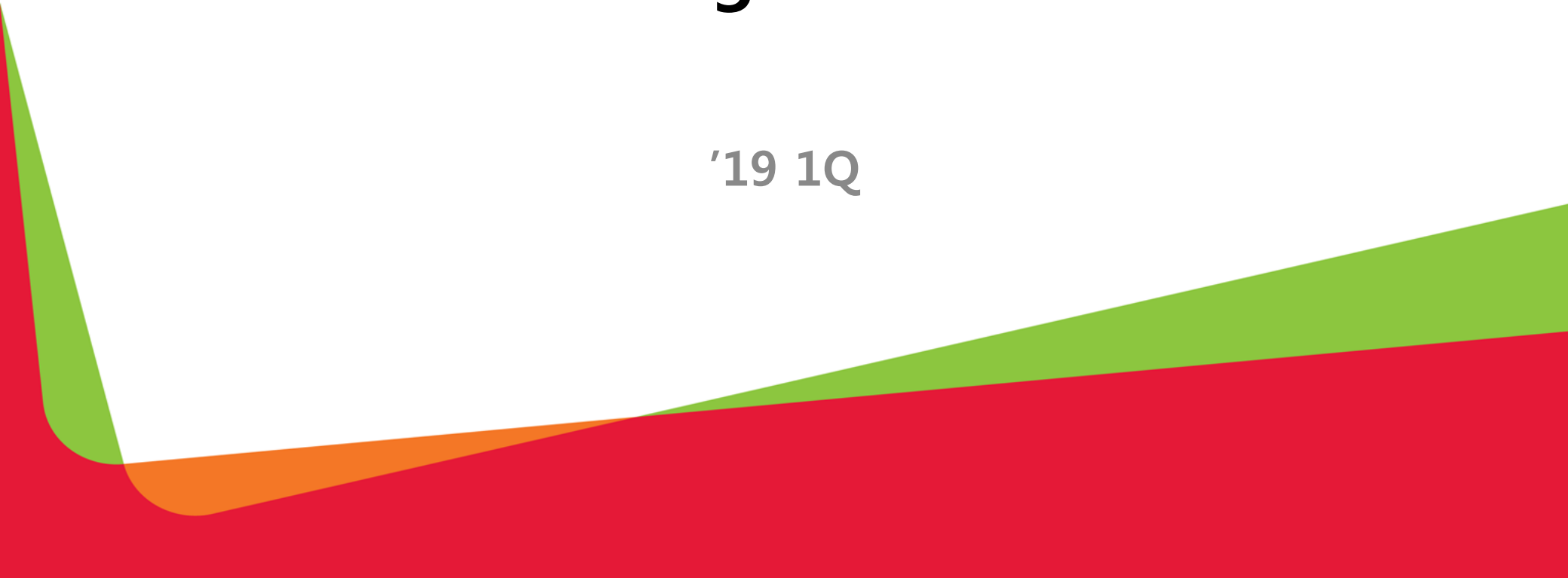


# SK Chemicals Earnings Release


'19 1Q



## **Disclaimer:**

**The business results are subject to the K-IFRS(Korea International Financial Reporting Standards) and reported on a consolidated basis.**

**The forecasts contained herein are based on the Company's current business environment and strategy; and the actual results may differ from those in the forecasts as a result of certain uncertainties, such as changes in the Company's business environment and strategy in the future.**

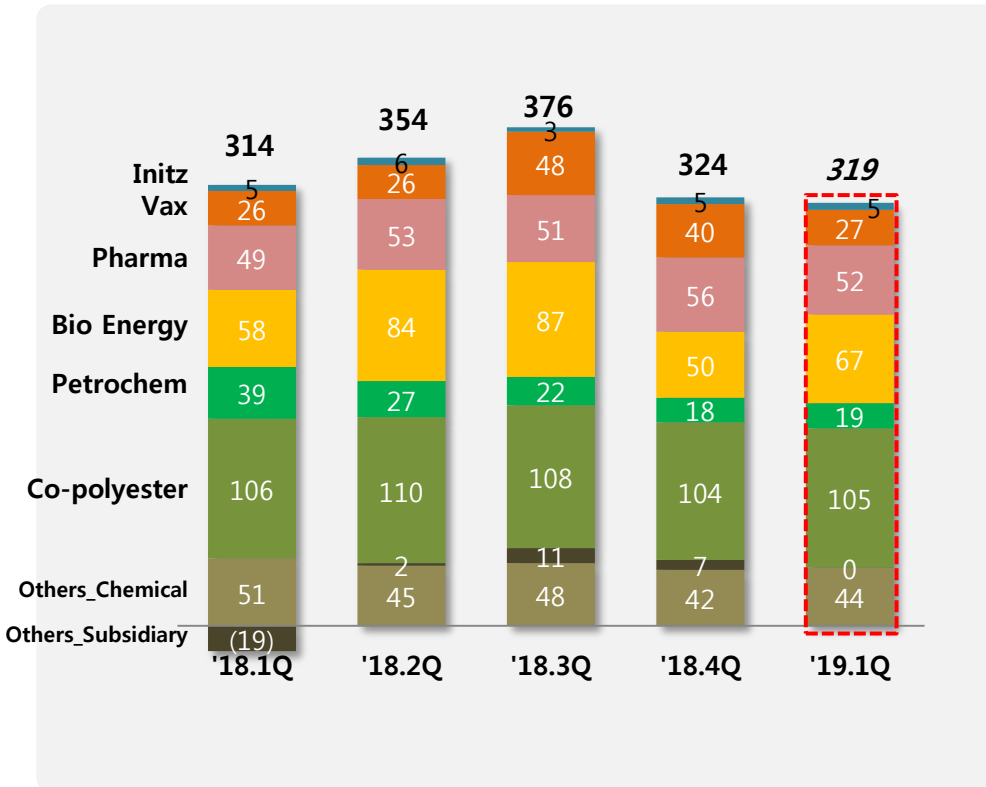


# I. Performance Review (Consolidated)

- Sales totaled 319 bil KRW (1.7% YoY), and operating profit recorded 3.7 bil KRW.
- Despite of outstanding performance from Bio Energy biz, most of the divisions showed weak performances compared to last year.

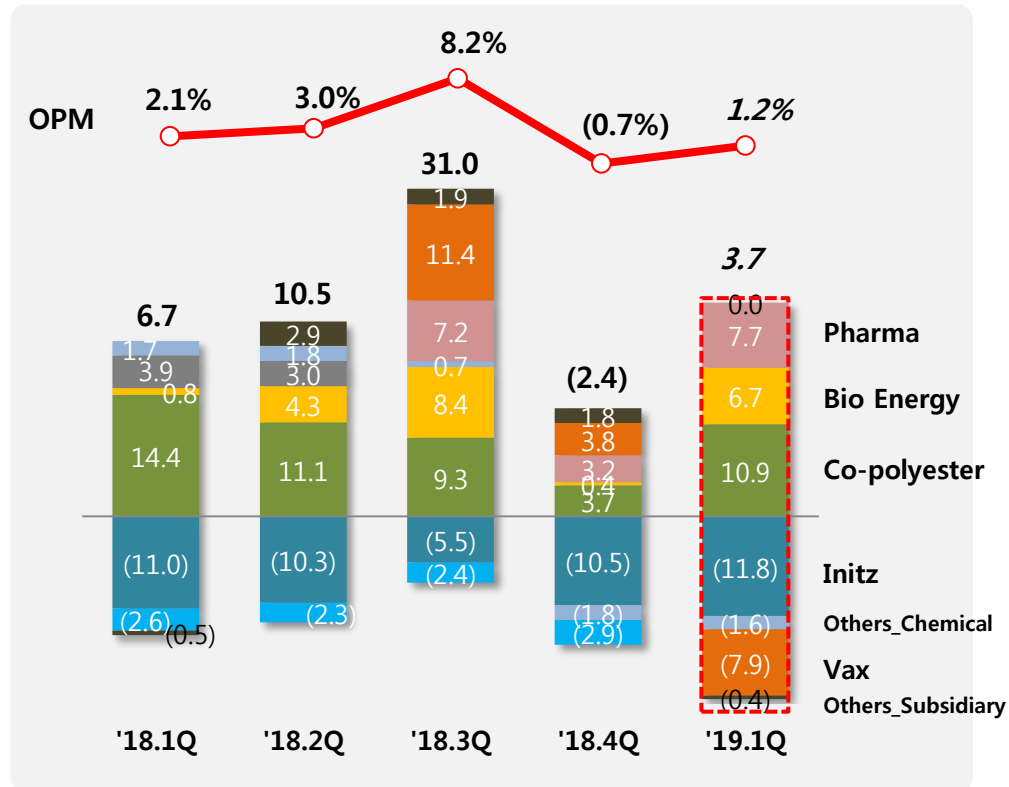
□ Sales

(Unit: KRW bn)



