



HEALTHCARE & EARTHCARE

ENVIRONMENTAL REPORT 2010

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CEO Message

“ SK Chemicals prepares for the better future for all of humanity and the earth by following its mission 'We care for the future'.
(Healthcare, Earthcare) ”



최항원

2011. 03

Vice Chairman & CEO of SK Chemicals

Chang Won Choi



SK Chemicals simultaneously promotes well-being of human and environment through management focused on human and environment following the mission "We care for the future. (Healthcare, Earthcare)"

SK Chemicals has made numerous best practices in environment management through steadily using energy efficiently since the foundation of the company. Since 2009, SK Chemicals has officially declared environment management and carried out systematic environment management activities setting the goal for human and nature to create greater value.

Accordingly, best efforts are put to make a new value by developing technology and operating business that could make both human and nature happy in the three fields such as 'Green Culture' that persuades changes in the members' perception, 'Green Process' for reduction of greenhouse gas emissions and energy consumption during the production process, and 'Green Product' that means eco-friendly products.

Green Chemicals Biz. aimed to be the 'Eco-friendly Material Solution Provider' based on the accumulated technical expertise for the last 40 years and is promoting business in 4 fields such as composite materials, high performance materials, bio materials and energy storage materials.

Life Science Biz is strengthening investment in the vaccine field as well as actively seeking to expand abroad of new medicines and medical solutions based on the performance in the domestic market to be the 'Global Total Healthcare Solution Provider'.

Since its foundation until now, the business principle of SK Chemicals that has made happiness through management focused on human and environment will not change. This environmental report contains efforts and hard work of the members of SK Chemicals and the future will and plan to commit environment management. Through this report, I sincerely hope the environment management of SK Chemicals develops one step further.

SK Chemicals asks for more attention and encouragement for new challenges for human health and global environment.

Thank you.

Company Profile

Current State Of Company

Company Name	SK Chemicals
HQ Location	686 Sampyeong-dong, Bundang-gu, Gyeonggi-do
Establishment	1969. 07. 01
Scope of Business	Chemicals and chemical products Medical materials and medicines
CEO	Chang Won Choi, Chang Geun Kim
Total Assets	1,787 billion won (Excluding affiliated companies)
Total Capital	897 billion won
Sales	1,335 billion won
Employees	1,514 people (Office workers : 769, research workers : 249, production workers : 496)
Subsidiaries	SK Engineering & Construction, SK NJC, SK Cytec, UB care, Huvis, SK Keris, SK Eurochem Spzoo., SK Chemicals Qingdao, SK Chemicals Suzhou, SK Beijing Pharmaceutical Co., Ltd. Guilin SK Zhongning Bio Co, SK Chemicals GmbH, SK Chemicals America
Major Shareholders Organization	Chang Won Choi and others (13.85%) Mirae Asset Investments (7.53%) Nation Pension and others (78.62%) (Dec 31, 2010 basis)

Business Portfolio

Business Fields	Products
Green Chemicals Biz.	<ul style="list-style-type: none"> PET Resins High Performance PETG Resins Biodiesel Polyester Binders, Industrial Biocides / Water treatment Chemicals High Purity Solvent / Display Chemicals Composite Materials Materials and Chemicals for Automobile
Life Science Biz.	<ul style="list-style-type: none"> Synthetic Medicines Natural Medicines DDS (Drug Delivery System) Biomedicines

About SK Chemicals

Since its foundation in 1969, SK Chemicals has grown as the green chemicals company and has been establishing vision, focused on Green Chemicals Biz. and Life Science (LS) Biz. since the year 2000 and is exploring the growth engines for the future.

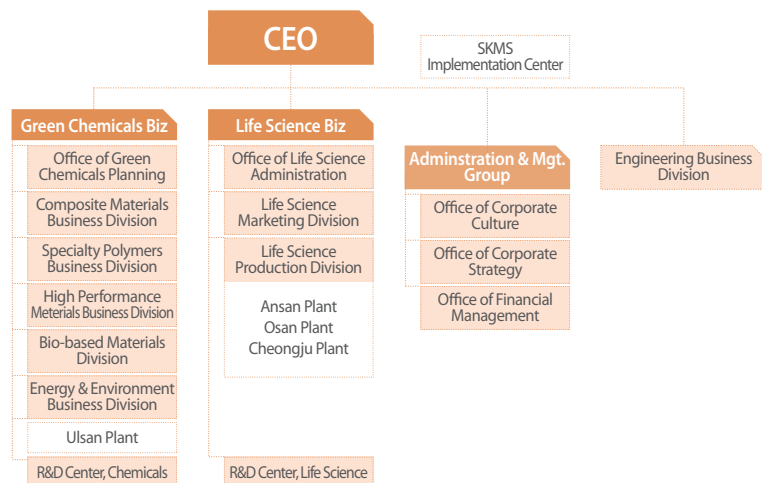
Green Chemicals is producing polyester resin, polyester adhesives and is expanding its business to the high performance resin material PETG resin and eco-friendly materials based on the accumulated chemical technology. SK Chemicals is especially developing into a global company rapidly through global partnership such as securing basis for PET business production in the Chinese market after in Poland.

Life Science has 3 new medicines from the first anti-cancer medicine in Korea, Sunpla, released in 1999, Joins, the first natural new medicine to the new medicine Mvix that is ranked first in International Index of Erectile Function. In addition, product portfolio has been diversified by expansion of business sectors in blood derivatives and vaccine from a merger with Dongshin Pharmaceutical.

Green Chemicals Biz. is focusing on new business development of renewable energy and materials sector such as the biodiesel using accumulated technology and marketing competence through resin business and fine chemical business. Life Science Biz. is expanding its business area from the existing pharmaceutical business to medical services and medical devices.

Organizational Structure

SK Chemicals has Green Chemicals, Life Science as the two business areas and is composed of 8 divisions, a group, 5 offices and a center. Also it possesses 4 plants in Ansan, Osan, Cheongju and Ulsan as well as 2 research institutes such as R&D Center, Chemicals and R&D Center, Life Science. (The organization chart is based on 1st Jan, 2011.)



Company Profile

Financial Performance

SK Chemicals has focused its business competence in improving the profitability of existing businesses and entering the new businesses into the market, while selling SK Petochemicals to strengthen the core businesses. We also sold part of SK Engineering & Construction shares and Suwon plant site to improve the financial status as well as secure funding for the future investment. In addition, total sales in 2010 was 1 trillion 335 billion won as a result of efforts to improve the profitability of existing businesses expanding sales to biodiesel the environment friendly and renewable energy business and finding new growth engines such as exporting overseas technology of Life Science Biz.

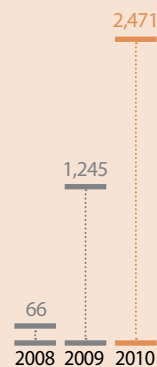
Finding and Preoccupying the Overseas Market

SK Chemicals is simultaneously strengthening business competitiveness as a leading company in Korea in life sciences and chemical sectors, while establishing local producing and selling subsidiary in EU, China and Southeast Asia to occupy the overseas emerging market. SK Chemicals is especially focusing in the Globalization acceleration focused in China which is the strategy of the group while expanding its market and building the basis for production and sales of the existing business centered by SK Chemicals Suzhou Co., Ltd. founded in 2006. SK Chemicals established the foundation for Global markets through active seeking and preoccupying the overseas market.



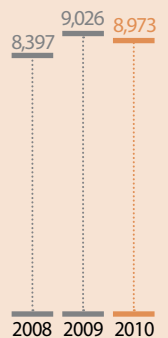
Net Income

Unit: 100 million won



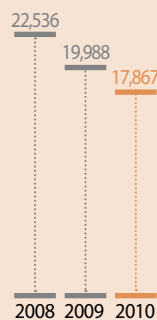
Equity Capital

Unit: 100 million won



Total Asset

Unit: 100 million won



Total Sales

Unit: 100 million won



GREEN STRATEGY

Green Strategy of SK Chemicals

Green Strategy that suggests Direction of Environment Management of SK Chemicals

- Environment Management Strategy
- Highlight
- Stakeholder Communication
- Environmental Disclosure on Management Approach (DMA)
- Stakeholder Interviews





Green
Culture

Green
Product

Green
Process

Environment Management Strategy

Chemical Industry and Environment Management

Risk Management through Environment Management of the chemical industry is recognized to be more important than any other industries as it may be involved in a wide range of industries from raw material supply for production to production, distribution, use and disposal phases. Establishment of environment management system is the start of systematically managing the environment impact factors. New business opportunities should be sought through reduction in environmental risks and development in Green Chemistry Technologies by considering environmental factors in the core decision process.

SK Chemicals is seeking to establish the environmental executing system and consider the importance of Environmental Risk Management, and it is pursuing Green systematically in terms of Culture, Process and Product to grow as the company that leads the future environment management.

Environmental Management Strategy of SK Chemicals



Environment Management Strategy

Environment Management of SK Chemicals

Environment Management of SK Chemicals has been formed by each business and the environment management before 2009 had been mainly performed in reduction (energy reduction, material reduction) and efficiency activity (energy efficiency, production efficiency). These activities were continuously executed therefore preparing the basis for environment management of SK Chemicals has been the strongest competitiveness so far. In addition, watching the chief executive being the initiative, the other employees are learning which is acting as the motivation of active environment management activity.

Establishment of Environment Management System

SK Chemicals is establishing the strategy and tasks by the mission 'Healthcare, Earthcare' and is executing by this. Also, environment management of SK Chemicals has its goal on 'Volunteer Activities 40hr/person, CO₂ reduction 40%, Green sales ratio 40%' with its vision to 'Global Leading Solution Provider in Eco-friendly Materials and Total Healthcare'. 3 parts which are Culture, Process and Product, 9 strategy tasks and 24 performance tasks were made to realize such environment management goal.

In terms of Culture, we are trying to promote the Green of the corporate culture by settling environmental management and spreading awareness about its importance. Also, we are planning to strengthen the competence of environmental communication through green IR activities, environmental reports publication and green initiatives participation.

In terms of Process, improvement in enterprise environmental management process is sought focusing on environmental data, suppliers and business management. Especially carrying out of Green Plant will be processed through environmental impact management, greenhouse gas inventory establishment and energy efficiency enhancement.

Product is the part which is the final product of the corporate activity that requires effort for Green along with Culture, Process and will make the new business opportunity by strengthening the green business competence through green business strategy establishment and new business development.

SK Chemicals Environment Management Slogan and Logo

· Slogan

Green SK! Sustainable Korea!

· Logo



* This logo is jointly used by SK Chemicals, SK E&C, and SK D&D.

SK Chemical Environment Management System Roadmap

- 2010**
- Environment Management Vision / Strategy
 - Green Point System
 - Greenhouse Gas Inventory System
 - SHEQ System
 - Waste Management System

- 2011**
- Supply Chain Environmental Management System
 - Green social contribution system
 - International regulations compliance systems
 - Environmental education system
 - Green business / product evaluation system
 - Environment Management performance assessment system

- 2012**
- Chemical Management System
 - Environment assessment system
 - Environmental Accounting System
 - Other necessary systems

Environment Management Strategy



Organization

SK Chemicals has been launching and operating Environment Management Committee that was the enterprise council since May 2009 to efficiently implement environment management and has been managing and leading the environment management of the enterprise by forming environment management task force team since January 2010.

Environment Management Committee consists of the Chair, Advisory Committee which is the advisory body, PMO (Project Management Officer) and Green Culture, Green Process, Green Product parts. Enterprise-wide role of PMO is implemented by the Environment Management Team and each secretary of the business site will act as the PMO for each business site. Environment Management Committee monthly shares and discusses concerning many topics such as the chemical material regulation, inventory establishment, green building and maintaining R&R of the secretary through the work shop and is implementing actively environment management activity such as participating in the green activity.(Environmental Management Team has been changed into Sustainability Management Team as of January 2011.)

Execution Process

SK Chemicals sets and operates KPIs for general management activity relating to relate to the environment management for the promotion of environment management. KPI concerning environment management is set to be 5% of the total KPIs for CEO KPI evaluation standard and director KPI is set to select environment management indexes as the KPI within the managing scope for each director. The goal and evaluation standard is supplied by the Environment Management Team with a guideline.

Environment Management Committee Organization

Part	Chief of Part	Secretary
Key Role	<ul style="list-style-type: none"> • Taking the initiative in attention / encouragement /practice 	<ul style="list-style-type: none"> • Same role as the 'Environment Management Team' in each business site
Culture	<ul style="list-style-type: none"> • Internal and external public relations officer • Encouraging green activities • The organizer role in social contribution activities 	<ul style="list-style-type: none"> • Environmental Management for each business site(Working closely with the Environment Management Team) • Taking Community Promoting Role • Ongoing member education in the workplace
Process	<ul style="list-style-type: none"> • Process-related regulatory / system inspection • Building inventory and certification process • Responsible for reducing the data of process in the workplace(Managing targets for greenhouse gas reduction / energy consumption) 	<ul style="list-style-type: none"> • Responding to Low-carbon Green Growth Act Corresponding Act • Construction and Verification of greenhouse gas inventory system • Environmental Performance Management for each business site
Product	<ul style="list-style-type: none"> • Green Business / Product Evaluation System • Product-related regulatory / internal corporate communications 	<ul style="list-style-type: none"> • Preparing field data related to carbon credits • Product regulation compliance • Environment-related information seeking and sharing of new business

* Chief of the part Lead/Help/Check the entire activity and substantive tasks are performed by secretary and Environmental Management Team for each business site

Environment Management Strategy

Environment Management Committee Organization

Environment Management Index

• DJSI(Dow Jones Sustainability Indexes)

DJSI is the national unit sustainability management index that was developed by the world's largest financial information company Dow Jones of United States and SAM the global asset management team of Switzerland. This is the sustainability management evaluation index that evaluates the company's economic, social and environmental values overall that is recognized as a world authority, and this will be used as an important criteria for a corporate investment. SK Chemicals was incorporated in 2010 DJSI Korea initially.

• KRX SRI(KoRea eXchange Social Responsible Investment)

KRX SRI Index consists of 70 types of good companies that came out as the result of assessing the factors that influence sustainability of a company such as Environment, Society, Governance and such among the 300 types including the companies that are listed in the Korean Exchange. Investors will easily select the sustainable company through KRX SRI and will use it in the investing decision. SK Chemicals is aiming to enter in the 2011 index and will maintain the continuous entrance in the index. SK Chemicals pursue to be evaluated its sustainable management activity objectively and will be considered by the society as the company that deals with the environmental issues such as climate change actively.

