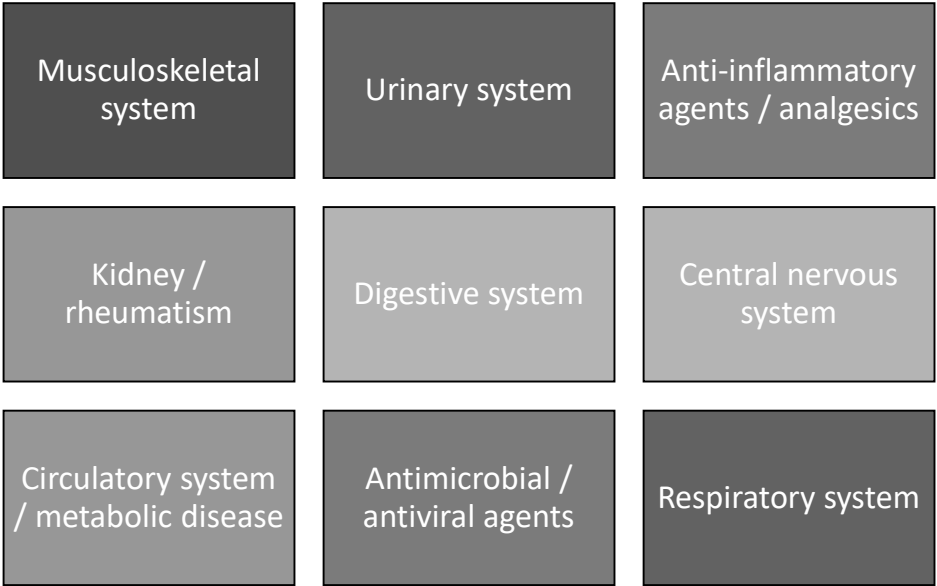


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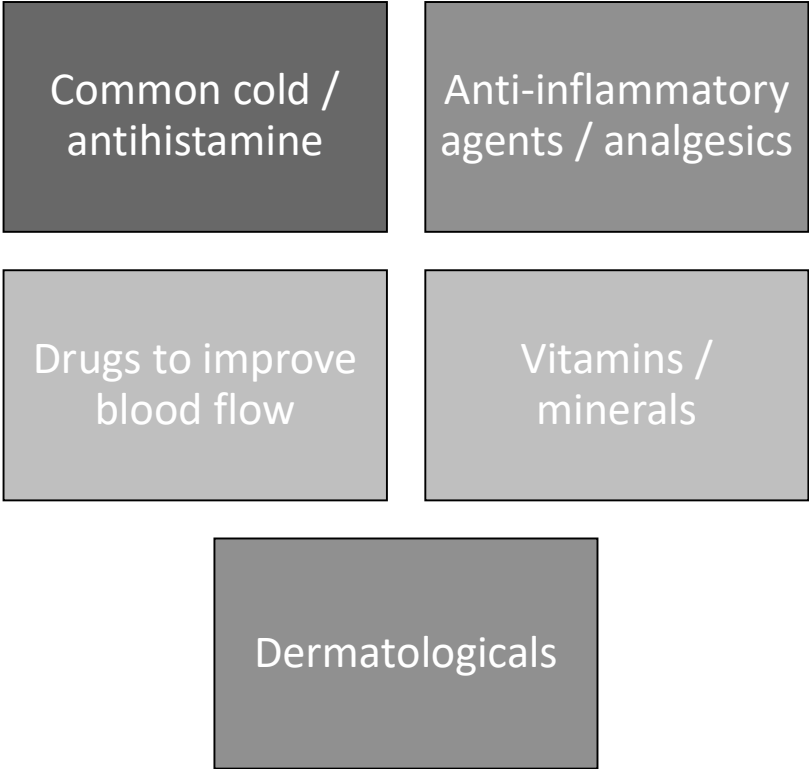
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Life Science: Pharmaceuticals