□ Operating Profit

(Unit: KRW bn)

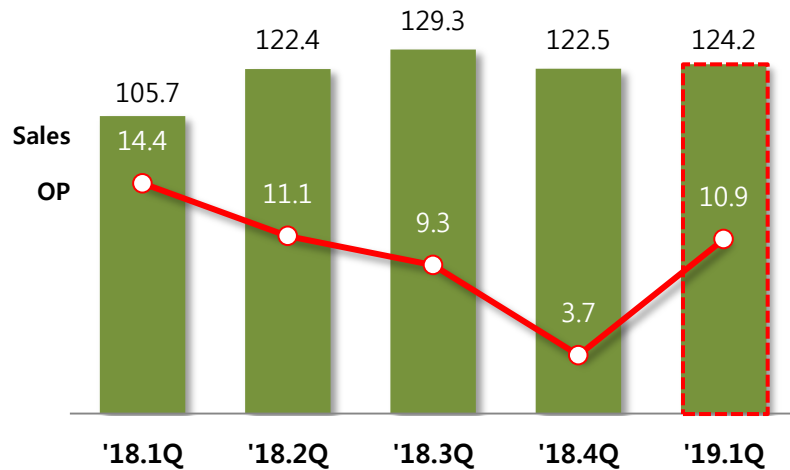


※ Due to the spin-off, 18.1Q and 18.2Q LS Biz. OP shown contains Pharma and Vax. OP combined.

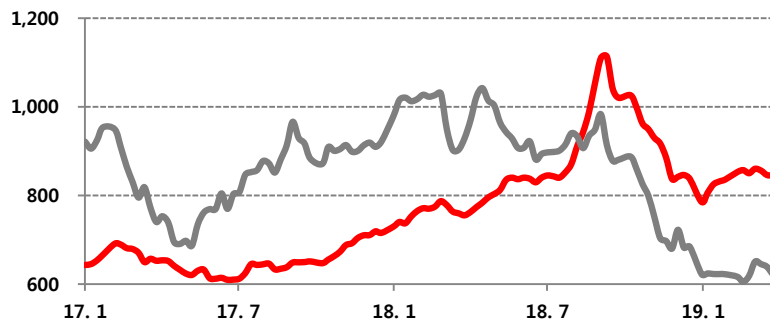
#### Performance

##### Quarterly Review

(Unit: KRW bn)



##### PTA/MEG price trend (US\$)



#### Review/Guidance

##### • '19.1Q Performance Review

###### - Sales:

- Merger with SK Petrochemicals and price increase in copolyester products led to +17.5% growth YoY
- Sales totaled similar to previous quarter due to US-China trade conflict

###### - OP:

- Thanks to price increase and lower raw material cost, OP recovered to high single margin rate
- Due to high base effect from 18.1Q OP decrease 24% YoY

##### • '19.2Q Outlook

- Unfavorable macroeconomic environments to continue
- Similar performance to 1Q expected

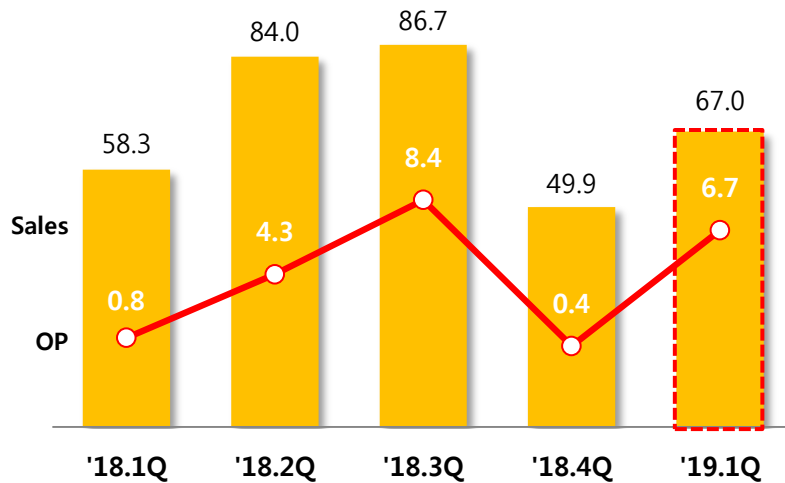
##### ※ Application

- Clear Sheet & Film, Food & Cosmetic Container, Electronic devices, etc.

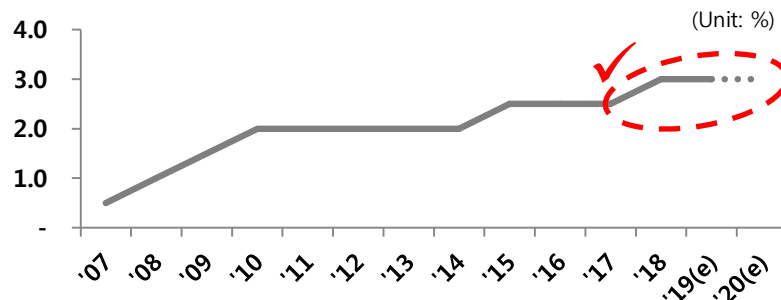
### Performance

#### Quarterly Review

(Unit: KRW bn)



#### Mixing Ratio Trend



### Review/Guidance

#### • '19.1Q Performance Review

##### - Sales:

- Sales rose by +15% yoy, due to demand surge before Fuel Tax benefit ends + biodiesel export led

##### - OP:

- Recorded 6.7 billion KRW due to favorable spread margin and volume increase from temporary demand surge and export

#### • '19.2Q Outlook

- Favorable spread margin continues + entering into high season

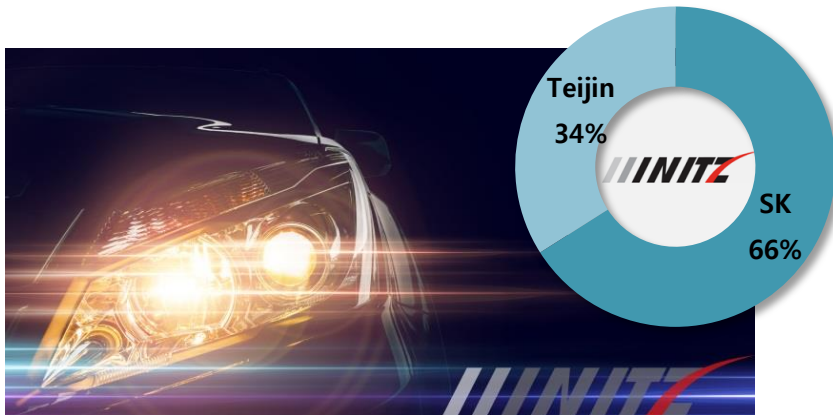
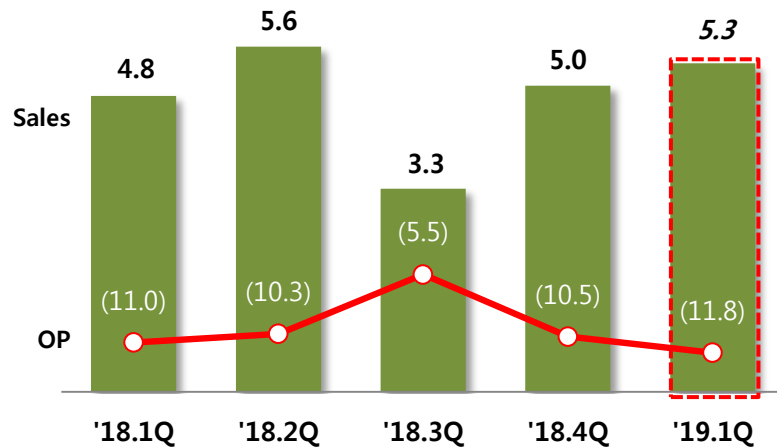
#### ※ The mix ratio increase in 2018

