

Chemical Leader

Purpose	The primary purpose of the 2016 Sustainability Report is to identify the issues that Hanwha Chemical is addressing in its sustainability management, and to provide its stakeholders with complete data on the company's impact on economy, society, and the environment. In this report, the company addresses the opportunity and risk factors that it faces as it becomes a global company, and it demonstrates its commitment to engaging its stakeholders as it seeks mutually beneficial growth.
Scope and Period	In 2003, Hanwha Chemical published the first sustainability report ever in the Korean petrochemical industry. It continued to publish sustainability reports every other year until 2011, and it has produced a sustainability report annually since 2012. The 2016 Sustainability Report is the ninth. It includes data for the period from January 1, 2015, to December 31, 2015, with some data from 2016 included where necessary. Data for 2013 and 2015 are used for time-series analysis. This report covers the activities and performance of the Head Office, Daejeon R&D Center, and the Yeosu and Ulsan plants.
Reporting Guidelines	This report follows the internationally accepted standards of the Global Reporting Initiative (GRI) G4 Guidelines, and satisfies requirements in accordance with the Core level. It also includes general management information in compliance with ISO 26000 and the ten principles of UNGC.
Authentication	Economic performance is reported in compliance with the Korean International Financial Reporting Standards (K-IFRS). The Company also ensures its credibility and the soundness of its accounting management through preemptive internal control systems and thorough audits by its audit committee as well as independent auditors. For non-financial performance, the Korea Productivity Center has conducted third-party assurance for this report, and the report includes the statement in pages 74 and 75.

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With its pioneering spirit, dedication, and integrity, Hanwha Chemical has set many milestones as a leader in the Korean chemical industry through market-leading general-purpose plastics and a range of inorganic chemical products.

Based on the market leadership in Korea, Hanwha Chemical is emerging as a leader in the global chemical industry by securing unrivaled creativity and competitiveness, leading paradigm shifts, and fulfilling its social responsibilities.



To our distinguished stakeholders,

I would like to express my heart-felt gratitude to you for your unwavering interest in and encouragement to Hanwha Chemical.

The world faced difficult, uncertain times during 2015, with ongoing oil price declines, an economic slowdown in China, US interest-rate hikes, and geopolitical issues in the Middle East.

We at Hanhwa Chemical, however, uphold our indomitable spirit as we respond to the crises of history; we have not waited for these crises to pass, but rather, we have sought opportunities even from market uncertainties. In its continuing efforts to secure sustainable growth, the company acquired Hanwha Total Petrochemical and Hanwha General Chemical and explored opportunities to create synergy with them. Meanwhile, International Polymers Company (IPC), a joint venture with a Saudi company, commenced commercial production, the first foray by a Korean petrochemical company into the Middle East market, thus contributing to our global cost competitiveness. Hanwha Group's photovoltaic business is concluding fruitful outcomes as it leverages its investment activities.

In 2015, we also introduced our new vision statement, as a sign of our determination to overcome the adversities in our management environment: "Be creative and competitive – be a leader in chemicals."

In the global market, external size is not the only condition for becoming a leading company--a reality that we have seen in the rise and fall of global companies. True leaders dominate the market based on their creativity and competitiveness, lead paradigm shifts in the industry, and fulfill their social responsibilities. We continue to lead the global chemical industry through three strategies:

First, we are improving the structure of our general-purpose chemical business, which is vulnerable to external changes in oil and ethylene prices, by enhancing our core business fundamentals and streamlining our operations. At the same time, we continue to build a rational business portfolio by focusing on high value-added specialty products. We are also exploring opportunities to create synergy with the Group's chemical affiliates to attain a highly functional materials business.

Based on our market leadership in Korea, we are emerging as a leader in the global chemical industry by securing unrivaled creativity and competitiveness, leading paradigm shifts, and fulfilling its social responsibilities.

Secondly, we are strengthening our R&D capabilities to secure our competitiveness in the technology of the future. In particular, we are focusing on developing our own proprietary technologies through active R&D investment. Through cooperation with KAIST, we are planning a Future Technology Research Center to nurture future talent, thereby laying a foundation for the world's most advanced technologies, moving beyond our number-one position in the Korean market to become a true Chemical Leader.

Thirdly, we are streamlining our environmental safety and health (ESH) management systems at worksites to maintain our competitiveness in manufacturing, and we are implementing innovative methods to save manufacturing costs.

As part of our management objectives, we are fulfilling our corporate citizenship as we search for sustainable growth. We are paving the way to reducing carbon emissions and responding to climate change, and expanding our social contribution activities by seeking further mutual growth with our regional business partners.

With all of these accomplishments, however, Hanwha Chemical is not resting. We continue to sharpen our competitiveness through active technology investment and continual inroads into global markets. Based on our market leadership in Korea, we are emerging as a world leader from every perspective, including humanitarian activities and eco-friendliness – an eco-friendly company whose businesses focus on human lives and the environment.

We look forward to your continued interest and encouragement of our sustainability management as we create a sustainable tomorrow that enhances the value of human life.

Thank you.

Chang-Bum Kim

President & CEO
Hanwha Chemical

Since its founding in 1965, Hanwha Chemical has led the Korean petrochemical industry through market-leading general-purpose plastics and a variety of inorganic chemical products. As the first producer of PVC goods in Korea, Hanwha Chemical succeeded in producing a full array of primary petrochemical products, including LDPE (Low Density Polyethylene), LLDPE (Linear Low Density Polyethylene), and CA (caustic soda/chlorine). Based on its leadership in the petrochemical market, Hanwha Chemical is now achieving prominence in the polysillion and Toluene Diisocyanate (TDI) fields, leaping forward as a leader in the chemical industry with its unrivaled creativity and competitiveness.

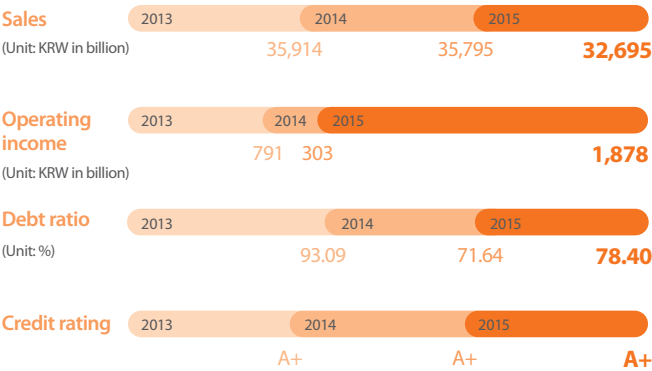


● Operations ● Branch offices ● Hanwha Group's global network

Company Information

Company Name	Hanwha Chemical Corporation
Date Founded	August 1965
No. of Employees	2,490 (As of the end of December 2014)
CEO	Chang-Bum Kim
Major Businesses	PO, PVC, CA, TDI, and Polysilicon
Head Office	Hanwha Building, 86 Cheonggyecheon-ro, Jung-gu, Seoul, Korea

Key Economic Performance



* Corporate bond (long-term) credit rating

Products at a Glance

Hanwha Chemical offer top-of-the-line products through R&D activities and market analysis.

- PO

 - LDPE
 - EVA
 - LLDPE
- PVC

 - PVC Resin
 - Copolymer
 - Terpolymer
 - Paste Resin
 - Plasticizers
- CA

 - Caustic Soda(NaOH)
 - Chlorine (Cl₂)
 - EDC
 - VCM
- TDI

 - ECH
 - Hydrochloric Acid (HCL)
 - HYPO
- Polysilicon

 - Polysilicon
- OA

 - PA/MA
- TDIs

 - TDI Derivatives
 - TM
 - TDA



Domestic Network

Domestic operations

Head Office	Hanwha Building, 86 Cheonggyecheon-ro, Jung-gu, Seoul, Korea
Daejeon R&D Center	76 Gajeong-ro, Yuseong-gu, Daejeon, Korea
Yeosu Plant	117, Yeosu Sandan 3-ro, Yeosu, Korea
Ulsan Plant 1	141, Sanggae-ro, Nam-gu, Ulsan, Korea
Ulsan Plant 2	22, Saneop-ro 440-gil, Nam-gu, Ulsan, Korea
Ulsan Plant 3	22, Yongyeon-ro 230-gil, Nam-gu, Ulsan, Korea

Domestic branch network

Daegu Office	8-2 Padogogae-ro 30-gil, Dalseo-gu, Daegu, Korea
Gwangju Office	175, Wolgye-ro, Ssangam-dong, Gwangsan-gu, Gwangju, Korea
Busan Branch Office	152 Jaseong-ro, Nam-gu, Susan, Korea

Overseas Network

Overseas operations

Shanghai Subsidiary	19th Floor, Dawning Center, East Tower, 500 Hongbaoshi Road Changning, Shanghai 201103, China
Ningbo Subsidiary	No. 55, Huandao North Road Daxie Development Zone Ningbo, Zhejiang 315812, China
Thai Subsidiary	377 Moo 17, Bangna-Trad Road Bangsaothong, Bangsaothong Samut Prakan 10540, Thailand
Saudi Arabian Subsidiary	P.O. Box 12021 Jubail Industrial City 31961 Kingdom of Saudi Arabia
Malaysian Subsidiary	Suite No. 22.04, Level 22, Menara Citybank, 165, Jalan Ampang, 50450 Kuala Lumpur, Malaysia
Newdelhi, India	Surya Kiran Building, Suite 806 #19, Kasturba Gandhi Marg, Newdelhi 110001, India

Overseas branch network

Shanghai, China	Room 1903B, Dawning Centre east, No 500 Hongbaoshi Road, Changing district, Shanghai 201103, China
Beijing, China	Beijing Kerry Center, South Tower 10th Floor, 1 Guang Hua Road, Chaoyang district, Beijing 100020, China
Guangzhou, China	Fortune Plaza, West Tower Suite 1905, 116-118 Tiyyudong Road, Guangzhou, China

With its technological expertise and an unmatched quality in its production of basic chemicals during the past half century, Hanwha Chemical is expanding its business into high value-added derivatives by strengthening the fundamentals of its major business areas. The Company also makes every effort to meet customer expectations and earn the trust of clients by leveraging its many years of technological experience in the development of its products through active R&D.

Feedstock

Feedstock Purchase

- Purchase of ethylene, a feedstock for PE and PVC products, from Yecheon NCC, a joint venture
- Purchase of industrial salt to produce chlorine and caustic soda



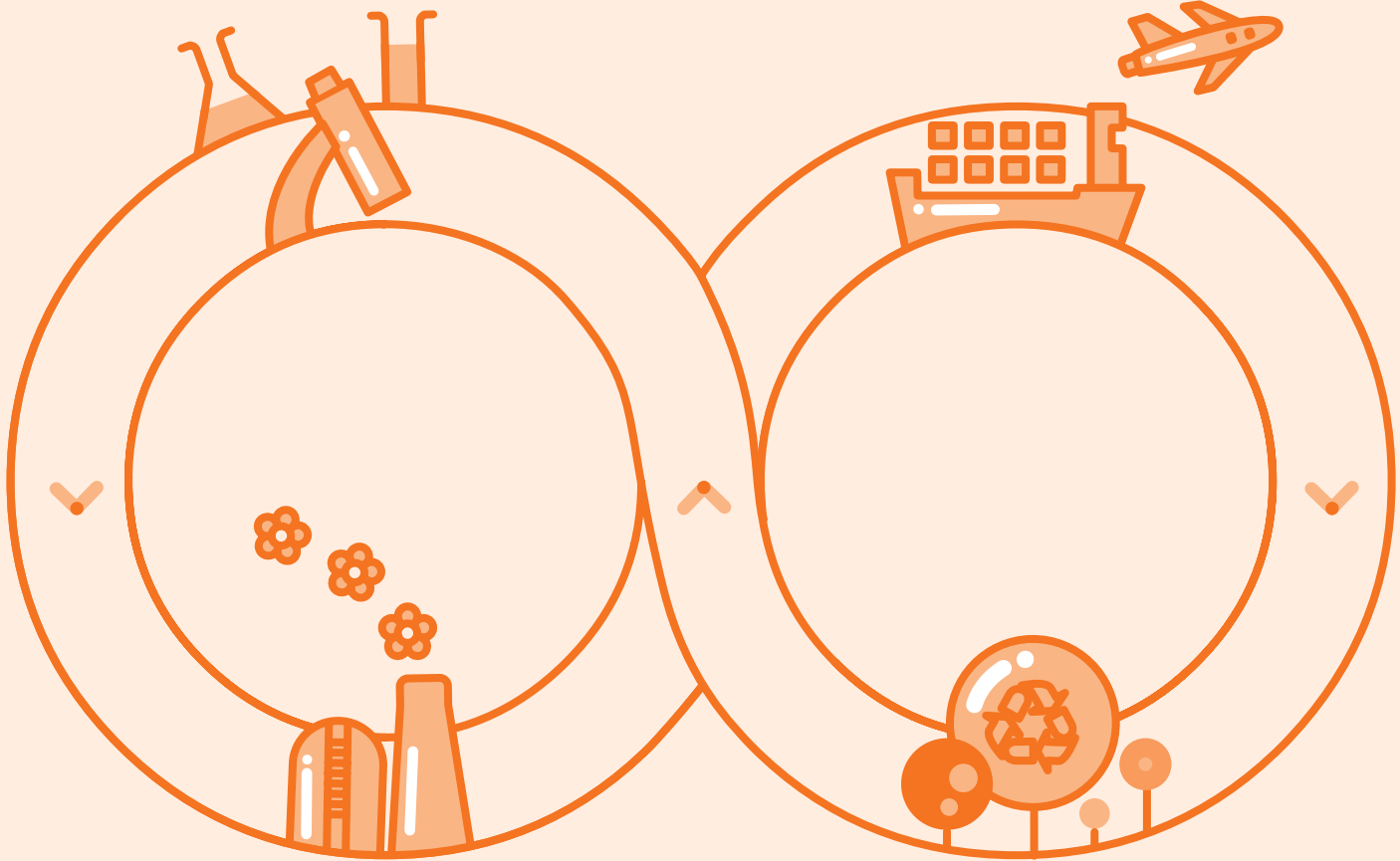
Intermediate Products

- Production of PE products, including LDPE and LLDPE, from ethylene
- Electrolyzing of salt water to produce CA products such as chlorine and caustic soda (including VCM used in the production of PVC)

Production

1 R&D

- Exploration of new markets and expansion of existing markets through the development of new and high value-added products based on the traditional petrochemical business
- Research and development of new technologies and materials in line with new business strategies



2 Production

- Compliance with global ESH regulations and initiatives, and quality control according to the manufacturing plans for each product
- Enhancement of productivity and efficiency in product development to achieve management objectives and sustainable growth

3 Marketing

- Business-to-business (B2B) commerce with materials processing companies
- Introduction of new products to domestic and overseas markets through analysis of current market status and trends

4 Recycling

- Trade of exhaust gas emitted during production with other resident companies at the Yeosu National Industrial Complex, and participation in other industrial waste recycling projects organized by the government and other industry associations

Major Businesses

PO

Polyethylene (PE) is a polymer with outstanding physical properties and environmental stability. It is a synthetic resin used in a wide range of applications from food containers to high-tech industrial materials.

PVC

Polyvinyl Chloride (PVC) is a general-purpose plastic widely used in industrial materials, including artificial leather, pipes, and flooring materials. It is also used in household items, including toys and wall paper.

CA

Chlor-alkali (CA), a term referring to chlorine and alkali, is a range of inorganic chemical products widely used in textiles, paper, metals, detergents, and electrical generation.

TDI

Toluene diisocyanate (TDI), a basic material to produce polyurethane (PU), and TDI derivatives are widely used in industrial materials and daily supplies, including paint, synthetic leather, and adhesives.

Polysilicon

As a basic material, the polysilicon business of the Company has greatly assisted Hanwha Group in completing the vertical integration of photovoltaic business.

1 Polyolefin Business

Polyethylene (PE) is a polymer with outstanding physical properties and environmental stability. It is a synthetic resin used in a wide range of applications from food containers to high-tech industrial materials. Since producing Korea’s first LDPE in 1973, the Company has greatly contributed to the development of the nation’s petrochemical industry through outstanding quality and reliable supply capacity. Based on this technological progress, the Company is now opening a new chapter for the Korean petrochemical industry by producing Korea’s first wire and cable compounds used for the insulation of extra high voltage power cables, which had to be fully imported, and Ethylene Vinyl Acetate (EVA), a high value-added specialty product, designated a “World-class Product” by the Ministry of Trade, Industry and Energy.

Business Milestones

- 1973** Hanyang Chemical, now part of Hanwha Chemical, produced Korea’s first LDPE
- 1985** Produced Korea’s first EVA and composite resin for electrical wires
- 1986** Produced Korea’s first LLDPE
- 2004** Insulation compounds for power cables certified as the World-Class Product of Korea
- 2009** EVA for thermal lamination film certified as the World-Class Product of Korea
Launched International Polymers Company (IPC), a joint venture in Saudi Arabia for LDPE and EVA production
- 2011** EVA for photovoltaic cells certified as the World-Class Product of Korea
Launched Gulf Advanced Cable Insulation (GACI), a joint venture in Saudi Arabia for W&C compound production
- 2013** Launched an overseas subsidiary in Malaysia
- 2015** IPC and GACI commenced the commercial production

Key Performance Indicators

Domestic Market Share

(Unit: %)



31

No.1 in domestic market share

% of Specialty Products* in the Total

(Unit: %)



69

* High value-added products

Revenue

(Unit: KRW in billion)



Key Products

LDPE (Low Density Polyethylene)	Used in various applications, including agricultural and industrial films, coatings, foam molding, injection molding, and blow molding, with excellent processability, optical properties, and flexibility without loss of resistance to strong impact
LLDPE (Linear Low Density Polyethylene)	Used in industrial/food packaging and tarpaulin coatings, with outstanding stiffness, processability, optical properties, and ESCR*
HDPE (High Density Polyethylene)	Used in insulated telecommunication cables and tarpaulin yarn, with rapid processability, high stiffness, and puncture resistance
EVA (Ethylene Vinyl Acetate)	Used in shoe soles, agricultural/laminating films, and photovoltaic protective sheets, with high transparency, flexibility, and low temperature resistivity
Wire & Cable Compound	Used for insulating and covering of high-performance power and telecommunication cables, with outstanding electrical and mechanical properties, and high processability

* Environmental Stress Crack Resistance (ESCR) is a parameter measuring the ability of a polymer to resist unstable cracks that occur during plastic production processes.

High Value-added EVA Products Enhanced Core Competitiveness

As a high value-added product, High-VA EVA requires exclusively cutting-edge technology and manufacturing facilities only a few companies in the world are able to provide. Since it developed and introduced Korea’s first High-VA EVA with its own technology, the Company has developed a full array of such products used for photovoltaic cells, hot melt, and thermal laminating films. These products have been certified as World-Class Products of Korea, thus positioning the Company as a leading EVA manufacturer in Asia.

In September 2012, the Company expanded its EVA production line at the Ulsan Plant, adding 40,000 tons of supply capacity per year. Following the completion of its EVA/LDPE plant in Saudi Arabia in 2013, the Company also commenced commercial production of these products, with 200,000 tons annual capacity in 2015, enabling it to achieve status as a global player, competitive in both cost and quality.

2 PVC Business

Polyvinyl Chloride (PVC) is a general-purpose plastic widely used as essential material in construction, automotive, and household items. Since beginning production of Korea’s first PVC in 1966, Hanwha Chemical has led the Korean PVC industry with its outstanding technological and manufacturing capabilities. With local manufacturing facilities in Thailand and China, it is also expanding its presence in the global market, securing new markets and meeting regional demands.

Vertical Integration of PVC/CA Production

Hanwha Chemical has completed the vertical integration of its PVC/CA production process, ranging from feedstocks to end products, thus enhancing cost competitiveness in the global market. The Company is now emerging as a top player in the global chemical market as it further develops customer relationships and high value-added products.



Yeocheon NCC
● Production of feedstock



Yeosu Plant & Ulsan Plant
● Production of intermediate products



Yeosu Plant & Ulsan Plant
● Production of final products

Key Products

PVC Resin	Used for pipes, window frames, hoses, cable insulation, and soft/rigid sheets
Paste Resin (PSR)	Used in basic materials for various processed products, including flooring, wall paper, artificial leather, tarpaulins, carpet tiles, and toys
Plasticizer	Used in soft products and compounds to adjust the plasticity of PVC, PSR processed goods
Octanol and Butanol	Colorless, transparent liquids used in plasticizers, solvents, and stabilizers, while butanol is used for paints
PA / MA	Used in plasticizers, paints, dyes, unsaturated polyester resins for automobiles, and fiber-reinforced plastics

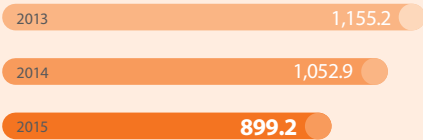
Business Milestones

- 1966** Daehan Plastic Industry, now part of Hanwha Chemical, produced Korea’s first PVC
- 1968** Korea Hwasung Industrial, now part of Hanwha Chemical, completed construction of the Jinhae PVC Plant
- 2009** Acquired Ulsan Plant 3 for DOP, MA, and PA production
- 2010** Expanded the Yeosu CA/OXY Plant
- 2010** Launched the Ningbo PVC Plant in China
- 2012** Expanded the Yeosu PVC Plant

Key Performance Indicators

Revenue

(Unit: KRW in billion)



3 CA Business

Chlor-alkali (CA) is a range of inorganic chemical products such as chlorine and caustic soda. They are widely used in various industries such as textiles, paper, metals, detergents, and electrical generation. As Korea’s leading CA supplier in terms of production capacity and market share, the Company is now making every effort to enhance its competitiveness as it emerges as a globally recognized brand.