Environment Management Initiative

• UN Global Compact

The UN Global Compact is a strategic policy initiative for businesses that are committed to aligning their operations and strategies with ten universally accepted principles in the areas of human rights, labor, environment and anti-corruption. UN Global Compact emphasizes the principle of responsible investment and social responsibility of the company in the public policy through 10 principles and also emphasizes institutional investment based on the Global Compact, importance of environment, social and governance standards in capital market, importance of future leader education that will lead social responsibility of the company and reform of the lobby culture and such. SK Chemicals has joined the UN Global Compact in February 2011 and seeks to take the role of the global leading company.

• Carbon Disclosure Project

Carbon Disclosure Project (CDP) is the environment organization established in Great Britain in 2000 that discloses greenhouse gas emission and carbon management strategy of a company in over 60 countries world-wide. SK Chemicals replied to the requirement of the data and questionnaire of CDP in 2010 and has put its efforts to actively respond by direct and indirect influences by the company on the risk and opportunity by the climate change.

DJSI Korea

 Dow Jones Sustainability Indexes



Certificate of DJSI Korea

UN Global Compact



Highlight

Newly Inclusion in DJSI Korea 2010

11



DJSI (Dow Jones Sustainability Indexes) is the national unit sustainability management index that was developed by the world's largest financial information company Dow Jones of United States and SAM the global asset management team of Switzerland. SK Chemicals has newly included in DJSI Korea 2010.

Opening of Web Version Environment Management Board

24



SK Chemicals has established web version Environment Management Board (<http://green.skchemicals.com>) and used it as the place of communication for stakeholders to promote environment management performance effectively domestically and internationally as well as manage the environment management information of the company more systematically.

Free PETG Support to Haiti

20



SK Chemicals has supplied the Watercones made by PETG (Poly Ethylene Terephthalate Glycol) which have been developed by its own technology to Haiti. Watercone changes the seawater into drinking water and therefore helped supply drinking water to Haiti that has been in national crisis by the earthquake.

Green Point, Green Fund

22-23



SK Chemicals has converted the participating performance for 'Saving the Environment, Adding the Happiness' and has transferred it into Green Point and is creating the fund according to the results. The collected fund is used in the green social contribution activities and is creating the virtuous cycling green culture.

Securing Carbon Credits

36



SK Chemicals has been certified its domestic greenhouse gas reduction performance (K-CER) by using surplus bio-gas (methane gas) that have been emitted at the sewage treatment plant and waste water treatment plant.

Eco Green Boiler Operations

38-39



SK Chemicals has had the construction ceremony of the Eco Green Boiler for wood chips for the first time in the chemical industry in December 2009. Therefore, the wasted wood could be recycled and not use the fossil fuel and therefore stepping one step closer to creating the green plant that minimizes pollution.

Green Building 'Eco Lab'

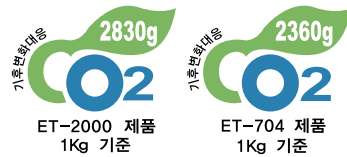
45-46



Eco Lab, the new company building in Pangyo which SK chemicals moved into in November 2011, has been certified as the first domestic working building to receive Level 1 of Energy efficiency by the Korea Energy Management Corporation and also has certified as the best level and the highest score ever in the Green certification assessment of the Green Building Committee (GBCC).

Carbon Labeling Certification Acquisition

53



Carbon labeling is the system to show the greenhouse emissions from the production to waste, and SK Chemicals has acquired the carbon labeling on SKYBON Toner resins (ET2000, ET704) which are as appertain to production goods in November 2010.

No. 1 in Domestic Market Share in Biodiesel

56



SK Chemicals provides its own brand of biodiesel, 'Eco Prime' to domestic oil companies and is especially renowned to supply the best service and product based on the stability of supply through best quality and mid to long fuel secured by proprietary production technology.

First to Develop Green High Performance Plastic Domestically

57



SK Chemicals has developed the engineering plastics, PPS (Poly Phenylene Sulfide) which is the representative green growth business that does not make any byproducts and waste water as well as consisting heat resistance and durability as the metal and is planning to go into commercial production stage from 2013.

Successful Commercialization of High Performance PETG Resin

57



High performance PETG Resin, 'SKYGREEN' is the green high performance resin that does not have environment hormone similar material, 100% recyclable and has small emission of hazardous material even in incineration. Commercialization of 'Ecozen' after enhancing the heat resistance of PETG resin was successful in 2009. PETG has succeed in resulting 12.65 billion won of sales for year 2010 alone.

Stakeholder Communication

Stakeholder of SK Chemicals

SK Chemicals receives and gives various values with stakeholders such as customer, shareholder/investor, government, member, local society, suppliers and such and is developing altogether.

SK Chemicals will establish various channels to communicate with the stakeholders who are the owner, user and controller of SK Chemicals share environmental issues through these and reflect the opinions of stakeholders in the management.

Customer

Customers are the people who grant value in the company. Value of company is when the customer selects the product as attractive. SK Chemicals that sells chemical and medicine products in the Green Chemicals and Life Science sector has wide range of customers and puts effort to enhance the satisfaction of customers by endlessly communicating with the customers.

Shareholder / Investor

Corporate management activity is only possible where there is shareholder and investor that believe in the value and possibility of the company. Major shareholder institution participates in the major decision of SK Chemicals and SK Chemicals distributes dividends by the management performance. While SK Chemicals enhances the competitiveness of the company, it also supplies the stakeholders the appropriate information at the right time to build the corporate governance structure with efficiency and competition.

Government

Company contributes to the economy of the nation through creating economic profit and jobs, and executes 1st social responsibility for the company. To add, it takes the full role as the corporate citizen through corporate management that coincides with the policy such as 'Low Carbon, Green Growth'.

Member

Member is the principal that makes the value of the company. The competence of the member is the competence of SK Chemicals and the individual potential competence of the member can be demonstrated when there is the effort made to enhance the satisfaction of the members. SK Chemicals is contributing the members to continue on with the happy life by supplying healthy environment that ables the members to continuously grow their competence.

Local Society

SK Chemicals is growing as the member of the society through cooperation with the local society such as local citizens, local government, and local environmental organizations and such. SK Chemicals actively participates in the communication with the local society while putting efforts to take the stand as the company building trust through vitalizations of the local economy through supplying jobs for the local as well as basic facility.

Supply Chain

Close cooperative system establishment with the supply chain which could be said as the basis of SK Chemicals acts an important role in the competitiveness of the SK Chemicals. SK Chemicals will put its best efforts to support multi-dimensionally for the continuous development of the supply chain.

Stakeholder Communication

Stakeholder Analysis

SK Chemicals has performed interview and survey by the internal and external stakeholders from the planning stage of the report to sufficiently reflect the opinions of the stakeholders and shares the information of plan and performance of SK Chemicals concerning information analyzes as the major interest factors of the stakeholders after the analysis.

Forming Environmental Report T/F Team

T/F Team was formed centering in the Environmental Management Team to diagnoses the environment management status, establishes strategy and writes reports that reflected the opinions of the stakeholders at the maximum. Also annual report and Environment Management Committee reports were used as the reference concerning the environmental performance.

Internal · External Stakeholder Survey and Interview

Interview and survey on the internal · external stakeholder was conducted in April 2010 to diagnose the level and understanding about the sustainability management of SK Chemicals. Also public publications, domestic and international regulations and legal data, external assessment data were revised to systematically reflect the expectations and interest of the external stakeholders concerning SK Chemicals. SK Chemicals has specifically analyzed the interest of the future direction and expectations of the stakeholders through interviews made by various stakeholders such as customer, shareholder/investor, government, member, society and supply chain and such. Based on this, role and responsibility wanted by the stakeholder is suggested and consists of the interview of the stakeholder concerning the plan of SK Chemicals.

3rd-Party Review by External Professional

SK Chemicals collected the review opinion at its maximum by appointing the 3rd-party review member who is the expertise in environment management sector. The main focus was especially whether SK Chemicals has made the relevant implementing direction in environment management as well as whether the report sufficiently reflected the opinions of the stakeholders.

Materiality Test

SK Chemicals implemented Materiality Test on the internal · external stakeholders to understand the priority and major issued for environment management. Materiality Test selected 30 indexes in the environment sector from the global guidelines of the sustainability management which is GRI (Global Reporting Initiative) and reconstructing with 24 indexes that is relevant for SK Chemicals to enhance the understanding of the stakeholders. 25%(6 indexes) of environmental performance index that is analyzed to have high materiality have been dealt as the major reporting information in the DMA(Disclosure on Management Approach) as it was the major reporting issue of the SK Chemicals' environment management, and also major corporate status and future plan was reported to the stakeholders easily for the understanding.

Interviewees

Seongnam-si City Hall Tancheon River Division
Sang Hoon Park Manager

Korean Exchange Bank Conglomerate HQ
Bok Seong Lee Team Leader

Ulsan Factory Safety & Environment Team
Ick Hwan Kim Deputy Senior Manager

Interview Method : Visit

Survey Pool

- Survey Method : **Visit and E-mail**
- Survey Participating People
Survey Participating People : **11 people**
Internal Stakeholder : **36 people**

Materiality Assessment Process

1st Step Forming the Issue Index

- GRI Index Environmental Performance Index (30)
- SK Chemicals' Customized Environmental Performance Index

Environmental Performance Index of SK Chemicals (24)

2nd Step Stakeholder Survey

- Selecting Survey Pool

Implementing Survey

3rd Step Selecting Important Issue

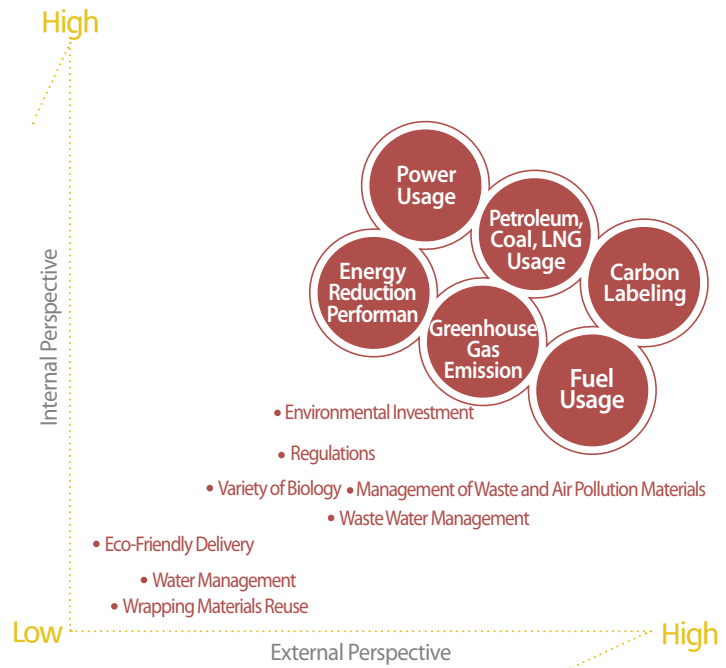
- Materiality Assessment Index Selection (Top 25%)
- Reflecting Environmental DMA

Making out performance and future plan for each important issue

Environmental Disclosure on Management Approach (DMA)

Vision

SK Chemicals selects environment as the main goal for corporate management and applies it as the prior value on the management activity overall to be renowned as the green company that fulfills its deed in its social responsibility. Especially, SK Chemicals seeks to jump as the Global Leader by successfully executing the strategic tasks in terms of Culture, Process and Product that are the main goals of the environment management. Also, environment management activity executed by SK Chemicals is expected to contribute not only to SK Chemicals but also to the sustainability of the nation and society.



Important Environmental Performance Index (Index Considered Important by the Stakeholders among SK Chemicals Environmental Performances)

Environmental Index	Classification	2009 Performance	2010 Performance	Page
Fuel Usage	Raw material usage	321,999ton	371,961ton	42
Petroleum, coal, LNG usage in building and plant	LNG	586,304m ³	605,661 m³	41
	Coal	141,621ton	156,158ton	
	B-A	1,621	135,672L	
Electricity usage in building and plant	Power usage	291,239Mwh	309,636Mwh	41
Energy saving performance such as completion of the plant as Eco-green boiler at Ulsan	Substitution rate of fossil fuels	—	22%	38
Total greenhouse gas emissions caused by managerial factors	Greenhouse gas emissions	520,120ton CO _{2e}	558,972ton CO_{2e}	35
Certification for environmental impact assessment and carbon labeling in resin for removing harmful substances in SKYBON Toner	Carbon Labeling Certification	—	2 cases	53

Stakeholder Interview



Seongnam-si City Hall
Tancheon River Division
Sang Hoon Park
Manager

Seongnam-si City Hall is implementing various social contribution activities such as river cleaning activity, water crisis recovery work, etc with the public and private companies within Seongnam-si. SK Chemicals has gone through many discussions on how to contribute to the local community starting from the preparing of entering stage of Seongnam-si and is planning to make an agreement and implement systematic social contribution activity from this year. If the existing social contribution of the companies was funding for the library or park in the local society which is a one-time activity, social contribution of SK Chemicals should be developed through the continuous partnership for 10~20 years on the long perspective. I expect that SK Chemicals will do its role as the company that represents the area as the time to discuss was long.

SK Chemicals' Answer

SK Chemicals has established continuous cooperative system with the local government Seongnam-si before the moving into Eco Lab and is planning to implement its social contribution activity focused on the Unjoong River and Soonae-dong wetland in Seongnam-si through long term contract in the future. We are aiming to be considered the number 1 company that contributes to the local society from the local government, local citizens, NGOs and the public media, therefore making the green corporate culture through social contribution activity participation of the entire employees.



Korean Exchange Bank
Conglomerate HQ
Bok Seong Lee
Team Leader

Many stakeholders such as financial institutions, equity investors, customers, etc and such are putting interests in the activity of the company and forecasts that such environmental report will act as a critical role in the investment decision procedure. Also environmental report can act as the important data as credit policy review and company stakeholders require specific information about the company. However, in order for the report to be used practically, the performance of the company must be proved as the quantitative number and come out with the relevant forecast as well as enhance the possibility of comparing with reliability based on the proved data.

SK Chemicals' Answer

This report has got 3rd-party verification from the Chungang University Accounting Institute concerning the overall report as well as the data collecting system. Also, we have sought the reliability of the report by receiving review by the external experts of the environmental sector. Other than this, we put efforts to include not only the excellence of SK Chemicals but also its weakness and points to improve.