- Before 2.5% → Current 3.0%

### Performance

#### Quarterly Review

(Unit: KRW bn)



### Review/Guidance

#### • '19.1Q Performance Review

- Sales:

- Recorded 5.3 billion KRW, approximately +10% increase YoY

- OP:

- Deficit widened due to sales increase

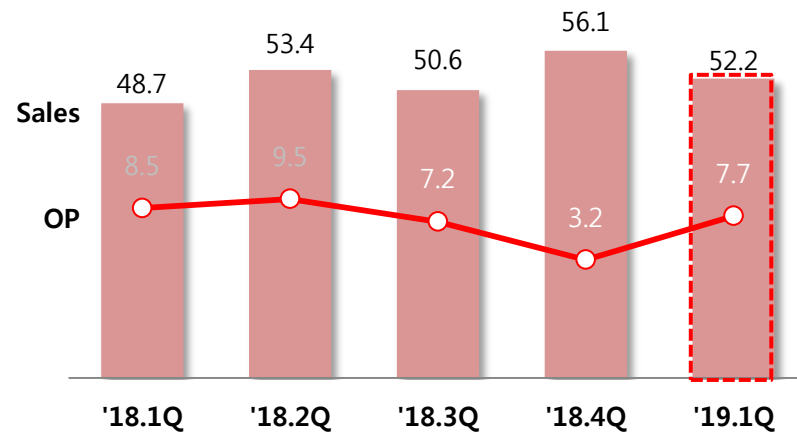
#### • '19.2Q Outlook

- Confirmed positive effect from the mixer installation
- Sales increase expected from 2H

#### Performance

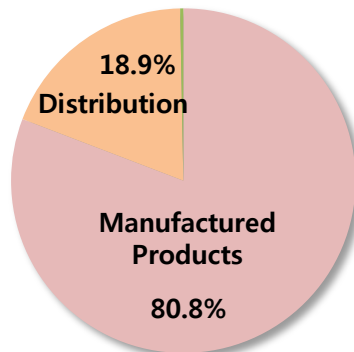
##### Quarterly Review

(Unit: KRW bn)



※ Due to spin-off, '18.1Q and '18.2Q Pharma OP are approximate ballpark figure provided for your convenience only.

##### Sales composition (as of 2018)



- **Key manufactured products**
  - Ginexin : blood circulation disorder treatment
  - Joins : anti-arthritic treatment
  - Trast : anti-inflammatory and analgesic patch
- **Key distributing products**
  - Pantoloc : GERD treatment
  - Cymbalta : depression treatment

#### Review/Guidance

##### • '19.1Q Performance Review

###### - Sales:

- Steady sales from existing line of products + new licensed product sale increase led to +7.1% growth YoY, recording 52.2 billion KRW

###### - OP:

- Decreased from last year due to COGS increase led by change in accounting policy

##### • '19.2Q Outlook

- Steady performance expected

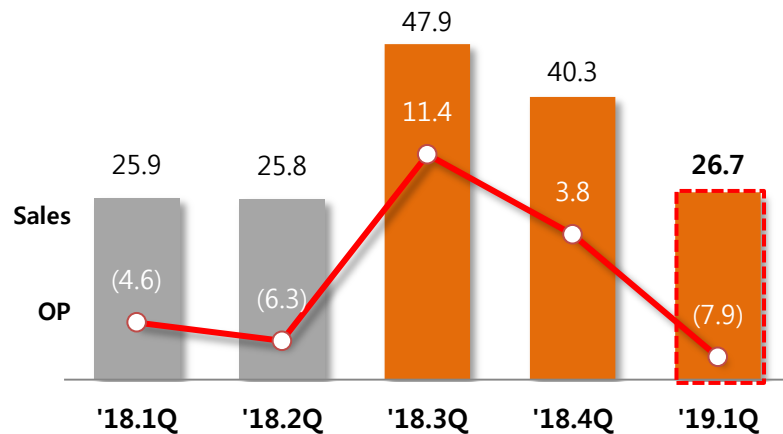
##### ※ Spin-off vaccine business on July, 1st 2018

→ 'SK Bioscience Co.,Ltd.' (reported on consolidated basis from 3Q18 onwards)

#### Performance

##### Quarterly Review

(Unit: KRW bn)



※ Due to spin-off, '18.1Q and '18.2Q Vaccine OP are approximate ballpark figure provided for your convenience only.

##### Key product release

- 2015 : cell culture trivalent flu vaccine (Korea's 1<sup>st</sup>)
- 2016 : cell culture quadrivalent flu vaccine (World's 1<sup>st</sup>)
- 2017 : shingles vaccine (World's 2<sup>nd</sup>)
- 2018 : chickenpox vaccine

#### Review/Guidance

##### '19.1Q Performance Review

###### - Sales:

- Recorded 26.7 billion KRW, approximately +3.1% increase YoY
- Milestone payments increase YoY vs. stagnating SKYZoster sales

###### - OP:

- Loss widened due to one-off costs

##### '19.2Q Outlook

- Milestone payment upon completion of transfer of cell culture technology to Sanofi Pasteur expected



# SK Chemicals Company Introduction

'19 1Q



# Contents

## **I. Overview**

## **II. Business Divisions**

- Green Chemicals Biz.
- Life Science Biz.