Prescription



Over-the-counter



Source: SK Chemicals

Life Science: Vaccines

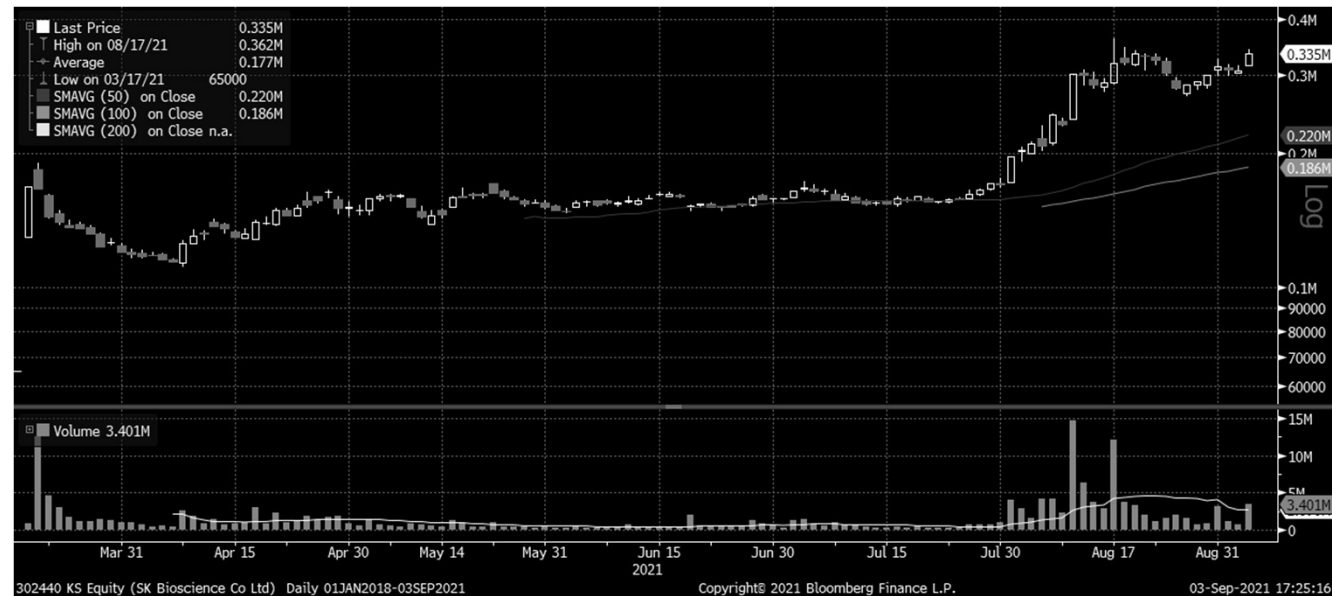
Appendix 2: SK Bioscience



SK Bioscience: Shares

- Ticker: 302440.KS
- Market cap: ₩26 tr (\$22 bn)
- Average daily turnover: ₩407 bn (\$352 m)
- Major shareholders (Source: Bloomberg):
 - SK Chemicals (68.43%)
 - Employees (4.98%)
- Index membership:
 - KOSPI 200
 - MSCI Korea

Share price history



Source: Bloomberg

SK Bioscience: Financials

- Revenue is forecast to grow 4.6 times in 2021, according to consensus

Income statement

In Billions of KRW except Per Share	FY 2019	FY 2020	FY 2021 Est	FY 2022 Est
12 Months Ending	12/31/2019	12/31/2020	12/31/2021	12/31/2022
Revenue	184	226	1,037	1,872
Gross Profit	78	95	616	774
Operating Income (Loss)	23	38	443	478
Pretax Income (Loss), Adjusted	17	36	443	479
Pretax Income (Loss), GAAP	18	37	443	479
Income (Loss) from Cont Ops	15	33	363	394
Income (Loss) Incl. MI	15	33		
Net Income, GAAP	15	33	363	394
Basic EPS, GAAP	240	537	4,709	5,144

Source: Bloomberg. Estimates are Bloomberg consensus

Segment breakdown

In Billions of KRW	FY 2020	
12 Months Ending	12/31/2020	
Revenue	226	100%
Manufactured Goods	147	65%
Merchandized Goods	61	27%
Services	16	7%
Semi-manufactured Goods	2	1%

Geographic breakdown

In Billions of KRW	FY 2020	
12 Months Ending	12/31/2020	
Revenue	226	100%
South Korea	201	89%
Europe	14	6%
Americas	6	3%
Asia	5	2%