Ulsan Factory Safety &
Environment Team
Ick Hwan Kim
Deputy Senior Manager

SK Chemicals is actively implementing the energy reduction activity by introducing the Eco Green Boiler equipment that alters the fossil fuel based boiler fuel system to non-fossil fuel boiler system in Ulsan. Not only this, it is also contributing in energy reduction by waste heat recycling, water resource reduction activity, etc. Such energy reduction activity can be the representative environment management activity as well as the actual factor to reduce costs. Such activity that fulfills the social responsibility of the company as well as receiving economic benefit will be the motivation for the company in environment management and will act positively in the long term development of environment management. Therefore, environment management of SK Chemicals pursues improvement in environment through green process establishment but should also consider contributing the economic value of the company with cost reduction.

SK Chemicals' Answer

SK Chemicals is executing energy reduction activity through energy voluntary agreement, energy diagnosis, energy reduction technology use, etc and is leading in carrying forward green process through various activities such as steam line improvement, sewage handling facility gas reuse, water handling facility improvement and such. We will create the opportunity for new business by strengthening green business competence through new business development and green business strategy establishment for economic value creation as well as efforts within the process.



GREEN CULTURE

Green Culture of SK Chemicals

Green Culture that Consists Culture of SK Chemicals Environment Management

- Environmental Communication
- Environmental Awareness by Members
- Environmental Management Education





Environmental Communication

Overview of Green Social Contribution Activities

Direction

Eco-oriented and Society Contributing Company

Target that Need Maintenance, Improvement and Healing of Environment

Signature Themes

SK Chemicals Environment Protectors

SK Chemicals and subsidiaries form everyday organization and establish supporting system for quick supporting activity to be possible.



Haiti PETG Support



Solar Cooker

Social Contribution that Thinks about the Environment

SK Chemicals is participating in the social contribution activity by forming 'SK Chemicals Volunteer' in 2004 to fulfill its role as the corporate citizen. Voluntary team of Suwon plant has executed cleaning work of Mt. Gwanggyo to protect the clean mountain and the research lab and Ulsan factory made a voluntary community to start the flare of small volunteers such as aiding the physically challenged. The volunteer team of the headquarters lead and support the social contribution activity of the entire company and is putting its best efforts to fulfill its role as the corporate citizen in the social and environment sector. SK Chemicals that goes by 'Natural Company, Natural People' wishes to fulfill all of its social responsibility by strengthening and participating in much more various environmental contribution activities within the local community.

Haiti Free PETG Support

SK Chemicals has supplied free of charge the green high performance PETG (Polyethylene Terephthalate Glycol) that is used in drinking water maker Watercone produced by German company MAGE to solve the serious water problem of Haiti that has experienced the worst quake crisis in 2010 and executed overseas crisis area support by delivering and guaranteeing to Haiti.

Solar Cookers Support

SK Chemicals is discussing with the government, NGOs and such to solve the environmental problem (forest degradation) due to lack of fuel by underdevelopment countries by distributing solar cookers. It is planning to supply considering the ease of poorest from the user perspective.

Green Fellowship Activity

SK Chemicals has started its activity by forming 'River Lovers' Club' and 'Seed Bomb Club' which are the internal 'Environment Core Groups' in 2009. 'River Lovers' Club' is the community of people who love nature and is the organization that leads in acting out the middle and long term social contribution project of SK Chemicals which is '1 company saves 1 river', continuously protecting the river. 'Seed Bomb Club' is the community consisting of people who have meanings in solving desertification and soil erosion and are in researching the specific usage method of 'Seed Bomb' to prevent desertification of China.

Environmental Communication

River and Wetland Cleaning Activities

SK Chemicals is implementing the surrounding river and wetland cleaning activities with the Suwon-si as there is Suwon plant of SK Chemicals and Seongnam-si where Pangyo Eco Lab is located. We have especially been establishing continuous cooperative system with the local government Seongnam-si since before moving into Eco Lab and will implement the social contribution activity focused in wetland of Soonae-dong and Unjoong River located Unjoong-dong of Seongnam-si through agreement in the future. Through this, SK Chemicals is able to participate in the '1 company saves 1 river' campaign that is recommended by the Ministry of Environment and will ultimately be assessed as the number 1 company that will contribute as the local society from the public (local government, local citizen, NGOs, media). Also, we are contributing to make the green culture through participating in the social contribution activity of the entire employees. Present activity is implemented according to 3 Phases which are cleaning activity, ecology restoring activity, and society contributing.

Green Social Contribution Program for Each Phase



Green Social Contribution Activity Performance

Total social contribution hours of 2010 is 524.2 hours (340 people) and is counted as 0.3 hour for each person based on the total members (1,514 people) and it is mainly implemented on the cleaning activity of the local community. There is especially the regular program in Ulsan plant such as cleaning activities in Solmaru Road and Ganjeol Cape (Pyeongdong Town) which are the most active. We will enhance the green image of the company on many stakeholders and local citizens by developing and expanding various social contribution programs such as environmental education and Eco Lab tour program along with the environment cleaning activity.

Activity Location for Each Business Site



Green Social Contribution Activity

Social Contribution Activity of Each Business Site

Business Site	Activity
Pangyo (HQ/Research Institute)	• Cleaning and restoring activity of Unjoong River and wetland ecology
Cheongju	• Cleaning activity of Mipyong River
Ulsan	• Cleaning activity of Cheoyong Park and Ganjeol Cape • Cleaning activity of Solmaru Road subjective by Ulsan-si

* Ansan/Osan that have no rivers implement connecting with the Pangyo business site

Special Feature I.

Green Point, Green Fund

SK Chemicals is making matching funds by the result of converting the participating performance by members concerning green activity such as leaving no leftover, saving energy, participating in environmental event and such into Green Point. 'Saving Environment, Adding Happiness' campaign that is using the collected fund in social contribution activity is acting as the important role to give basis for creating virtuous cycling culture focusing in the environment. This campaign has started due to lack of practice despite the awareness level of the environment problems of the members has been improved. As this can participate in contribution just by improving one's simple daily behavior, it is receiving big response from many members.

Standard of Saving Green Point

Classifications	Items	Methods	Earned Points
Organization	Vegetarian Day	Implementing the 'Vegetarian Day'	472P/time
	Waste Paper	Collecting company-widely	0.28P/kg
	Leftovers	Putting Green Stickers by members who have no leftovers	1P/person
Individual	Environmental Films	Number of Environmental Films Participants	100P/person
	Social Contribution	Social Contribution Activity Hours	50P/h
	Short post, great sharing	Environmental Management Board Posts	100P/case
	Carbon Calculator	Using the 'Carbon Calculator'	100P/case
	Carbon Points	Participating in 'Carbon Point' program operated by Local Government	100P/case
	Point Donation	Point Contribution after Connecting to Environmental Management Board	1P/time



2010 Green Point Representative Program Overview

● Environmental Films

Showing environment related films or documentaries monthly to the members of the headquarters and other business sites since May 2009.

>> **114,800 Point**

● Short Essay, Big Share

Sharing not only the up-to-date issues, information and news concerning environment but also environmental film impressions, environmental books recommendations, feelings of the daily life, green ideas and such through the board.

>> **380,430 Point**

● Carbon Footprint Calculator

Calculating the CO2 emissions of the transportation (cars, public transportation), waste, electricity, gas and water by using the 'Carbon Footprint Calculator'

>> **214,703 Point**

● Waste Paper

Used newspaper, prints, magazines, boxes and such are collected in the waste paper bin and 0.28 point is given for each 1 kg of waste paper.

>> **74,609 Point**

● Zero Leftover Campaign

Green sticker is given to the employees that do not make leftovers, and the number of green stickers is calculated at the corporate level.

>> **123,148 Point**

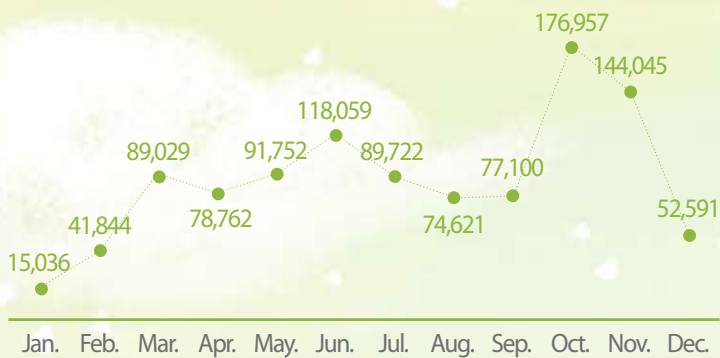
GREEN POINT

Social Contribution

Company Matching Contribution



2010 Green Point Representative Program Overview



Annual target of Green Point for 2010 was 600,000 Point (average of 283 Point for each person) and it has met the target earlier than planned on September 2, 2010 by continuous interest and response by the members.

>> **2010 Total 1,049,519 Point**

Social Contribution Activity through Green Fund

Green Fund funded by Green Point savings is used for activities related with environment and is planning to be used in two fields that is 'green' and 'polarization resolution'.



Environmental Awareness by Members

Operating Environment Management Awareness Enhancement Channel



SK Chemicals Environment Management Board



SKY Voice

Environment Management Board

SK Chemicals manages the environment management information of the company systematically and established the environment management board (<http://green.skchemicals.com>) to share the environment management performance effectively internally and externally and uses it as the tool for communication. Overall introduction of SK Chemicals environment management as well as specific task information and plan for each part (Green Culture, Green Process, Green Product) can be checked on the website.

Company Newspaper 'SKY Voice'

Role of company news is getting more important as importance of internal and external communication is being emphasized these days. SK Chemicals is aware of the company newspapers to be the center media of the communication activity within the internal members, and uses it to induce the members to participate and actively share the environment management activities, not only showing simple company news or essays. Environment management Column is included monthly and company newspaper is taking its place as the important media in the environmental communication between the internal members through operating environment corners, environment management news and introducing best employees. SK Chemicals share the environment management status externally through 'SKY Voice' that is published monthly and is implementing active communication that activates green culture internally.

Internal Environmental Broadcasting Support

Environmental broadcasting on topics of 'environment' such as environment related broadcasting sound sources, simple interpretations of hot topics is implemented in the SK Chemicals Eco Lab. Through this, we are providing opportunities to think about the environment and learn about various knowledge of environment.

Environmental Awareness by Members

Awareness Improvement Activity

Carbon Point

Carbon point is the nationwide Climate Change Action Program that is provided by the local government and it offers incentive of the greenhouse gas reduction that the house, company, commercial facility has voluntarily reduced. It is the system for each person to directly participate in the greenhouse gas reduction activity. SK Chemicals is sufficiently supporting members to participate in this system without any hardships and actually use the points.

Eco-Love Contest

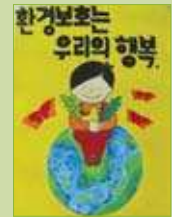
SK Chemicals held the 'SK Chemicals Eco-Love Contest' to share internally and externally about the awareness and actions concerning on how to saving the environment by the members and their families. Total of 123 works were collected such as experience essay, photo and poster with the subject 'environment', and finally there were 17 works selected for awarding. After awarding, the selected works had been displayed in every business site to be shared by all members.

Environmental Films

SK Chemicals is showing environment related films or documentaries monthly to the members of the headquarters and other business sites since May 2009. We are providing opportunity to be aware of the environment problems and pursue interests in the environment by showing environmental films that were not easy to access on a normally basis. Also, we are implementing various promotion activities such as sending e-mails and invitations to encourage the participation of the members.



Confirmation of Participation
in Carbon Point



Grand Prize Winner for Poster Sector



Grand Prize Winner for Photo Sector

Eco-Love Contest



Environmental Films

Environmental Awareness by Members



Zero Leftovers Campaign



Donating Discarded Cell Phones



Green Soap



Setting PC Standby Mode

Zero Leftovers Campaign

SK Chemicals is implementing Zero Leftovers Campaign in the sense to reduce the cost of waste disposal by reducing the food waste occurred in the employee cafeteria. Green sticker is given to the employee that does not make leftovers and the number of Green Stickers is calculated at the corporate level. Also, the leftover is recorded every month and we are showing the participation rate of Green Stickers to pursue active participation in the campaign.

Donating Discarded Cellular Phones

SK Chemicals collected 143 discarded Cellular phones by starting the internal discarded Cellular phones donation activity for 2 weeks in August 2010. Collected cell phones have been donated to the 'Waste Metal Resource Recycle Business' which is part of the 'City Mine Project' implemented by the Seoul-si and have contributed in enhancing the resource problem as well as preventing pollution by recycling the waste metal resource into important resource.

Making Green Soap

SK Chemicals is self-making green laundry soap by recycling the waste oil that is thrown away in the employee cafeteria. The produced green soap is sold to the employees at a low price and the collected fund is used as the social contribution activity fund which is being the good example of 'Saving Environment, Adding Happiness'.

PC Standby Mode Setting Campaign

Environmental broadcasting on topics of 'environment' such as environment related broadcasting sound sources, simple interpretations of hot topics is implemented in the SK Chemicals Eco Lab. ThrouSK Chemicals is implementing the PC standby mode setting campaign to make a small practice altogether to pursue the habit and culture of the interest and participation of the environment management activities. Through this, we are pursuing reduction of energy consumption which is the actual accomplishment as well as setting the culture that cares for the environment.gh this, we are providing opportunities to think about the environment and learn about various knowledge of environment.

Environmental Awareness by Members

Awarding Excellent Participants in Environment Management

Special incentives are provided to the excellent participants who collected Green Points by actively participating in the 'Saving Environment, Adding Happiness' campaign. Through this, motivation to participate in the campaign was given and helping of the environment management activity was settled.

Incentive Plan for Encouraging the Best Participants

Classification	PMO Awards	Environment Management Chairman's Awards	CEO Awards	
Award Cycle	Monthly	Quarterly	Yearly	
Nominees	Best Individual Participants (3)	Best Department Participatants(3)	Best Individual Participants (3)	Best Department Participatants(3)
Standard	1st, 2nd, 3rd Most Earned Points	1st, 2nd, 3rd Most Points per Person	1st, 2nd, 3rd Most Earned Points	1st, 2nd, 3rd Most Points per Person
Notes	Excluding PMOs and Working Staff			



Awarding Best Participant in Green Point

2010 Award Record

Award Classification	Ranking	Department	Winner
Best of Individual	1st	BE Production Team	Ki Jung Jang
	2nd	BE Production Team	Bong Gyu Kim
	3rd	Resin Production Team	Hyo Jin Kim
Best of Department	1st	BE Production Team	
	2nd	Safety and Environment Team	
	3rd	Ulsan) Managerial Support Team	

Environmental Management Education



Environmental management Education for new employees



Environment Management Briefing Session

Environmental Management Education of SK Chemicals has been implemented from the active internal and external participation of environmental management education by the CEO in 2009. It is strengthening the environment management competence of the members by preparing systematic education system through the strong will of the CEO in environmental management education.