## **III. Summary**

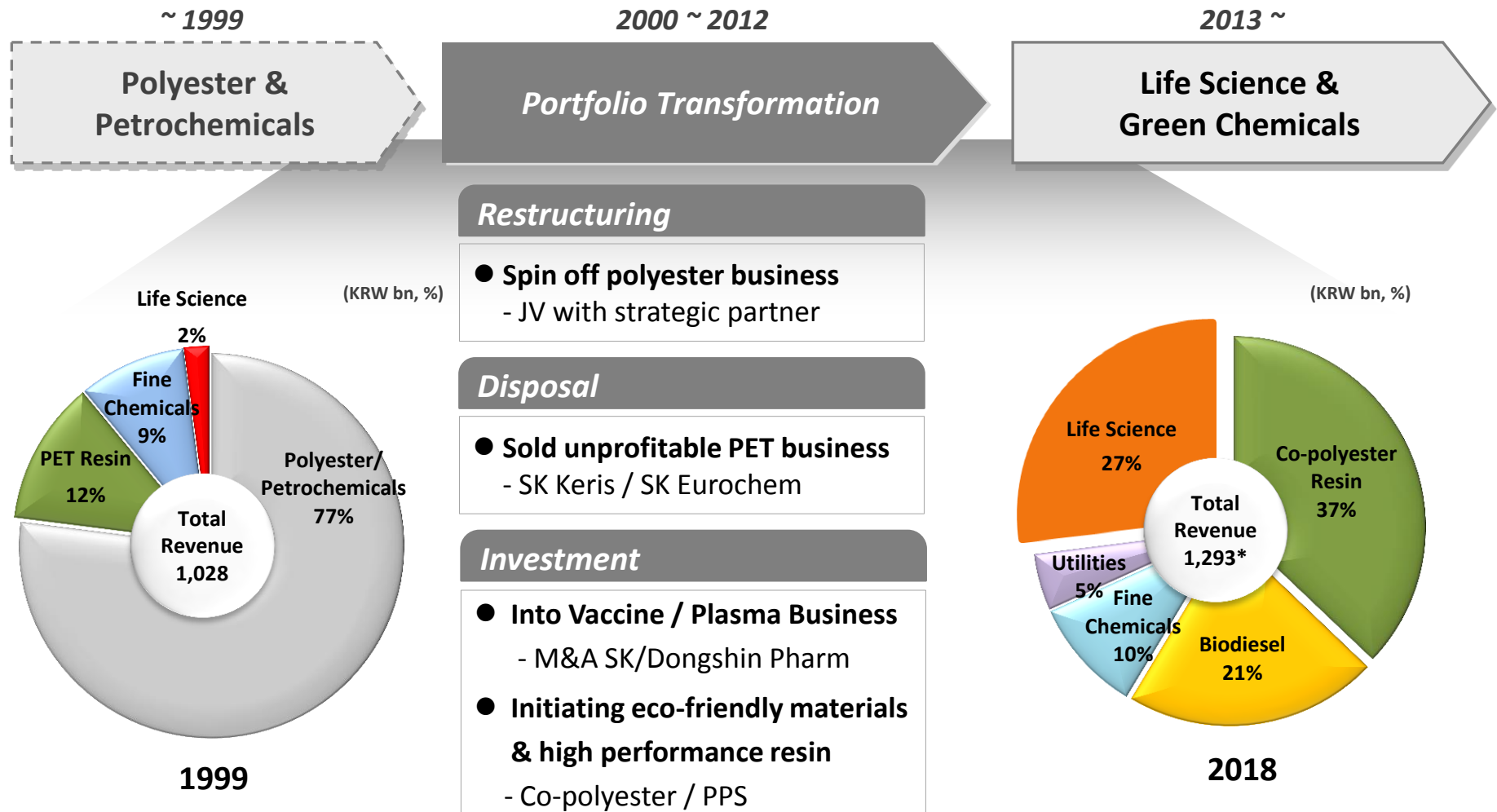
## **IV. Appendix**

# I. Overview

# I. Overview

## 1) Portfolio Transformation

Through continuous change and innovation, SK Chemicals has grown into a Life Science and Green Chemicals company with higher and stable profitability.



\*Non-consolidated financial results with SK Bioscience

# I. Overview

## 2) Restructuring and Investment

Since 2000, SK Chemicals has restructured its business portfolio by selling/spinning off businesses with total sales of 1.7 trillion KRW, and developing new ones with higher growth potential.

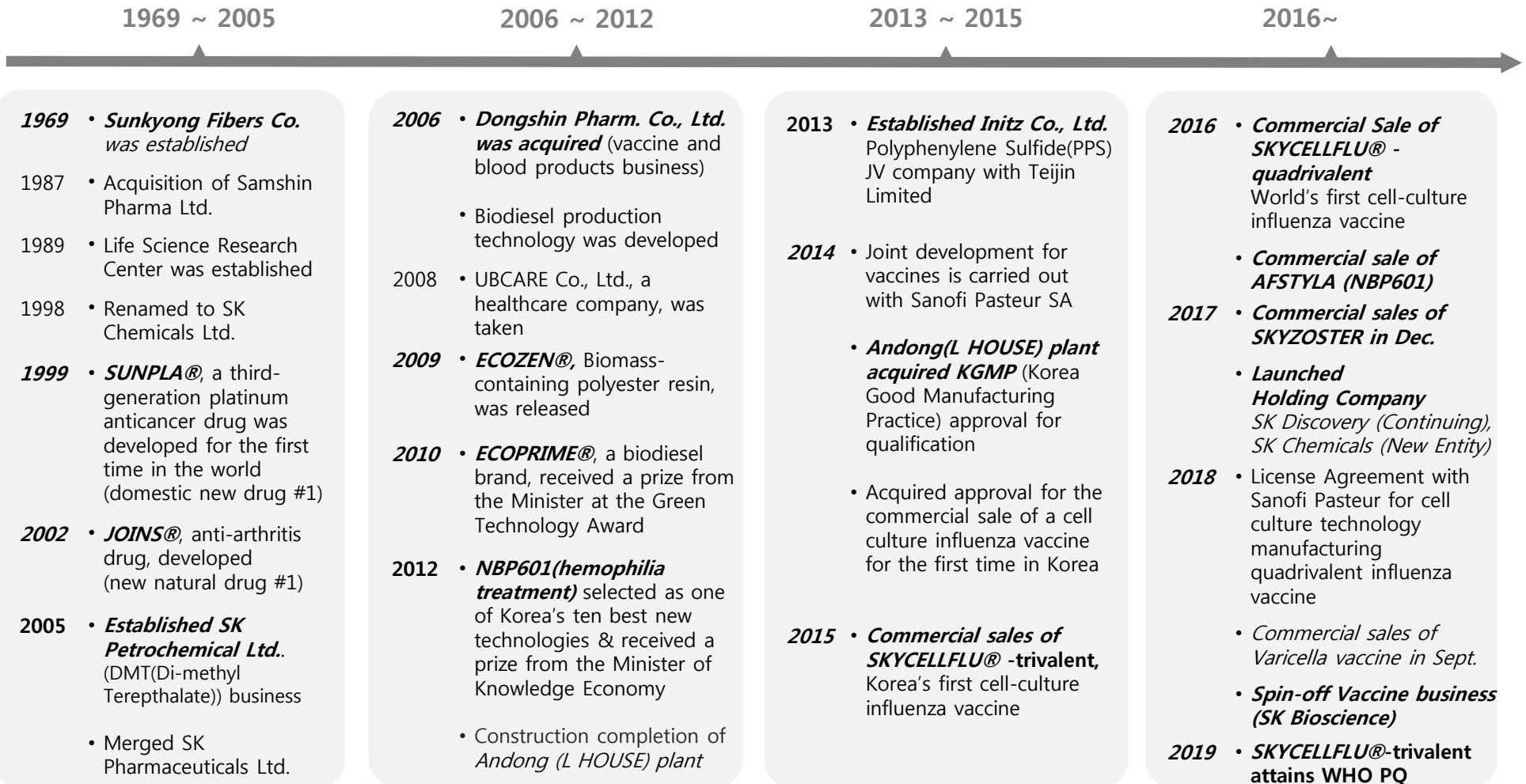
| Restructuring <small>(Unit: KRW bn)</small> |              |       |
|---|--------------|-------|
| Biz.  | Product      | Sales |
| • Yarn/Cotton('00)                          | -            | 337   |
| • Textile('03)                              | -            | 62    |
| • Fiber('07)                                | IDY          | 16    |
| • Petrochemicals('08)                       | PTA/DMT      | 528   |
| • Acetate ('09)                             | Tow, PU      | 164   |
| • Keris /<br>Eurochem('10)                  | PET chip     | 601   |
| • Utis('10)                                 | Polyurethane | 15    |
| Total Sales                                 |              | 1,722 |

| Investment <small>(Unit: KRW bn)</small> |                   |            |
|--|-------------------|------------|
| Biz.                                     | Amount            | Sales('18) |
| • Co-polyester                           | 154 <sup>1)</sup> | 378        |
| - Expansion of Co-polyester              |                   |            |
| • Initiate Bio diesel business           | 31                | 278        |
| • Accelerate Pharma Business             | 400               | 349        |
| - M&A SK / Dongshin Pharm.               |                   |            |
| - In-house Vaccine development           |                   |            |
| • Initiate PPS business                  | 142 <sup>2)</sup> | 19         |
| Total Amount                             |                   | 727        |
|  |                   | 1,023      |

1) Total amount including latest expansion

2) SK Chemicals' share (Total investment ; KRW 230 bn)

Since the establishment of Sunkyung Textiles in 1969, SK Chemicals has grown through continuous change and innovation into a chemical and life sciences enterprise representing South Korea.