Business Milestones

- 1980 Completed construction of the Yecheon CA Plant, and recorded Korea's largest production capacity for EDC,VCM and ECH
- 2010 Expanded the Yeosu CA/OXY Plant
- 2015 Currently Expanding the Yeosu CA/OXY Plant

Key Products

Caustic Soda	Used primarily for water treatment to prevent air and water contamination, as well as other industries such as paper, textiles, detergents, metals, food, and electrical generation
Chlorine	Used in producing EDC, VCM, TDI, MDI, polycarbonate, agricultural chemicals, solvents, as well as cleaning of paper/pulp, and sterilization and disinfection of water/ sewage
EDC	A colorless liquid created by reacting chlorine and ethylene, and used in manufacturing of VCM and various solvents
VCM	A colorless gas created by pyrolyzing EDC, and used mainly to produce PVC
HCL	Used in various industries, such as water and waste-water treatment.

Key Performance Indicators

Domestic Market Share



Revenue

(Unit: KRW in billion)



4 TDI Business

Toluene diisocyanate (TDI) is a feedstock used in the process of synthesizing of polyurethane (PU), with MDI and polyol. It is applied in wide range of system services to produce PU for a variety of purposes.

Business Milestones

- 1978 Launched the TDI 1 Plant with 20KTA of production capacity
- 1993 Launched Polyisocyanate Plant (PIP)
- 2000 Launched the TDI 2 Plant with 50KTA of production capacity
- 2011 Launched the TDI 3 Plant with 50KTA of production capacity
- 2016 Currently operating 3 TDI Plants with 150KTA of total production capacity
Producing hydrochloric acid (HCl) with 350KTA of production capacity

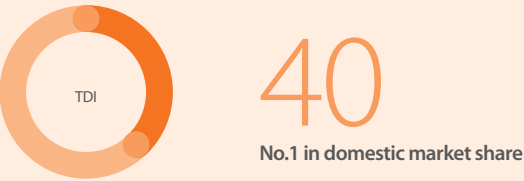
Key Products

TDI (Toluene Diisocyanate)	Flexible (polyurethane) foam is used for shoes, furniture, automotive components, bedding, and toys, while semi-rigid foam is for car interiors.
TDI Derivatives	Used for synthetic leather bags, clothes, shoes, sports equipment, food packaging adhesives, and wood hardeners
TM Products (Mixed Isocyanate)	A mixture of TDI and MDI used for car seats
TDA (Toluene Diamine)	Used for urethane foam sprays and epoxy hardeners

Key Performance Indicators

Domestic Market Share

(Unit: %)



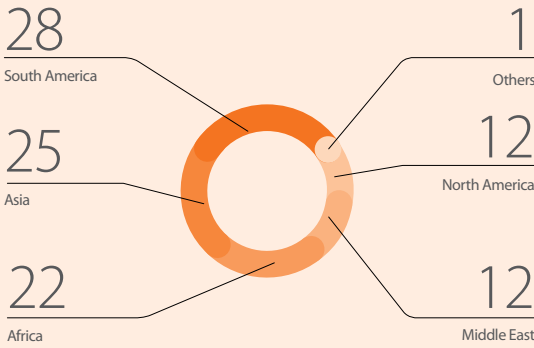
% of Export in Total Revenue

(Unit: %)



% of Region in Export

(Unit: %)



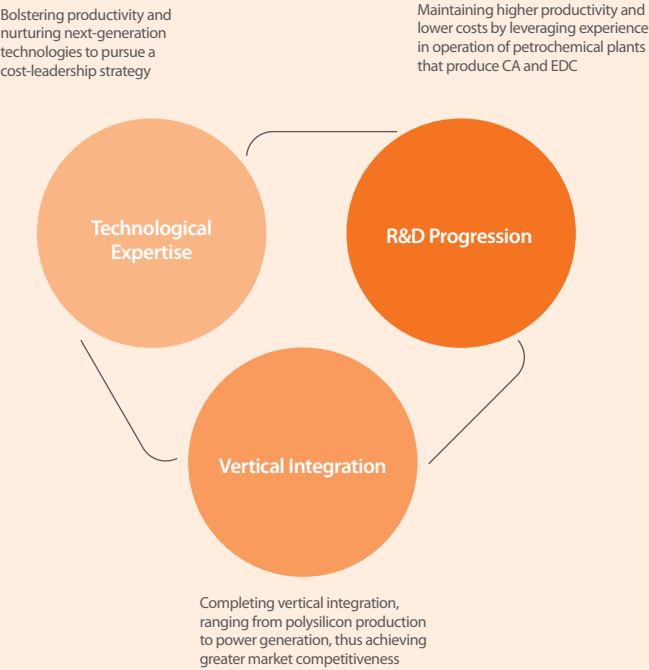
5 Polysilicon Business

Polysilicon is the core basic material in photovoltaic production. In particular, the market for high-purity polysilicon is limited to those possessing competitive processing technologies and ample liquidity against high technological barriers and initial investment costs. Hanwha Chemical has acquired Hanwha Q CELLS, the world’s leader in photovoltaic cells, followed by the launch of polysilicon production in 2014.

Business Milestones

- 2010 Acquired Solarfun Power Holdings, now renamed Hanwha Q CELLS, to enter the photovoltaic business, and shares in 1366 Technologies to develop technology for direct wafers
- 2011 Established Hanwha Solar America and launched Korea’s first photovoltaic R&D center at Silicon Valley
- 2011 Entered the photovoltaic power generation business by establishing Hanwha Q CELLS Korea
- 2011 Acquired shares in TenKsolar to develop technology for smart photovoltaic modules, and shares in Crystal Solar to develop technology for epi-wafer
- 2012 Acquired Q-CELLS in Germany, ranked as the world's third photovoltaic business
- 2014 Commenced the commercial production of polysilicon from Yeosu Plant
- 2015 Integration of Hanwha Q CELLS and Hanwha SolarOne, ranked as the world’s top with 4.2GW of production capacity

Enhancing Polysilicon Business Competitiveness



Introduction to Yeosu Polysilicon Plant

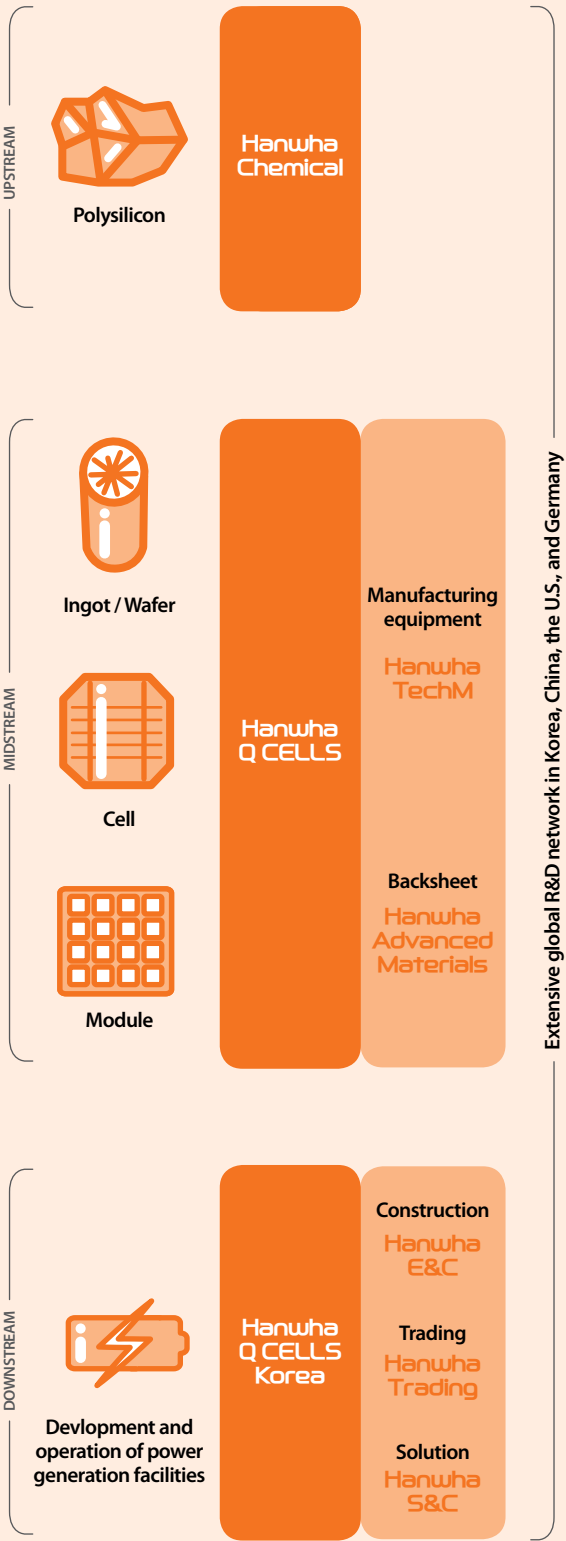
	Details	Remarks
Product	Polysilicon	Solar Grade
Technology	Siemens	-
Capacity	15,000 MTA	Commercial production commenced in 1Q 2014 Debottlenecking in 2015
Location	Yeosu National Industrial Complex	Utility and raw materials are supplied from Yeosu Plant



Hanwha Group's Complete Vertical Integration of the Photovoltaic Business

Yeosu Plant commenced the commercial production of polysilicon in 2014. In so doing, Hanwha Group completed the vertical integration of its photovoltaic business, ranging from basic raw material production to end products and services.

Hanwha Group's photovoltaic business is emerging as a world leader through its extensive global network in Europe, Asia, Australia, and the US, as well as the sales network of Hanwha Q CELLS in Europe.



To become a leader in the chemical industry with creativity and competitiveness, Hanwha Chemical devises strategies for sustainability management that focus on reliable products and services, lead to investment and confidence from shareholders, and inspire pride in employees.

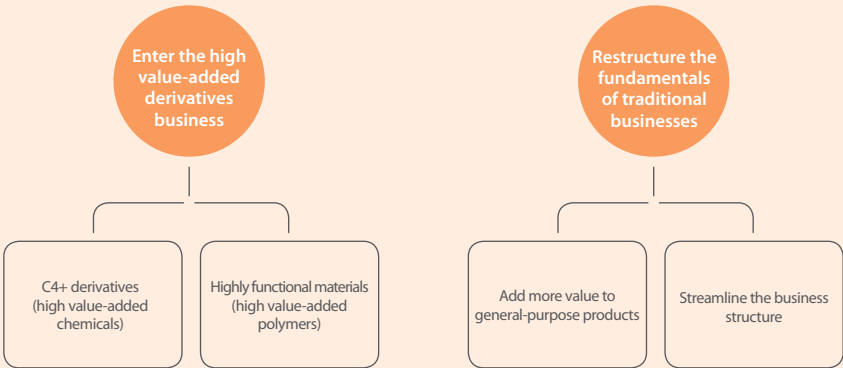
Vision and Strategic Direction

Vision

"Be Creative and Competitive toward a Chemical Leader"



Strategic Direction



Declaration for Sustainable Growth

As a forward-looking, socially responsible company, Hanwha Chemical requires all employees to observe six key principles in their daily operations. These principles reflect the Company's business objectives and management philosophy:

- We conduct all business to ensure social and environmental sustainability and benefit;
- We respect regional characteristics and contribute to local development;
- We address the wishes of stakeholders and improve in areas where they raise concern;
- We meet our duty to law and ethical standards sincerely and fairly;
- We respect the importance of environmental management and comply with environmental, safety, and health guidelines;
- We share with communities and contribute through social activities with pride and responsibility.

Organization of Sustainability Management

The Brand Strategy Team, a part of the Management Strategy Division, supervises the economic, social, and environmental aspects of sustainability management Company-wide in line with its mid- and long-term vision. The team works in collaboration with other units also focusing on sustainability management.

Key Directions of Sustainability Management

Hanwha Chemical conducts sustainability management with a view toward economic, social, and environmental goals, while also reflecting the diversity of opinions from stakeholders.

Classification	Directions	Organization
Environmental Management	<ul style="list-style-type: none">• Diversify the business portfolio through eco-friendly and future-oriented approaches• Continuously improve the stability and eco-friendliness of products• Foster competitiveness in renewable energy technologies• Provide environmental, safety, and health management systems	<ul style="list-style-type: none">• Production Team• R&D Center• Environment Safety Team
Talent Management	<ul style="list-style-type: none">• Implement fair, systematic HR development• Adopt systems to encourage work-life balance• Empower female employees• Improve organizational culture through the Great Work Place principle	<ul style="list-style-type: none">• HR Planning Team• HR Development Team
Volunteer Management	<ul style="list-style-type: none">• Set clear objectives for social outreach activities• Conduct social contribution programs to engage local communities• Promote employees' voluntary and active participation• Continue in social contribution activities customized for beneficiaries	<ul style="list-style-type: none">• General Affairs Team• Corporate Planning Team
Partnership Management	<ul style="list-style-type: none">• Grow the Company's business with customers• Establish partnership based on growth and trust• Provide education and other supports for partner companies	<ul style="list-style-type: none">• Sales Teams• Communication Team• Procurement Team
Integrity Management	<ul style="list-style-type: none">• Comply with laws and market regulations• Conduct periodical education programs and appoint fair-trade compliance officers• Develop ethical guidelines and whistle-blowing system	<ul style="list-style-type: none">• Sales Teams• Communication Team• Legal Affairs Team

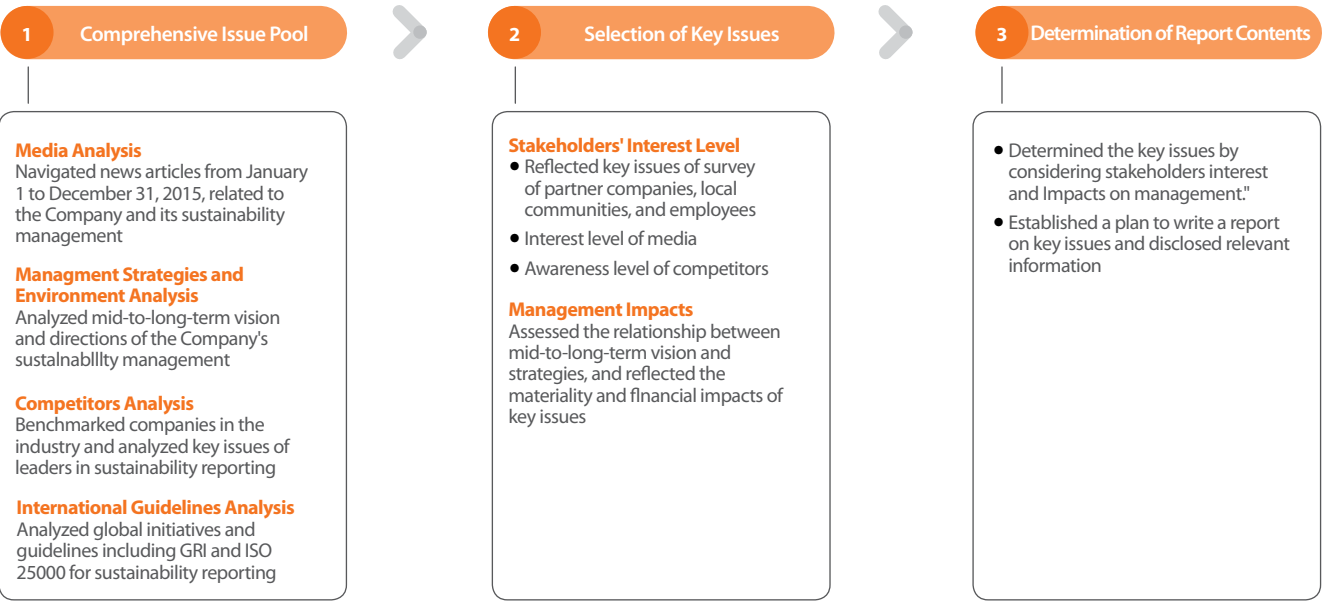
To share sustainable growth with its stakeholders, Hanwha Chemical is reducing environmental impact, promoting workplace safety, securing sustainable competitiveness, contributing to regional development, nurturing human resources, building strong partnership, and enhancing integrity management.

Hanwha Chemical is shaping a bright future with its stakeholders as it meets its major responsibilities and addresses key issues of interest to them and the potential impact of those issues on management.



To determine the contents of this 2016 sustainability report, Hanwha Chemical has identified core issues through analysis of the internal and external business environment, current management issues, and other matters related to the company. Abiding by GRI Sustainability Reporting Guidelines, the Company conveys substantive, accurate information through full screening and any necessary supplementation.

Reporting Process

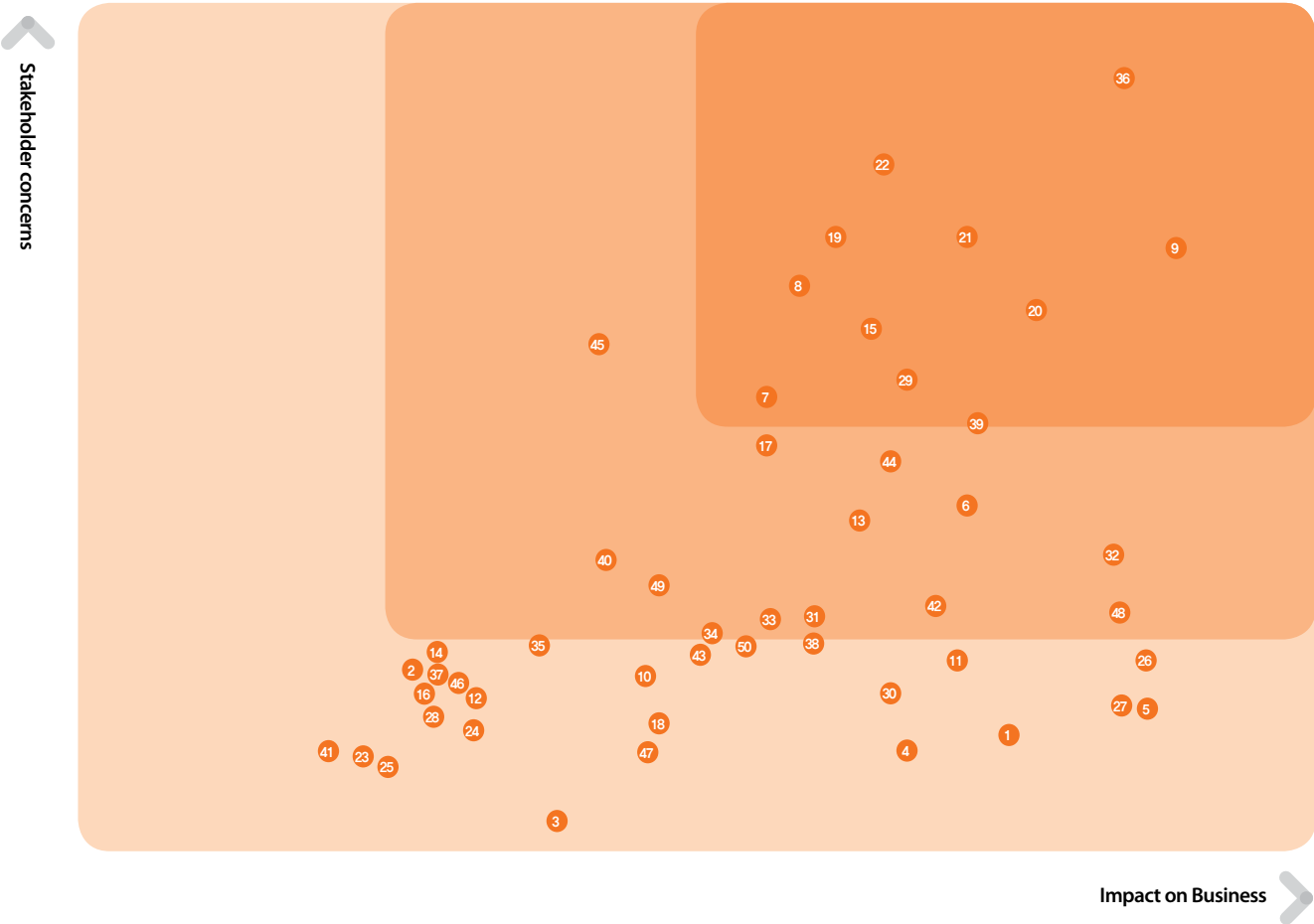


1. Comprehensive Issue Pool

Hanwha Chemical confirmed a pool of issues that include key issues its stakeholders are interested in and potential impacts on its management through analysis on data of key stakeholders and management.