Environmental Management Education System

SK Chemicals is operating the environmental education program to increase the awareness level of the members in environment management and find potential competence. Education program is divided into 3 stages which is introductory education, sharing education, and level up education.

Course Outline

Classification	Students	Courses	Notes	Annual Schedule and Cycle	Timing of Implementation
Timing of Implementation	New / Experienced Employees	Environment Management Practice	Online Education (Group - wide) Initially, all employees underwent target	When joining the company	Dec, 2010
		Environmental Management	A set of training conducted	When joining the company	Implementing
Sharing Education	New / Experienced Employees	Environmental Management Presentation	Regular plans and amended information	When in need	Implementing
LEVEL UP Education	Staff / Practitioner	Environment and Happiness	Invite outside speakers Lecture topics: environment + happiness	Annually	2011
	Specific position	Environmental Business Workshop	Encourage knowledge sharing for each related position in environmental management	Annually (Sep.-Oct.)	2011
	Staff / Practitioner	Intensive Education	Policy trends Learn the latest information	More than once a year/person	2011
		Radio Education	Radio education within the Environmental Management Committee	After intensive education	2011

Introductory education teaches basic concepts of environment management, necessity, vision and goals of SK Chemicals and is planning to prepare the basis for green culture through this. In the sharing education, strengthening of green culture practice is implemented by sharing environment management performance, plans and special issues. Level up education is the process to find and grow the experts by learning up-to-date information domestically and internationally and teach environmental mind. Such systematic environmental management education can help internalize Green Culture, strengthen Green Process, Green Product competence and contribute for each member to find the future direction.

Environmental Management Education

Corporate Environmental Management Education

SK Chemicals has implemented education concerning environment management to the headquarters and business sites. Introductory education and sharing education were made by the Environmental Management Education System procedure in 2010, and level up education was mainly proceeded by the external education participation to the secretary and work staffs of the environment management. There were many education topics such as Low Carbon, Green Growth Act, responding to climate change, carbon emission trading, greenhouse gases, energy Fourthly, green chemistry, ISO26000 and such and after the training distribution education was implemented to develop into the sustainability management activity as well as helping the environmental management activity after taking the education. We are pursuing the improvement of the knowledge level of the members concerning the environment by operating the planned education program actively other than this.

2010 Environmental Management Education Performance

Classification	Courses	Education Hours	Specification
Introduction to Education	Group Environment Management Online Education	3h	· Education for All Employees(94% if 1243 people completed course, has been a new target since '11)
	Environmental Management Training for New Employees	2h	· Implementation of new employee training set
Sharing Education	Environment Management Seminar	2h	· Training for all employees · Collective education for each business site (Headquarters, R&D Center, Ansan, Osan, Cheongju, Ulsan)
LEVEL UP Education	Further Education	4h	· Green Chemistry Seminar
		4h	· Low Carbon, Green Growth Basic Law Seminar
		8h	· Climate Change and Carbon Emissions Trading Education
		4h	· Greenhouse gas certification seminar
		16h	· Greenhouse gas energy education goal management education
		4h	· ISO26000
	Spreading Education	8h	· SK Chemicals Environment Management issues shares (May) · Share performance and plans, Developmental environment for business discussions (Nov)



Online Education (Group-wide)



Green Chemistry Seminar



Environment Management Committee Workshop

GREEN PROCESS

Green Process of SK Chemicals

Center of the Green Plant of SK Chemicals' Environment Management is the **Green Process**

- Environmental Information Integrated Management
- Strengthening Climate Change Strategy
- Green Plant Establishment
- Supply Chain Environmental Management
- Strengthening Risk Management





Environmental Information Integrated Management

SK Chemicals selected the Environment Management organization and Environment Management policies for the systematic Environment Management and is operating the system for its practice.

SK Chemicals is planning to implement development of environmental assessment, establishment of environmental performance evaluation system, introduction of environmental accounting system, establishment of integrated Environment Management information system based on the environmental information integrated management.



Ulsan ISO14001 Certificate



SONY Green Partner Certificate



SHEQ System

ISO14001 Certificate

SK Chemicals has acquired ISO14001 certificate by the environmental information integrated management and is pursuing maximization of Environment Management by maintenance and management. SK Chemicals has introduced management system by ISO14001 in the company overall to manage the environmental influence factors produced from the corporate activity and is implementing systematic management by forming organization and reorganizing the management system. Also, corporate Environment Management performance is assessed regularly and potential environmental risk as well as environmental information integrated management operating status is monitored through environmental diagnosis of the headquarters and the sites.

SONY Green Partner Certificate

SK Chemicals has been certified to possess the product and Environment Management System that goes abide by the requirement of the green partner program of SONY in 2009. SONY Green Partner Certification system is the certification granted after monitoring the whole production process till the final product has been made from raw material, which means that the Environment Management level of SK Chemicals meets the global standards.

SHEQ System

SK Chemicals has established and is operating the integrated information system concerning Safety, Health, Environment and Quality (SHEQ) in September 2005. Accidents current status, environmental impact, education and training and other safety, health, environment-related indicators are managed and related events, major announcements is shared through this.

Environmental Information Integrated Management

Environmental Information Integrated Management System

SK Chemicals plans to establish Environmental Information Integrated Management System to integrate the internal various information systems for efficient management and usage of Environment Management information and to create system to share the information collected by each business site. RTIS (Real Time Information System), SHEQ system, greenhouse inventory system and such environment related IT system level is diagnosed and is planning to establish Integrated Environment Management Information System information system building road map after creating improvement and integrating method for this.



Efficient Information System Establishment

Environmental Accounting

As global environmental problems such as global warming is accelerating environment cost managerial accounting is considered as the important part in the corporate management. Therefore, SK Chemicals takes aware of the importance of the environment cost managerial accounting and is putting effort to calculate and measure the environment cost and reflect this in the decision process as well as sharing such facts to the stakeholder. At this present, Ulsan plant is aggregating cost related with environment such as pre- and post-processing environment activities cost, stakeholder activities cost, regulatory response and restoration activities, environmental equipment investment and etc. This will support quick decision process related with corporate management and contribute in strengthening the transparency of the Environment Management information. For more effective environmental cost management, we are planning to establish environmental accounting system in year 2012 and implement basic design of environmental accounting system such as environmental investment, environmental costs, subject of the classified category, accounting system linked suggestions, substantially improved utilization and etc., in year 2011.

Ulsan Plant Environmental Cost Management

Unit : million won

Classification	2008	2009	2010
Cost of Post Management Activities	1,092	1,536	2,788
Cost of Prevention Activities	422	376	456
Cost of Stakeholder Activities Cost	154	43	35
Cost of Regulation Response and Restoration Activities	0	0	0.5
Environment Facility Investment	3,043	10,360	3,431

Strengthening Climate Change Strategy

Energy Reduction Activity

SK chemicals is responding to the environmental change such as global warming by completely managing and efficiently using the energy as well as promoting the effect of production cost reduction by equipment investment related with energy reduction. On the other hand, the increase of 'self generator and improvement in energy efficiency' which were the existing energy reduction activities have been changed to 'energy absolute usage reduction' after 2008.

Signing and Implementing of Energy Voluntary Agreement

Energy Voluntary Agreement (VA) is the unregulated policy method setting and implementing energy conservation and greenhouse gas emission reduction goals, driving schedule, and monitoring methods that companies produce, supply and spend energy sign on the agreement with the government or the local government. SK Chemicals has joined the agreement and is therefore implementing, actively responding to the climate change policy of the government. Ulsan plant has been renowned as the good business site in 2006, 2008 by the Korea Energy Management Corporation and has been selected as the no.1 energy reducing business site in 2006, among the 1,021 business site that has joined the voluntary agreement. This could be the result based on 22% reduction of greenhouse gas emission, reduction of energy cost of 30 billion one and 400 idea suggestions made by the employees relating to energy reduction and greenhouse emission reduction.



VA Best Business Site Certificate

Result of Energy Diagnosis

Classification	2008	2009	2010
Investment Amount (million won)	23	1,258	3,500
Payback (yearly)	0.6	1.2	1.8

Energy Diagnosis

SK Chemicals is implementing energy diagnosis in Ulsan plant to find the optimized improvement methods for reducing energy, finding the loss factor, and realizing the energy usage status in the overall energy using facility such as supply sector, delivery sector, and usage sector of energy. Improvement methods such as efficient operating of the electricity machine and optimization of boiler air was resulted through diagnosis and tried to improve the energy usage efficiency and identify the energy loss in the process. This present, energy loss factor is improved early by the energy diagnosis, and seeks to transfer to the energy low consuming industrial structure through restructuring and securing energy saving equipment. Based on these efforts, we are preparing the basis to respond to the future influence of climate change agreement and granting of national obligation to reduce greenhouse gas reduction.

Strengthening Climate Change Strategy

Establishing Greenhouse Gas Inventory System

SK Chemicals has established Greenhouse gases Inventory System based on IT for management of the greenhouse gas emitted at each business site and has also prepared not only the efficient energy management but also the basis to respond to the 'Low Carbon Green Growth Act' implemented by the government. In case of Ulsan plant, this system has been established and operated since 2009 and the integrated verification has been finished in December, 2010. Ansan, Osan, Cheongju plant that are in the LS business site have established separate system and verification which is in process. SK Chemicals will reduce the greenhouse gas emission by implementing the reduction facility and substituting the fossil fuel that is used at this present.



Greenhouse Gas Inventory System

Calculating greenhouse gas emissions

1 Energy Consumption

Total usage of annual energy of the SK Chemicals business site by fossil fuel(B-C, B-A, Eco-300, LNG, LPG, Diesel, kerosene, coal), gas from waste water treatment facility, wood chip and electricity was estimated and the indirect greenhouse gas emissions occurred by the usage of the office energy and member business trip is not included in the present result.

2 Calorific Value for Each Energy Source

The calorific value for each energy source was applied from Energy Basic Law Enforcement Regulation (Article 5, paragraph 1 star).
 B-C: 39.1MJ/liter, B-A: 36.6MJ/liter, Eco-300: 32.9MJ/liter,
 LNG: 40.0MJ/kg, LPG: 46.3MJ/kg, Diesel: 35.4MJ/liter,
 Kerosene: 35.0MJ/liter, Coal: 24.9MJ/kg, Wood chip: 14.7MJ/kg

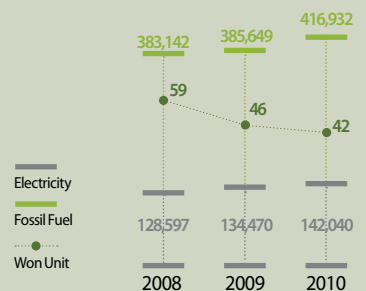
3 Greenhouse Gas Emission factor for Each Energy Source

Greenhouse Gas Emission factor for Each Energy Source was applied from 2006 IPCC (Intergovernmental Panel on Climate Change).
 B-C(CO₂: 77,400kg/TJ, CH₄: 3kg/TJ, N₂O: 0.6kg/TJ), B-A(CO₂: 77,400kg/TJ, CH₄: 3kg/TJ, N₂O: 0.6kg/TJ), Eco-300(CO₂: 79,600kg/TJ, CH₄: 3kg/TJ, N₂O: 0.6kg/TJ), LNG(CO₂: 64,200kg/TJ, CH₄: 3kg/TJ, N₂O: 0.6kg/TJ), LPG(CO₂: 57,600kg/TJ, CH₄: 1kg/TJ, N₂O: 0.1kg/TJ), Diesel(CO₂: 74,100kg/TJ, CH₄: 3kg/TJ, N₂O: 0.6kg/TJ), Kerosene(CO₂: 71,900kg/TJ, CH₄: 3kg/TJ, N₂O: 0.6kg/TJ), Coal(CO₂: 94,600kg/TJ, CH₄: 1kg/TJ, N₂O: 1.5kg/TJ) Woodchip(CO₂: 112,000kg/TJ, CH₄: 1.0kg/TJ, N₂O: 0.1kg/TJ)

Greenhouse gas emission quantity was calculated based on the published KPX homepage announcement (Jan. 2010) data and 'Development of Power Sector Greenhouse Gas Emission Factor' published by KPX.

Greenhouse Gas Emissions of SK Chemicals

Unit : ton CO₂e, ton CO₂e/10 billion won



* Based on the greenhouse gas emission charge, the total emission quantity occurred by SK Chemicals stated (including sales), actual emission of SK Chemicals is 30~33% of the total emission.

Strengthening Climate Change Strategy

Greenhouse Gas Reduction Activity

Carbon Emission Credits Acquirement

SK Chemicals received domestic greenhouse gas reduction performance certification (K-CER) by being renowned by the greenhouse reduction activity using surplus biogas (methane gas) that occurs in the plant waste water treatment facility or the sewage treatment facility as the fuel.

Greenhouse gas reduction performance is 5,319 tons of CO₂ in 2007, 3,792tons in 2008, 2,945 tons in 2009 and 2010 performance is in the process of certifying.



Greenhouse Gas Emissions Reduction Performance Certificates

Steam Line Improvement

SK chemicals reduced the electricity usage and occurrence of greenhouse emission gas by alternating the process(distillation, Azeo Column) using 6.0kg/cm² into partly 3.0kg/cm² steam. Decompression also occurred giving the generators the extra making it possible for additional generating of 1/3 of the existing generation. Also, the efficiency of process was increased by reducing the leakage of the steam of the process through improvement in the steam line. To add, the waste thermal collecting only pipe was installed contributing the energy efficiency through recycle of the waste thermal.



Waste Heat Recycling (Daily Chosun article)

WWT Gas Mixed-Burning

SK Chemicals reduced the greenhouse gas of 3,200 ton CO₂ per year by using the fuel of the boiler with WWT (Waste Water Treatment) gas occurred in the waste water of Ulsan plant. This not only removes the greenhouse gas(methane gas) occurred in the waste water but also reduced energy(B-C) contributing in reduction of greenhouse emission and cost.