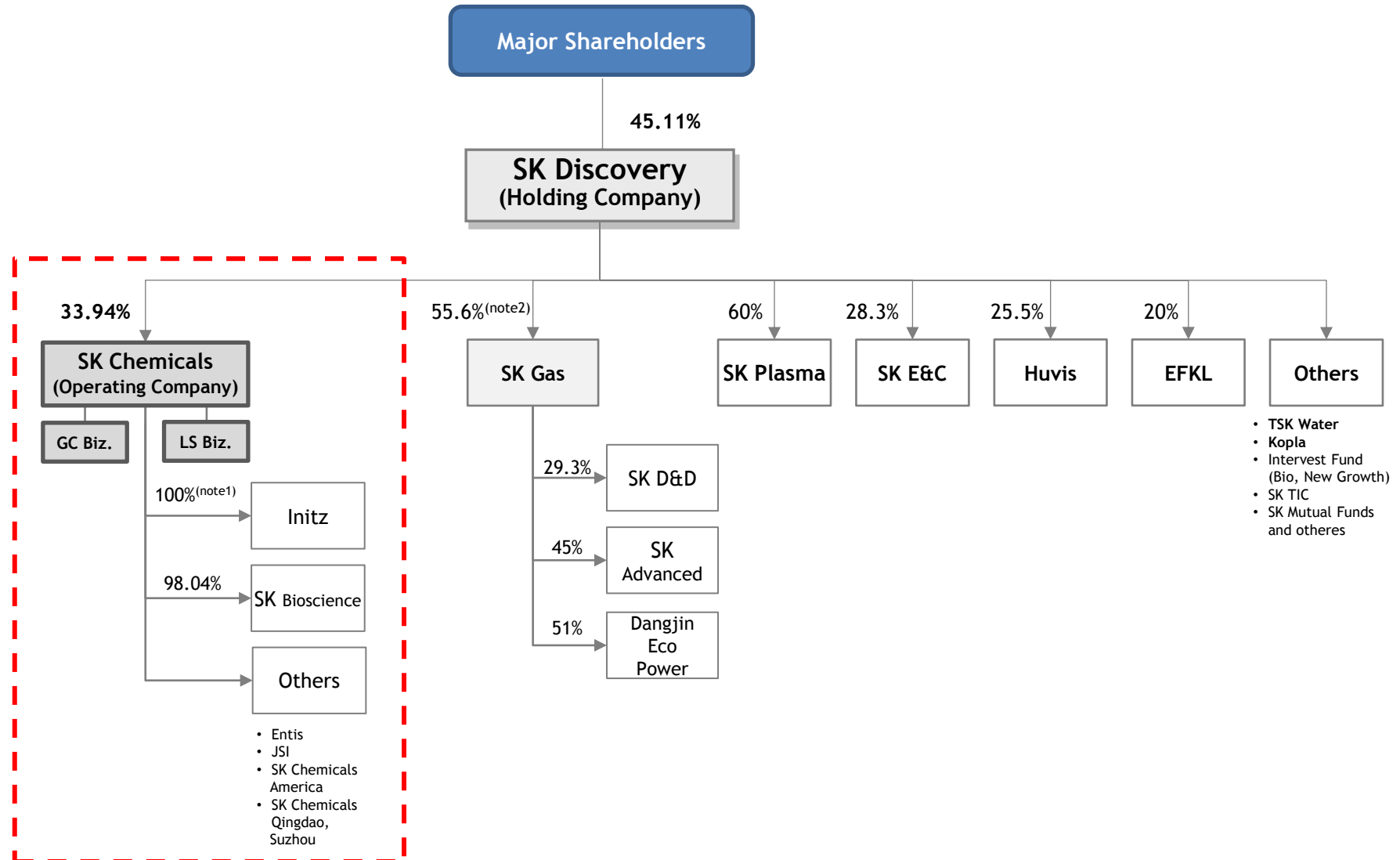


# I. Overview

## 4) Global Network

- **Headquarters & Domestic Plants:** Headquarters (Pangyo, Eco Lab), Ulsan, Andong (L House), Cheongju (S House)
- **Overseas Offices:** Shanghai, Guangzhou, Tokyo
- **Overseas Plants:** Qingdao, Suzhou
- **Overseas Corporations:** Frankfurt, Singapore, Irvine





Note: % of holdings for common stocks (As of May 10, 2019)

Note 1) Full acquisition of JV Partner Teijin's common and preferred stocks to be completed by end of May, transferring Initiz into 100% owned subsidiary.

Note 2) Share of SK Gas is as of July 1 (SK Syntec merger date)



## **II. Business Divisions**

## II. Business Divisions\_Green Chemical(GC) Biz.

### □ Co-polyester

- High-performance eco-friendly material that competes with PC, PVC (petroleum-based materials)
- Only two global co-polyester manufacturers

### □ Features

- Eco-friendly material (BPA free)
- High chemical & heat resistance
- Transparent, a glass-like appearance

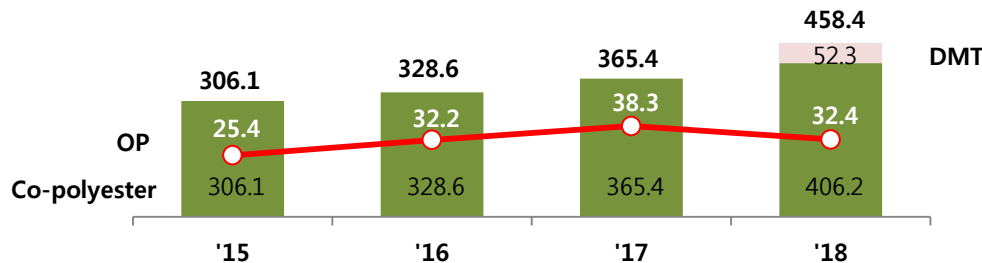
### □ Applications

- Food / Cosmetic container, Special / Shrink film, Electronics & Home Appliance, Building & Construction and others



### □ Performance Review

(Unit: KRW bn)



### □ Bio Diesel

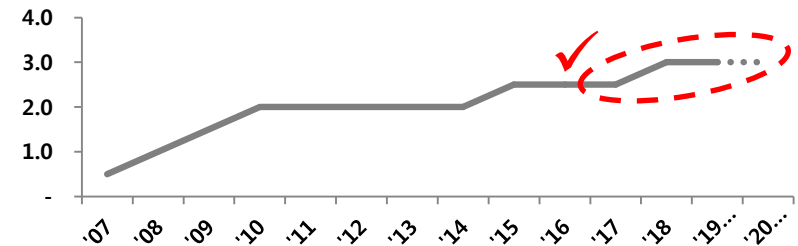
- Alternative energy manufactured by animal and vegetable oils(fats)
- Government policies(mixing ratio) to blend biodiesel with diesel fuel
- No.1 M/S in Domestic Market

### □ Strength of our Bio Diesel

- **Cost competitiveness**
  - Derived from palm oil sources
  - Splitting plant
- **Stable supply**
  - SK Innovation, S-Oil (Domestic refiners)

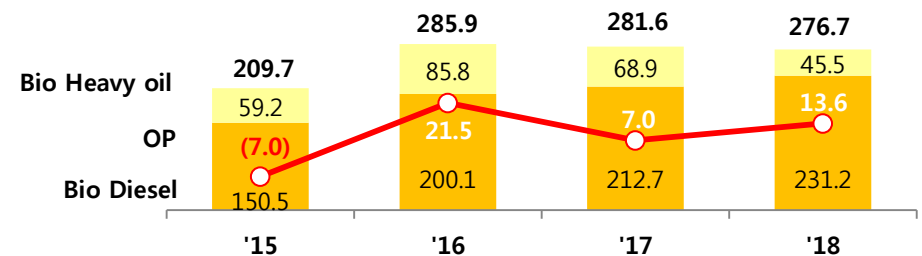
### □ Mixing Ratio Trend

(Unit: %)



### □ Performance Review

(Unit: KRW bn)



## II. Business Divisions\_Green Chemical(GC) Biz.

### □ Initiz (Polyphenylene Sulfide, PPS)

- World's first chlorine-free eco-friendly PPS manufacturer
- Eco friendly continuous polymerization process without using polar solvent
- 100% subsidiary

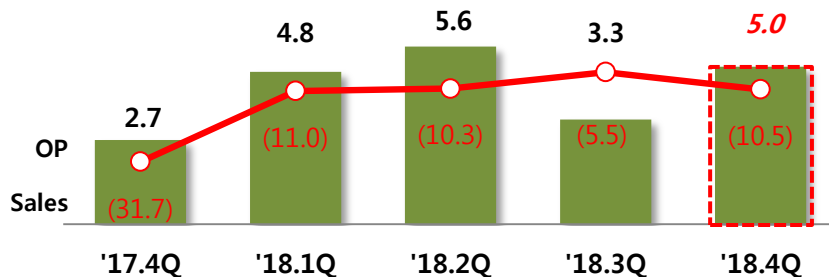
### □ Key features and application

- Excellent in thermal and chemical resistance
- Good electrical insulating properties

|                    |  |
|--------------------|--|
| <b>Electricity</b> | • CD/DVD Pick up, Bobbin, Connectors                           |
| <b>Automotive</b>  | • Pump impeller, Generator parts, etc                          |
|                    | • <b><u>Weight lightening trend in automotive industry</u></b> |
| <b>Film</b>        | • Bag filter, High-performance fiber                           |

