

Corporate Environment Reports and Environment, Health and Safety Improvement

1. Introduction

Corporate Environmental Reports (CERs) is one of the means of communication being used by corporations intended to convey their achievements and activities related to environment both internally and externally. Such reports started to be issued voluntarily by such companies as Norsk Hydro of Norway and Monsanto of the U.S. in the latter half of the 1980s. In the initial period, the reports were published by the corporations, which were thought to affect the environment greatly. However, from the latter half of the 1990s, the reports were spread to corporations in the service industry, which had no great effects on the environment such as banking institutions (UBS, Credit Swiss, ING Bank). In addition, CERs have developed into reports of a lasting nature including the considerations of social and economic aspects as well as those environment. The leading corporations in foreign countries combined the sustainable development of their CERs as part of the corporate strategies in their efforts to communicate their vision and achievements to interested parties.

With regard to the publication of CERs, many guidelines and standards as to the report forms as in the following have been developed to promote the publication of the reports. Recently, GRI is promoting the development of the guidelines and ISO has started the development of standardized guidelines.

Organization of Writing and Developing Guidelines	Details
VfU (Association for Environmental Management in Banks, Savings Banks and Insurance Companies)	Established in 1994 and is developing strategies and tools on environmental management by industry. This organization announced literature on detailed guidelines on environmental reports of banks and the insurance industry. These guidelines include quantitative indicators as options.
PERI (Public Environmental Reporting Initiative Guidelines)	These guidelines were developed by nine leading companies in 1993 and present guidelines on disclosing information on diverse items such as reporting organizations, environmental policies, environmental management, pollutant, preservation of resources, environmental risk management and compliance.

Organization of Writing and Developing Guidelines	Details
CERES (Coalition for Environmentally Responsible Economies)	Developed concrete and comprehensive reporting formats. These formats include definitive and quantitative information and more than fifty companies are following these guidelines with the standard versions and simplified versions put together. For a review of the locations of companies so doing, more companies are mainly located in the U.S. This organization also published guidelines for industries in health service, electric and gas service and financial service.
CEFIC (European Chemical Industry Council)	With regard to environmental reports of the chemical industry, CEFIC developed guidelines for company reports and unit plant reports, lists of standard output substances and lists of do's and don'ts. The CEFIC guidelines were revised in 1998, and 16 types of indicators are being used at present.
UNEP & SustainAbility	UNEP and SustainAbility, a London-based consulting company, developed a system of determining the priority order of company environmental reports on the basis of '50 Reporting Ingredients'. By making use of this system, SustainAbility conducted benchmarking surveys in 1994, 1996 and 1997.
GRI (Global Reporting Initiative)	GRI (Global Reporting Initiative), which was organized by CERES in 1997, is developing guidelines on preparing company sustainability reports for a global utilization.

Several large corporations in Korea in the middle of the 1990s introduced CERs. While about 430 companies in Japan are publishing CERs, companies publishing the reports number only a little more than 20 in Korea. The Ministry of Environment started a study called 'the development of the Methods of Appraising Environmental Credibility of Enterprises'¹⁾ in December 1999. Thus the same ministry has embarked on the development of guidelines, which can encourage enterprises to prepare CERs. In 2001, an application of the guidelines was made as a field study, to 13 companies²⁾ as a model project and the result of such a review was disclosed through the publication of 'Environmental Report Guidelines 2002'. In 2002 efforts are being made to make a qualitative improvement of environmental reports through the development of environmental performance evaluation indicators, the development of environmental accounting guidelines and qualifications of the achievements of environmental management.

2. Environmental Report Guidelines 2002

Environmental Report Guidelines 2002 includes the process of developing the guidelines, the necessity of publishing environmental reports, the users of the reports, the procedures of preparing the reports and the contents of the reports.

1) Researched By Eco-Frontier Co. (www.ecofrontier.co.kr)

2) Thirteen Korean companies publishing CERs are: Samsung Electric, Samsung Electronics, LG Electronics (No.1 and No.2 Plants in Changwon) and Samsung Corning in electric and electronics industries, LG Chem (Yeosu and Cheongju Plants) and Taepyeongyang in chemical industry, Hyundai Motor Company in Ulsan in automobile industry, Yuhan Kimberly in the paper manufacturing industry, Korean Airlines and Asiana Airlines in the air travel industry and Hotel Shilla in hotel industry. Researched By Eco-Frontier Co. and LG Institute of EHS

1) Procedures of Preparing CERs

The procedures of preparing CERs can be composed of the following eight (8) stages.

- **The First Stage ; Previous Investigation for Preparing the CERs**
This is the stage where a review is made of the scope of the environmental report, the period of preparing the report and the contents of the report. A review is also made in this stage as to whether the scope is to include only one plant or the entire company and of whether to include only companies in Korea or also overseas companies, i.e., of the organizations preparing the reports and of the periods of preparing the reports.
- **The Second Stage ; Identifying Stakeholder Groups**
By making use of questionnaires, workshops, market surveys and open communication channels, an analysis is made of interested parties using CERs and the contents of information required by such parties.
- **The Third Stage ; Analyzing Environmental Impacts and Performance**
An analysis is made of various effects which the business activities brings upon environments and the achievements made by environmental management and efforts to reduce such environmental effects.
- **The Fourth Stage ; Identifying Reportable Contents**
Upon the basis of the analysis made of environment effects and environmental achievements, the disclosure items of environmental information suitable to the conditions of the enterprise should be developed in consideration of the characteristics of the enterprise.
- **The Fifth Stage ; Development of the Methods of Disclosing Environmental Information**
The methods of disclosing environmental information which are compatible to the demands of the interested parties should be developed.
- **The Sixth Stage ; Measurement and Appraisal**
A measurement and appraisal should be made of the disclosure items of environmental information through collecting, collating, and analyzing data and collating data thereof.
- **The Seventh Stage ; Verification of the contents of Environmental Information Disclosed By the verification by an independent third party, the contents of what has been disclosed constitutes the characteristics of environmental information.**
- **The Eighth Stage ; Publication, Distribution and Feedback**
CERs should be distributed so that the stakeholder may use them, and their opinions should be gathered in order to improve the contents of environmental information so that the use of the reports by them may be enhanced.