Reuse of Sewage Treatment Gas

SK Chemicals reuse the greenhouse gas emitted to the air by using the fuel of boiler the methane gas that occurs in the sewage treatment plant in the Ulsan-si and has accomplished 2 types of effects which were environment protection and energy reduction.



Sewage Gas Recycling Business License

Strengthening Climate Change Strategy

Improving Performance of Air Booster Compressor

Electricity fee, materials cost, labor cost was reduced through improving equipment of air booster that was old by operating for 16 years since 1989 in Ulsan Plant. Air booster is the facility to supply the necessary air stably to the 2nd oxidization reactor during PTA product producing process and the installation of the dehumidifier for removing moisture, and constant improvements to clean water was proceeded. As a result, 210million won of cost was reduced per year as well as non-financial effect such as process stabilization as well as reduction in workload was resulted.

Stoppage of B-C Boiler

SK Chemicals' Ulsan plant was operating one coal boiler and one B-C boiler for the plant in 1990's. SK Chemicals that seeks efficiency in energy stopped operating the B-C boiler in 2003. Stopping the operation of one boiler means reducing 27% of thermal for producing the same amount of product and this is the effect of reducing energy cost of 4 billion won (energy cost standard in 2003) annually.

It is a rare case to see that there hasn't been one accident while operating the plant with only one coal boiler after halting the operation of the B-C boiler.

Water Treatment Improvement

Osan plant installed Reverse Osmosis System and UV equipment which is the water quality cleaning equipment for the efficiency improvement of the water treatment process and remodeled the MBD (Mixed Bed Demineralizer) system and Activated Carbon Filter which is the ion removing equipment. Also, graphic and remote monitoring of water treatment system was realized by building water treatment equipment control system applying integrated control method of the water treatment equipment. Through this 40 million won of cost is expected to be reduced and bring the realization of stabilization of the producing water quality as well as handling as kinds of audits.

Replacing Old Equipment and Facility

SK Chemicals is putting its best effort to realize the cost reduction and environment protection by preventing and minimizing the environment pollutants during the entire process related with the production of the product. 4~5 billion won is invested to replace old equipment in the Ulsan plant and energy efficiency increase and strengthening of safety is established. To add, 25 million won is reduced annually by installing water saving equipment in shower, sink, toilet, general water pipe within the business site.



Improvement of Water Treatment Facility in Osan Plant

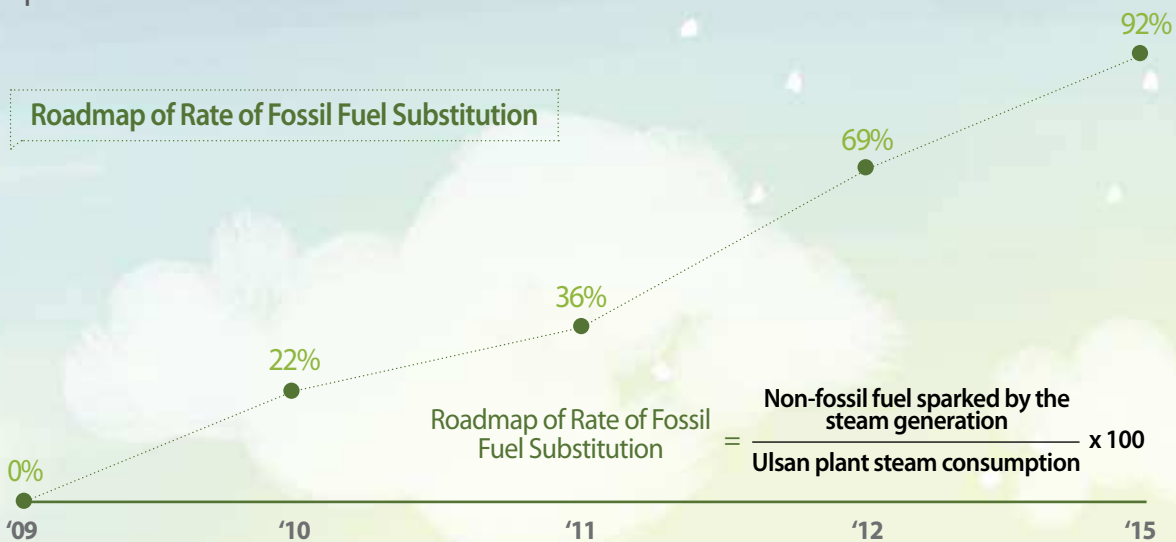


Water Saving Devices

Special Feature II.

Eco Green Boiler

SK Chemicals has established the greenhouse gas reduction strategy which is alternating the fossil fuel based boiler fuel system into using non-fossil fuel. Through this EGB (Eco Green Boiler) was constructed and operated just for wood chips in 2009 and 22% of alternative performance was accomplished in 2010.



SK chemicals made the rate of substitution of fossil fuels road map based on the standard in 2009 aiming for the zero fossil fuel in 2015. We are planning to aim for 69% of the rate of substitution of fossil fuel through increasing production of eco green boiler in 2011 and increasing mixed combustion of coal boiler in 2012, and in 2015, is aiming to construct eco green boiler no.2 for the substitution rate of 92%. This goal is the Visionary Plan which was made in line with the climate change response and green plant and is a challengeable goal which can only be accomplished by all the members of SK Chemicals operating and cooperating altogether. We will put our best efforts to grow as the zero fossil fuel no. 1 company through such challengeable goal and practice.

Eco Green Boiler

- Responding to Climate Change Agreement
- Making Base of Environmental Business for the Future Value Creation
- Securing Utility Infra for Future Support to New Business
- Stable Operation through Wood Chip Market Preemption



SK Chemicals will use less of approximately 76,800 tons of bituminous coal annually by the Eco Green boiler operation and the air pollutants will reduce about 440 tons annually by using wood biomass such as waste wood as the energy source and the greenhouse gas will reduce to 55 thousand tons annually. Through this, SK Chemicals Ulsan plant is maintaining the fossil fuel usage of 1990's at this present despite the twice increase of the process and production quantity and is implementing actively various activities on the goal to establish Green Plant that minimizes energy usage and environment pollution for the reduction of greenhouse gas by using methane gas from surrounding sewage treatment facility since 2004. Eco Green boiler uses only the waste wood and is the only boiler in the nation that produces steam which has a bigger meaning. Not only this, it acted as the motivation for SK Chemicals to set one step higher to the establishment of Green Plant that minimized pollutants by not using the fossil fuels.

Glossary

Biomass

Bio material from living, or recently living organisms

Wood Chip

Fuel made by crushing the waste wood with machine to recover energy

Wood Biomass

Solid fuel made from pellet, chip from wood that grew through photosynthesis process

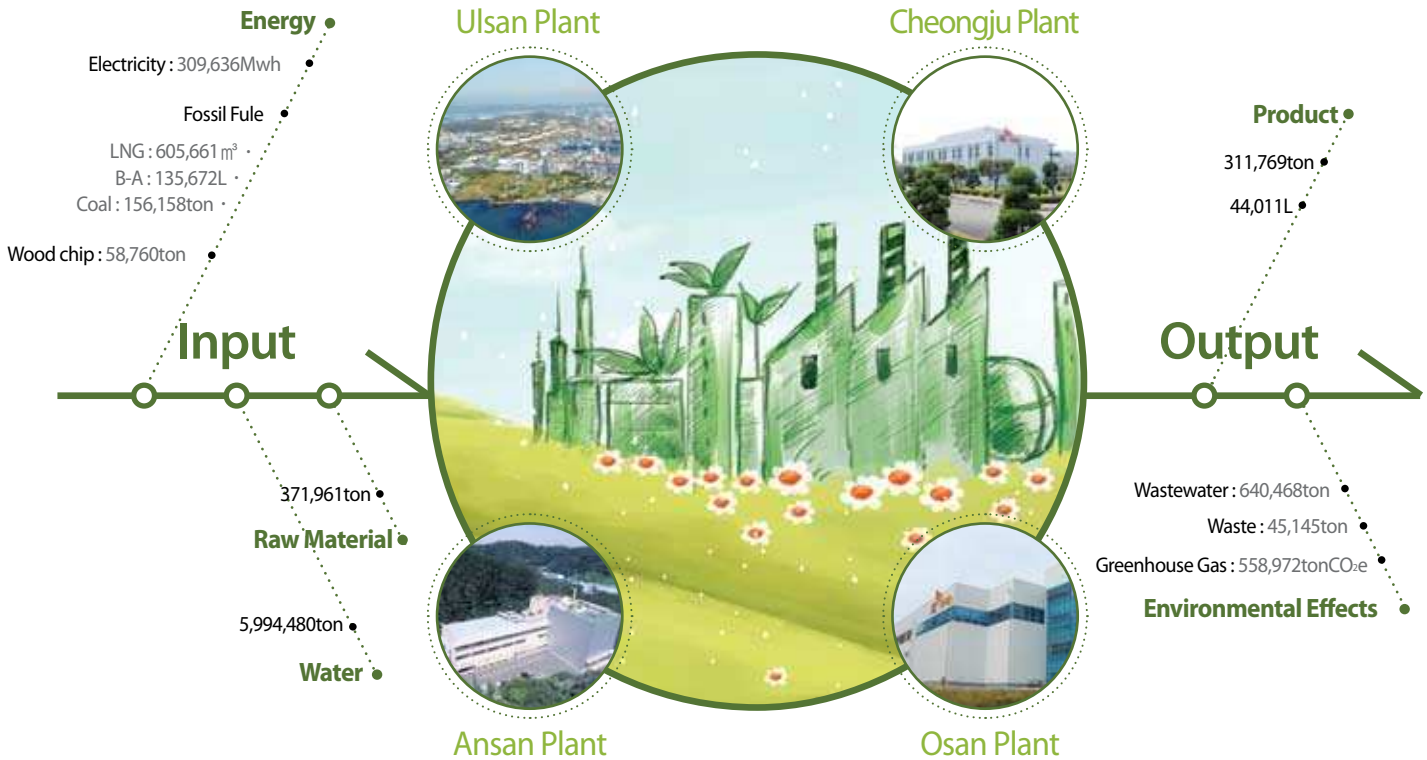
Carbon Neutral FLOW of Eco Green Boiler



Green Plant Establishment

SK Chemicals is implementing various activities setting the goal of establishing Green Plant minimizing energy usage and environment pollution through low carbon resource cycle type industrial structure building. It is especially focusing on the reduction of greenhouse gas emission through using non-fossil fuel and reducing energy by fossil fuel. Also, the members in each business site are making the idea list for establishment of Green Plant and those ideas are reflected in the operation of business site considering the expectations and possibility for realization.

2010 Input FLOW



* Environment data is the status of 4 business sites. (Ansan, Osan, Ulsan, Cheongju plant) (However, data of Cheongju plant is from July, 2009 which was the time of acquisition.)

Green Plant Establishment

Energy Management

All the business sites of SK Chemicals are implementing various activities for efficient use of energy and reduction in its usage and the energy usage compared with the sales have reduced.

Electricity Consumption

Unit : Mwh, Mwh/100 million

	2008	2009	2010
Electricity Consumption(Won Unit)	277,897(32)	291,239(26)	309,636(23)

Fossil Fuel Usage

Classification	Unit	2008	2009	2010
B-A	L, L / 100 million won	148,596(17)	159,294(14)	135,672(10)
B-C	ton, ton / 100 million won	44,896(5)	42,900(4)	40,007(3)
LPG	m ³ , m ³ / 100 million won	610(0.1)	63,928(6)	336,916(25)
LNG	m ³ , m ³ / 100 million won	587,238(68)	586,304(52)	605,661(45)
Diesel	ton, ton / 100 million won	49(0.006)	9(0.001)	436(0.033)
Kerosene	L, L / 100 million won	1,222(0.14)	1,215(0.11)	1,231(0.09)
Coal	ton, ton / 100 million won	139,906(16)	141,621(12)	156,158(12)
Refined oil	ton, ton / 100 million won	-	-	4339(0.3)

Wood Chip Usage

Classification(Won Unit)	Unit	2008	2009	2010
Unit	ton, ton / 100 million won	-	-	58,760(4)

Water and Wastewater Management

Wastewater that comes out of each business site of SK Chemicals is handled by the wastewater treatment facility within the business site or is rehandled in the final treatment facility. SK Chemicals is actively implementing the improvement activity to reduce the water pollution materials as well as the basic reduction of the wastewater emission.

Water Usage

Unit : ton, ton / 100 million won

	2008	2009	2010
Water Consumption(Won Unit)	5,081,479(588)	5,060,049(445)	6,042,400(453)

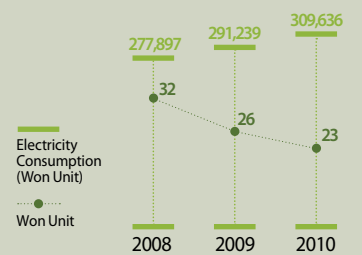
Wastewater Production

Unit : ton, ton / 100 million won

	2008	2009	2010
Wastewater Production	460,124(53.2)	597,732(52.6)	640,468(48.0)

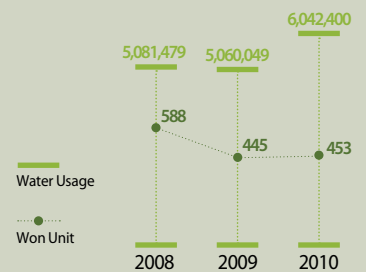
Electricity Consumption

Unit : Mwh, Mwh/100 million won



Water Usage

Unit : ton, ton / 100 million won



Wastewater Production

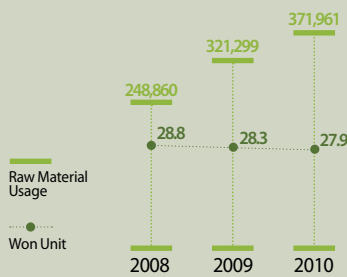
Unit : ton, ton / 100 million won



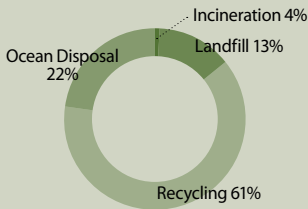
Green Plant Establishment

Raw Material Usage

Unit : ton, ton / 100 million won

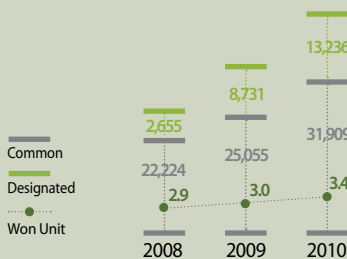


Waste Disposal Methods



Waste Production

Unit : ton, ton / 100 million won



Raw Material Management

SK Chemicals tries to enhance the efficiency of raw materials through production management such as raw material consumption management, inventory management of raw materials, inputs and outputs management and such. To add, efforts are put in using the limited resources efficiently to contribute to the improvement of sustainability of resource management and not only the overall environmental influence.