### □ Performance Review

(Unit: KRW bn)



### □ Other businesses

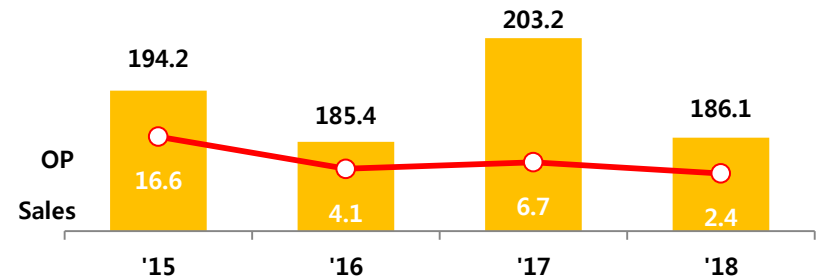
- SKYBON: thermal resin used in binders and adhesives
- Prepreg: intermediate material in sheet forms of specially formulated resin matrix with reinforcing fiber such as carbon fiber, glass fiber etc.
- EP: manufactures variety of Engineering Plastic
- Utility: provider of steam, electricity etc. to companies in the Ulsan plant

### □ Overseas subsidiaries/sales posts

- SK Chemicals Suzhou: manufactures SKYBON products
- SK Chemicals Qingdao: manufactures prepreg products
- SK Chemicals America: Copolyester sales office
- ST Green Energy: sourcing office for biodiesel raw materials

### □ Performance Review(excl. oversea subsidiaries)

(Unit: KRW bn)



## II. Business Divisions\_Life Science(LS) Biz.

### 1) LS Overview

#### ☐ Pharmaceuticals

- **Manufacturing & distributing chemical drugs**
- **Focus areas:** Cardio vascular system, Musculoskeletal system, Urinary system, Nervous system
- **Major products:** JOINS, GINEXIN, TRAST, Rivastigmine Patch and others

#### ☐ Vaccines

- **In house R&D from 2006, leading premium vaccine market**
  - In house development: SKYCellflu trivalent & quadrivalent, SKYZOSTER
- **Spin-off to enhance business progress & corporate value**
  - Spin-off Vaccine business on July 1<sup>st</sup> → SK Bioscience
  - Attract SI and IPO → advance to global market & speed up the development

#### ☐ R&D Achievements



**'SUNPLA'**  
3<sup>rd</sup> generation  
antitumor drug,  
(domestic new  
drug #1)

1999



**'JOINS'**  
Anti-arthritis  
drug,  
(new natural drug  
#1)

2001



**CSL - NBP601**  
(hemophilia  
treatment) L/O  
first for new  
biomedicine  
developed in  
Korea

2009



**'SID710'**  
A dementia  
treatment patch  
(generic) world's  
first approval in  
the EU

2012



Joint  
development  
for vaccines  
was carried out  
with Sanofi  
Pasteur SA

2014



Released  
**SKYCellflu**, Korea's  
first cell-culture  
influenza vaccine  
(trivalent)  
  
Approval for the  
commercial sale of  
the world's first  
quadrivalent cell-  
culture influenza

2015



**CSL - NBP601**  
(hemophilia  
treatment)  
acquired approval  
for sale in the U.S.  
and Canada  
first for new  
biomedicine  
developed in Korea

2016



Commercial  
sales of  
**'SKYZOSTER'**  
Developed the  
world's second,  
Korea's first  
Zoster vaccine

2017



License  
Agreement  
with Sanofi  
Pasteur for cell  
culture  
technology  
manufacturing  
quadrivalent  
influenza  
vaccine

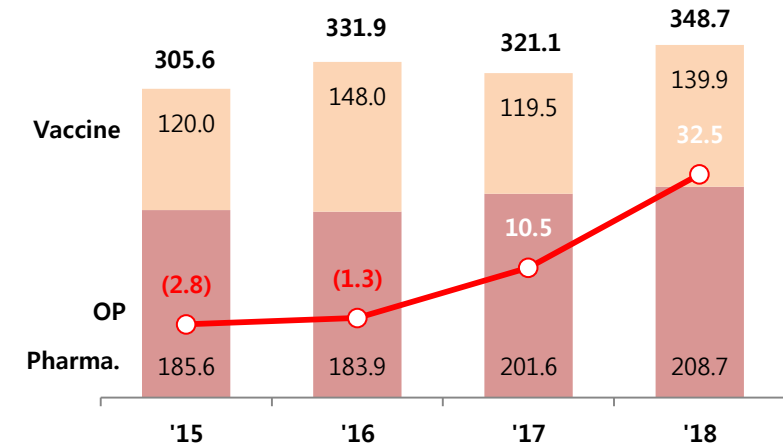
2018

Pharmaceuticals

Bio

#### ☐ Performance Review

(Unit: KRW bn)



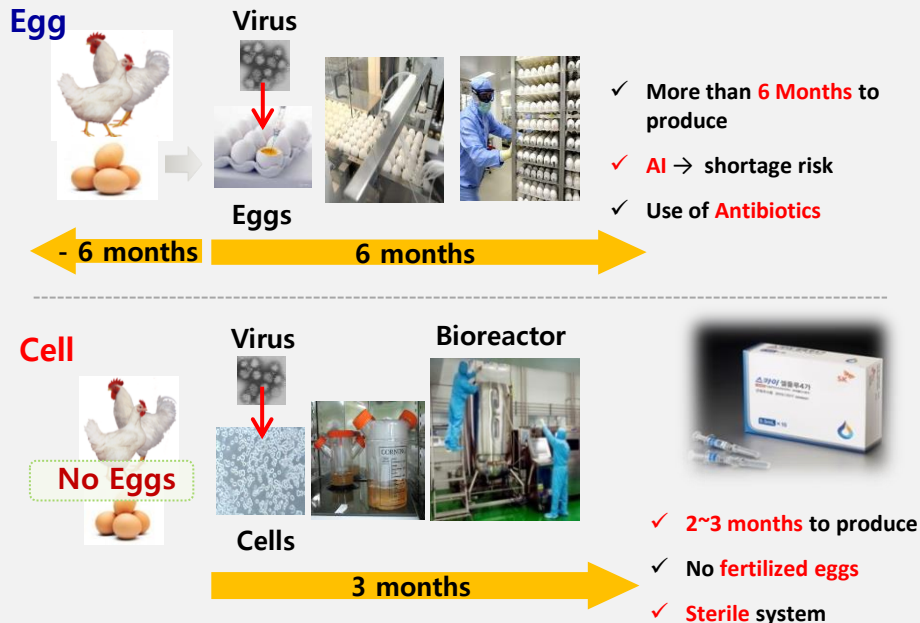
## II. Business Divisions\_LS Biz.