2. Selection of Key Issues

Hanwha Chemical selected key issues from the pool of issues, using a range of measures to assess levels of interest to stakeholders and degree of business impacts.



No.	Issues
36	Workplace safety and incidents prevention
9	R&D competence
22	Eco-friendly products and services development
21	Minimization of hazardous chemicals discharge
20	Minimization of discharges of water, soil, and air pollutants
19	Monitoring of GHGs emission
15	Water treatment, including intake sources and discharge areas
17	Climate change risk management
8	Stable management performance
45	Infrastructure investment and sharing growth with regional communities
29	Employee education
7	Business expansion for economic value creation
39	Growth-sharing Policy and related activities
44	Strategic social contribution activities
6	Expansion into new global markets and plants
13	Energy consumption management and use of renewable energy
32	Employee welfare programs
40	Fair trade and compliance with related regulations
49	Sustainable customer relationship and satisfaction
42	Ethical management and internal control
33	Job creation and stability
48	Company reputation and brand value
31	Parental leaves and workplace childcare facilities
34	Appropriate employee compensation plans
38	Selection and assessment of sustainable supply chain

No.	Issues
35	Embedding culture of safety and health into the organization
50	Safety and health for product and service development
14	Energy-saving product and service development
43	Anti-corruption guidelines and activities
11	Material consumption management, including use of recycled materials
26	Anti-discrimination, based on gender, age, minority, and ethnicity
2	Clear disclosure of BoD compensation
10	Corporate value creation through management innovation
37	Risk management system for supply chains
46	Contribution to regional economic development
16	Ecosystem and biodiversity surrounding plants
30	Labor unions participation and operation
12	Expansion of recycled materials
5	Integrated risk management system
27	Fair performance evaluation system
28	Financial supports and career development after retirement
18	GHGs reduction and participation in GHGE trading scheme
24	Environmental strategies, policies, and systems
1	BoD composition and operation
4	Sustainability issues identified through stakeholder engagement
41	Employee political patronage management
23	Eco-friendly transport with higher fuel efficiency
47	Eco-friendly, socially-responsible product and service development
25	Due diligence at workplaces and regions for human rights protection
3	Stakeholder communication channels

3. Core Report Contents and DMA

The contents of this report are determined based on the key issues. Other issues are also included in this report. Further information are provided in the company website (hcc.hanwha.com), or annual reports disclosed at DART (dart.fss.or.kr).

Core report contents*	Title	GRI	Page
<ul style="list-style-type: none">Minimization of hazardous chemicalsMinimization of discharges of water, soil, and air pollutantsMonitoring of GHGEWater treatment, including intake sources and discharge areasClimate change risk management	Reducing environmental impact	Energy, discharge, water, waste	25 - 31
<ul style="list-style-type: none">Workplace safety and incidents prevention	Promoting workplace safety	Industrial safety and health	32 - 35
<ul style="list-style-type: none">R&D competenceEco-friendly product and service development	Securing sustainable competitiveness	Products and services	36 - 39
<ul style="list-style-type: none">Infrastructure investment and sharing growth with regional communitiesStrategic social contribution activities	Contributing to regional development	Regional communities, indirect economic effects	40 - 43
<ul style="list-style-type: none">Employee education	Nurturing human resources	Training and education	44 - 49
<ul style="list-style-type: none">Growth-sharing Policy and related activitiesFair trade and compliance with related regulationsSelection and assessment of sustainable supply chainSustainable customer relationship and satisfaction	Building strong partnership	Investment, funding activities	50 - 53
<ul style="list-style-type: none">Ethical management and internal control	Enhancing integrity management	Anti-competitive behavior	54 - 57

Disclosure on Management Approach (DMA)

Title	Importance of Issues	Responding Activities	Plans
Reducing environmental impact	To address issues arising as the major products of the company are related to chemical substances as a petrochemical company	<ul style="list-style-type: none">Control of air pollutant dispersionOperation of an on-site water analysis laboratoryAsbestos-free workplacesChemical incidents emergency responsesGHGs response	Implementing a world-class, integrated chemical management system for efficient data gathering and energy consumption control
Promoting workplace safety	To cope with public awareness of workplace safety and employee health	<ul style="list-style-type: none">Fire fighting programs and eventsSharing growth with and safety awareness of partner companiesExpanding healthcare activities of employees	Holding more employee education programs and informal meetings with partner companies
Securing sustainable competitiveness	To secure sustainable business growth through customer- and eco-friendly product development	<ul style="list-style-type: none">Analysis on substances restricted and TVOCsDevelopment of eco-friendly plasticizers and PSRs	Exploring more eco-friendly technologies and products
Contributing to regional development	To fulfill corporate citizenship in line with the group's social contribution philosophy through active charity activities	<ul style="list-style-type: none">Social welfare improvement, cuture and arts patronage, region-friendly activities	Expanding region-friendly social contribution activities, and communication channels
Nurturing human resources	To implement scientific and professional talent development programs for global expansion and business diversification strategies	<ul style="list-style-type: none">HR recruit and development programsEmployee welfare programsLabor-management cooperation	Promoting labor-management communication to improve working environment and performance
Building strong partnership	To build mutual trust with partner companies by promoting fair trade and assisting their business growth	<ul style="list-style-type: none">Procurement policy, supplier evaluation system improvementSharing growth with patner companiesQuality management and CS process	Building more mutually beneficial relationship with partner companies through management supports and educations
Enhancing integrity management	To ensure transparency and fairness in management to achieve the company's goal becoming a leader in the global chemical industry	<ul style="list-style-type: none">Fair trade practicesEthical management and internal control	Promoting ethical management through continual educations

Stakeholder Communication

Hanwha Chemical develops close cooperative relationships with stakeholders, including customers, shareholders, suppliers, non-profit organizations and government agencies, and regularly provides them with relevant information through its sustainability reports, website and social media. The Company provides the communication channels listed below in order to reflect the opinions of stakeholders on sustainable development.

Key Communication Channels



- Shareholders and Investors**

 - General shareholders' meetings
 - Annual reports, disclosures
 - IR meetings
 - IR presentations
- Employees**

 - GWP activities
 - CEO's presentation
 - Employee meetings
 - Labor-management Council
- Partner and Customer Companies**

 - Best Partners program
 - Suppliers' CEO meetings
 - Shared Growth activities
 - Technology exchange sessions
- Local Communities and Environmental Organizations**

 - Volunteer activities
 - Environmental preservation
 - Safety Council
- Government and NGO's**

 - Periodical and ad-hoc responses to key industry issues
 - Voluntary participation in social pacts
 - Joint research

Hanwha Chemical annually convenes a general meeting of shareholders and investors to inform them of its current business status and financial performance. The Company provides time for shareholders to present their opinions on key agendas. Through periodic IR sessions and analysis, as well as telephone consultations and data updates, it discloses key management performance data.

Hanwha Chemical encourages strong internal communication, collecting creative ideas from employees through its own *Great Work Place* initiative. The Company also maintains careful, cooperative labor-management relations through its labor-management council and resolves employee grievances through anonymous online bulletin boards.

Through its Best Partners program, Hanwha Chemical assists partner companies in their technology development, quality management, and grievance resolution. Chaired by the CEO, the Company conducts informal meetings with the CEOs of partner companies to address their problems and seek mutually beneficial solutions.

Hanwha Chemical provides a range of socio-cultural assistance for socially marginalized groups. Working with local communities, the Company conducts periodic environmental preservation activities, thus taking the lead in maintaining a clean local environment.

In addition to its active compliance with laws, Hanwha Chemical proactively responds to key industry issues through meetings and voluntary agreements with government and non-governmental organizations.

Economic distribution

Shareholder dividends, and interests for creditors and lenders	Employee salaries, and benefits and compensation	Payment and expenses for partner companies	Donation and fundraising for regional communities	Tax payment
<ul style="list-style-type: none">Total cash dividends: KRW 24.5billion	<ul style="list-style-type: none">Wages: KRW 189.8billionProvision for severance benefits: KRW30.0billionWelfare expenses: KRW 35.5billion	<ul style="list-style-type: none">Total purchase : KRW 796.3billion	<ul style="list-style-type: none">Donations: KRW 3.9billion	<ul style="list-style-type: none">Taxes: KRW 47.9billionIncome tax and dues: KRW 29.0billion



Reducing Environmental Impact

25 Air Pollution Protection 27 Water Conservation 28 Waste Treatment and Soil Protection
 29 Management of Chemicals 30 Responses to Climate Change

Air Pollution Protection

As a responsible member of the community, Hanwha Chemical pursues strict management standards and systems to minimize emission of environmental pollutants and chemical substances.

* The Telemetry System (TMS) is an automatic, around-the-clock air pollution treatment system that allows the Company to measure levels in the concentration of air pollutants and to keep related data at an air-pollution control center. Yeosu Plant currently operates three TMSs and plans to launch a new OXY-5 process.

* The LDAR (Leak Detection And Repair) system is designed to periodically measure chemicals generated from non-point pollutant sources, including valves, flanges, and pumps at production facilities. In the event of out-of-range emissions, the system repairs emitting facilities. The Yeosu Plant currently operates an LDAR system for 6 production teams and more than 110,000 points.

Air Pollution Reduced through Pollutant Sources Management

The Company's Yeosu Plant produces hydrochloric acid through the thermal cracking of chlorinated organic wastes. During the scrubbing process in its production of hydrochloric acid, the plant periodically employs TMS* to monitor the concentration of pollutants. The plant also uses barcode tags and implements LDAR* systems to track suspicious non-point sources of pollutants that may generate volatile organic compounds (VOCs) and hazardous chemicals. Through this periodic monitoring, the plant maintains its emissions of air pollutants at 30% below legal maximums.

Control of Air Pollutant Dispersion

Yeosu Plant has signed a cooperation agreement with Jeollanamdo Provincial Government to reduce air pollutants at Gwangyang Bay area. The plant has also installed an equipment to remove fume generated during the tank truck distribution of PVC and CA products, and changed loading system from top to bottom. In addition, the plant upgraded chemical sampling equipments of chlorine, VCM, EDC and other hazardous air pollutants to maintain sealed. Particularly, the sealing system of compressors and pumps are replaced to double type to reduce the amount of air pollutant dispersion.

Hazardous Air Pollutants (HAPs) Management

Yeosu Plant has researched air pollutant dispersion sources by process, and built the inventory of hazardous air pollutants (HAPs). The plant also appoints a dedicated HAPs manager for each process, and seperately records and intensivley manages HAPs emission by manufacturing facility in compliance with related regulations. Additionally, the plant will implement an integrated HAPs management and monitoring system in 2016.



Operation of the LDAR* System

Hanwha Chemical has fully implemented the LDAR* system in all operations for quantitative management of all sources of hazardous chemical substances. Through this system, the Company manages non-point sources of pollution in ways that reduce the underlying factors of exhaust emissions.

Air TMS Upgraded

Hanwha Chemical has fully implemented TMS, a 24-hour automatic air pollution monitoring system, for chimney, and upgraded their security of database levels.

Regional Air Pollutant Analysis and Prevention

Hanwha Chemical analyzes air pollution levels at monitoring points, which are precautionary areas in and around its plant, on a quarterly basis. The Company also prevents leakage of air pollution through 24/7 monitoring detectors at its plants. Ulsan Plant has been selected as a pilot plant by the Ministry of Environment for selfassessment and digital record-keeping of air pollutants. To minimize odors, the plant has provided a special map that includes the location of odor sources, and it proactively eliminates odor-causing substances through patrol and inspection. Additionally, the plant will implement an integrated air pollutants management and source monitoring system in 2016.



Water Conservation

* GC-MS: Gas Chromatography – Mass Spectrometer

Wastewater Treatment

To reduce risk factors caused from the violation of environmental regulations, all wastewater generated at the Ulsan Plant is treated primarily at on-site contamination prevention facilities; it is then transported to sewage treatment facilities within the industrial complexes where it is located. Ulsan Plant 1 transports and reprocesses wastewater at the Yongam Wastewater Treatment Plant, which has been operated by the government since February 2011.

Wastewater Concentration Controlled by Water Analysis Laboratory

Yeosu Plant operates an on-site water analysis laboratory to check wastewater parameters such as pH, COD, and SS in a daily basis for each process. Additionally, 11 major hazardous wastewater substances are analyzed by GC-MS* equipments that allow the plant to measure and maintain concentration levels of the wastewater discharges at 30% below those required by the regulation. CCTVs was also installed at waterway to manage non-point pollutant sources inside the plant. The plant monitors water quality with pH meters, and sends detected hazardous substances to wastewater treatment facilities through sumps, preventing the leak of the hazardous substances off the plant.

Wastewater Recycling and Effluent Reduction Activities

The Yeosu Plant actively explores and develops a range of methods for the recycling of water and the reduction of effluent. Wastewater discharging during PVC production process is reused in ECH reaction tower, comprising 18% of the total discharge amount. In addition, the plant has streamlined wastewater cooling system and other processes to increase the recycling amount. The rinsing method of PVC reactors is also upgraded from high-pressure to automatic, reducing the amount of water usage and effluent. VCM production team has implemented wastewater treatment system at incinerator to remove sodium thiosulfate to prevent chloroform, a major water contamination substance. As a result, the plant maintains the chloroform concentration levels at 10% below those required by the regulation. In 2016, OA production team plans to complete a system that decreases effluent loading rates to reduce the chemical oxygen demand(COD) and suspended solid (SS) parameters by evaporating the effluent and seperating supernatant from precipitate.

Improvement of the Local Environment

With participation from all teams, the Yeosu Plant actively cleans neighboring streams through a volunteer program called “One Company, One Stream.” In addition, the plant participates in the spring-cleaning of the Yeosu National Industrial Complex and Yeosu-area cleaning activities in cooperation with environmental NGOs, making every effort to improve the local environment together with regional communities.

In addition, the Ulsan Plant provides leadership toward eliminating pollutants from nearby streams and beaches. The Ulsan Plant also cooperates with a local NGO to build floral gardens, and it conducts a volunteer activity to preserve wetlands.



Due Diligence with Outsourced Recycling Contractors

To maximize waste recycling, Hanwha Chemical continuously improves its production processes and develops new business relationships with outsourced recycling providers. Every year, the Company conducts due diligence with its contractors to fulfill legal requirements for waste treatment.

Periodic Assessment of Soil Contamination

Hanwha Chemical prevents soil contamination through thorough periodic assessments of its manufacturing facilities. The Company identifies BTEX (benzene, toluene, ethylbenzene and xylene) and TPH (total petroleum hydrocarbons) from the soil surrounding storage tanks at designated sampling points, pursuant to Article 13 of the Soil Environment Conservation Act. These soil contamination assessments and management include neighboring regional communities and company housing facilities.

Liquid Waste Management Handbook

The Ulsan Plant distributes handbooks for the drivers of waste transport vehicles. These handbooks include safety instructions for the transport of liquid waste and advice on responding to accidents. The plant fully complies with a regulation that prohibits the ocean discharge of offshore waste, which took effect at the beginning of 2016.

Outsourcing Relationships Developed for Waste Recycling

Each year, the Yeosu Plant conducts due diligence with its outsourced recycling providers to fulfill legal requirements for waste treatment. In addition, items for recycling are identified, and new outsourcing relationships for waste collection and treatment are developed to fulfill the Company's eco-friendly management objectives by boosting resource recycling. In 2015, the plant collected and reused recyclable used wooden pallets through outsourced recycling providers.

Waste Reduction Programs

The Yeosu Plant actively explores and develops various methods for the reduction of waste. The PVC production team has upgraded rinsing methods at PVC reactors from high-pressure to automatic, in turn reducing PVC scrap remaining in the reactors by 396 tons compared to 2014. The ECH production team has also added variable-frequency drive inverters at quicklime agitators and installed disk-type blades to boost quicklime hydration speeds, thereby reducing waste from quicklime reactions by 101 tons per year.

Asbestos-free Workplaces

The Yeosu Plant conducts asbestos assessments for the entire production process, including buildings, and builds maps for the presence of asbestos based on these assessments. In addition, the plant has continued to remove asbestos since 2015, when it signed a short-term contract with outsourced, government-accredited asbestos demolition services. The plant plans to remove all asbestos at workers' residences by 2016, followed by all entire manufacturing facilities by 2018, thus creating a fully asbestos-free workplace.

On-Site Assessment for Soil Contamination

The Yeosu Plant conducts periodic on-site assessments and non-destructive tests for soil contaminants at storage and treatment facilities, preventing soil pollutants at the plant. In particular, major contaminated soil treatment facilities are strictly managed through indirect leak tests and the self-assessment of soil contamination levels.

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Enhanced Response Plans for Chemical Incidents

Through thorough assessment of each process at treatment facilities, Hanwha Chemical provides plans for the mitigation of external impact from chemical incidents. The Company uses assessment results to improve scenario-based training and contingency plans, and it conducts emergency drills on a regular basis.

Stricter Chemical Management Guidelines

Managers at the Yeosu Plant conduct weekly self-assessments for each process in the treatment of hazardous chemicals. The plant also supplies protective equipment for every individual to use during treatment of hazardous chemicals, and it deploys resources for disaster prevention near high-risk equipment and facilities. In addition, the plant periodically rates facilities and continually improves its erosion control measures, thus augmenting the safety of its chemical treatment equipment. The plant also holds careful checkups through non-destructive testing, including visual inspections. In line with the Company's maintenance plans, old facilities which may be susceptible to damage and leakage are replaced as they reach the end of their expected life spans.

Streamlining New Chemicals Information Gathering System

Yeosu Plant has built database for all chemicals it uses, produces, and sells. The plant has also streamlined an integrated chemical product lifecycle management system which allows the plant easy access to information on hazardous products, manage a Material Safety Data Sheet (MSDS), and maintain information on materials in the supply chain.

To preview new materials prior to their use, the plant convenes a Reactive Chemicals Subcommittee to deliberate on new materials and to approve the use of these new materials. Only materials that are approved by the subcommittee are used in the plant. During procurement, suppliers must provide full information about chemical substances, and plant administrators must preview and verify these procedures before approving final purchase, thus strictly managing the overall purchase process.

Chemical Incidents Emergency Responses

The Yeosu Plant has expanded its detection facilities, CCTVs, fire extinguishers, and emergency resources for hazardous chemical spills. The plant also provides countermeasures for chemical incidents at treatment facilities for hazardous chemicals, and it is investing to improve its incident response plans, with full improvements to be implemented by 2019. In addition, the plant has established emergency plans that include the assessment of potential risk factors; these assessments are reflected in periodic scenario-based training sessions and contingency plans.

Substances Restricted Domestically and Overseas

To comply with both domestic and overseas environmental regulations, including REACH*, RoHS*, GHS*, and K-REACH, Hanwha Chemical provides an integrated chemical product lifecycle management system to prevent health risks to employees and minimize environmental impact.

* REACH is the EU's new chemical management program. It includes the registration, evaluation, authorization, and restriction of chemicals according to amount and toxic level.

* RoHS (Restriction of Hazardous Substances) regulates six hazardous materials used in the electronics material industry, including Pb, Hg, and Cd.

* GHS (Global Harmonized System) is a globally accepted labeling system for chemicals according to toxic level.



Pursuing its “2020 Mid-to Long-term Master Plan for Low-carbon, Green Growth”, Hanwha Chemical identifies risk and opportunity factors each year, thus proactively coping with the impact of climate change.

Strategies for Climate Change Response

To proactively deal with global climate change and participate in emissions trading schemes, Hanwha Chemical has introduced a company-level organization dedicated to climate change response. This organization preemptively identifies risk and opportunity factors and devises strategies to address management issues related to climate change. It also shares information on these climate change issues throughout the Company, thereby encouraging employee participation and promoting awareness. As part of the Group’s task force for emissions trading, the organization also assists in the enactment and execution of its Group-wide guidelines.

Mid-to-long-term Vision and Target

Vision : To become a Green Global Chemical Leader through green, sustainable growth
Target : To participate effectively in emissions trading schemes through low-carbon systems and technologies

Strategies and Major Tasks

Strategies	Major Tasks
Low-carbon infrastructure	<ul style="list-style-type: none">Manage greenhouse gas (GHG) reduction objectives on a long-term basisImplement strategies for emissions trading schemesDevelop a special organization to address low-carbon issues
GHG reduction activities	<ul style="list-style-type: none">Implement GHG reduction tasksAttract external funding for GHG reductionLay infrastructure for GHG management
External partnerships	<ul style="list-style-type: none">Enhance marketing activities promoting low-carbon policiesImplement external carbon offset projectsPrepare for government policies

Activities in Response to GHGs

Carbon Disclosure Project (CDP)
The Carbon Disclosure Project is a global program that encourages major corporations to publish their carbon management strategies and data to institutional investors. Hanwha Chemical has participated in this project since 2009. The Company was selected as an exemplary participant representing Korea’s raw materials industry in 2011, and it received the Carbon Management Special Award in 2014 as one of three companies with the greatest improvement in disclosure scores.