Raw Material Usage

Unit : ton, ton / 100 million won

	2008	2009	2010
Raw Material Usage(Won Unit)	248,860(28.8)	321,999(28.3)	371,961(27.9)

Waste Management

SK Chemicals is handling all the waste occurred within the business site legally and hygienically based on the waste handling regulation and is preventing 2nd hand pollution by the waste. To add 'Method to Manage Wastewater Facilities' was established to handle all the waste water occurring within the plant legally and safely based on the law concerning water quality and ecology, minimizing the environment pollution.

Ulsan plant came out with the result of enhancement of purification efficiency, reduction of raw material usage and high quality guarantee by recycling waste occurred during the purification process of acetonitrile (organic cyanide). In 2010, the corporate waste handling quantity was 450 thousand tons (handling cost : 1.34 billion won) which 98% occurred in Ulsan plant and the rate of recycling is 61.5%.

Waste Treatment Performance

Unit : Ton, 100million won

Classification	Incineration	Landfill	Recycling	Ocean Disposal	Total (Disposal Cost)	Recycling Rate
Ulsan	982	5,679	27,661	9,923	44,245(12.08)	62.5%
Ansan	50	1	19	0	70(0.22)	27.1%
Osan	673	18	59	0	750(1.07)	7.9%
Cheongju	34	0	46	0	80(0.04)	57.5%
Total	1,739	5,698	27,785	9,923	45,145(13.39)	61.5%

Green Plant Establishment

Air Pollutants Management

SK Chemicals regularly measures the emission concentration of the air pollutants and operates the TMS (Tele-Monitoring System) that monitors the pollutants emission status 24 hours and is implementing monitoring through self-measuring. To add, it is implementing pollutants reduction through installation of air pollutant prevention facility and change of fuel.

Air Pollutant Concentration

Classification	Dust(mg/Sm ³)			SOx (ppm)			NOx (ppm)		
	2008	2009	2010	2008	2009	2010	2008	2009	2010
Ansan Plant	17	15	11	4	15	17	58	161	166
Osan Plant	7	9	10	11	14	2	21	24	30
Ulsan Plant	6	6	7	96	88	73	156	151	98
Cheongju Plant	-	8	8	-	-	-	-	-	-

* Cheongju plant does not have SOx, NOx generation in its process.

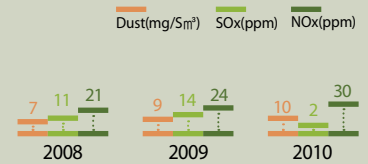
Hazardous Chemicals Management

SK Chemicals is preventing environmental pollution by dividing the waste occurred in the lab and establishing the regulation of the process 'Laboratory Waste Disposal Regulations' to waste and thoroughly implementing the safety management of the lab and the tester. To add, business site manages, uses the chemical materials safely and prepares the chemical material management regulations to minimize the direct and indirect influence to the body and prevention of the environment pollution by the chemical materials as well as managing the related information through the SHEQ (Safety Health Environment Quality) system.

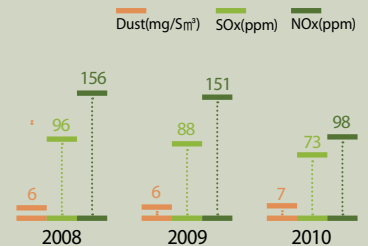
Air Pollutant Concentration - Ansan plant



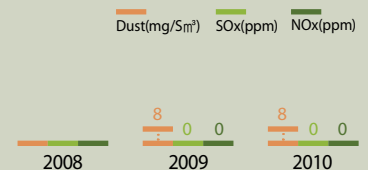
Air Pollutant Concentration - Osan plant



Air Pollutant Concentration - Ulsan plant

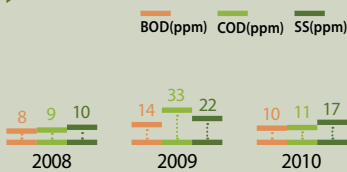


Air Pollutant Concentration - Cheongju plant

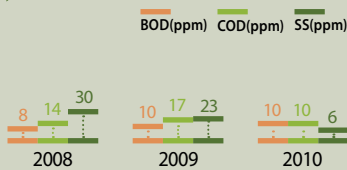


Green Plant Establishment

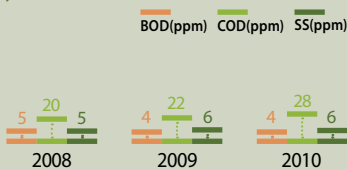
Water Pollutant Concentration - Ansan Plant



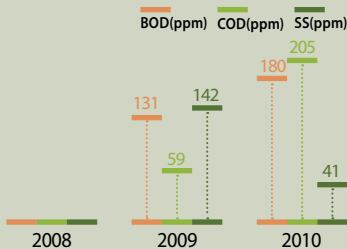
Water Pollutant Concentration - Osan Plant



Water Pollutant Concentration - Ulsan Plant



Water Pollutant Concentration - Cheongju Plant



Noise Measuring on the Site

Water Pollutants Management

SK Chemicals is reporting the quantity of water pollutants by emitting facility and is continuously maintaining after getting certificate by the autonomous inspection company in 2006. We are putting efforts in the minimization of the environmental influence by monitoring the emission of water pollutants by implementing pollutants analysis of the water regularly.

Water Pollutant Concentration

Classification	BOD			COD			SS		
	2008	2009	2010	2008	2009	2010	2008	2009	2010
Ansan Plant	8	14	10	9	33	11	10	22	17
Osan Plant	8	10	10	14	17	10	30	23	6
Ulsan Plant	5	4	4	20	22	28	5	6	6
Cheongju Plant	-	131	180	-	59	205	-	142	41

Land Pollution Management

Land Pollution is recently being emphasized on its importance as it not only has its harmfulness environmentally but also causes negative influence in the land asset evaluation. Therefore, SK Chemicals has strengthened the premonitoring monitoring concerning the land pollution management in the business site. Osan plant closed the boiler storage facility that causes high possibility of land pollution and changed the fuel from B-C to LNG minimizing the possibility of occurring land pollution. Also, Cheongju plant received determination of soil contamination and leak detection industry exemption from Korea Occupational Safety and Health Agency (KOSHA) and Ulsan plant received Suitable soil pollution measuring resulting decision from Korea Testing Laboratory (KTL).

Noise and Smell Management

SK Chemicals is abiding by the noise and smell standard of the business site and is implementing active noise and smell management by using professional consulting agencies, sharing the standard abiding fact with the city hall and the citizens. Especially, Osan plant has processed the noise preventing facility and smell removing equipment construction to block the noise and smell complaints that have occurred in the existing ice container and research lab. During this process, the surrounding noise identification and evaluation on the legal standard was proceeded through the noise measuring and smell evaluation, and as a result the muffler was installed as well as the noise preventing room as well and activated carbon bed (capacity : 80Am³/min).

Green Plant Establishment

Eco-friendly Building ‘Eco Lab’

Pangyo headquarters building (SK Chemicals Eco lab) that SK Chemicals has moved into in November, 2010 is the first domestic office building to acquire certification of level 1 in energy efficiency of Korea Energy Management Corporation and proved to be the highest ranking no. 1 in GBCC assessment. Also, it is the first domestic office building that is planning to acquire platinum level in the LEED assessment (May, 2011) that is the representative overseas eco-friendly certificate assessment that UGBC (U.S. Green Building Council) has developed and implemented. Eco-friendly building has been realized in the best low energy building by applying 60 types of general technology and 11 types of eco-friendly technology totaling up to 101 types of techniques and applied the integrated system to maintain the optimized efficiency within the applied techniques in the operation · maintenance stage after the construction.

Eco-friendly Effect of Eco Lab

Energy Reduction

Eco Lab is expecting over 40% of energy reduction than the general building as it is the eco-friendly building that applied 3 glasses of energy efficiency, radiant cooling systems, floor air supply systems, and LED lighting. Also, in the operation stage, we are planning to monitor the energy reduction status by implementing the BEWMS (Building Energy & Water Management System) every quarter.

SK Chemicals is leading in using renewable energy such as the solar and land thermal energy. The electric generator from solar and land energy was each 2,321kwh and 1,720kwh after moving in to the Eco-lab from October to December in 2010, and this is the electricity that could run 130 computers (300W) for 1 month (8hour/day). In the future, we will expand the generating energy through renewable generating system through systematic management and monitoring.

Water Resource Reduction

Eco-Lab has introduced sanitary equipment (faucet, shower, dry urinals, etc.) to reduce water use, applied gray water/rain water system and reduced use of water to 60%.

Preventing Air Pollution

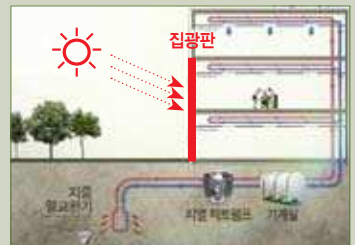
Eco Lab consists of 70% of green land on the rooftop and tried to prevent heat island phenomenon by applying high reflective materials and installed freezers, fire extinguishers that does not include Halon, Freon(chlorofluorocarbon) that destroy the ozone layer.



Eco-friendly Building Certification



Eco Lab View



Renewable Energy Generation System



Water Saving & Recycling System

Green Plant Establishment



Green Rooftop



Terrestrial, Aquatic Biotopes



Air Pollution Prevention by OA Equipment



Bicycle Parking Lot



Pangyo Headquarters Tour



Pangyo Headquarters Tour

Preserving Ecology

Eco Lab applied the species that does not harm the ecology of the local area and therefore protecting the local ecology as well as consisting flora and fauna habitat by creating terrestrial and aquatic biotopes.

Indoor Air Quality Enhancement

Eco Lab has prevented symptoms of sick house syndrome by using the relevant inner material that is relevant to the United States' IAQ (Indoor Air Quality). To add, machines that make pollutants such as copy machine and fax are operated in the closed OA room and applied individual air conditioning system therefore preventing the inner pollution. In case of external pollutants, Buffer Zone (space where dust is collected at the bottom) and high-performance filter is installed at the lobby to prevent from inflow to the inner building.

Pursuing Eco-friendly Activity

Eco Lab has considered the accessibility of public transportation when selecting the land at the first place. Also installing bicycle parking lot for 7% of regular employees, providing low emission high efficiency parking lot(5% of the total parking cars), providing parking lot prior to the carpool users(5% of the total parking cars) and installing the charging lot of the electrical vehicle to pursue the members to practice Environment Management in their daily life.

Pangyo Headquarters Tour Program

We are planning the Pangyo headquarters tour program to increase the awareness of environment through eco-friendly study and experience by participating in the eco-friendly building and company working environment to the members and their families. SK Chemicals not only increased the pride of the members and their families but also is planning to operate the environmental education and social contribution to connect.

Supply Chain Environmental Management

Supply Chain Environmental Management Establishment

SK Chemicals has awareness in the importance of reflecting Environment Management policy and goal in the management of participant companies and is planning to establish Supply Chain Environmental Management aiming to finish by 2012. SK Chemicals prepared work for system establishment such as setting partner companies' scope, management systems, support scale and implement the basic design in 2011. To add, we want to increase the environmentalism of the product and process by purchasing excellent materials in the environment perspective based on the strong win-win relationships with partners through authentication by preparing the Green Partnership certification system. In order to do this, it should be based on cooperation and trust with the partnerships and systematic data management for responding to the hazardous material regulation in the future is required.

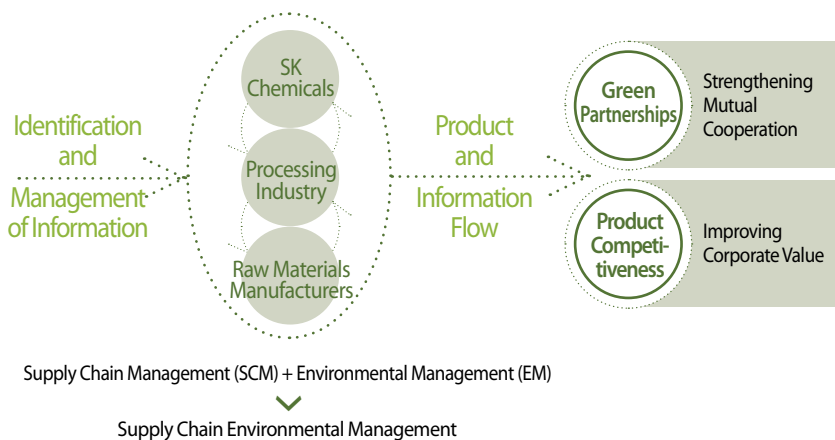
Buying Green Products

Buying green products is made through selection and supply of product and service that can minimize the negative environmental effect through the whole process of handling and recycle of production, delivery and consuming. SK Chemicals has replaced the supplies and office supplies that are used in the headquarters and business sites with the green products to realize the green purchase and is planning to develop the green purchase guideline to prepare the basis of building the systematic green purchasing system.



Reusable Toner

Supply Chain Environmental Management by SK Chemicals



Strengthening Risk Management

Strengthening Risk Management

Safety and Health System Establishment All the business sites of SK Chemicals have implemented the improving activities for each field and are trying the best to prevent the accident of the business site by strengthening the inspection and education for each field to settle the safety culture and build safety and health system that is fit for the global standard.

Safety and Health Inspection

SK Chemicals is putting all its effort to manage the system of safety and health through establishment of management system and external certificate by OHSAS18001 which is the standard for safety and health management and being aware of the safety and health of the members as the important factor in management. SK Chemicals is enhancing and checking the safety and health management system of the workplace through continuous inspection such as improving the working environment measurement, safety and accident prevention activities, local exhaust, inspection, and site safety inspections every year. To add, the equipment that is exposed to the dangerous environment to the members like the drying equipment is managed at the relevant level to the inspection standards of the Labor Ministry.