## 2) Cell-culture influenza vaccine

### ❑ Cell-culture influenza vaccine

#### • Features

- High yield 3-Dimensional Suspension Cell-culture & high purity process
- No fertilized eggs → stable supply, reduce maintenance costs
- Shorter production period → Faster response to influenza pandemics



### ❑ SK Chemical's influenza vaccine

- ✓ '15 Released "SKYCELLFLU® -trivalent", Korea's first cell-culture influenza vaccine
- ✓ '16 Released 'SKYCELLFLU® -quadrivalent', World's first cell-culture influenza vaccine

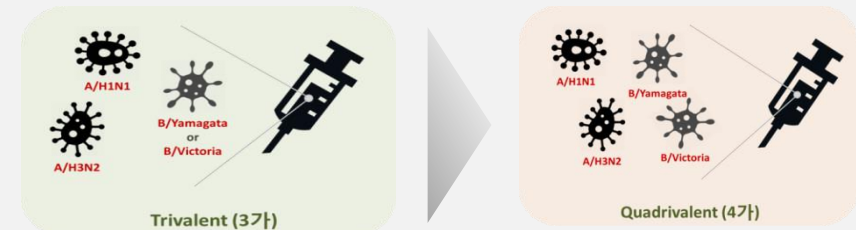
### ❑ Influenza vaccine market

#### • Domestic market

- Trivalent → quadrivalent market shift
- Increasing NIP influenza vaccination

#### • Potential global market

- Market shift to quadrivalent in developed countries
- Rise in demand for influenza vaccines in developing countries



Shifting to quadrivalent influenza vaccines → 'broader protection against circulating flu viruses'

### ❑ Domestic NIP market

|                            | Current                                | Future(e)                                 |
|----------------------------|--|---|
| Product                    | Trivalent                              | Quadrivalent                              |
| Age                        | '17: ~ 59 Months,<br>'18: ~ Elementary | After '19: Middle/High school students(e) |
| Pregnant women             | -                                      | To be introduced(e)                       |
| Aging population (age 65↑) | 7.08 mil. people                       | In '30: 1.296 mil. people                 |

## II. Business Divisions\_LS Biz.

### 3) Herpes Zoster Vaccine (SKYZOSTER)

#### □ About Herpes Zoster (Shingles)

##### • What is Herpes Zoster (Shingles)?

- Herpes Zoster is a viral disease due to a reactivation of varicella zoster virus (VZV) within a person's body.<sup>[1]</sup> Chickenpox is caused by the initial infection with the same varicella zoster virus, but once chickenpox has resolved, the virus may remain inactive in nerve cells.<sup>[1]</sup>
- The number of new cases per year ranges from 1.2–3.4 per 1,000 person-years among healthy individuals to 3.9–11.8 per 1,000 person-years among those older than 65 years of age of the US population<sup>[2]</sup>

[1] Hamborsky J (2015). *Epidemiology and Prevention of Vaccine-Preventable Diseases (13 ed.)*. Washington D.C. Public Health Foundation. pp. 353–74. Archived from the original on 2017-01-20.

[2] Dworkin RH, Johnson RW, Breuer J, et al. (2007). "Recommendations for the management of herpes zoster". *Clin. Infect. Dis.* 44 Suppl 1: S1–26.

##### • Global Market

- Global Sales \$685M in 2016<sup>1)</sup>
- Zoster Vaccine: 'ZOSTAVAX' developed by Merck in 2006 is the only zoster vaccine currently approved for human use
- No. of domestic patients in 2016: 691,339 <sup>2)</sup>

1) Datamonitor

2) Health Insurance Review & Assessment Service



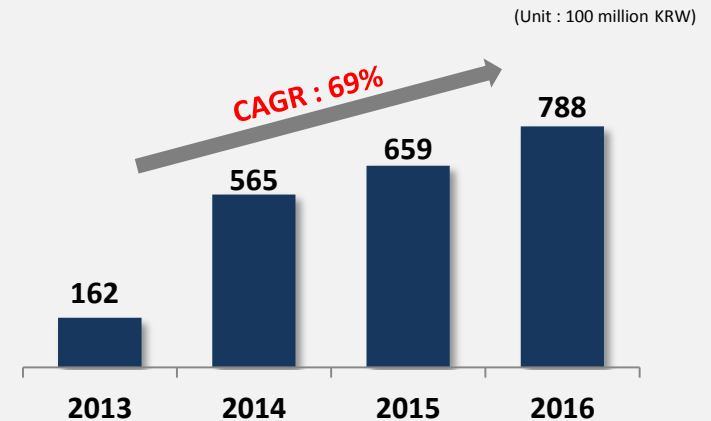
\* Picture: The blistering Shingles rash on face, body

#### □ SK Chemicals' Zoster Vaccine

- Indications: Indicated for prevention of zoster (shingles) in individuals 50 years of age and older
- Dosage: Given as a single dose by injection under the skin
- Dosage Forms: Single dose vial (reconstituted to a suspension)

- ✓ Developed the world's second, Korea's first Zoster vaccine
- ✓ Successful commercialization of our premium vaccine in year 2018
- ✓ Act as a catalyst that can accelerate Vaccine business earnings turnaround

##### ※ Domestic market size for Zoster Vaccine



ref. IMS Health Korea

## II. Business Divisions\_LS Biz.

## 4) Global Project w. Sanofi

### The cell-culture based manufacturing technology for influenza vaccine

#### □ Background

- SK Chem. has developed world best cell culture technology
  - Commercially proven, the most advanced technology
- Sanofi adapts SK's cell culture technology to manufacture next generation influenza vaccine development

#### □ Main contents

- Upfront Fee: USD 15 mil (upon signing)
- Completion of tech. transfer: USD 20mil
- Milestone at each level: USD 120mil
- Contract Region: Global market (Exclusivity rights in US/Europe)
- Royalty : % of product sales
  - 15 years after commercialization or patent expiry (whichever is longer)

#### □ Implication & Significance

- Another monumental event following '14 SKYPAC contract
- Demonstration of global competitiveness of our cell-culture technology
- Royalty potential  
(SP global influenza vaccine sales: about 2 trillion KRW)

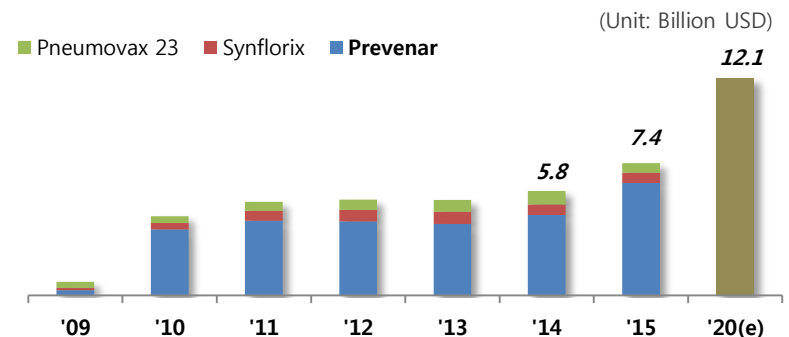
### Co-development of PCV



- Strategic business alliance for co-development of "Best in Class" pneumococcal vaccine
- Collaboration on R&D, Clinical, Production, Commercialization
- Production in An-dong vaccine facility in Korea for global distribution

#### □ PCV Market

- Market demand is boosted by aging population and expected to grow to \$12.1B by 2020
- Considering the Prevenar case, we expect meaningful market share after launching SKYPAC



(Ref : Visiongain 2015, Pfizer, GSK, Merck)

## II. Business Divisions\_LS Biz.

### 5) Vaccine business spin-off

#### Key Message

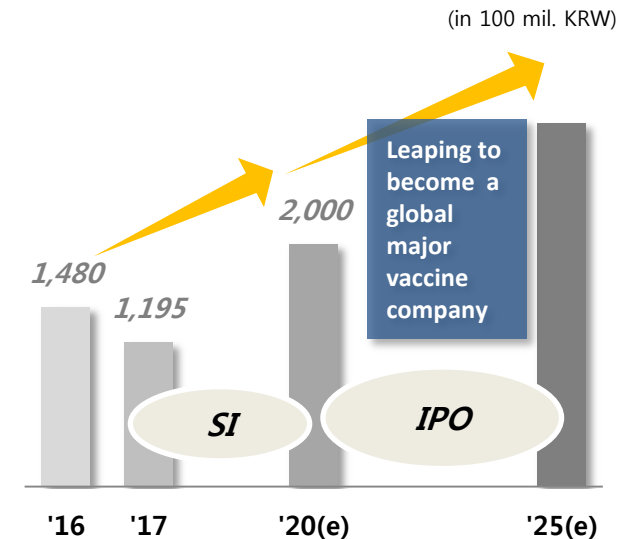
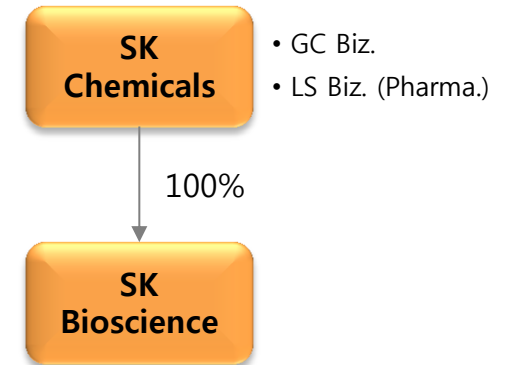
##### Background