SK Bioscience: Locations

Headquarters

Seongnam-si, Gyeonggi-do



Source: SK Bioscience

R&D Centre

Seongnam-si, Gyeonggi-do

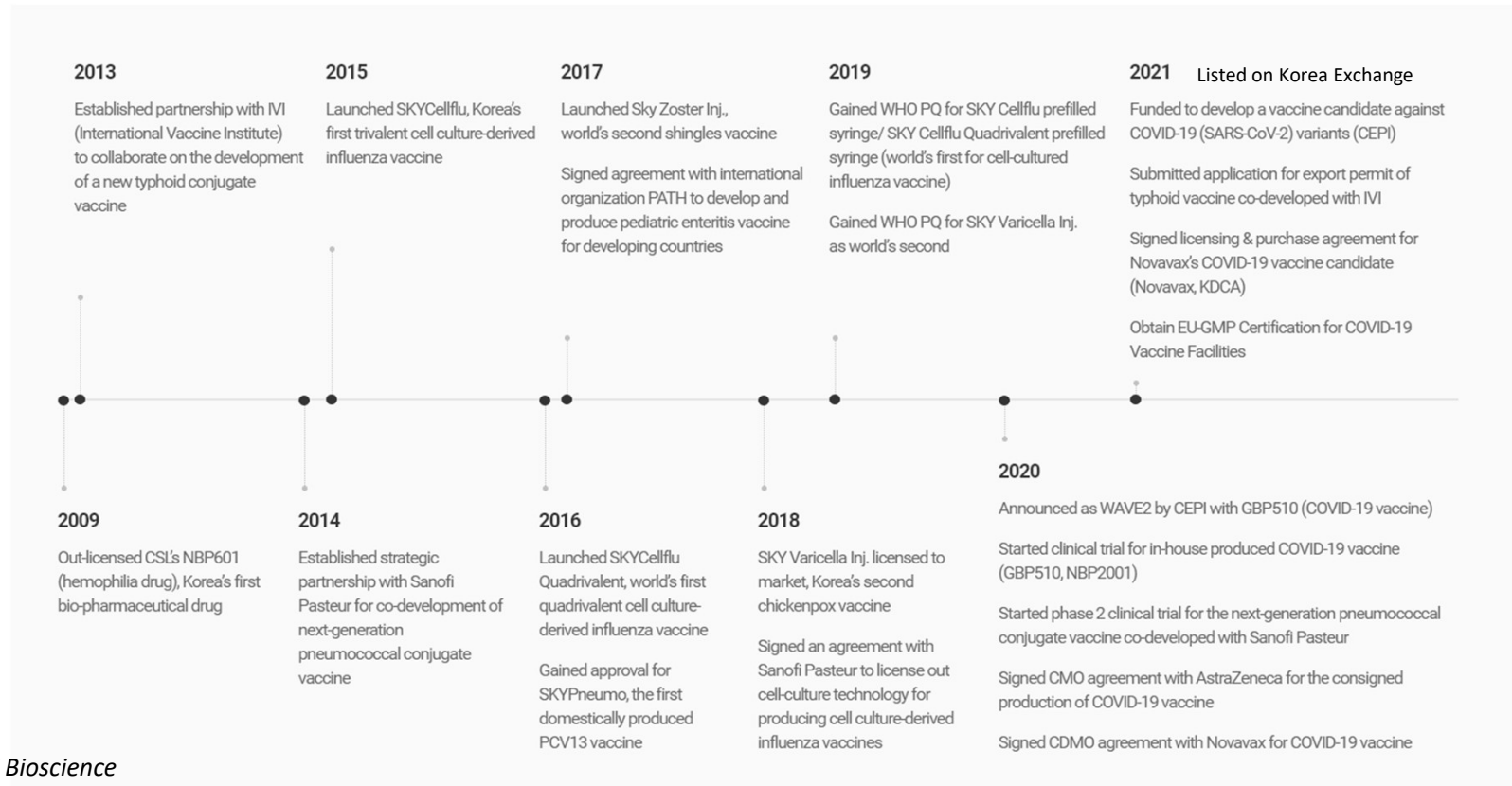


“L House” (Andong Vaccine Plant)

Andong-si, Gyeongsang-bukdo



SK Bioscience: Milestones



Source: SK Bioscience

SK Bioscience: Global partnerships



Source: SK Bioscience

SK Bioscience: Board

Executive directors



CEO
Jaeyong Ahn, President and CEO of SK Bioscience
 Appointment: 2021.03 / Term: ~2024.03

(Former) CEO of SK Chemicals VAX Division
 (Former) SK Chemicals LS Strategic Planning Dept. Director, SK Gas Business Management Dept.
 Yonsei University Economics/University of Chicago(MBA)



CTO
Hoon Kim, CTO of SK Bioscience
 Appointment: 2021.03 / Term: ~2024.03

(Former) SK Chemicals VAX Business Division CTO, SK Chemicals VAX Development Head
 (Former) Green Cross Research Center Vaccine Research Team
 Korea University Agricultural Chemistry / Korea University Biochemistry / Ajou University Molecular Science

Source: SK Bioscience

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Non-executive directors



Kwon Ik-hwan
 Appointment: 2021.03 / Term: ~2024.03

(Current) Attorney Kwon Ik-Hwan Law Firm
 (Former) Prosecutor, Seoul Southern District Prosecutors' Office
 (Former) Chief of Public Security Department, Supreme Prosecutors' Office
 Seoul National University Law School