Operating Safety and Health Council

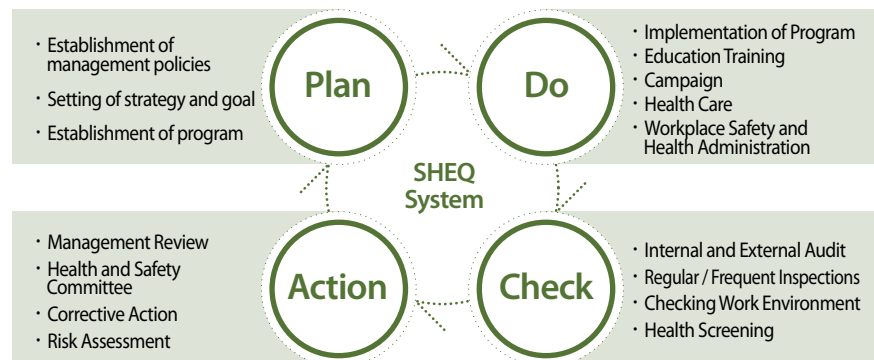
SK Chemicals is operating the Occupational Safety and Health Committee for possible quick improvement of the problem after discussing and deciding the present important safety and health task of the business site. The Occupational Safety and Health Committee is inspected by the general manager/manager group twice a month, regularly monitoring the safety part every Monday and implementing 'Safety Inspection Day' every 4th day of the month, therefore contributing the awareness of importance of safety inspection to the members.



Ulsan Plant SHEQ Management Policy

- Management goal and specific goals are established to improve continuous safety and health, environment and quality.
- Level is advanced by setting the strengthened internal management standard that is strict than the legal standard that abide by the standard of the legal requirements on safety and health, environment and quality.
- All the members evaluate environment influence and harmfulness and continuously improve the operating performance and management system by considering the whole process of production, service and waste of the product.
- We also look for measurements to minimize the damage when there has been an accident as the injury or health of the member including the participants as well as preventing environmental pollution by removing and identifying hazardous factors relating safety and health, environment in advance.
- We pursue the bad rate to be zero after deciding the level of the product that the customer wants and producing in the higher level than the requirements.
- We continuously implement the training to pursue active participation and change of the members' mind concerning safety and health, environment and quality.

Safety and Health Management System



Strengthening Risk Management

Safety and Health Education

SK Chemicals is implementing business site safety and health education 2 hours monthly to strengthen the competence as the leader at the industrial site as well as enhancing the capability of the manager. Also professional knowledge and information is learned concerning safety and health such as interpreting Occupational Safety and Health Act, role and obligation of the manager, method to inspect safety and health, increase safety mind by actively participating in the safety and health education implemented by Occupational Safety and Health Act

Health Management Program

SK Chemicals is preventing being exposed to mental stress and various diseases by the members through operating various health management programs. Musculoskeletal disease preventing activity has been implemented through inviting health professional's education, smoking and disease prevention activities through the brain cardiovascular, improve work environment and also is focusing on the management of the health of members through various programs such as establishing safety management electrical system, hearing loss preventing activity and such.

Especially, Ulsan plant has received grand prize in the health raising good prize presenting competition by Ministry of Labor and Korea Occupational Safety and Health in 2002 as the 'Making Good Business Site to Enhance Health of the Staff' as the core theme.

Emergency Response System Establishment

Each business site of SK Chemicals is putting its best effort to respond to the fire accident by establishing fire fighting management organization and process to respond promptly in case of emergency by fire. We are operating the emergency contact network to minimize the life and property loss as well as environmental influence and systematic response is made concerning fire to handle by promptly contacting the manager for each team such as contact team, extinguish team, induction team and rescue team.

Attainment of 'No Accident 10 million man hours of work'

SK Chemicals that has accomplished 'No Accident 10 million man hours of work' is putting the management policy of putting the safety of workers and being guarded with safety awareness as the biggest value. Through this, Suwon plant has initially accomplished 10 million man-hours non-accident in 2009. This is the fruit of efforts on inspecting and improving the hazardous factors of the business site 24 hours a day in all the productive activities and recording the plant non-accident for 8 years and 4 months (April 11, 2011 ~ August 24, 2009, 3,056 days).



Safety and Health Education



Obesity Prevention Program



Fire Training



Attainment of 'No Accident 10 million man hours of work'

GREEN PRODUCT

Green Product of SK Chemicals

Green Product is the Center of the Green Business of SK Chemicals' Environment Management

- Products ECO-Efficiency Enhancement
- Products Environmental Regulation Compliance
- Strengthening Green Business

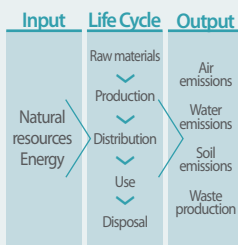




Products ECO-Efficiency Enhancement

Life Cycle Assessment Process

List Analysis of Life Cycle



Environmental Influence Assessment

Life Cycle Assessment Process implements environmental influence assessment in 7 categories which are Resource depletion, Global warming, Ozone depletion, Acidification, Eutrophication, Photochemical oxidation, Human toxicity.

Using Result of LCA

Product Development / Environmental Certification / Marketing Strategy / Policy Establishment

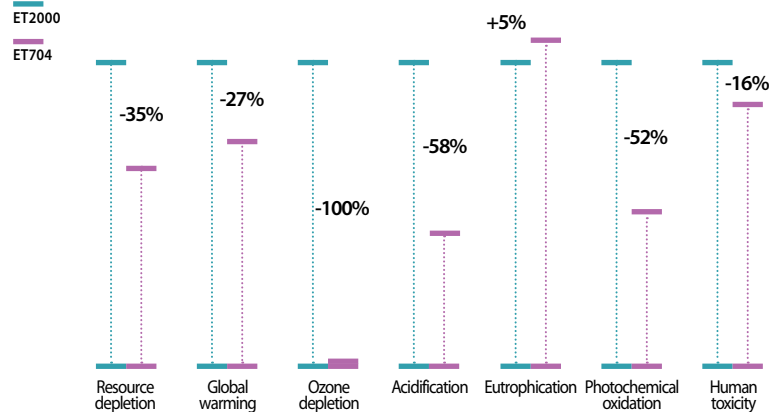
SK Chemicals tries to enhance the environmental and economic value of the main product in the future by applying ECO-efficiency concept in the product developing stage.

Life Cycle Assessment (LCA) Implementation

SK Chemicals has implemented the LCA about ET704 that has substituted the environmentally hazardous material BPA (bis-phenol A) with CHDM (Cyclohexane dimethanol) the existing product ET2000 on the toner resin of SKYBON. After assessing the influence of the two products, the comparing product (ET704) resulted in smaller environmental influence in the influence scope excluding eutrophication from the existing product (ET2000) and the environment load have enhanced to 40%. SK Chemicals has assessed the environmental influence of the product quantitatively and continuously revised the improving measures for environmental influence to prepare for the milestone of developing Green product.

SK Chemicals is planning to expand the LCA in all the products.

LCA Result for the Toner Resin



Products ECO-Efficiency Enhancement

Carbon Labeling Certification

SK Chemicals has received Carbon Labeling Certification that the Ministry of Environment is implementing to let the customers know the green characteristics of the products. Carbon EDP Certification is the system to state all the greenhouse gas emission in the whole process of the product from production to waste of the product and SK Chemicals has acquired certification concerning 2010 SKYBON Toner Resin (ET2000, ET704).

SK Chemicals is planning to establish the green product portfolio by acquiring the Carbon Labeling Certification continuously. Meanwhile, as the toner resin is production goods, the use and disposal steps were excluded abiding by the guideline of Carbon Labeling Certifications.



Carbon Labeling

Result of Carbon Labeling Certifications

Name of Product	Final Carbon Result	Unit	Greenhouse gas emissions of the entire Life cycle			
			Before Manufacturing	Manufacturing	Using	Disposal
Saturated co-polyester resin for toner(ET2000)	2834.528	gCO ₂ /kg	2169.551	664.977	-	-
Saturated co-polyester resin(Non-BPA) for toner(ET704)	2355.661	gCO ₂ /kg	1710.946	644.714	-	-

* Carbon is marked as a final figure rounded by the 1

Ecozen

SK Chemicals has developed the high thermal transparent plastic first in the world using natural bio raw material extracted from the corn and named it 'Ecozen' combining 'Eco' which has the meaning of environment friendly and 'zen' which has the meaning of well-being. Ecozen which is used mainly in consumer products has been selected as one of the 'Top 10 New Korean Technologies' in 2010.



TV Stand Made of Ecozen

Wrapping Material Enhancement

Reduction in wrapping cost and enhancing efficiency through improving wrapping material not only reduces cost but could be said to be one of the public ability that the company should pursue going along with the low carbon green growth era. Therefore, SK Chemicals is trying to introduce the technology aggressively to enhance the wrapping material. Osan plant has enhanced the design and icebox insulation ability by the load aiming to introduce the cold storage wrapping that is possible to maintain cold storage over 36 hours which is relevant for the domestic environment and has established many data and knowhow concerning the cold storage wrapping through cold storage wrapping inspecting process. Through this, quality maintenance of the medicine for a long time was made possible as well as contributing to the enhancement of the work efficiency in cold storage wrapping.

Products Environmental Regulation Compliance

REACH

REACH (Registration, Evaluation, Authorization and restriction of Chemicals) is the new chemicals management system of EU that needs registration, evaluation and authorization by the quantity and type of the material that is used. CHDM of SK Chemicals is the material that will be applied and finished registration about CHDM in October 22, 2010.

On the other hand, business site is managing the related information through SHEQ system concerning the chemical substance related with product production.

Time Frame of REACH Registration

Product Tonnage Produced/ Imported in EU	Registration Deadline	Number of Items
over 1,000ton	~ 2010. 11. 30	1
100~1,000ton	~ 2013. 5. 31	1
1~100ton	~ 2018. 5. 31	7



GHS Hazardousness and Dangerousness Classification Standard

GHS

GHS (Globally Harmonized System) is the method to deliver information to MSDS and warning signs unified form after classifying the danger and harmfulness of the chemical substance by the worldly unified classifying standard. Each country has made and is operating GHS regulation that is fit for one's country's status to respond to such GHS. SK Chemicals has finished responding to Korea GHS and EU GHS (CLP : Classification Labeling and Packaging of substances and mixtures) concerning the materials that are sold at this present.

Time Frame of GHS

Classification	Substance	Registration Deadline	Number of Items
Korea GHS	Single substance	2010. 07. 01~	143
	GHS Single substance Two kinds of mixtures consisting of more than a single substance	2014. 07. 01~	-
EU GHS	Single substance	2010. 12. 01 ~	4
	Two kinds of mixtures consisting of more than a single substance	2015. 06. 01~	-

Strengthening Green Business

Strengthening Green Business Competency

Research and Development Activity

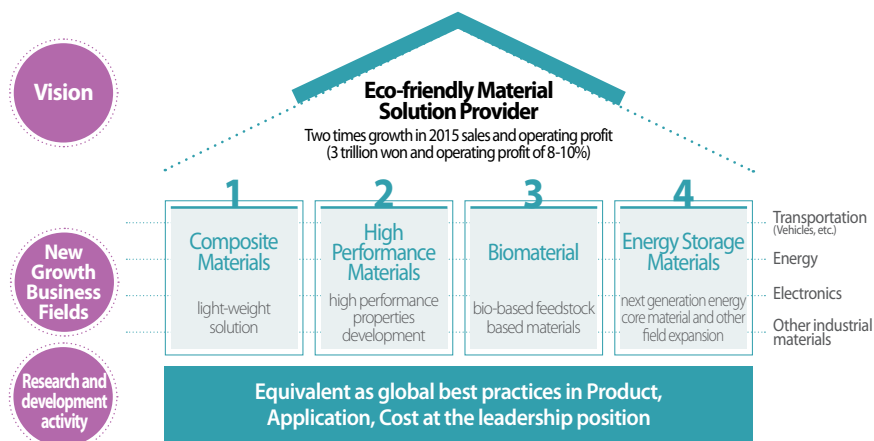
SK Chemicals has established SK Chemicals R&D Center to manage the role as the core place to lead the research and development activity. SK Chemicals R&D Center has done its role to create new business that helps the stature of the company that leads technology since its establishment in 1984 and is putting its efforts to focus on Chemicals R&D Center and Life Science R&D Center to establish new research and development basis with Green Chemicals Biz. and Life Science Biz as the two main criteria.

Research and development in polymer resins, adhesives, composite materials, water treatment, biomaterials, functional materials, energy storage materials of the Green Chemicals field as well as research and development in natural material, drug, formulation, and pharmacology of the Life Science field is being implemented. Especially, as the research has been continuously executed the research performance in bio-diesel production technologies, Green resin has been developed. 48.6 billion won have been invested as research and development fee in 2010 and now possess 71 patents among the 85 patent registrations domestically and internationally.

Establishing Vision of Green Chemicals Biz.

Green Chemicals Biz. aims to grow the sales and gross profit twice till 2015 on the based on 2010 alternative energy, water, materials business, We are planning to run towards the research and development as well as sale of the material development related to 4 business fields in composite materials, high performance materials, biomaterials, and energy storage materials. We will put out efforts to be positioned as the 'green material solution providing company' in all the fields such as transport, energy, electronics and other industrial materials in the future.

Vision of Green Chemicals Biz. and 4 Business Fields



Research and development activity



Former Research Center

Special Feature III.

Green Growth Engines

SK Chemicals is putting all its power in developing related product and introduce Green management process for advance speed in the industrialization as well as securing new growth engines. Especially, we are putting up speed in implementing project in 3 fields that are alternative energy, water treatment and eco-friendly materials and are connecting it with the actual industrialization.

Alternative Energy

○ Biodiesel



▲ Moon Suk Lee Vice President (Right) of Green Chemicals Biz. of SK Chemicals is shaking hands with Tom O'Brien President of oil product business division of Trafigura after signing on the long term supply contract on biodiesel.

SK Chemicals is supplying biodiesel as 'Eco Prime' that is its own product since January 2008 to the domestic major refineries and is performing as no. 1 in the market. Such accomplishment is due to using PFAD (Palm Fatty Acid Distillate) as the own fuel producing process that is the material that occurs during palm oil production with using the existing idle production equipment and therefore increasing its price competitiveness. Fuel trading professional subsidiary is operated in Singapore for securing rare material supplying it stably and competitively which is the core competence of the biodiesel industry.

Water Treatment Business

SK Chemicals is putting its effort to solve the water pollution through distribution such as microbiological incubators that enhances the efficiency of the waste water Treatment facility by growing and culturing the microorganism that are useful in the waste water which is the biological



▲ SK Chemicals' Water Treatment Product

material that divides microorganism without making pollution within the water and the corrosion inhibitors that enhances the rate of recycling of water through inhibiting the corrosion of the pipe.