Carbon Trust Standard (CTS)
The Carbon Trust Standard (CTS) is a world-renowned certification program introduced in 2008 by Carbon Trust Certification, a consulting agency for climate change response. This certificate is designed for companies that show excellence in GHG reduction and other climate change responses through scientific energy management systems. The certification is currently granted to 800 global corporations and nine Korean companies. In August 2013, Hanwha Chemical became the first Korean chemical company to obtain CTS certification.

Participation in the Emissions Trading Scheme
Abiding by the greenhouse gas emissions (GHGE) trading scheme, the government allocates GHGE allowances to companies in order to let them trade emission rights depending on excess or deficiency compared to allocated allowances. This scheme was effective for Korea in 2015. To prepare for its introduction in Korea, Hanwha Chemical has participated in a series of pilot projects organized by the Ministry of Trade, Industry and Energy. In the second half of 2011, the Company took part in the policy-making process of the government and accumulated practical experience and capabilities in GHG reduction. Furthermore, the Company participated in the 2012 and 2013 pilot projects, and was recognized for its excellence as a result of 2013 evaluation. In addition, the Company has identified mid- to long-term reduction goals for 2020, and it is providing action plans for the GHGE trading scheme and other energy-saving strategies. Thus, the Company is playing an active role in the GHGE trading scheme in both domestic and overseas carbon markets.

Hanwha Chemical Greenhouse Gas and Energy Management System
Hanwha Chemical has introduced the Hanwha Chemical Greenhouse Gas and Energy Management System (H-GEMS), an integrated system that boosts effectiveness in analyzing current status and performance. The H-GEMS allows the Company to manage and search energy data gathered from all of its manufacturing facilities, which are linked to its existing internal system. Through this data, the system enables the Company to scrutinize its daily performance with regard to GHG and other energy-saving issues. The Company also utilizes the data in various ways to improve operations. Furthermore, as another measure to prepare strategically for the arrival of the emissions trading scheme in Korea, the Company has included GHG reduction fulfillment levels as a criterion for the individual Key Performance Indicators (KPI) of executive officers and department heads.

GHG and Energy Reduction

Hanwha Chemical invested approximately KRW 7.2 billion in 2014 to enable low-carbon production and to maximize energy efficiency, thereby reducing GHG emissions and energy consumption by 32,443 tons and 15,406 TOE, respectively.

Greenhouse Gas Emissions (Unit: 1,000 Ton CO ₂ eq)			
Classification	2013	2014	2015
Direct	315	347	322
Indirect	1,808	2,084	2,133
Total	2,123	2,431	2,455

Key Climate Change Responses



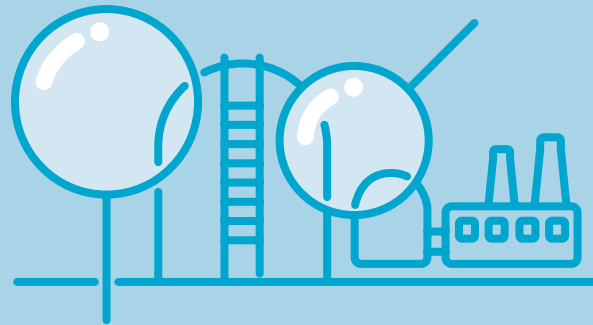
Membranes and Electrodes in Electrolytic Cells Replaced
Electrolytic cells are used in the production of chlorine and caustic soda through the electrolyzing of salt water. Electrolytic cells comprise the largest portion of Hanwha Chemical’s total electric power consumption. Therefore, the Company is streamlining its electrolyzing processes to optimize energy use, replacing obsolete equipment to bolster efficiency, and developing low-voltage electrodes.

Installation of LED Lighting
More than 20,000 interior lights at the Yeosu Plant and Ulsan Plant have been replaced with energy-efficient LED lamps. These LEDs significantly reduce energy consumption, with a higher efficiency than conventional incandescent and fluorescent lamps in converting electric energy into light energy.

Other Energy-saving Activities
Hanwha Chemical is expanding energy-efficient heat exchangers, checking coolant and heat source water, and reusing waste heat generated by the neighboring facilities of other companies for its high-pressure steam.

Promoting Workplace Safety

33 Environment, Safety & Health Strategy 34 ESH Activities at Plants



Environment, Safety & Health Strategy

Hanwha Chemical puts environmental and safety protection policies into practice through a world-class system, seeking sustainable growth as part of its social contribution.

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ECO-YHES

In 1991, Hanwha Chemical became Korea's first corporation to promulgate a set of enterprise-wide health, environment, and safety (HES) guidelines known as "ECO-YHES." By doing so, the Company established HES as one of its key management philosophies. ECO-YHES stands for "Eco-friendliness and Yes! Health, Environment, and Safety." This title conveys the Company's commitment to sustainable growth and social responsibility as a unique value in corporate management.

Declaration of ESH Management

As we acknowledge environment, safety, and health as part of our intrinsic corporate value, we will make concerted effort toward continual business growth while fulfilling our social responsibilities as follows:

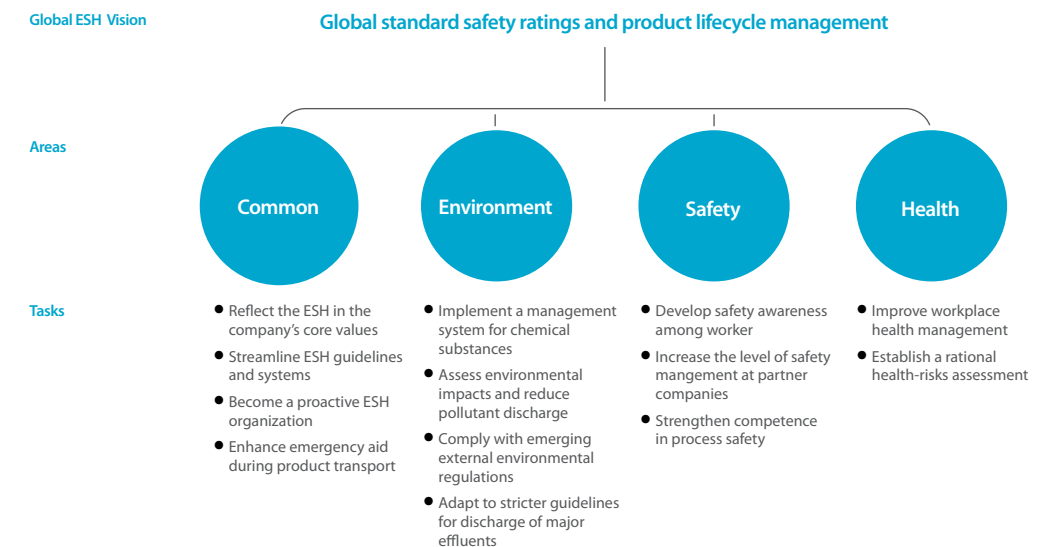
1. We shall set environment, safety and health as a top priority in our management, and enhance related management systems and performance;
2. We shall increase efficiency in resource and energy consumption and reduce pollutant discharge through fundamental control of all resources and energy used in business processes;
3. We shall promote employee health and minimize potential incidents and property losses through safe work environments and continual improvement;
4. We shall embed the values of environment, safety and health in our corporate culture, thereby fulfilling the expectations of our stakeholders, including employees, local communities, customers, and the government, and we shall encourage them to comply with related regulations.

ESH Committee

Headed by the CEO and with participation from other senior executives, an Environment, Safety and Health (ESH) Committee convenes every quarter to address key ESH issues, establish action plans, and deliberate on company-wide fulfillment.

Global ESH* Strategies

* ESH stands for environment, safety, and health



To keep the workplace pleasant and safe, Hanwha Chemical instills a culture of health and safety in the organization, with a focus on prevention by encouraging incident-free operations. It also extends this culture of safety to its partner companies, with training that leads to a higher awareness of safety management.

Ulsan Plant

Ten Cardinal Rules of Safety

Hanwha Chemical has provided ten Cardinal Safety Rules for employees, thus embedding a culture of safety in its organization. In particular, Ulsan Plant has introduced a three-strikes program and other penalties imposed for those who violate the rules.

Sharing growth with partner companies and safety awareness

In its efforts to develop along with partner companies, the plant conducts a health and safety (HS) cooperation program, which encourages them to maintain their safety management at the same level as the Company. The plant also assists partner companies in building their own safety management programs including assessemnt certifications. Additionally, the plant monitors the safety compliance of partner companies through meetings with their health and safety managers.

Fire fighting programs

In addition to its regular measures to prevent fire, explosions, and leaks, the plant minimizes losses incurred from such accidents through prompt countermeasures. As practice for these countermeasures, the plant held an emergency-response competition for employees in December 2015, where they practiced their skills at fire-fighting by deploying hoses and spraying water from fire hydrants, breathing through respirators, delivering cardiopulmonary resuscitation (CPR), and using automatic defibrillators (AED). The plant also invited experienced professional firefighters to demonstrate their skills during training sessions at the plant.

Safety awareness

The plant helps employees understand safety matters and identify risk factors through updates to the contents of the Safety Pop-Up* every month, and through newsletters. All new recruits at manufacturing facilities are required to wear special helmets that distinguish them from more experienced crew. The plant also increases incident management efficiency through Touch & Call* activities and prevents a recurrence of accidents through training programs and plans.

* The Safety Pop-Up appears during logins to the company intranet to access employee bulletin boards. It is updated every month to raise employee awareness about safety risk factors.
* Touch & Call is a set of activities for factory workers to practice safety management before they begin their daily operations, with all workers gathering before their shifts begin. Activities include instructions from a team leader on major tasks and potential risks, followed by the chanting of a safety slogan in unison.

Industry-academic cooperation

Working with the University of Ulsan, the plant signed an industry-academic cooperation agreement on August 11, 2015, to nurture ESH specialists tailored to different workplaces. Under the agreement, every six months from January 2016 to June 2020, Hanwha Chemical selects two students majoring in safety engineering and provides them with a six-month internship. The company also plans to provide financial support to the university amounting to KRW 250 million by 2020.

Health and safety task force

For three months from August to October 2015, the plant convened a task force to deliberate over plans to improve ESH management, with topics including organization, system, executive ability, education, outsourcing relations with outsourced companies, and employee health. In particular, the TF amended the company's ESH guidelines to bring them into line with recent changes in regulations and worksite conditions. Through group discussions at worksites, the plant also promoted safety awareness among production line employees.

Employee health

Through a variety of promotional campaigns, Ulsan Plant encourages all staff to reduce their body fat by three percent and to quit smoking and drinking. The plant also holds emergency aid education and training sessions that allow employees to practice cardiopulmonary resuscitation and prevent cerebrovascular illnesses.

A Team Creation

The Company has created Environmental Safety Unit under immediate control of the CEO, by seperating a technological role from Technoligical Environmental Safety Unit. Consisting of experts in various fields, the unit proactively addresses the Company-wide safety and environmental matters.



Yeosu Plant

Embedding a culture of safety

Yeosu Plant makes every effort to develop along with partner companies. These efforts include raising safety awareness. Through fair trade agreements and mutually beneficial partnerships, the plant assists partner companies with financial, technological, and assessment support to improve their safety and health management. In particular, the Growth-Sharing Fund has increased construction contract prices, expanded business support including system implementation, safety management, and mentoring services, and offered incentives for selected outstanding companies. The plant also shares information on risks and safety measures with partner companies and encourages them to comply with the Ten Cardinal Rules of Safety to develop accident-free workplaces.

- Growth-Sharing Fund
- A rated cooperation program
- Active communication through informal meetings, lectures, and safety education
- Assessments of work environments and support for health management

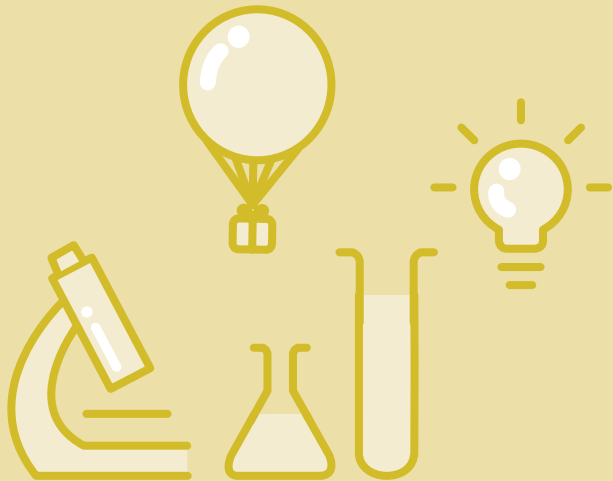
Health Management for Healthy Workplaces

Through the promotion of health management, the Yeosu Plant makes families healthier and happier, and the company becomes a more desirable place to work. More than twice a year, the plant assesses the environment surrounding the production of hazardous chemicals to prevent occupational and industrial illnesses. At least once a year, special health exams are provided for those who treat, manufacture, and restore hazardous chemicals. Every year, the plant also provides a 70-item comprehensive health screening for employees and their families. An on-site health center offers consultations and conducts blood tests to measure cholesterol levels.

- The plant operates a computerized program to develop a special health-management database, to keep individual exam records, and to consult with patients. The plant prevents occupational illnesses and maintains the health of its human resources through follow-up tracking programs for patients who have been recommended treatment.
- The plant prevents noise-induced hearing loss by providing a noise map, a graphical representation of the sound level for each production process, by conducting a scientific sensitivity analysis for facilities whose noise levels exceed legal requirements, and by supplying protective equipment. In addition, the plant minimizes the numbers of employees who are recommended treatment for hearing loss through special screening for hearing disorders.
- The plant intensively manages the incidence of hypertension, hyperlipidemia, and diabetes through regular job stress assessment and health care activities, including promotional campaigns that encourage all staff to quit smoking and drinking. In particular, each control room has sphygmomanometers for night shift workers, and the plant conducts touring medical consultations for them at least twice a week.



Securing Sustainable Competitiveness



Sustainable Technology Development

Hanwha Chemical R&D Center is laying the foundation for sustainable growth through exploration of new, future-oriented business ventures, including eco-friendly energy and proprietary technologies and products, in turn achieving our utmost goal of becoming a creative, competitive leader in the global chemical industry.

Daejeon R&D Center

The Daejeon R&D Center conducts research in nine major areas, including: the physical properties of polyethylene and research into polymerization catalysts; polymerizing and processing of PVC; manufacturing and researching of eco-friendly plasticizers; new energy materials, such as substances for storing hydrogen; and CNT and graphene applications. The Center is committing itself to becoming a leading chemical company by introducing exceptional technologies ahead of the times.

Eco-friendly R&D Expenditure (Unit: KRW in million)			
	2013	2014	2015
Eco-friendly R&D	2,688	2,938	3,615

Analysis of Eco-friendliness

The eco-friendliness of products is one of the most significant issues in sustainability management. Hanwha Chemical manages product quality through analysis of restricted hazardous substances (RoHS) and total volatile organic compounds (TVOC). In addition, the Company has obtained certification from the Korea Laboratory Accreditation Scheme (KOLAS) for its advanced hazardous materials analysis system. Analyses and assessments include the following:

Classification	Details
Analysis of Hazardous Substances	<ul style="list-style-type: none">• Six restricted hazardous substances (RoHS), including Pb, Cd, Cr, Hg, PBBs, and PBDEs• Nine phthalates*, including DMP, DEP, DIBP, DNBP, BBP, DEHP, DNOP, DINP, and DIDP• Other materials restricted upon request, such as heavy metals, in addition to those designated in the RoHS
TVOC Analysis and Evaluation	<ul style="list-style-type: none">• TVOC*, FA* and individual VOC* analysis, including 20L Small Chamber, Headspace, TD, Tedlar bags, HPLC, GC, GC, and MSD, for raw materials and finished products• TVOC discharged from and FA for raw materials and finished products for construction and materials used in automotive interiors

* Phthalates are chemical additives used in the softening of plastics
* TVOC stands for total volatile organic compounds
* FA stands for failure analysis
* Volatile Organic Compounds (VOC) cause photochemical smog by generating oxidizing materials such as ozone through photochemical reaction in the air.



Eco-friendly Plasticizers

Current Status

As the world’s awareness of environmental protection rises, the monitoring and regulation of chemical substances has become more stringent than ever. The market for PVC plasticizers* is also undergoing increased interest in eco-friendly materials. Along with this market change, the development of high-quality perfect non-phthalate plasticizers is urgently needed. In addition to general-purpose plasticizers, the development of specialty plasticizers that fulfill the needs of more segmented markets is indispensable in meeting current trends in the PVC market.

* A plasticizer is an organic substance added to plastics or paints for improving processability at high temperature.



Our Solution

In response to the growth of eco-friendly markets, Hanwha Chemical is developing eco-friendly perfect non-phthalate plasticizers. Following toxicity tests, it has completed verification and registration of these products as eco-friendly materials. The Company is also preparing for the commercial production of perfect non-phthalate plasticizers. To produce high-quality general-purpose and specialty plasticizers, the Company is also developing manufacturing processes and assessments of the stability and processability of these products.

Halogen-Free Compounds

Current Status

For compounds used in electronics, automobiles, and construction, the regulations on hazardous substances are stricter. Due to recent controversy concerning the environmental impact of halogen* elements, customer demand for halogen-free products is rising.

* Halogens are a group of five chemically related elements, including fluorine, chlorine, and bromine, which may be hazardous to the human body, especially in the endocrine system.



Our Solution

Hanwha Chemical produces high-performance, non-flammable* compounds which exclude halogen elements and other environmentally hazardous substances, including those designated in the RoHS*, heavy metals, phthalate*, and VOCs*.

* The Restriction of Hazardous Substances (RoHS) Directive was adopted by the European Union in February 2003 for Hg, Pb, Cd, Cr6+, PBB and PBDE.

* Phthalates are industrial chemical substances used as plasticizers, causing endocrine disruption.

* VOCs stands for volatile organic compounds.

* Non-flammable compounds improve the flame-retardant properties of plastics

Paste Resin for Eco-Friendly Wallpaper

Current Status

Eco-friendly additives with minimal amounts of VOCs are used in the production of eco-friendly wallpaper. However, low-VOC additives are known to cause some production problems, including lower melt speeds and higher viscosity.



Our Solution

To resolve the problems of lower melt speeds and higher viscosity, Hanwha Chemical is developing a high-performance paste resin (PSR) that features a high melt speed and lower viscosity. Recently, the Company’s prototype undergoing screening through wallpaper manufacturers.

New Hydrogen-Storing Materials

Current Status

Recently, low-pressure hydrogen-storage materials, exhibiting 30 PA compared to 700 PA for high-pressure hydrogen-storing vessels, are developed.

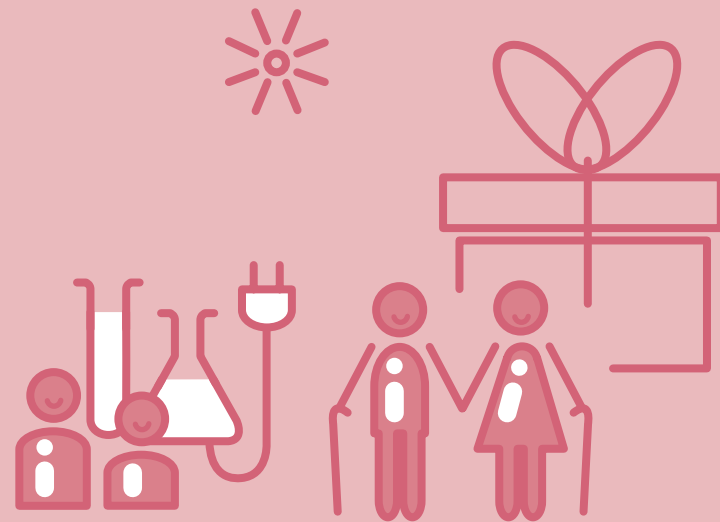


Our Solution

Hanwha Chemical is in the process of patent petitioning for its method of mass-production of the low-pressure hydrogen-storage materials.