- **Acceleration of business development after holdings structure transition**
  - 1) **Strengthen specialty in vaccine business**
    - Acceleration of vaccine business
    - Attract strategic investors
  - 2) **Build an optimal infrastructure for vaccine business**
    - Build an organization/HR system, capable of reflecting characteristics of Bio biz.
  - 3) **Enhance SK chemical's shareholder value**
    - Building a clear vaccine business corporate identity  
(resolve discount factor and ensure appropriate evaluation of business)

##### Main Contents

- **'Spin-off vaccine business on July 1<sup>st</sup> → SK Bioscience**
- **Focus on vaccine business, strengthen specialties/advance & accelerate business development to maximize the value**
  - Manufacturing business (Green Chemicals Biz.) and Vaccine business have different business DNA/corporate cultures
  - Focusing on business / strengthening core competencies
  - Separated HR system and Organization to set out optimal operation and vision for a future
- **As a Vaccine specialist, we plan to make our best efforts to advance into global market and expand our portfolio**
- **IPO when shareholder value can be maximized**
- **Plan to expedite vaccine business with capital raised from IPO**

#### Corporate governance after spin-off





### III. Summary

#### 1) Past Five Years

2000 ~

#### Restructuring & Investment

- '00 : Established HUVIS(Spin off of polyester business)
- '05 : M&A SK/Dongshin Pharm  
Spin off of SK Petrochemicals
- '08 : Sold off SK Petrochemicals

2008 ~

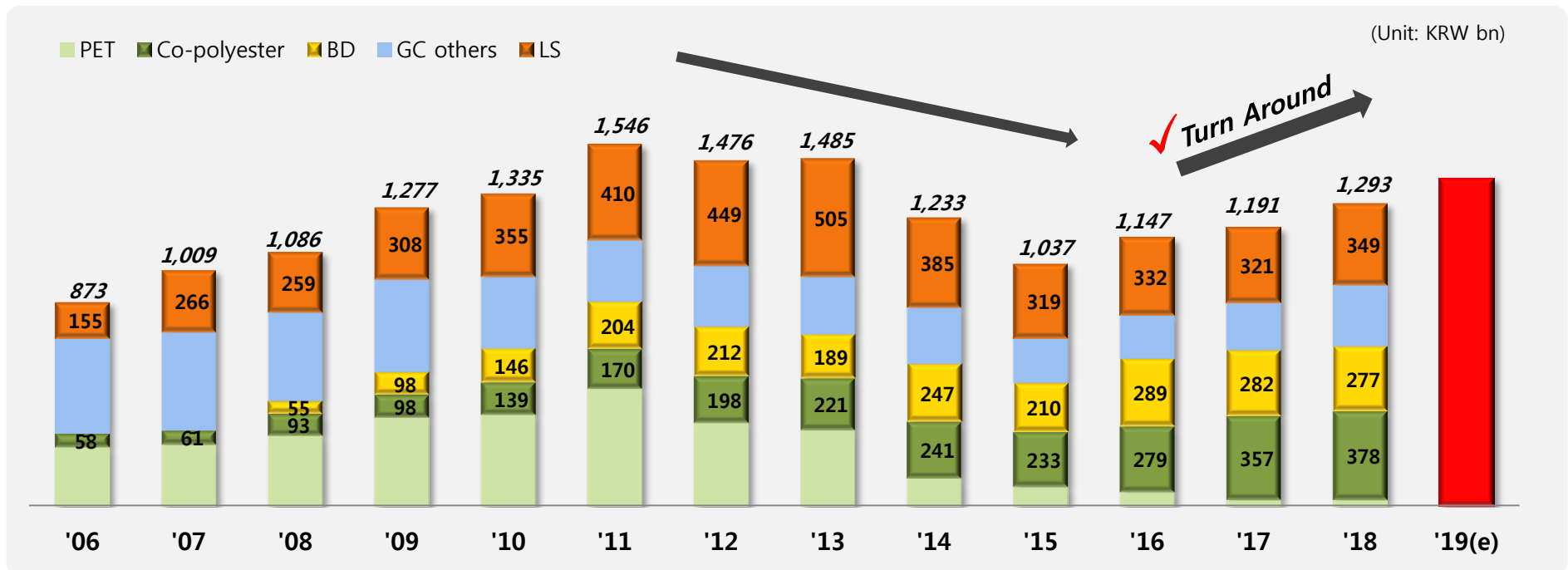
#### Accelerating Investment

- '08 : Initiating Vaccine development/  
Bio diesel business
- '09 : NBP601 L/O (to CSL)
- '12 : Co-polyester capacity increasing
- '14 : L House acquired KGMP(Korea  
Good Manufacturing Practice)

2015~

#### Realization of Investment

- '14 : Next PCV collaboration (w/ Sanofi)
- '15 : Cell flu trivalent (Korea 1<sup>st</sup>)
- '16 : Cell flu quadrivalent (World's 1<sup>st</sup>)  
The US FDA approval of NBP601
- '17 : Zoster (World's 2<sup>nd</sup>)
- '18 : Varicella vaccine



## IV. Appendix

## 1) Consolidated Financial Statements

### Balance Sheet

(Unit: Mil. KRW)

|  | '19.1Q           |
|--|------------------|
| <b>Current assets</b>                              | <b>798,039</b>   |
| Cash and cash equivalents                          | 89,540           |
| Short-term financial instruments                   | 151,709          |
| Trade and other receivables                        | 200,343          |
| Inventories  | 343,525          |
| Other current assets                               | 12,922           |
| <b>Non-current assets</b>                          | <b>1,276,521</b> |
| Investments in associates and joint ventures       | 7,153            |
| Property, plant and equipment                      | 1,100,406        |
| Intangible assets                                  | 40,026           |
| Other non-current assets                           | 128,937          |
| <b>Total assets</b>                                | <b>2,074,560</b> |
| <b>Current liabilities</b>                         | <b>651,982</b>   |
| Trade and other payables                           | 228,474          |
| Short-term borrowings                              | 154,696          |
| Other current liabilities                          | 268,811          |
| <b>Non-current liabilities</b>                     | <b>711,859</b>   |
| <b>Total liabilities</b>                           | <b>1,363,840</b> |
| <b>Equity attributable to owners of the parent</b> | <b>672,778</b>   |
| Capital stock                                      | 65,193           |
| Capital surplus                                    | 265,126          |
| Other components of equity                         | -40,119          |
| Accumulated other comprehensive income(loss)       | -2,117           |
| Earned surplus                                     | 384,696          |
| <b>Non-controlling interest</b>                    | <b>37,942</b>    |
| <b>Total equity</b>                                | <b>710,720</b>   |
| <b>Total liabilities and equity</b>                | <b>2,074,560</b> |

### Income Statement

(Unit: Mil. KRW)

|  | '19.1Q         |
|--|----------------|
| <b>Sales</b>                                       | <b>319,408</b> |
| Cost of sales                                      | 259,156        |
| Gross profit                                       | 60,252         |
| Selling, general and administrative expenses       | 56,595         |
| <b>Operating profit</b>                            | <b>3,657</b>   |
| Non-operating gains(losses)                        | -11,545        |
| Other non-operating income                         | 1,834          |
| Other non-operating expense                        | 7,505          |
| Financial income                                   | 6,249          |
| Financial expense                                  | 12,550         |
| Share of profit of associates and joint ventures   | 427            |
| <b>Earnings before interest and taxes</b>          | <b>-7,888</b>  |
| Income tax expense                                 | 3,720          |
| <b>Earnings for the period</b>                     | <b>-11,608</b> |
| Earnings attributable to owners of the parent      | -7,033         |
| Earnings attributable to non-controlling interests | -4,576         |

***End of Documents***