Mi-Jin Cho
 Appointment: 2020.10 / Term: ~2023.03

(Current) Future Captiva Leadership Group President & CEO
 (Former) Vice President of Hyundai Motor Group Human Resources Development Center
 (Former) Head of Human Resources Development Center at LG Display (CHRO)
 Yonsei University Sociology / Indiana University (Educational Engineering)



Changjin Moon
 Appointment: 2020.10 / Term: ~2023.03

(Former) Vice President of Cha Medical University
 (Former) Chairman, Korea Health Promotion Foundation
 (Former) Vice Minister of Health and Welfare
 Seoul National University Sociology / University of Chicago



Choi Jeong-wook
 Appointment: 2020.10 / Term: ~2023.03

(Current) Director, Tax Accounting Center, Jipyeong Law Firm
 (Former) Samjong KPMG Tax Division General Leader
 (Former) Tax Team at Kim & Chang Law Firm
 Sociology, Seoul National University / Business Administration, Seoul National University / University of Texas at Austin (Accounting) /
 Business Administration, Gachon University / North Korean Studies, North Korea University

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SK Bioscience: Development pipeline

patent

SKYVAX	Phase I / II	Phase III	BLA	Commercial	WHO PQ
Cell culture flu Trivalent (NDCK)			Launched in 2015 ●		Approved in 2Q 2019 ●
Cell culture flu Quadrivalent (MDCK)			Launched in 2016 ●		Approved in 4Q 2019 ●
PCV		Licensed in 2016 (elderly), 2019 (infants) ●			
Zoster vaccine			Launched in 2017 ●		
Varicella vaccine			Launched in 2018 ●		Approved in 4Q 2019 ●
Oral RotaPentavalent		● Phase 2 study Completed			
Low Cost PVC	BILL & MELINDA GATES foundation	● Phase 2 study Completed			
HPVQuadrivalent		● Phase 2 study Completed			
NRRV	PATH H02A047200	● Phase 2 study on-going (Africa)			
TCV	International Vaccine Institute BILL & MELINDA GATES foundation	submitted in 2021 ●			
PCVnext generation	SANOPI PASTEUR	● Phase 2 study on-going (US)			
COVID-19 vaccine	보건복지부 질병관리청	● Phase 1 on-going			
COVID-19 vaccine	BILL & MELINDA GATES foundation CEPI UNIVERSITY of WASHINGTON	● Phase 3 on-going			

Source: SK Bioscience

SK Bioscience: Overseas business

Joint development

SANOFI PASTEUR

Comprehensive collaboration



R&D, production and marketing
for next generation PCV in 2014

International Vaccine Institute
BILL & MELINDA GATES Foundation

Development & manufacturing



Co-development with IVI
(Bill & Melinda Gates Foundation) in 2013

PATH
BILL & MELINDA GATES Foundation

Development & manufacturing



Modern co-development with PATH
(Bill & Melinda Gates Foundation) in 2017

Technology transfer

Out-licensing



-Licensing out of SK's MDCK cell culture based technology
for influenza vaccine in 2018

SANOFI PASTEUR

Licensing agreement

NOVAVAX
Creating Tomorrow's Vaccines Today



-Signed licensing agreement with Novavax, a US-based biotechnology company for
NVX-CoV2373, Novavax's COVID-19 vaccine candidate.

Source: SK Bioscience

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SK Bioscience: CDMO/CMO

CEPI

Pre-emption of Manufacturing Facilities



Pre-emptive contract for dedicated manufacturing facilities for the manufacturing of vaccine components designated by CEPI between 2020 and 2021

Source: SK Bioscience

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NOVAVAX

CDMO



Agreement for development & supply for NVX-CoV2373 antigen components

AstraZeneca

CMO



Agreement for supply for ADZ1222 antigen components

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SK Bioscience: Main products

In-house vaccines

The world's first quadrivalent cell culture-derived influenza vaccine

SKY Cellflu Quadrivalent prefilled syringe
(Cell-cultured Influenza Vaccine)

[View more](#)



Cell culture-derived influenza vaccine with SK Bioscience's technology

SKY Cellflu prefilled syringe
(Cell-cultured Influenza Vaccine)

[View more](#)



New solution for preventing shingles developed by SK Bioscience

SKY Zoster Inj

[View more](#)



New solution for preventing chicken pox developed by SK Bioscience

SKY Varicella Inj.

[View more](#)



Outsourced products

1. Vaccines



2. Prescription medicines



Source: SK Bioscience