Contributing to Regional Development

41 Social Contribution Strategies and Performance in 2015 42 Social Contribution Programs 43 Region-friendly Activities



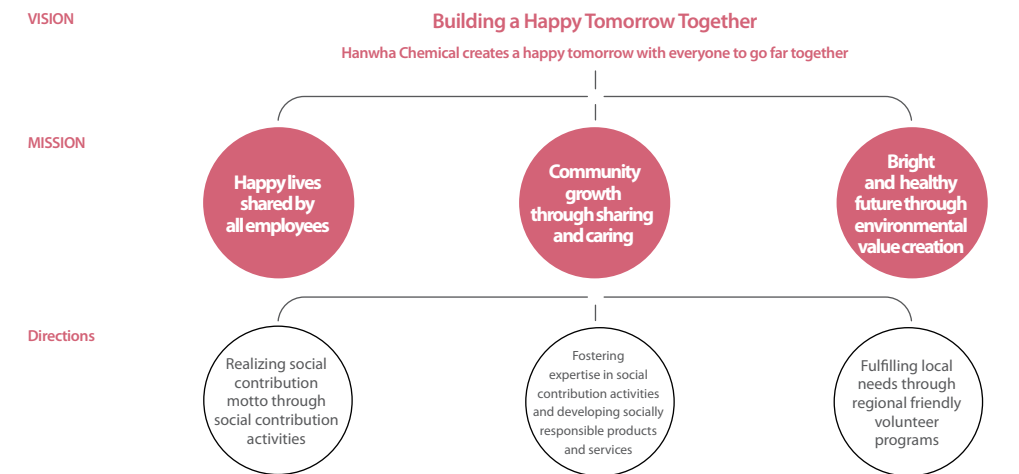
Social Contribution Activities

Hanwha Chemical upholds a certain motto in its social contribution: “If you want to go fast, go alone. If you want to go far, go together.” To this end, the company continually implements new activities to address the wide range of social issues facing communities. Currently, its social contribution focuses on next-generation natural energy sources that it can contribute and share with communities.

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Strategies of Social Contribution

Hanwha Chemical's social contribution strategies assist people in developing eco-friendly lifestyles through future-oriented technology and natural energy sources for local communities. Its CSR extends into fields of social welfare, culture and arts patronage, education, and other public charity work through cooperation with outside professional organizations, especially for future generations and the less privileged.



Social Contribution Performance in 2015

- Social welfare: Supports for social welfare facilities and economically marginalized groups including child-headed families, the elderly living alone, and the disabled.
- Culture and arts: Construction and operation of cultural facilities; support for events of cultural and arts organizations; publication of various cultural materials; promotion of culture and arts; support for the success of and research into traditional culture; and support for conservation of the excavated ruins
- Regional communities: Construction of local facilities, support for group events, and participation in local community chest
- Education: School establishment; support for educational materials, education program development, scholarships, and academic research expenses; guidance for youth; and scholarship programs for regional high school and university students

Volunteer Hours and Participants

(Unit: Person, Hours)

	2013	2014	2015
Number of Participants	2,132	1,946	1,971
Hours	34,048	29,303	27,047

Donations

(Unit: KRW in million)

	2013	2014	2015
Social Welfare	893	912	800
Culture and Arts	65	62	54
Regional Communities	637	31	57
Education and Public Interest	2,956	3,411	2,965
Total	4,551	4,416	3,876

Matching Grant Donations

(Unit: KRW in million)

	2013	2014	2015
Total	831	840	647

Hanwha Chemical tailors CSR activities to each community and business. The Company focuses on four key areas: social welfare for the underprivileged; patronage of culture and arts; development of local communities; and education and public interest, in search of more structured social contribution.

1 Social Welfare for the Underprivileged

Hanwha Chemical implements a variety of social contribution programs to improve the welfare of the underprivileged. For example, the Company assists in vocational training for the disabled. At the main office and plants, the Company conducts soccer classes for employees twice a month, and a youth soccer championship each year to nurture athletic talent in future generations. During the winter, employee volunteers deliver coal briquettes to socially-marginalized neighborhoods risking exposure to the cold.

2 Culture and Arts Patronage

To further enrich people's lives, Hanwha Chemical continues to expand its patronage programs for culture and the arts. The Company sponsors an annual Symphony Festival at the Seoul Arts Center and conducts concert tours, helping to develop an audience for classical music. Since 2006, its National Pottery Contest for the Physically Challenged has encouraged the disabled to participate in creative leisure and cultural activities. During the third traditional arts festival from 2015 to 2017, the Company is promoting traditional culture in five areas of education and hands-on experience; activities include a traditional percussion quartet, drama, calligraphy, and folklore.

3 Warm-hearted Community Relationships

Hanwha Chemical actively interacts with local communities and contributes to their development. The Company provides free meals, kimchi-making events, house repairs, and coal briquettes for the elderly and children near its plants, including the head office, Yeosu Plant, Ulsan Plant, and Daejeon R&D Center. It also supports families with multicultural backgrounds.



4 Education for Future Leaders

Since 2013, Hanwha Chemical has conducted the Energy Class for Tomorrow, a volunteer program that provides an opportunity for employees to help elementary students in communities near its plants. The program consists of interesting lectures for children and offers hands-on experience in difficult science topics. In the program, Company researchers, engineers, and other volunteers visit schools and deliver lectures on energy issues, renewable energy sources, and solar cells. The outcome for the children is to assemble and run a race with solar-power cars. The Company's objective is to focus on children who are marginalized in science education, including the children of multicultural and underprivileged families. It also continuously sponsors the Bugil Foundation, the most prestigious private education organization in Cheonan.

The Company's head office, the Daejeon R&D Center, and the Yeosu and Ulsan plants have their own organizations dedicated to social contribution. They conduct region-friendly social contribution activities through consultations with local residents and institutions.

5 Head Office: National Pottery Contest for the Physically Challenged

Every year, Hanwha Chemical organizes the National Pottery Contest for the Physically Challenged in cooperation with the Korea Rehabilitation Fund. This contest has encouraged the disabled to participate in cultural activities and improved the social awareness of disability through the display of ceramics. Company volunteers present awards to participants at a closing ceremony. Over the past 10 years, 700 pieces of pottery have been selected for exhibition, with more than 2,000 participants.



6 Yeosu: Fire-free Village

In cooperation with the Yeosu city fire station, the Yeosu Plant supplies basic fire-fighting equipment such as fire extinguishers and alarm-type fire detectors to marginalized areas where access such equipment is difficult. Volunteers from the plant visit and instructs residents on neighboring islands in the use of basic fire-fighting equipment and other fire-extinguishing activities. During these visits, the plant also provides other volunteer services, including haircuts and repair of home appliances; they deliver household necessities that are often in short supply, and they offer special events for the islanders. The plant continues to build fire safety nets through further cooperation with public agencies, NGOs, and regional communities, as part of its social contribution activities for local residents.

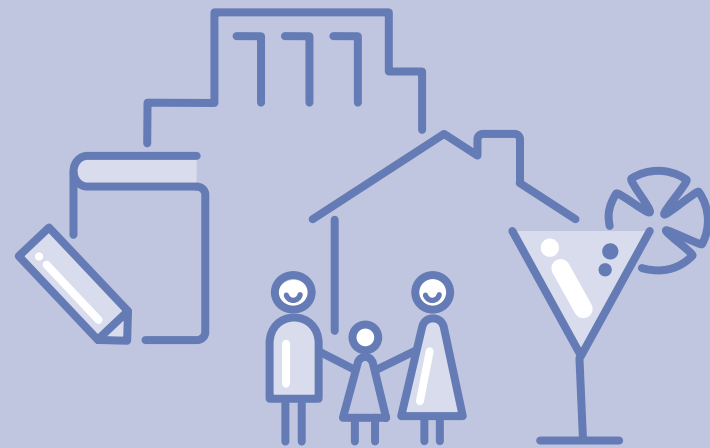
7 Ulsan: Memorial Day Event for War Veterans and Patriots

Every year, Ulsan Plant organizes a Memorial Day event for people of national merit residing in Ulsan City, including disabled veterans, their widows, and other war-bereaved, all in cooperation with the Ministry of Patriots and Veterans Affairs and the Social Welfare Center of the Nam-gu district of Ulsan. During the event, musical groups present a volunteer concert, souvenirs are donated, and a greeting ceremony is offered, all with the participation of the Hanwha Volunteer Corps, an employee organization at the plant whose members include veterans of national service and their children. At the 15th event, held in 2015, the Company awarded five plaques of appreciation and other citations in recognition of national service.

8 Daejeon: Creating Ecological Habitats

As a manufacturing enterprise, Daejeon R&D Center fulfills its environmental responsibility through a program to create ecological habitats. Through collaboration with regional NGOs, the center also installs signs for biological habitats at a public park in Daejeon City.

Nurturing Human Resources



45 The Ideal Individual for Hanwha Chemical 46 Recruitment and Development 47 Personnel System, Welfare and Benefits
49 Labor-Management Partnership 50 A Desirable Workplace for Mothers

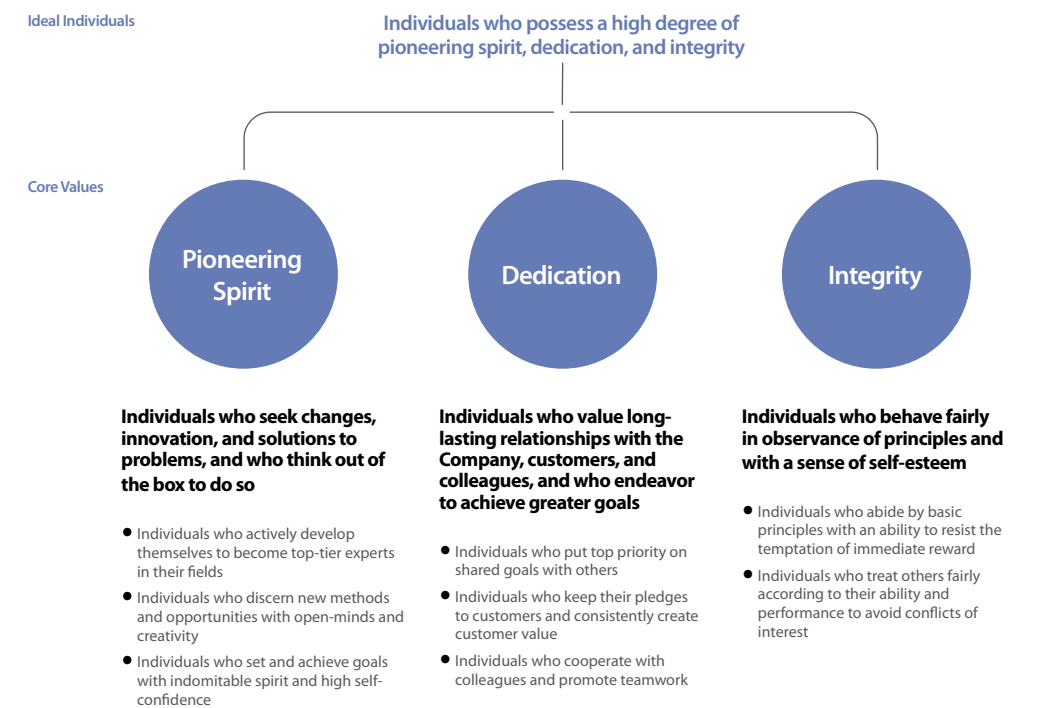
Talent Management

Hanwha Chemical understands the importance of maintaining an effective pool of professionals as it enhances global presence and diversifies its business portfolio. To this end, it conducts a range of education programs and continually innovates its systems for human resources.

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The Ideal Individual for Hanwha Chemical

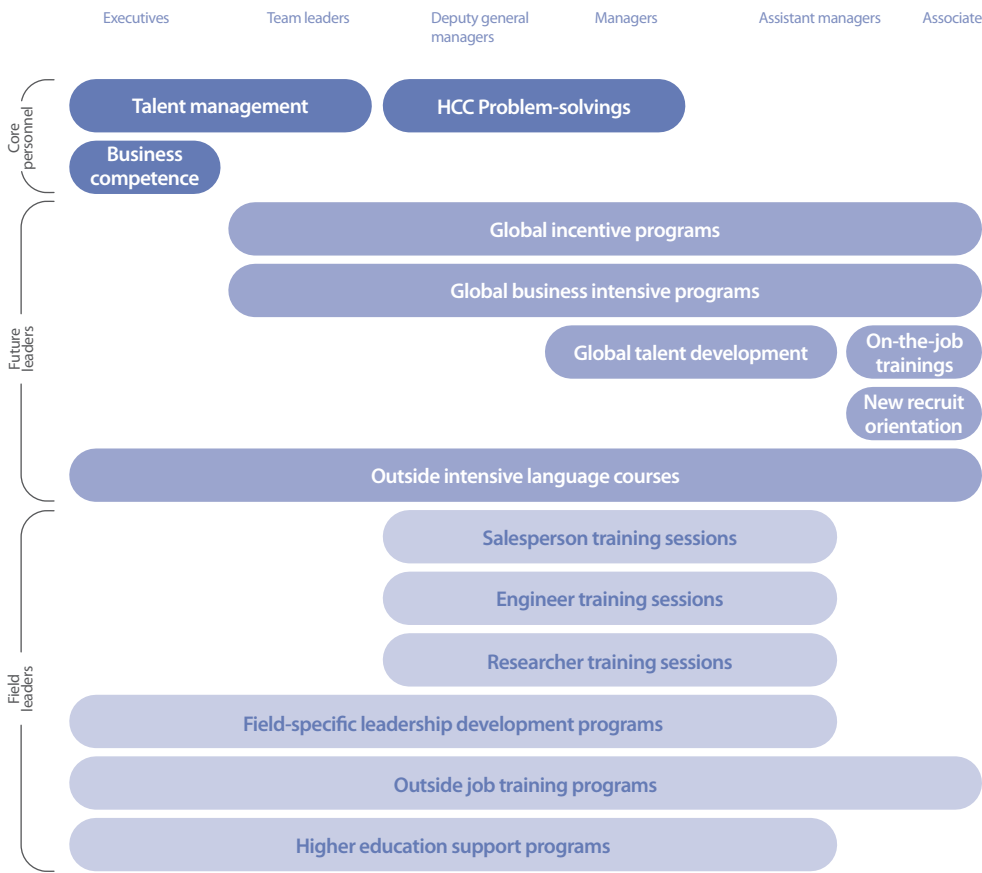
Hanwha Chemical has grown based on credit and loyalty – the credit that allows it to build trustworthiness and the loyalty that enables it to make a relationship last in any situation. The Company fosters talented individuals with its core values in mind, including a pioneering spirit, dedication, and integrity.



Recruitment
Hanwha Chemical looks for individuals with a high potential in global business and understand its future growth drivers. In addition to periodic recruitment twice a year, the Company hires talent on a rolling basis as needed in each function and business. It recruits and nurtures promising young talent through its close relationship with academia. The Company provides prospective recruits with a variety of information through online and overseas job fairs.

Human Resource Development
Hanwha Chemical fosters professional talent to achieve its management goals, bolstering current performances and leading future business growth in three major categories:

- **Core personnel:** Development of management competency for executive officers and potential leaders;
- **Future leaders:** Development of global talent and on-the-job training for new recruits;
- **Field leaders:** Experience-driven leadership development, especially for in-depth expertise and management skills



A Fair and Transparent Personnel System

Hanwha Chemical promotes employee engagement and satisfaction through fair performance-based assessment and compensation.

Hanwha Chemical evaluates and compensates individuals based on their competencies and performance. In addition, the Company encourages employee participation in establishing and evaluating objectives by conducting discussion sessions, in turn ensuring clear and fair evaluation processes. One-to-one feedback sessions are also conducted with team leaders to help employees understand evaluation results. The Company conducts a special promotion program that allows selected employees to be promoted within two years of that selection, thereby encouraging young talent to develop their careers with a frontier spirit and greater confidence.

Welfare and Benefits

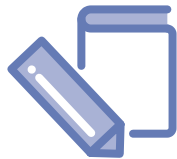
Hanwha Chemical provides a variety of welfare programs that place great value on the personal lives of employees. In one example, the Company offers a personal leave program called Refresh, which provides all employees with vacations lasting ten or fewer days—time that they can use for self-development. In 2015, 97% of those who submitted the plans for a Refresh vacation actually took their leaves, and more than 80% of those vacations were long-term, as the Company has encouraged employees to have them.

The Company contributes to the well-being of employees by providing an in-house cafeteria, medical expenses for employees and their families, stipends of congratulations and condolence, and commuter bus services. In addition, employee clubs receive support, and the company provides an online library, welfare points, family days, invitation events for parents, and a variety of sports events.



Happy Workplace

- Commuter bus services at head office, Yeosu and Ulsan Plants
- Auto maintenance costs supports
- In-house cafeteria
- Employee clubs supports
- Day-off and employee gifts on foundation day (October 9) and Labor Day (May 1)



Self-development and Vacations

- Degree programs including overseas MBAs, executive MBAs, and PhD programs
- Support for participation in regional specialist programs and overseas conferences
- Education expenses for intensive English and other foreign language courses
- Financial supports for in-house and external job training and leadership programs
- Online library for employees
- Rewards for exemplary employees
- Rewards for employees with long services (10, 20 and 30 years) and support for overseas travels
- Rewards for outstanding employees by job function each year
- 5-day work week and "Refresh" vacations (up to ten days)
- Use of Hanwha Resorts across the country at member prices
- Use of a recreation center provided by each plant during summer vacation season



Healthy Workplace

- Medical expenses for employees and their families
- Operation of medical service rooms at plants
- Periodical health exams for employees and their spouses
- Various sports facilities
- Various sports events



Housing and Children's Education

- Company housing at workplaces and dormitories for singles
- Supports for moving costs
- Provision of interest-free housing loans
- Congratulatory money for children's admission into schools and education expenses
- Leaves and stipend for congratulation and condolence
- Maternity protection programs including leaves and financial supports
- Work hours reduction during pregnancy
- Operation of daycare centers
- Flexible working hours during child-rearing

Hanwha Chemical seeks cooperative labor-management relationships and mutually beneficial growth between management and employees. The Company assists labor unions in understanding the current state of operations through informal CEO meetings, business presentations, and other communication channels. The Company also makes every effort to embed safety management in its business processes by appointing honorary safety inspectors along with an Industrial Safety and Health Committee, and through participation in international expositions of industrial equipment. As a result of this communication, and the trust it has engendered among its employees, the Company has not had one labor dispute in the past 10 years. The Company was recognized for its outstanding labor-management relationships in 2005, 2009, and 2012, and it received a monthly Hannuri Award for labor management in 2011. In 2012 and 2013, the Company was rated one of the 100 best companies to work for in Korea, followed by a Labor-Management Cooperation Award in 2015.

Awards of HR Management

Dates	Details
February 26, 2014	First prize in Good Workplace for Women - Minister of Health and Welfare award (Korean Women's Development Institute and Seoul Economic Daily)
April 18, 2014	100 excellent companies in job creation (Ministry of Employment and Labor)
July 22, 2014	Excellent provider of employee vacations (Korea National Tourism Organization)
February 26, 2015	Grand prix in Labor-Management Cooperation Award (Korea Employers' Federation)

Labor-management Cooperation Activities in 2014

Dates	Activities	Region
January 10	New-year mountain climbing event	Ulsan
January10	New-year mountain climbing event	Yeosu
April 3 - June 2	Mountain climbing event for workers in shift and daily services	Ulsan
April 25	Company athletic meet	Ulsan
May 29	Employees' parents invitation event	Yeosu
August 13	Camp for employees' children	Yeosu
August 20	Camp for employees' children	Ulsan
November- December	Cheering event for shift workers	Yeosu
November 19	Tour event for employees' parents	Ulsan

Diversity and Antidiscrimination

Hanwha Chemical complies with the conventions of the International Labour Organization and all domestic labor laws. The Company prohibits child labor and forced labor, and it does not tolerate discrimination based on gender, religion, political affiliation, social status, nationality, or ethnicity, in hiring, assignments, promotions, compensation, or education. The Company also builds mutual respect and works against human rights violations in the workplace through inter-cultural training for both executives and employees.

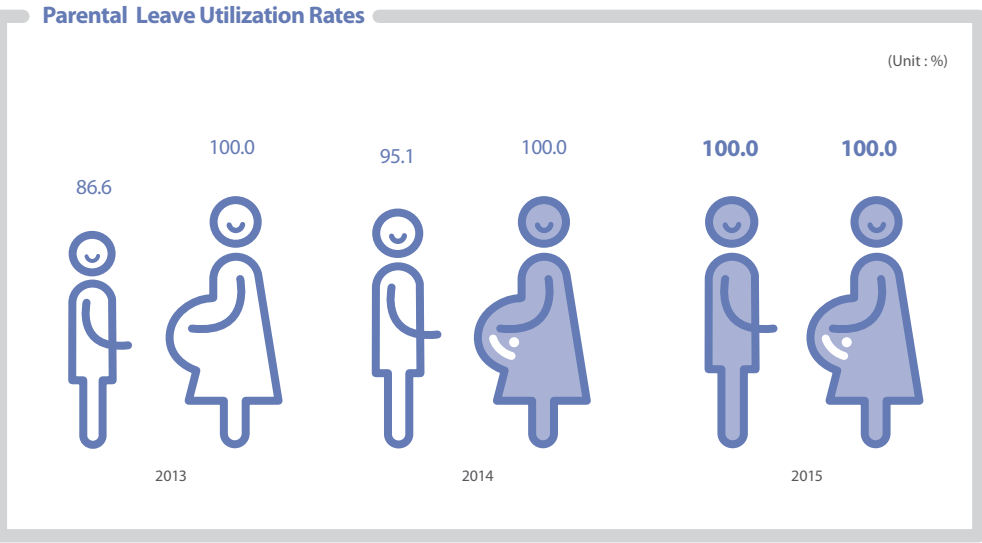


Hanwha Chemical promotes gender equality and the empowerment of women at workplaces through a variety of programs. During pregnancy, the Company guarantees periodic prenatal screenings, and allows mothers to adjust their office hours during pregnancy and the first stages of parenting. The Company provides maternity protection programs that exceed legal requirements. It provides family days to help new mothers maintain a balance between work and family. The Company recognizes employees who are giving birth with a gift set called a “Mom's Package,” which includes guides offering advice on protecting mothers and their newborns as well as supplies that will assist mothers through their pregnancies. One month before new mothers return to work from their maternity leaves, the Company holds counseling sessions organized by trained personnel managers. These sessions help mothers relieve some of the psychological anxiety that may result from long-term maternity leave and address issues of resettlement at work.