SK Chemicals takes 37% of the market in water treatment products in March 2010. We are planning to expand to the cleaning, environmental chemicals, household goods through continuous new item research and development and are planning to go to the Chinese market and expand the sales of the areas with weak existing water treatment aiming to expand the water treatment business.

Advanced Materials Business

○ PETG



▲ Successes in the commercialization of 'Ecozen' that improved the internal PETG resin in 2009. Sales of PETG reached 126.5 billion won in 2010.

High performance PETG resin 'SKYGREEN' is eco-friendly and is the transparent industrial material that is possible to apply in various uses such as advanced cosmetic containers, electronic components, construction materials, and optical films.

PETG resin is the eco-friendly plastic material that substitutes existing PC, PMMA, PVC and etc that is possible to reuse 100% without any environmental hormone similar material and have small emission of hazard material during disposal.

On the other side, SK Chemicals has succeeded in commercialization of 'Ecozen' that improved the resistance of PETG resin in 2009 for securing future growth. 'Ecozen' is the eco-friendly product using bio-monomer implementing the expansion of business in electronic material, food containers, medical equipment and etc, going by the Green Trend.

○ PPS



▲ SK PPS resin and the components that are extruded into automobile, electrical / electronics, industrial applications.

SK Chemicals has developed its own representative eco-friendly engineering plastic PPS that does not make by-product and waste water while having resistance and durability at the same time without using the metal by enhancing the PPS (Poly Phenylene Sulfide) production process. It is only produced in 7 companies' worldwide and there is no producing company domestically, therefore SK Chemicals is trying to develop by itself with eco-friendly method the similar material with competitiveness.

○ Solar Material



▲ SK Chemicals Solar Industry Value Chain

SK Chemicals has built the polysilicon pilot plant at Ulsan plant in 2010 after signing on the MOU concerning introducing technology and producing polysilicon with SREC(Sphere Renewable Energy Corp.) and is planning to implement the commercial production by the result of the pilot plant operation. By this we are contributing to the establishment of vertical integration solar business connecting the SKC Solmics ingots, wafers, SKC film solar cell.

○ Sound Absorbing Materials

SK Chemicals is producing sound absorbing material that is made of polyester fiber capable of 100% recycleable and harmless to humans and it is also used as insulation of buildings such as glass fiber and Styrofoam.

APPENDIX

Glossary

Energy VA(VA : Voluntary Agreement)

System of government granting various incentives after evaluating its relevancy when company related to production, supply and consumption of energy has set the goal of energy reduction and greenhouse emission reduction

CDP(Carbon Disclosure Project)

Global project of the worldwide financial/investment institution requesting survey on the information concerning strategy to respond to the climate change issue and the carbon emission status to the major countries of each nation concerning the climate change issue

DJSI(Dow Jones Sustainability Indexes)

Good company index developed by Dow Jones that is the financial information providing institution and SAM the global sustainability evaluation institution. Select the good company by evaluating sustainability based on social contribution and present by local index such as DJSI World, DJSI Asia pacific, DJSI Korea, etc.

KRX SRI Index(KoRea eXchange Socially Responsible Investment Index)

The nation's first socially responsible investment index calculated selecting 70 good companies that have been evaluated to fulfill the social responsibility by the Korea Corporate Governance under the Korea Exchange

UN Global Compact

Initiative by the New York UN HQ in July 2000 suggesting ethics and environment of the global society by the Kofi Annan, former UN Secretary-General in World Economic Forum held in Davos, Switzerland, 1999.

ISO14001

One of the global standard 'ISO14000 Series' concerning Environment Management system made by the ISO technical council(TC 207)

LCA : Life Cycle Assessment

Objective and active environmental influence assessment method to look for the method of enhancing the environment based on the overall evaluation of the influence of the energy and quantity of material that is spent in the rare material, production, delivery, use, recycle, waste management process of the product

GHG(Green House Gases)

Among various air that consists the atmosphere, the air that brings greenhouse effect, CO₂, methane(CH₄), N₂O, HFCs, PFCs, SF₆ are the representative

GBCC(Green Building Certification Criteria)

System to grant Green building certification concerning building that contributed to energy savings and environmental pollution reduction throughout the whole process such as design, maintenance, management by the Ministry of Land and Environment

LEED(Leadership in Energy and Environmental Design)

Certification system that was created concerning environment friendly building and construction by the USGBC

* General : 26~32points, Silver : 33~38points, Gold : 39~51points, platinum: 52~69points(LEED NC v2.2 standard)

3rd-Party Verification Report

To the Readers of SK chemicals Environmental Report 2010

○ Introduction

The verifier has received independent verification request concerning the 2010 SK Chemicals Environmental Report 2010. The responsibility of making this report is to the directors of SK Chemicals and the responsibility of the verifier is in giving opinions whether the report was written by the GRI G3 guideline environmental sector index.

○ Verification Scope

Environmental report of SK Chemicals is stating the efforts and performance about the Environment Management activity for each strategy direction and practice task and the verifier has verified the following matters.

- Whether the suggested data has been relevantly extracted from the Environment Management data system of SK Chemicals
- Whether the suggested data does not have any error or bias and the data management system is operated with reliability

○ Verification Standard

The verifier has implemented the verification process based on the standard of CAU-APSR of Chungang University, Assurance Protocol for Sustainability Reporting.

The CQU-APSR is the sustainability verification standard that has the basis as the following.

- Global Reporting Initiative(GRI) Sustainability Reporting Guidelines 3.0
- AA1000AS(2008) Assurance Standard from AccountAbility
- International Standard on Assurance Engagements 3000(ISAE3000) from IFAC

○ Independence

The verifier maintains independence and does not have any understandings whatsoever economically with SK Chemicals except for the work providing 3rd party verification service.

○ Major Verification Process

The implemented process for the verification process is as follows.

- **1st Stage** : Established verification plan, revised the draft report and implemented overall assessment by looking for various data.
- **2nd Stage** : Processed interview with directors and main managers after visiting the headquarters and checked on the fact concerning information that is included in the draft report while implementing valuation on the quality of the data management system.
- **3rd Stage** : Integrated the verification and analysis result and wrote the evaluation feedback as the final, after documentation of the analysis data and discussions.

○ Evaluation Feedback

The report data is abiding by the GRI G3 standard by the evaluation of the verifier and it is evaluated not to include error or bias in the report information. The specific verification principle evaluation data of CAU-APSR is as follows.

- | | |
|------------------------------------|---|
| • Materiality | As a result of the materiality test included in the report the selected 6 important performance index is relevantly fitting to the requirements of the stakeholders. |
| • Completeness | As a result of the materiality test included in the report the selected 6 important performance index is relevantly fitting to the requirements of the stakeholders. |
| • Neutrality | Unbiased information is provided without the possibility to bring bias in the decision of the users in selecting and reporting of the information concerning with the Environment Management performance. |
| • Reliability | Accuracy and comparativeness of the information in the report is maintained and the quality of the data collected, recorded and delivered is evaluated to be trustworthy. |
| • Responsiveness | It was evaluated to be sufficient to evaluate the response competence and effort of the Environment Management issue of the company by the users of the report on the policy explanation, strategy and plan as well as the level of information exposure of the report. |
| • Stakeholder Inclusiveness | Company has pursued the participation and selection of the stakeholders in the effective and systematic approach, and the company strategy and goal has relevant feedback to the requirements of the stakeholders. |



○ Improvement Recommendations

After implementing verification process stated in this report, the company agreed to improve the following recommendations.

- Expansion of system from Environment Management to sustainable management is necessary and should create actual management performance after sufficiently reflecting in the related system after specifically integration the existing middle and long term business strategy and sustainability strategy.
- Leading establishment of environmental accounting system reflecting chemical industrial characteristics that is sensitive to the environmental issues is required and especially efforts should be put to accomplish environmental performance as well as its economical performance by adopting ISO14051(MFCA) which is planned to be announced by the International Organization for Standardization.

March, 2011

Chungang University Financial Accounting Research Professor

 중앙대학교 

3rd-Party Reviews



KAIST Business School
Center for Corporate Social
Responsibility Professor

Byung Hoon Ahn

I highly value of SK Chemicals publicizing the environment report.

Moreover, the SK Group-wide operating in the Environment R & D Committee, and applying to the framework of the entire group of company offers and specifying for each agency appears to be the right direction. At the same time, inputting green mind to the directors as well as the employees through Green Fund and Green Point and wanting to share the Green Point, Green funds on the institutional efforts is very impressive. I hope for the consistent and substantial building of green mind. At the time where low carbon green growth is demanded it is being the model of implementing specific and strategic business such as non-oil of boiler fuel and green product strategy. Environmental reports and sustainability reports should be of corporate value on the long term from the perspective of external stakeholders, and investors particularly.

Setting national carbon reduction targets and future emissions trading is forecasted that all the companies will face big challenge without the relevant respondent strategy and concerning investment in the right time. SK Chemicals in this regard is in advance. Establishing Environmental Management Information System, 100% of boiler fuel in Ulsan using non-oil, driving of green building 'Eco Lab', and the introduction of environmental accounting in some workplaces, etc. is a good starting point. Number of these best practices is in this present report. However, now is the next step where a more structured, integrated, enterprise-wide, enterprise-wide green workplaces, and low-carbon roadmap will be needed. Major environmental projects such as environmental accounting, green building, environment, information systems, and environmentally friendly products have been processed but the whole business site and integration stage should be developed and such basis has already been formed. As enterprise business progressed visibly, the report could be more concrete and can be compared and express willingness to go beyond the declarative concrete outcomes. I also think this report will be useful in international guidelines, such as CDP or the GHG Protocol, is reflected, if possible. I give an applaud to the SK family for greening SK Chemicals and appreciate the efforts of the relating team and employees for preparing this report. I hope this will develop as the sustainability report that contains all the sustainability management activity of SK Chemicals.

2011.03.

The first published environment report of SK Chemicals shows that Environment Management System is well-maintained. Especially under the 'Green Triple 40' banner, making management visions and progressing strategic task and practices and structuring environmental management process forming environmental management councils, and specific program implementation to change the corporate culture into green growth culture is shown. KPI evaluation of the CEO and executive business leaders is used to implement the initiative to promote environmental management and is also actively implementing deployment of greenhouse gas inventories and low-carbon, green growth going by the Low Carbon Green Growth Basic Law. With global environmental responsibility standards the start of combining the DJSI index and CDP (Carbon Disclosure Project) is a positive response to participate and I expect SK Chemicals to participate in the UN Global Compact in 2011 alongside with the world's leading companies.

Concerning the environment as well as traditional stakeholders, including the supply chain, community, it is positive to communicate with all stakeholders forming the individually environmental performance index and materiality test including major issues in announcing environmental management is also impressive. Based on the implementation of voluntary agreements to energy and energy diagnosis adopting environmental accounting system from 2012 for the improvement of environmental information integrated management means the prompt adaptation of SK Chemicals in climate change responsive system and I expect the performance. Greenhouse gas inventory is already being built and as greenhouse gas emissions in 2009 have increased slightly compared to sales, it is recommended to move forward more clearly to reduce the actual emission by learning from the practices of the global companies.

Eco-Green boiler using fossil fuels is expected to completely replace fossil fuel use by 2015. In addition, expansion of carbon credits such as K-CER certification should be increased. Among four workplaces promotion of green plants, such as green process to implement Ecolab Pangyo building is observed to be well committed. As the small business partnerships for mutual cooperation is emphasized more these days, I will also expect the Supply Chain Environmental Management System establishment finished by 2012. Carbon EDP certification has already been acquired by SK Chemicals and I expect the continuous portfolio from now on. Promotion of alternative energy such as bio-diesel and expansion of water treatment business, PETG resin material, solar industry is the key to the green growth and I ask of you to boldly drive this as the main industry prepared for the green economy in the future.

Developing voluntary team for the social contribution activity in the environmental sector and using the communities acting in saving the local rivers and using green point savings performance in matching donation is a good practice. International contribution was supporting the solution of drinking water to Haiti during the quake crisis, this is the business that is directly related with the Millennium Development Goals announced by UN and the related data should be recorded.

Overall, SK Chemicals is valued to be setting out good practice in driving the green growth as well as fulfilling the social responsibility in the environmental sector and I recommend that taking the Caring for Climate Initiatives or Water Mandate Initiatives by UN Global Compact and lead in the climate change response.



UN Global Compact
Global Compact Network Korea
Secretary General

Chul Ki Ju

2011. 03.

A handwritten signature in blue ink that reads "Chulki Ju".

Readers' Opinion



SK Chemicals Environmental Report 2010 is waiting for your valued opinions. The opinions that you send us will be used meaningfully in the environment management of SK Chemicals.

Q1. Which of the following groups do you belong to?

- Customer Shareholder / Investor Government Member Local Society Supply Chain NGO
 Academia Media Other

Q2. What is your purpose of using this report? (Multiple answers are allowed)

- For information Company evaluation Competitor analysis Educational material

Q3. Which of the following was most interesting about this report? (Multiple answers are allowed)

- Company Profile Stakeholder Communication and Materiality Test Highlight Special Feature Green Strategy
 Green Culture Green Process Green Product

Q4. Please provide a detailed evaluation of this report.

- Wording is clear and easy to understand. (Strongly disagree) 1 2 3 4 5 (Strongly agree)
 It provides sufficient and useful information about major issues. (Strongly disagree) 1 2 3 4 5 (Strongly agree)
 The contents are credible. (Strongly disagree) 1 2 3 4 5 (Strongly agree)
 Design is appealing and increases readability. (Strongly disagree) 1 2 3 4 5 (Strongly agree)

Q5. Please rate each of the following activities of SK Chemicals.

- Green Management System (Strongly disagree) 1 2 3 4 5 (Strongly agree)
 Green Culture (Strongly disagree) 1 2 3 4 5 (Strongly agree)
 Green Process (Strongly disagree) 1 2 3 4 5 (Strongly agree)
 Green Product (Strongly disagree) 1 2 3 4 5 (Strongly agree)

Q6. What do you think about the environment management activity of SK Chemicals?

- Very Good Good Normal Poor Very Poor

Q7. Please feel free to provide your opinion on SK Chemicals Environmental Report.



We would appreciate it if you could mail or fax this form to the address below.

Address_ SK Chemicals Sustainability Team / 686 Sampyeong-dong, Bundang-gu, Gyeonggi-do
Tel_ 02-2008-2532 Fax_ 02-2008-2529 E-mail_ dbkim@sk.com