Parental Leaves

Classification	2013		2014		2015		Remark
	Male	Female	Male	Female	Male	Female	
No. of Paid Parental Leave Days	242	1,020	286	1,740	249	1,529	No. of days for first leaves: 3 days (Male) / 60 days (Female)
No. of Unpaid Parental Leave Days	30	510	32	870	17	750	No. of leave days after paid leaves: 2 dyas (Male) / 30 days (Female)
Available No. of Parental Leaves (A)*	97	17	102	29	84	26	
Actual No. of Parental Leaves (B)	84	17	97	29	84	26	Based on the first day of leaves
Parental Leave Utilization Rates (C=B/A*100)	86.6	100.0	95.1	100.0	100.0	100.0	

* Available number of parental leaves are the number of employees those have new-born babies in corresponding years.



Prevention of Sexual Harassment

Hanwha Chemical conducts sexual harassment prevention sessions for all employees at least twice a year and appoints at least one sexual harassment prevention counselor for each workplace, with stringent penalties for sexual misconduct.

Building Strong Partnership



51 Procurement Policy and Supplier Evaluation 52 Sharing Growth with Partner Companies 53 Customer Satisfaction

Procurement Policy and Supplier Evaluation

Hanwha Chemical supervises and monitors all procedures in purchasing and selects suppliers according to well-defined evaluation guidelines. Through its partner relations, the Company contributes to the health of the market and helps suppliers develop their businesses, contributing in turn to its own reputation for trustworthiness.

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Procurement Policies

Hanwha Chemical observes its own procurement guidelines. These guidelines cover all procurement steps including requests, orders, inspection, payments, and handling of defective items, thus ensuring proper management of the purchasing process. The head office and plants sign purchase contracts with suppliers after completing a thorough evaluation of estimates, supply capacity, track records, and reputation. For the procurement of regional and overseas plants, the Company prefers their local suppliers.

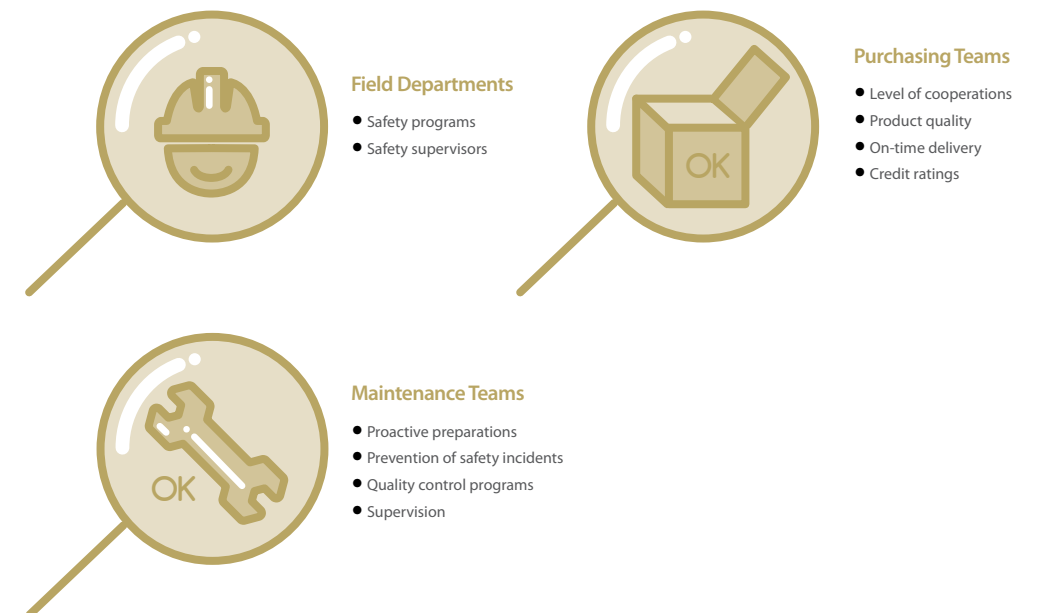
Supplier Evaluation

Hanwha Chemical evaluates suppliers before contracts and in follow-up reviews under various criteria, including business performance and credit ratings, organization and facilities for safety control, employee safety training, and health exams. The Company also evaluates suppliers' involvement in environmental conservation.

Selection and Support of Excellent Suppliers

Hanwha Chemical expands bidding opportunities for excellent suppliers selected through follow-up reviews. The Company also builds strong relationships with suppliers by listening to their opinions through cultural events and informal meetings with CEOs. Through active communication with partners, the Company is practicing its social contribution motto, "If you want to go fast, go alone. If you want to go far, go together."

Follow-up Evaluation for Contractors



Procurement in 2015

Procurement in 2015

Classification	No. of Supplier	No. of Conglomerate
Equipments / Projects	1,256	3
Raw materials	227	20

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Sharing Growth with Partner Companies

Key Programs and Performance

Hanwha Chemical nurtures the technological capabilities and competitiveness of its suppliers through a variety of support programs. The Company also maximizes synergy with them by maintaining collaborative relationships based on mutual trust.

Management Support - Full Cash Payment and Funds

Hanwha Chemical has paid its small and medium-sized suppliers full cash since 2010 to assist them in improving their financial soundness. Since December 2011, the Company has also offered these full cash payments to transport companies and the sub-contractors. In addition, the Company provides a Shared Growth Fund currently worth KRW15 billion to assist business growth. Since 2013, as part of the government and KORCHAM's Industrial Innovation Program 3.0, the Company has donated KRW 500 million each year to help suppliers upgrade their production capabilities.

Competency Enhancement - Employees Training and Technology Consultation

Through cooperation with Polymer Processing Academy, Hanwha Chemical conducts visiting seminars for its customers and encourages their participation in overseas technology courses. The Company also holds education programs for the employees of partner companies and small-to-medium-sized customer companies. To increase technological competitiveness and sales of its partner and customer companies, the Company provides consultation and ideas. As a result, the Company has successfully assisted them to develop alternative domestic raw materials, which may replace foreign products.

Reliable Relationship - Agreements and Meetings with Suppliers

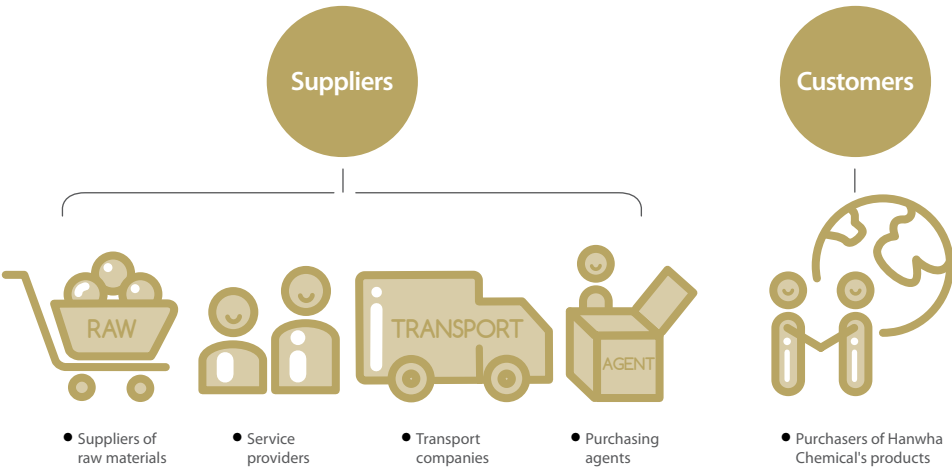
In 2012, Hanwha Chemical initiated mutually beneficial business partnerships with 40 small-and-medium-sized suppliers, and that number reached 158 in 2015. As part of its support programs to help these partners enhance their financial soundness and technological capabilities, the Company's CEO and executive officers visit partners' offices for informal meetings. To contribute to mutual trust, the Company invites them to baseball games and other cultural events.

Enhancing Awareness –Internal Employee Education

Among its employee education programs, the Company provides sessions to increase employee awareness of its mutually beneficial partnerships with suppliers. It also trains new recruits on fair trade practices and maintaining trustworthy business relationships. Employees in charge of partnership-related duties are additionally must participate in external education programs and presentations with guest speakers.

- Management Support: Increasing cash payments, supporting performance bond fees, and raising funds
- Competency Enhancement: Supporting new product development and patent petitions, tax consultation, and BPS activities
- Reliable Relationship: Educating employees of partner and customer companies, periodic information on issues, and support for expansion of capacity
- Enhancing Awareness: Training employees to uphold mutually beneficial partnerships with suppliers

Definitions of Partner Companies



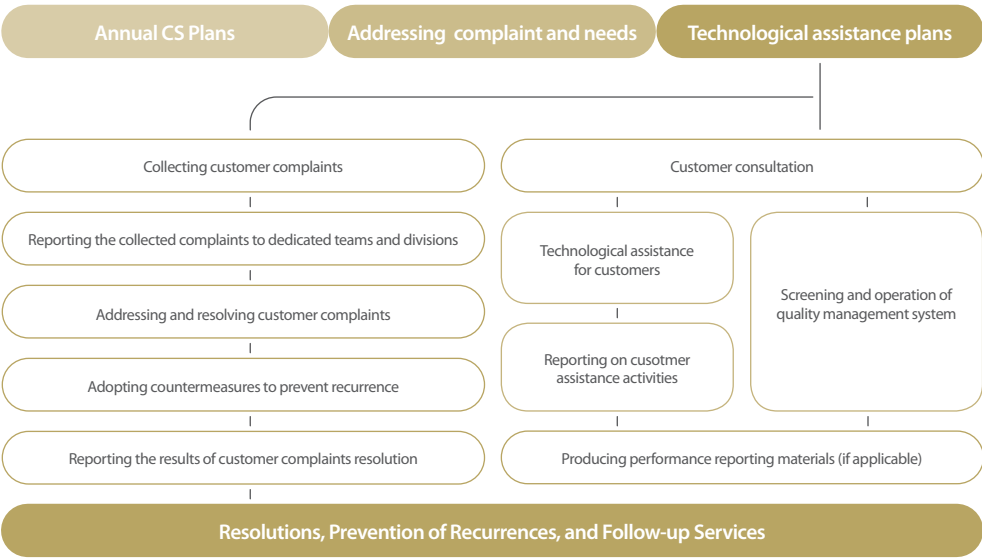
Customer Satisfaction

Quality Management Systems and Manuals

Customer satisfaction and complaint handling process

As a business-to-business (B2B) company, Hanwha Chemical directly sells products to mid- and large-sized corporations in Korea and overseas. The Company puts the highest priority on customer confidence and trust as it supplies safe, high-quality products and customized services to its customer companies.

Hanwha Chemical has established its own quality management system in accordance with ISO 9001:2008. Through the system, the Company provides high-quality products that meet the requirement and expectation of its customers. It also provides a quality management manual that clearly lays out quality management processes and interactions, as well as measures and resolutions for customer satisfaction and complaints through various communications and improvement procedures.



Technology Sharing for Customer Business Growth

Seminars on Processing Technology and Meetings on Technology Exchange

Hanwha Chemical has conducted seminars on its processing technology for the employees of domestic and overseas customers since 1988. These seminars provide technological and managerial background and skills, enhancing customer competitiveness and reinforcing mutual trust. In 2015, the Company invited 56 customer companies to the 108th Hanwha Polymer Processing Technology Academy. At the event, engineers from the Company's R&D centers held seminars on technologies used in film, coating, EVA, and electric power cables.

Protection of Customer Information

Data Breach Prevention

The Company's information security team supervises all security practices for information throughout the Company to the level required in all guidelines, especially for customer information. The information security secretariat and those in charge of information security at each plant conduct educational sessions to reinforce awareness of security among employees, and they encourage employees not only within the Company, but also at its suppliers to comply with regulations on information security.

Classification	Details
Technological Information Security	<ul style="list-style-type: none">● Access control and firewalls to prevent hacking and data breaches● Vaccine programs to stop malware● Security programs to prevent leaks of personal information
Managerial Information Security	<ul style="list-style-type: none">● Minimal collection of personal information● Privacy agreements for collection and use of personal information● Disposal of personal information after use● Periodic employee education on information security

Enhancing Integrity Management

55 Voluntary Compliance in Fair Trade 56 Ethical Management



Voluntary Compliance in Fair Trade

As Hanwha Chemical rises to leadership status in the global chemical industry, it complies with market regulations to ensure transparent, fair trade, thereby also fostering its global competitiveness. As it explores new opportunities in the global market, the Company maintains a balance between mutual trust with customers and strict compliance with laws.

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Compliance Program

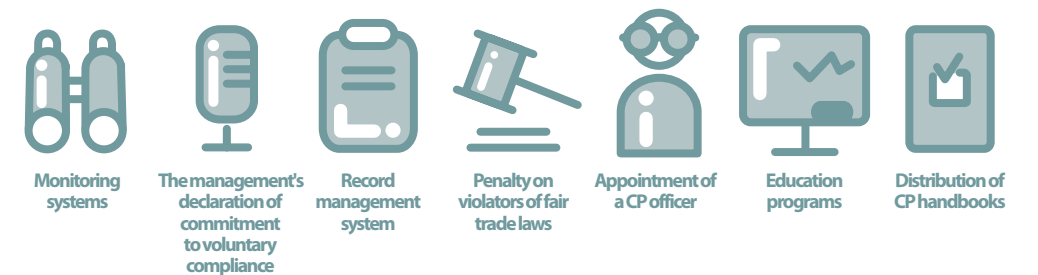
* CP, a voluntary compliance system of companies, includes education and supervision in accordance with fair-trade laws.

To achieve consumer rights protection and contribute to the balanced economic development of Korea, Hanwha Chemical introduced a compliance program (CP)* in 2003 to prevent market violations such as collusions and unfair transactions. The CP stipulates guidelines for fair trade with other companies to prevent damage to consumers and suppliers. Through the CP, the Company proactively prevents potential losses arising from unfair trade and ensures that its ethical management meets global standards.

Seven Elements of CP

The CP consists of seven elements: the management's declaration of commitment to voluntary compliance; appointment of a CP officer; distribution of CP handbooks; education programs; monitoring systems; penalties for violators of fair trade laws; and a record management system.

CP Seven Elements



Organization and Key Activities

Hanwha Chemical's compliance secretariat maintains employee education programs and self-monitoring systems, and reviews fair trade regulations.

Key Activities

In March 2012, Hanwha Chemical pledged voluntary compliance with fair trade laws and provided a special education session to enhance the awareness of CEOs and employees. Since then, the Company has reinforced its management and supervision to prevent unfair transactions and cartels, and it has distributed information on the regulations which employees are most likely violate if they are unaware. The Company has also appointed a compliance officer to develop expertise among company leaders in voluntary compliance. It has updated its compliance handbook to encourage employees to observe the guidelines of the Fair Trade Act and other market regulations. In 2014, the Company had no record of penalty or restrictions imposed for violation of fair trade laws.

As a responsible company under principle-based management, Hanwha Chemical clearly lays out its ethical management policies company-wide through promotional activities, the publication of codes of ethics, and a mechanism to protect whistleblowers, thus demonstrating its commitment to transparent business management.

Current Status of Ethical Management

To fulfill the Company's social responsibilities, Hanwha Chemical's employees are required identify values and act according to ethical management standards during their daily operations. The Company considers integrity to be one of the core values in its business performance. Under the Ethics Charter promulgated in April 2003, the Company prevents risk and misconduct that may arise from low ethical standards among employees and partner companies, and it reinforces its standards through a special organization dedicated to monitoring ethical management.

Ethical Management Organizations

The Ethical Management Committee is chaired by the CEO of the Company. The Ethical Management Secretariat oversees the company-wide ethical management, conducts education programs, and sends periodic reminders to inculcate ethical values and management principles among employees.

Organizations of Ethical Management



Code of Conduct

Code of Conduct for Ethical Management

- 01. We shall always respect customer opinions and strive to earn their trust through high credibility and loyalty.
- 02. We shall comply with local laws where business activities are conducted, respecting commercial practices and pursuing fair competition.
- 03. We shall maintain mutual trust and cooperative relationships with partner companies through fair, transparent transactions.
- 04. We shall not use our dominant position for misconduct against suppliers, and we shall not receive money or valuables, entertainment or conveniences from them.
- 05. We shall not provide or disclose internal or customer information outside the Company.
- 06. We shall not use Company supplies or expenses for personal purposes.
- 07. We shall prohibit loans, guarantees, and presents between employees.
- 08. We shall not discriminate based on academic background, gender, religion, family relationship, place of birth, disability, nationality, or ethnicity, and we shall respect all colleagues to make the Company a better place to work.
- 09. We shall actively participate in social contribution activities.
- 10. We shall endeavor to develop eco-friendly products and services, and we shall prevent accidents through stringent safety inspections and management.

With the aim of protecting consumer rights while adhering to market regulations, Hanwha Chemical implements practical ethical management guidelines to allow its stakeholders to identify values and act according to ethical management standards. On every local holiday, Hanwha Chemical also posts ethical management notices on digital bulletin boards and sends text-message reminders to employees.



Ethical Management Guidelines

Hanwha Chemical implements practical ethical management guidelines. These guidelines prohibit money and gifts from outside the Company, sexual harassment and misconduct, and undue assertion of superior position. Violators are required to submit a report to the executives in charge.



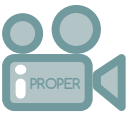
Reminders through Social Media

On every local holiday, Hanwha Chemical posts ethical management notices on digital bulletin boards and sends text-message reminders to employees. The Company also encourages its suppliers to practice fair, transparent trade.



Suggestion and Whistle-blowing System

All internal and external stakeholders of the Company may report corruption and unfair practices according to the code of ethics and code of conduct to the ethical management secretariat through phone calls, fax, e-mail, or the web. The ethical management secretariat guarantees protection of information on reporters and whistleblowers, promoting fair, rational work procedures.



Guidelines for Advertisement and Sponsorship

Hanwha Chemical prohibits improper marketing communication, but executes legal advertising and sponsorship under its principle-based management. The Company complies with advertisement laws and regulations and has no record of violations.



Hanwha Chemical devises strategies for sustainability management that focus on reliable products and services, lead to investment and confidence from shareholders, and inspire pride in employees.

Hanwha Chemical develops close cooperative relationships with stakeholders through a range of communication channels to reflect their opinions, thus encouraging their engagement in its sustainable development.



Hanwha Chemical enhances its corporate value through the rigorous deliberation on key management issues by the board of directors, based on the board members’ expertise and experience in a range of fields. The Company also ensures transparent corporate governance through fair decision-making processes.

BoD Composition and Operation

As of the end of 2015, the board of directors (BoD) consisted of three inside directors and five outside directors. The BoD supervises key management issues, addresses current business matters, and deliberates on and determines basic management guidelines.

	Name	Roles	Careers
Inside	Chang-Bum Kim	CEO	President & CEO, Hanwha Chemical Former) President & CEO, Hanwha Advanced Materials
	Kyu-Dong Choi	PVC/CA business	Head of Management Strategy Division, Hanwha Chemical
	Yung-In Yoo	Finance	Head of Accounting Team, Hanwha Chemical
Outside	Young-Hak Kim	Outside director	Former) Managing director, Daehan Life Insurance
	Dong-Suk Han	Outside director	Former) Vice president, Hanwha Timeworld Auditor, TCC Steel
	Shi-Woo Rhee	Outside director	Professor, Chemical Engineering, POSTECH
	An-Sik Lim	Outside director	Attorney, Barun Law LLC
	Moon-Soon Kim	Outside director	Former) CEO, Chosun Ilbo Outside director, Eugene Investment & Securities

* As of the end of December 2015

BoD Expertise and Compensation

All BoD members are compensated within a range determined at general shareholders’ meetings. At the 41st general shareholders’ meeting, held in March 2015, total BoD compensation amounted to KRW1.8 billion, with KRW12.0 billion approved as a ceiling limit. Members possess expertise in law, business administration, and chemical engineering. Utilizing this range of experience, they provide rationales for all decisions and supervisory functions. The BoD addresses urgent matters on demand through monthly and temporary meetings, and it conducts due diligence at all workplaces based on the principle of management by wandering around (MBWA).

Resolutions and Decision-making Processes

The agenda at BoD meetings are drawn up by the Support Team as an organizer. Through education programs, the Company provides guidelines for related departments in assisting the BoD resolutions for key management issues and disclosure. To avoid conflicts of interest and ensure fair deliberation, all issues are resolved only when the majority of the BoD members present and the majority of those approve. Through Outside Director Nominating Committee, Audit Committee, and Internal Trade Committee, the BoD also also enhances its transparency and expertise. All external stakeholders can exercise their voting rights and make proposals on management issues at general shareholders’ meetings. The proposals are reflected on the decision-makings of the CEO and senior executives in charge of related business.

BoD Performance Indicators in 2015



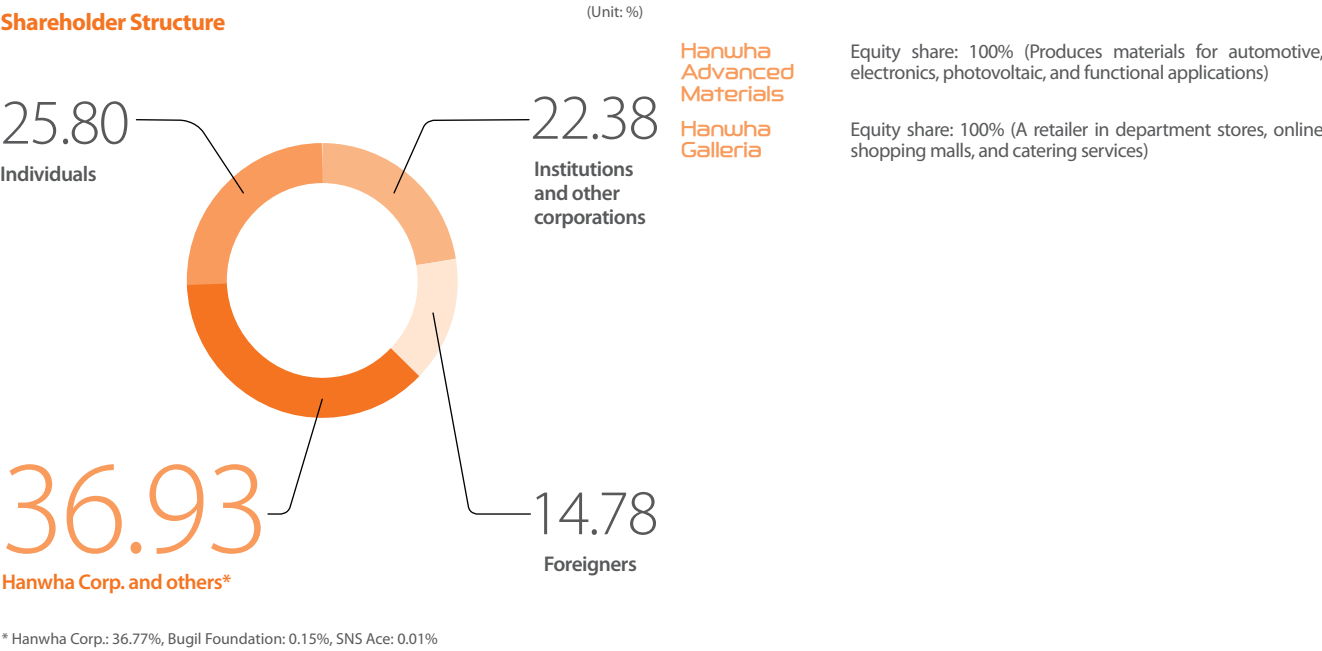
In 2015, 53 agenda items were approved at 15 BoD meetings. The participation rates of outside directors at the BoD meetings are:

- Young-Hak Kim (100%)
- Dong-Suk Han (93%)
- Shi-Woo Rhee (86%)
- An-Sik Lim (86%)
- Moon-Soon Kim (75%)

Ownership Structure

As of the end of December 2015, Hanwha Chemical had issued 161,939,571 outstanding shares. Meanwhile, Hanwha Corporation was the largest shareholder with 36.77% ownership.

Shareholder Structure

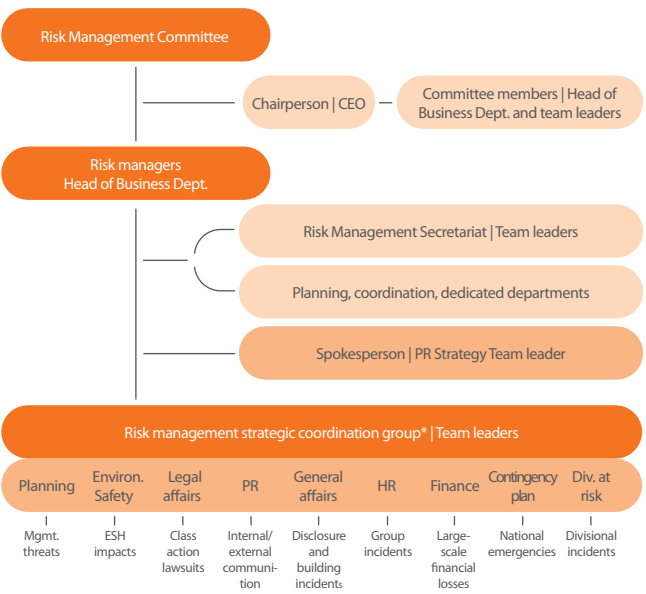


Hanwha Chemical provides a company-wide manual to remain prepared for economic, social and environmental risk factors. In particular, the Company prepares thoroughly for environmental incidents that may occur in plants, as well as for accounting and financial risks.

Company-wide Risk Management Structure

A Risk Management Committee facilitates prompt decisions and timely measures to counter management crises or disasters. In addition, emergency committees at each plant address incidents at workplaces. As crises occur, the Company follows appropriate measures defined in contingency plans and manuals.

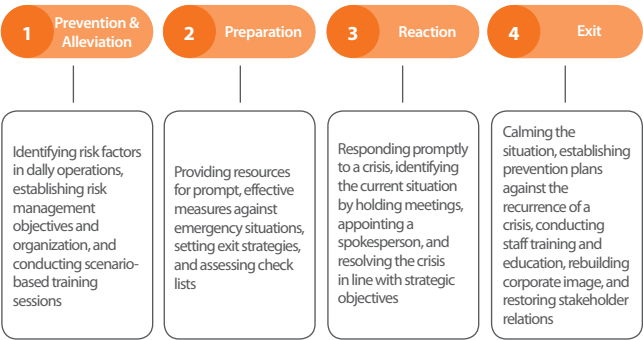
Company-wide Risk Management Organization



* The risk management strategy coordination group may be composed differently as demanded.

Risk Management System

Company-wide risk management systems enable the Company to identify risk factors and channels quickly, and to resolve them effectively.



Information Security

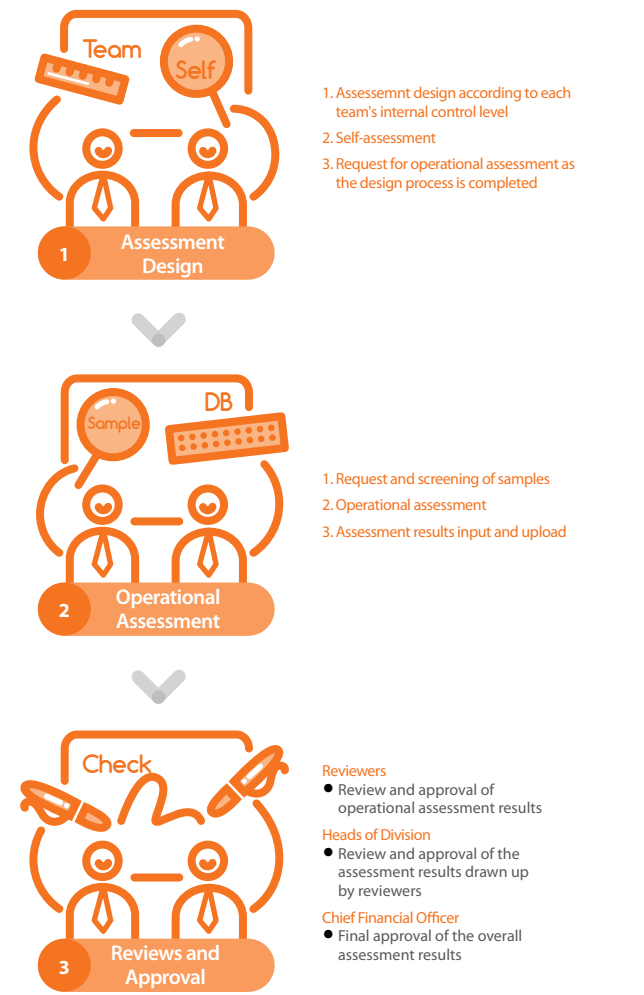
The Company's information security team oversees company-wide information security practices, as well as fulfillment levels required by related guidelines. The information security secretariat and those in charge of information security at each plant conduct education sessions and other activities to reinforce the employees' security awareness. In addition to its employees, the company encourages the employees of its suppliers to comply with information security regulations.

Company-wide Security Policy and Awareness Strengthened	To cope with a range of information risks, the Company encrypts all documents and implements stricter security schemes for important data. Through regular internal security assessment, the Company raises all employees' awareness of information security, and it imposes harsh penalties on those who violate its guidelines.
Personal Information Protection	In observance of the amended Personal Information Protection Act of 2011, Hanwha Chemical has promulgated internal control guidelines for the systemic management of personal information. Thus, it prevents loss, theft, leakage, change, damage, abuse, and misuse of personal data. The Chief Privacy Officer (CPO) manages and supervises the personal information of employees and establishes and enforces related policies.

Internal Control over Accountings

The internal accounting management system ensures a clear-cut reporting system for external financial disclosure, and for observing all laws, regulations, and internal guidelines for business activities. The system also allows the Company to control its accounting management in a transparent and efficient manner.

Internal Accounting Management Process



Financial Risk Management

Hanwha Chemical preemptively manages various financial risks related to markets, liquidity, and capital. The Company also provides a risk-appetite framework customized for each risk factor, as well as dispatching professional financial risk managers to overseas branch offices. As a result, the Company has maintained an A+ credit rating for corporate bonds (long-term) for five consecutive years, and an A1 (best rating) for commercial paper (short-term) for four consecutive years.

Risk Factors	Definition	Measures
FX	Possible losses in foreign exchange rate changes	<ul style="list-style-type: none">Holding periodical and ad-hoc FX management meetings to set FX risk management guidelinesReinforcing market monitoring<ul style="list-style-type: none">Daily, weekly and monthly real-time monitoringProactive response strategy by scenario, corresponding to market conditions
Interest	Interest income and expense changes in interest rate volatility	<ul style="list-style-type: none">Preemptively coping with changes in interest income and expenses by continuously tracking interest rate volatilities and forecastsImplementing various countermeasures, such as interest rate swaps, to hedge against interest rate risks
Liquidity	Insolvency from insufficient funding	Managing liquidity within appropriate levels and establishing daily, monthly, annual, and mid-to long-term funding and disbursement plans, and by managing the performance
Capital	Debt ratio growth	Constantly monitoring financial indicators such as debt-to-equity ratio

In 2015, Hanwha Chemical sustained growth in all of its economic, social, and environmental performance, thus charting a path toward its utmost goal of becoming a future-oriented technology company that enhances the quality of life for everyone.

Even with its accomplishments as a leader in the Korean market, Hanwha Chemical is not resting, but restarting a new chapter as a world leader in every way, including humanitarian activities and eco-friendliness.

Charting



Starting

Economic Performance

Through its efforts to improve profitability and develop new technologies, Hanwha Chemical laid a firm groundwork for its future sustainability management in 2015. Based on non-consolidated financial statements, it posted KRW 3,269.5 billion in sales and KRW 187.8 billion in operating income in 2015, while recording KRW 8,037.0 billion and KRW 337.0 billion in sales and operating income, respectively, on a consolidated basis.

Non-Consolidated Statement of Final Position

	(Unit: KRW)	
	2014	2015
I. Current Assets	951,160,175,895	858,151,332,463
Cash and Cash equivalents	99,456,365,927	64,659,864,467
Other Financial Asset	33,037,844,335	45,064,822,958
Trade Receivable and Other Receivable	421,201,271,518	425,315,569,155
Other Current Assets	30,593,898,182	20,764,526,290
Inventories	366,870,795,933	302,346,549,593
II. Non-Current Assets	5,762,270,276,235	6,118,032,616,037
Financial Asset Available for Sale	21,567,697,137	21,652,857,516
Other Financial Asset	35,776,748,022	37,018,986,372
Long-term Trade Receivable and Other Receivable	23,821,711,824	21,090,405,424
Investment in Associates	2,951,176,613,232	3,525,139,103,911
Invested Properties	49,412,013,392	48,394,379,590
Tangible Assets	2,622,368,652,467	2,425,910,668,708
Intangible Assets	58,103,022,306	35,812,393,119
Other Non-Current Assets	43,817,855	3,013,821,397
Total Assets	6,713,430,452,130	6,976,183,948,500
I. Current Liabilities	1,204,044,617,896	1,209,653,893,027
Account Payable and Other Payable	521,393,675,139	424,449,265,510
Borrowed money	616,071,263,341	709,071,523,708
Other Financial Liabilities	27,252,374,092	49,495,299,038
Estimated Liabilities	-	5,962,355,800
Other Current Liabilities	7,661,392,860	7,223,039,724
Current Income Tax Payable	31,665,912,464	13,452,409,247
II. Non-Current Liabilities	1,598,086,246,000	1,856,568,714,465
Long-term Account Payable and Other Payable	4,418,575,400	188,057,103,364
Long-term Borrowed money	1,208,227,251,274	1,301,472,538,937
Other Financial Liabilities	114,772,855,938	95,846,230,020
Confirmed Payroll Liabilities	172,038,091,009	189,080,650,579
Long-term Payroll Liabilities	-	7,670,629,475
Other Non-Current Liabilities	10,979,277	17,944,309
Deferred Income Tax Liabilities	98,618,493,102	74,423,617,781
Total Liabilities	2,802,130,863,896	3,066,222,607,492
I. Capital Share	815,316,540,000	815,316,540,000
II. Capital Surplus	720,512,275,674	720,512,275,674
III. Other Comprehensive Gain/Loss Accumulation	3,475,535,328	3,540,089,169
IV. Earned Surplus	2,371,995,237,232	2,370,592,436,165
Total Capital	3,911,299,588,234	3,909,961,341,008
Total Liabilities and Capital	6,713,430,452,130	6,976,183,948,500

Non-Consolidated Income Statements

	(Unit: KRW)	
	2014	2015
I. Sales	3,579,535,222,186	3,269,466,053,635
II. Cost of Goods Sold	3,250,585,984,628	2,780,550,530,930
III. Gross Margin	328,949,237,558	488,915,522,705
IV. Sales and Administrative Expenses	298,696,146,999	301,111,682,174
V. Operating Income	30,253,090,559	187,803,840,531
VI. Non-Operating Profits and Losses	68,340,908,050	(143,624,731,469)
Other Income	220,075,696,129	109,911,736,317
Other Expenses	158,857,264,690	256,939,493,932
Financial Income	70,512,206,617	65,992,680,074
Financial Expenses	63,389,730,006	62,589,653,928
VII. Income before Income Tax Expense	98,593,998,609	44,179,109,062
VIII. Income Tax Expense	18,363,241,634	12,840,017,597
IX. Net Income for the Year	80,230,756,975	31,339,091,465
X. Other Comprehensive Profits and Losses	(9,041,755,819)	(8,161,655,641)
Items that may be Reclassified Subsequently to Profit or Loss		
Gains(Losses) on valuation of Available-for-Sale Financial Assets	201,323,326	64,553,841
Reclassification and adjustment of Gains(Losses) on valuation of Available-for-Sale Financial Assets	(970,952,140)	-
Items that will not be Reclassified to Profit or Loss		
Remeasurements of Net Defined Benefit Liabilities	(8,272,127,005)	(8,226,209,482)
XI. Total Comprehensive Profits and Losses	71,189,001,156	23,177,435,824
XII. Profit per Share		
Basic and Net Diluted Losses per Common Share	514	192
Basic and Net Diluted Losses per Preferred Share	542	242

Consolidated Statement of Final Position

(Unit: KRW)		
	2014	2015
I. Current Assets		
Cash and Cash Equivalents	4,272,800,142,061	4,777,741,157,180
Financial Asset Available for Sale	549,393,182,341	644,785,721,050
Other Financial Asset	703,368	-
Trade Receivable and Other Receivable	250,101,726,165	390,384,438,875
Other Current Assets	1,394,450,094,958	1,817,473,968,091
Inventories	194,836,820,093	84,577,045,114
Current Income Tax Receivable	1,872,745,936,421	1,825,619,332,882
	11,271,678,715	14,900,651,168
II. Non-Current Assets		
Financial Asset Available for Sale	8,324,223,591,354	9,074,878,565,656
Other Financial Asset	165,540,689,457	150,075,320,459
Long-term Trade Receivable and Other Receivable	96,749,227,684	111,463,143,304
Investment in Associates	2,897,128,009	5,947,012,482
Invested Properties	1,288,600,215,049	2,043,074,302,380
Tangible Assets	205,267,833,069	196,317,196,176
Intangible Assets	6,038,120,533,546	6,050,530,729,270
Other Non-Current Assets	468,545,321,835	440,814,090,811
Deferred Income Tax Assets	21,783,546,791	18,972,510,353
	36,719,095,914	57,684,260,421
Total Assets	12,597,023,733,415	13,852,619,722,836
I. Current Liabilities		
Account Payable and Other Payable	4,441,213,503,434	5,420,647,362,047
Borrowed Money	1,626,190,350,528	1,614,994,192,837
Other Financial Liabilities	2,206,382,987,521	2,425,288,893,609
Estimated Liabilities	101,516,820,336	136,341,492,695
Other Current Liabilities	64,044,362,447	69,932,134,709
Current Income Tax Payable	397,308,447,395	1,146,148,705,403
	45,770,535,207	27,941,942,794
II. Non-Current Liabilities		
Long-term Account Payable and Other Payable	3,376,331,945,613	3,500,813,972,577
Long-term Borrowed Money	13,941,048,834	208,595,675,209
Other Financial Liabilities	2,747,069,101,290	2,615,772,998,845
Confirmed Payroll Liabilities	22,971,701,326	21,296,887,000
Long-term Payroll Liabilities	288,944,230,218	320,992,400,548
Long-term Payroll Liabilities	-	14,355,194,387
Provisions	18,040,690,285	30,850,183,425
Other Non-Current Liabilities	2,769,627	17,944,309
Deferred Income Tax Liabilities	285,362,404,033	288,932,688,854
Total Liabilities	7,817,545,449,047	8,921,461,334,624
I. Controlling Corporate Shareholder's Equity		
Capital Share	4,374,050,562,504	4,633,376,844,439
Consolidated Capital Surplus	815,316,540,000	815,316,540,000
Consolidated Capital Adjustments	712,889,896,819	829,497,470,364
Consolidated Capital Adjustments	(3,402,661,137)	(2,959,148,816)
Consolidated Earned Surplus	109,800,817,118	104,669,832,306
Consolidated Other Comprehensive Gain/Loss Accumulation	2,739,445,969,704	2,886,852,150,585
II. Non-Controlling Shareholder's Equity		
	405,427,721,864	297,781,543,773
Total Capital	4,779,478,284,368	4,931,158,388,212
Total Liabilities and Capital	12,597,023,733,415	13,852,619,722,836

Consolidated Income Statement

(Unit: KRW)		
	2014	2015
I. Sales		
	8,055,333,189,002	8,036,991,362,167
II. Cost of Goods Sold		
	6,777,147,441,813	6,540,636,626,588
III. Gross Margin		
	1,278,185,747,189	1,496,354,735,579
IV. Sales and Administrative Expenses		
	1,136,925,464,233	1,159,341,804,191
V. Operating Income		
	141,260,282,956	337,012,931,388
VI. Non-Operating Profits and Losses		
	(90,353,051,973)	(108,633,262,538)
Other Income	401,551,175,229	397,033,859,683
Other Expenses	(303,144,346,033)	(517,472,065,424)
Financial Income	(303,144,346,033)	(517,472,065,424)
Financial Expenses	19,966,214,941	25,386,631,893
Valuation Gains and Loss Using Equity Method	(213,369,655,885)	(179,739,068,902)
	4,643,559,775	166,157,380,212
VII. Income before Income Tax Expense		
	50,907,230,983	228,379,668,850
VIII. Income Tax Expense		
	39,517,064,861	47,963,902,367
IX. Net Income for the Year		
	11,390,166,122	180,415,766,483
X. Other Comprehensive Profit and Loss		
	(44,095,033,524)	(17,568,346,555)
Items that may be Reclassified Subsequently to Profit or Loss		
Gains(Losses) on valuation of Available-for-Sale Financial Assets	(14,171,852,587)	55,004,751
Share Distribution Fee to Other Comprehensive Profit and Loss of Related Company	6,390,665,892	19,666,076,907
Valuation Gains and Loss of Hedging Derivatives	(191,410,461)	(57,246,770)
Translation Gains and Loss of Overseas Operation	(11,586,496,588)	(20,652,942,826)
Items that may not be Reclassified Subsequently to Profit or Loss		
Remeasurements of Net Defined Benefit Liabilities	(20,875,485,416)	(12,925,983,221)
Share Distribution Fee to Remeasurements of Net Defined Benefit Liabilities of Related Company	(3,660,454,364)	(3,653,255,396)
XI. Total Comprehensive Profit and Loss		
	(32,704,867,402)	162,847,419,928
XII. Input of Net Income for the Year		
Controlling Company Owner's Equity	56,742,202,639	188,160,566,124
Non-Controlling Equity	(45,352,036,517)	(7,744,799,641)
XIII. Input of Total Comprehensive Profit and Loss		
Controlling Company Owner's Equity	3,994,630,660	166,735,392,823
Non-Controlling Equity	(36,699,498,062)	(3,887,972,895)
XIV. Profit per Share		
Basic and Net Diluted Losses per Common Share	363	1,154
Basic and Net Diluted Losses per Preferred Share	398	1,204

Investment Indicators

(Unit: %*Ratio)		
	2014	2015
Stability	Current Ratio	96.21
	Liabilities to Equity Ratio	88.14
	Debt to Assets Ratio	163.56
	Interest Coverage Ratio*	180.92
Profitability	Operating Income Margin	39.32
	Net Income Margin	0.66
	ROA	1.88
	ROE	1.75
Growth	Sales Growth	0.14
	Operating Income Growth	2.24
	Net Income Growth	0.09
	Total Assets Growth	0.24

Environmental Performance

Hanwha Chemical has continuously reduced air pollution emissions and improved waste recycling rate through concerted efforts made to cut waste and recycle more.

Production Volume

		(Unit : Tons)		
		2013	2014	2015
Yeosu Plant		2,969,997	2,914,433	3,013,550
Ulsan Plant		1,467,460	1,434,453	1,384,213
Total		4,437,457	4,348,886	4,397,763

Use of Raw Materials *

* Raw materials include ethylene, VCM, salt, and chlorine.

* Basic unit are used to measure the amount of resources required to produce one ton of product. The basic unit is in inverse ratio to the cost-effectiveness of production.

		(Unit : Tons)		
		2013	2014	2015
Volume	Yeosu Plant	2,634,894	2,634,894	2,572,597
	Ulsan Plant	1,441,230	1,413,769	1,349,563
	Total	4,076,124	4,048,663	3,922,160
Basic Unit *		0.919	0.931	0.892

Use of Energy

		(Unit : TJ)		
		2013	2014	2015
Yeosu	Direct	3,081	3,039	2,922
	Indirect	27,633	26,306	26,963
	Subtotal	30,714	29,345	29,885
Ulsan	Direct	1,320	1,380	1,354
	Indirect	10,082	9,747	9,689
	Subtotal	11,402	11,127	11,043
R&D Centers / Other Buildings	Direct	90	24	5
	Indirect	311	129	68
	Subtotal	401	153	72
Total	Direct	4,491	4,443	4,280
	Indirect	38,026	36,182	36,720
	Total	42,517	40,625	41,000

GHG Emissions by Workplace

		(Unit : 1,000 ton CO2eq)		
		2013	2014	2015
Yeosu	Direct	186	197	181
	Indirect	1,353	1,304	1,334
	Subtotal	1,539	1,501	1,515
Ulsan	Direct	124	118	123
	Indirect	440	434	421
	Subtotal	564	552	544
R&D Centers / Other Buildings	Direct	5	2	0
	Indirect	15	6	3
	Subtotal	20	8	4
Total	Direct	315	317	304
	Indirect	1,808	1,744	1,758
	Total	2,123	2,061	2,062

Air Pollutants

* Basic unit = Total emissions / production volume × 1,000

	2013	2014	2015
Dust	22.21	21.61	21.28
SOx	0.45	0.15	0.11
NOx	41.38	30.51	34.39
Total	64.04	52.27	55.77
Basic Unit *	0.0144	0.0120	0.0127

Use of Water

* Basic unit = Water use amount / production volume

	2013	2014	2015
Consumed Amount (T)	11,823,961	11,809,118	11,792,155
Basic Unit * (T/T)	2.665	2.715	2.681

Wastewater Volume and Recycling Rate

* Basic unit of wastewater = Wastewater volume / production volume

	2013	2014	2015
Wastewater Volume(T)	4,318,532	4,752,616	4,139,730
Basic Unit of Wastewater * (T/T)	0.973	1.093	0.941
Recycled Volume (T)	1,033,946	1,135,242	1,109,249
Recycling Rate (%)	24	24	27

Waste Disposal

* Basic unit of waste = Total amount / production volume × 1,000

	2013	2014	2015
Total Amount (T)	38,951	39,549	40,138
General (T)	26,507	26,052	25,948
Specified (T)	12,444	13,498	14,190
Basic Unit of Waste *	8.778	9.094	17.988

Waste Treatment and Recycling Rate

	2013	2014	2015
Recycled (T)	17,508	18,382	17,808
Landfill Disposal (T)	18,023	18,766	19,559
Incinerator Disposal (T)	2,738	2,402	2,701
Ocean Disposal (T)	681	-	-
Recycling Rate (%)	45	46	44

Water Pollutants

* Pollution load efficiency = total pollution load/ production volume × 1,000

	2013	2014	2015
BOD (T)	72.30	74.82	28.35
COD (T)	113.39	86.46	66.87
SS (T)	303.52	220.72	173.84
T-N (T)	54.59	65.45	142.05
T-P (T)	2.00	1.58	2.38
Total pollution load (T)	545.82	449.35	413.49
Pollution load efficiency *	0.1230	0.1033	0.0940

In 2014, the number of the Company's employees totaled 2,490 with continual recruitment of disabled and foreign employees.

No. of Employees

(Unit : Person)			
	2013	2014	2015
Head Office	898	879	885
Daejeon R&D Center	440	365	249
Yeosu Plant	812	841	771
Ulsan Plant	637	645	585
Total	2,787	2,730	2,490

Age Groups

(Unit : Person)			
	2013	2014	2015
30 or below	716	674	596
31-40	699	701	658
41-50	1,064	1,023	895
51 or higher	308	332	341
Total	2,787	2,730	2,490

Gender Ratio

(Unit: %)			
	2013	2014	2014
Male	88	87	87
Female	12	13	13

Job Turnover Rate

(Unit: %)			
	2013	2014	2015
No. of Persons	17	46	32
Job Turnover Rate	0.62	2.00	1.29

New Recruits Monthly
Wage vs. The Statutory
Minimum

(Unit: %)			
	2013	2014	2015
	337	323	337

No. of Foreign and
Disabled Employees

(Unit: Person)			
	2013	2014	2015
Disabled	57	58	55
Foreign	18	16	12

Individual Education
& Training Expenses
and Hours

(Unit : KRW1,000, hours)			
	2013	2014	2015
Expenses	1,387	1,228	998
Hours	34	30	43

Accident Rate

(Unit: %)			
	2013	2014	2015
Accident Rate*	0.04	0.07	0.00

* Accident rate = No. of injured employees / No. of full-time employees X 100

Third-party Assurance Report

Responsibility and Independence

Assurance Standards

Limitation

Methodology

Findings & Conclusion

To the Stakeholders of Hanwha Chemical, The Korea Productivity Center (hereinafter ‘the Assurer’) was requested by Hanwha Chemical to perform a third-party assurance of 2016 Hanwha Chemical Sustainability Report (hereinafter ‘the Report’), and provides the following assurance statement.

Hanwha Chemical is entirely responsible for all information and opinions presented in the “Report”. The Assurer is solely responsible for providing a third party verification of the contents of the “Report”. As an independent assurance agency, the Assurer neither was involved in the process of developing the “Report” with Hanwha Chemical, nor is in any conflict of interest that may undermine our independence.

The following assurance was conducted in accordance with Type 1, moderate level of AA1000AS(2008) assurance standard. It also verified the organization’s adherence to AA1000APS(2008) Principles of inclusivity, materiality, and responsiveness. Moreover, the Assurer checked whether Hanwha Chemical complied with Global Reporting Initiatives (GRI) G4 Guideline.

The assurance was conducted on the performance in 2015 in compliance with standards above, but credibility check of financial data, environmental data such as greenhouse gases emission, and other data including homepage linked information was not included. In addition, the on-site inspection was conducted only at the Seoul headquarters, and any additional inspection may change the result.

- The following method was used to provide the assurance about the Report.
1. Verified whether requirements from the core option on GRI G4 Guidelines were fulfilled
 2. Verified consistency with the principles dictating the content and quality of sustainability reports based on the GRI G4 Guidelines.
 3. Verified objectivity and appropriateness of key issues selected and contents in the Report by conducting media research and performing benchmark analysis.
 - 4.Verified the suitability of the information and expression error through comparison analysis to other resources.
 5. Verified the evidence of data and information through on-site inspection on Seoul headquarters and internal process and system.
 6. The scope and boundaries of the assurance process has been conducted according to the boundaries of the time period, region, and value chain of the report. Therefore, the scope of the assurance process meets 90% coverage of the consolidated revenue and data regarding the supply chain has not been included unless specified.

The Assurer verified that the Report accurately and fairly illustrates Hanwha Chemical’s sustainability management activity and performance. Moreover, through the assurance, the Assurer verified that the Report fulfilled the requirements of GRI G4 Guideline’s Core Option.

In the case of General Standard Disclosures, the Assurer verified that the Report is written in compliance with the requirements of Core Option. For Specific Standard Disclosures, the Assurer reviewed aspects and indicators of material issues by using the reporting criteria process below.

Material Issues	Aspects	DMA & Indicators
Reduction of environmental impact	Energy, Emissions, Water, Effluents and Waste	DMA, EN3~EN7, EN8, EN10, EN15~EN21,EN22~EN24
Promoting Workplace Safety	Occupational Health and Safety	DMA, LA8
Securing sustainable competitiveness	Products and Services	DMA, EN27~EN28
Contributing to Regional Development	Local Communities, Indirect Economic Impacts	DMA, EC7~EC8, SO1
Nurturing Human Resources	Training and Education	DMA, LA9~LA10
Building Strong Partnership	Investment	DMA, EC9
Enhancing Integrity Management	Anti-competitive Behavior	DMA, SO7

* The assurance provider also reviewed the indicators regarding the non-material aspects of the specific standard disclosures, and the results are included in the GRI G4 Index on pages 78-80.

Inclusivity: Participation of Stakeholders

The principle of inclusivity articulates that organizations should include stakeholders in the process of developing strategic response to and achieving sustainability. In this regard, the Assurer could verify that Hanwha Chemical put various efforts to abide by and improve the principle of inclusivity. Hanwha Chemical classified its stakeholders into five groups – shareholders and investors, employees, partners and customer Companies, local communities and environmental Organizations and the government and NGO’s. Each group’s participation channel enables communication activities which glean opinions. In particular, the Assurer thinks highly of the fact that Hanwha Chemical can enhance the reliability of stakeholders by disclosing not only major channels by stakeholders but stakeholders’ opinions and expectations and its responding efforts. But it is necessary to consider building a process to integrate and manage collected core issues and having them utilized in the management’s decision-making via stakeholder contact departments.

Materiality: Significant Issue Identification and Reporting

The principle of materiality articulates that organizations should focus on issues relevant and material to both the organization and its major stakeholders. The Assurer found that Hanwha Chemical successfully identified issues relevant and material to the company and its major stakeholders based on a reasonable materiality analysis process. It was also confirmed that Hanwha Chemical identifies material issues in accordance with sustainability background, principles of materiality and completeness, and decides on the reporting standards such as scope, boundary, period based on credible assurance. During the 2015 evaluation, the company formed 50 issue pools. Activities and outcomes concerning 11 higher issues out of the drawn issues were described in the report in a balanced way.

Responsiveness: Response to Issues

The principle of responsiveness articulates that organizations should be responsive to the issues that may influence the performance of their stakeholders. The Assurer found that Hanwha Chemical successfully identified issues which may impact stakeholders’ performance, implemented measures to address them, and adequately presented relevant information in the Report. The assurer verified that Hanwha Chemical integrated key drawn issues and reclassified them into three core themes and four main themes. We found it an excellent case to intensively report implementation directions, main activities and outcomes and amplifying on core activities and outcomes via cases.

Recommendation

Upon appraising Hanwha Chemical’s various efforts and performance for enhancing its sustainability, the Assurer proposes below for future publications of the Report and higher standard of sustainability


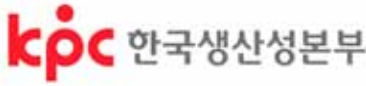
1. Building Sustainability Management System: Hanwha Chemical makes public details of economical, environmental and social activities and outcomes by way of this report. We suggest forming a long-term consultative body where managers or executives of major sectoral departments discuss policies, strategies and activities about sustainability management in order to fulfill strategic social responsibilities.
2. Enhancement of Inclusivity of Reporting Scope: Hanwha sets its headquarters, the Central Research Center in Daejeon and business sites in Yeosu and Ulsa, Korea as reporting boundaries. As the reported information is domestic, we recommend that you should broaden reporting boundaries to include activities and performances of your overseas business sites and branches.

Qualification of Assurance Provider

The Sustainability Management Center of Korea Productivity Center is an assurance agency officially certified by AccountAbility [organization established AA1000, the international standard for stakeholder participation and verification] and is qualified to independence assurance engagements. Our Assurance Committee is comprised of competent experts who have in-depth experience in sustainability management consulting and assurance and have completed the relevant training.

* AA1000AS(2008) : AA1000 Assurance Standard(2008) is an international assurance standard, set by AccountAbility, that provides method of reporting sustainability management issues by evaluating the organization management on performances, compliance with principles, and reliability of performance information


* AA1000APS(2008) : AA1000 AccountAbility Principles Standard(2008) is an international assurance standard set by AccountAbility that provides principles of AA1000 standards.



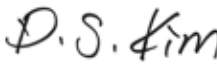
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June 2016
Korea Productivity Center

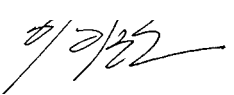
Hong, Sun-Jik
CEO




Kim, Dong-Soo
Director



Lee, Yang-Ho
Team Leader



Yang, Daekwon
Researcher



Hanwha Chemical 2016 SUSTAINABILITY REPORT

General Standard Disclosure

Index	Indicators	Remarks	Page
Strategy and Analysis			
G4-1	Statement from the most senior decision-maker	CEO's Message	4-5
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G4-3	Report the name of the organization	Company Overview	6
G4-4	The primary brands, products, and services	Company Overview, Introduction to Business Areas	6, 8-15
G4-5	The location of the organization's headquarters	Company Overview(Domestic and overseas network), Corporate Governance	7
G4-6	The number of countries where the organizaion operates, and names of countries where either the organization has significant operations or that are specifically relevant to the sustainability topics covered in the report	Company Overview	7
G4-7	The nature of ownership and legal form	Ownership Structure	61
G4-8	The markets served (including geographic breakdown, sectors served, and types of customers and beneficiaries)	Company Overview	7
G4-9	Scale of the organization	Company Overview	7
G4-10	Total workforce	Company Overview, Appendix (Economic and social performance)	7, 66-73
G4-11	The percentage of total employees covered by collective bargaining agreements	Company Overview, Appendix (Economic, environment; and social performance)	7, 66-73
G4-12	The organization's supply chain	Appendix (Awards)	82
G4-13	Any significant changes during the reporting period regarding the organization's size, sutructure, ownershship, or its supply chain	Report Overview	1
G4-14	Whether and how the precautionary approach or principle is addressed by the organization	Report Overview	1
G4-15	List Externally developed economic, environmental, and social charters, principles, or other initiative to which the organization subscribes or endorses	Report Overview	1
G4-16	Memberships in associations (such as industry associations) and/or national/international advocacy organizations in which the organization	Report Overview	1
Identified Material Aspects And Boundaries			
G4-17	List all entities included in the organization's consolidated financial statements or equivalent documents	Report Overview	1
G4-18	The porcess for defining the report content and the Aspect Boundaries	Report Overview	1
G4-19	List all the material Aspects identified in the process for defining report content	Report Overview	1
G4-20	For each material Aspect, report Aspect Boundary within the organization	Report Overview	1
G4-21	For each material Aspect, report the Aspect Boundary outside the organization	Report Overview	1
G4-22	The effect of any restatements of information provided in previous reports, and the reasons for such restatements	Report Overview	1
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G4-25	Basis for identification and selection of stakeholders with whom to engage	Stakeholder Communication	23
G4-26	Organization's approach to stakeholder engagement, including frequency of engagement by type and by stakeholder group	Sharing Growth with Partner Companies, Customer Satisfaction	51-53
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Index	Indicators	Remarks	Page
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G4-29	Date of most recent previous report (if any)	Report Overview	1
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G4-31	Provide the contact point for questions regarding the report or its contents	For Additional Information	83
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G4-34	Report the governance structure of the organization, including committees of the highest governance body	Corporate Governance	60-61
G4-38	Report the composition of the highest governance body and its committees	Corporate Governance	60-61
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G4-EC8	Significant indirect economic impacts, including the extent of impacts	Stakeholder Communication	23
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Membership in Sustainability Management Initiatives

UN Global Compact (UNGC)

The UN Global Compact’s Ten Principles

Organization Memberships

Hanwha Chemical is a member of diverse domestic and international organizations to ensure sustainable management and fulfill our corporate social responsibilities.

Hanwha Chemical became a member of the United Nations Global Compact in January 2012. Hanwha Chemical honors and practice the UNGC’s ten principles of human rights, labor standards, the environment, and anti-corruption as a responsible corporate citizen.



1. Human Rights

Principle 1 Businesses should support and respect the protection of internationally proclaimed human rights
Principle 2 make sure that they are not complicit in human rights abuses.

2. Labour Standards

Principle 3 Businesses should uphold the freedom of association and the effective recognition of the right to collective bargaining;
Principle 4 the elimination of all forms of forced and compulsory labour
Principle 5 the effective abolition of child labour
Principle 6 the elimination of discrimination in respect of employment and occupation.

3. Environment

Principle 7 Businesses should support a precautionary approach to environmental challenges;
Principle 8 undertake initiatives to promote greater environmental responsibility
Principle 9 encourage the development and diffusion of environmentally friendly technologies.

4. Anti-Corruption

Principle 10 Businesses should work against corruption in all its forms, including extortion and bribery.

Sustainability Management

Business Institute for Sustainable Development, UNGC

Economy

The Federation of Korean Industries, Korean Chamber of Commerce and Industry, Korea Employers' Federation, Korea Economic Research Institute, Korea Listed Companies Association, Fair Competition Federation, Korea International Trade Association

Industry

Korea Petrochemical Industry Association, Korea Chemical Industry Council, Korea Chlor-Alkali Industry Association , The Korea Biotechnology Industry Organization, Nano Technology Research Association, Korea Industrial Technology Association, Korea Plastics Pipes Research Society

Environment

Korea Chemicals Management Association, Korea Responsible Care Council, Korea Vinyl Environmental Council, Green Company Council, Petrochemistry Safety Committee, Yeosu Industrial Complex Environment Council, Ulsan Petrochemistry Environment Committee, Korea Fire Safety Association

Date	Award	Host
2015.02	Grand prix in Labor-Management Cooperation Award	Korea Employers' Federation
2015.02	Korea Annual Award on Green Climate	National Assembly Forum on Climate Change
2015.04	Citation from mayor of Seoul at the day of the disabled	Seodaemun-gu Office
2015.10	The Speaker of the National Assembly award for excellent in cultural supports for the disabled	Korea Culture Association for the Disabled
2015.10	First prize in excellent preparation for disasters	Governor of Jeollanamdo Province
2015.11	Mayor of Seoul award (Grand prix in Korea King Sejong Charity Award)	United Nations Volunteers Korea
2015.11	An excellent laboratory in safety	Ministry of Science, ICT and Future Planning
2015.12	Citation from a member of the National Assembly for Kimchi-sharing activities	A member of the National Assembly
2015.12	Appreciation plaque for a mentoring program to nurture science talent	Yuseong-gu Office, Daejeon City
2016.03	Excellent in disclosure for shareholder communications	Korea Stock Exchange
2016.03	The Commercial & Industry Day, A contributor in the industry development	Ministry of Trade, Industry and Energy

For additional information

For additional information about Hanwha Chemical's increasing sustainability management activities, please visit its websites:

- The Company information: Hanwha Chemical website (hcc.hanwha.co.kr)
- The group information: Hanwha Group website (www.hanwha.co.kr)
- The Company's annual reports: Financial Supervisory Service disclosure website (dart.fss.or.kr)

Hanwha Chemical looks forward to hearing ideas and feedback from stakeholders and readers. If you have any improvement ideas about this Sustainability Report or any constructive suggestion to make a better company, please feel free to contact us at the following address.

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