2) Reporting Items

The reporting items of information as provided by 'Environmental Report Guideline 2002' are composed of 21 items such as the summary of the enterprise, environmental policies and objectives, environmental management system, environmental effects and achievements, partnership among interested parties and the operation which can be sustained.

Categories	Reporting Items
Outline of Corporation (3)	1. The CEO Statement 2. Organization of Profile 3. Outline of Environmental Reports
Environmental Policy and Objective (1)	Environmental Policy and Goals
Environmental Management System (3)	1. Environmental Management System 2. Contingency Plans for Environmental Accidents 3. Environment Audits
Environmental Effects and Performances (9)	1. Use of Resources (Input) →Substances/Energy/Water 2. Pollutants (Output) →Output and Recycling of Atmospheric & Water Pollutants/Wastes 3. Health & Safety 4. Environmental Impact Assessment 5. Noise & Vibration 6. Production and Consumption of Environment-friendly Products 7. Environment-friendly Packaging 8. Environment-friendly transportation 9. Environmental Accounting
Partnership with stakeholder (4)	1. Efforts to Conserve the Natural Ecology 2. Relationship among Interested Parties 3. Compliance 4. History of Certifications and Awards
Sustainable Corporate Management (1)	Vision and Strategy of Sustainable Corporate Management

3. Conclusion

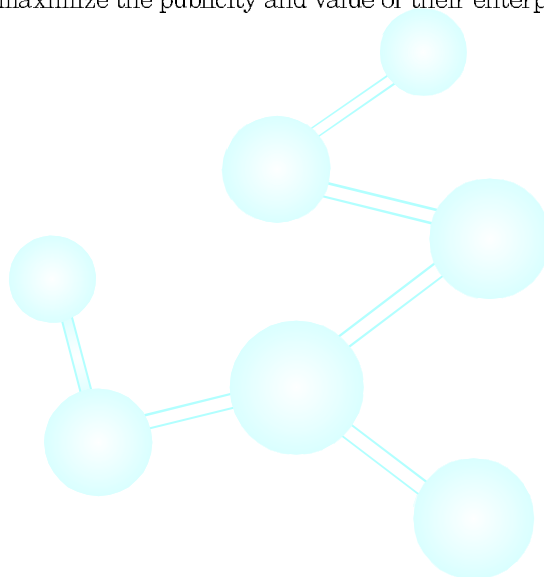
The publication of CERs is made voluntarily in general. However, in such North European countries as Denmark, the Netherlands and Sweden, the publication of CERs is made compulsory by legal provisions. In the U.S. and Canada, the submission of information on environmental effects by companies to the Securities Exchange is made obligatory. Further, through the verification of their reports by a third party, the number of companies are on an increase, which endeavors to make an improvement of the quality, transparency and reliability of their reports and the trends are becoming international for the preparation of the guidelines and standards on standardized verifications. In many countries such as Europe, Japan and Hong Kong, the governments have introduced a system of awarding prizes on environmental reports, contributing greatly to the qualitative improvement and quantitative expansion of environmental reports.

In the wake of such an international trend, companies in Korea must continue to grasp the international tendencies and continue to evaluate the leading companies overseas in order to strengthen their competitive power. The leading companies overseas establish developments possible

of continuation as their vision and prepare various strategies and practice plans, displaying achievements. Such achievements being attained by the leading companies affect positively their competitive strength and image. In order to emphasize the social responsibility of enterprise, Henkel is publishing the sustainability report. This same company has been selected by Dow Jones Sustainability Index and FTSE4Good as the company displaying an outstanding social responsibility. Such a rating result enhances the image of Henkel in the financial market making it an object of investment by Eco Fund with priority. Proof is evident in many places that a company with such environmental or sustainability achievements is also excellent in financial achievements.

Samsung Eco Fund was introduced in Korea last year and the environmental factor came to be included as part of appraising the operating achievement of enterprises. As a result, more positive environmental strategies came to be required of companies instead of their passive environmental management so far. At present, the most effective means of effectively communicating the environmental strategies of enterprises is their environmental reports. In foreign countries, when an outside appraisal company appraises the environmental achievement of a company, the report with the highest priority is CERs. Because the transparency of a company is gaining a growing importance together with its performance in environmental achievements, no matter how outstanding the environmental achievements of a company may be, if such cannot be recognized by the outside world because of a poor disclosure, the company may not be able to attain a corresponding result when the company is appraised. Even though its achievements may not be very good at present, provided that the company has a determination to improve and has substantial plans for doing so and have frank disclosures to the outside, a positive appraisal will be obtained by the same company.

In conclusion, companies must prepare and publish their CERs positively utilizing the 'Environmental Report Guidelines 2002' disclosing their achievements. In addition, they should listen to the voices from outside and gather various opinions in order to have them reflected in their environmental reports. In the future, they should make a step forward and promote the preparation of their sustainability reports, in addition to their environmental reports, positively disclosing their environmental achievements through such international organization as GRI as overseas the leading companies are doing, and maximize the publicity and value of their enterprises.



GHS and the Countermeasure of Chemical Industry

For the purpose of unifying the system in the classification and labelling of chemical substances throughout the world, discussions are actively under way as to the adoption and application of the Globally Harmonized System (GHS). In this report, I would like to introduce GHS and explain the necessity of positively responding to such a movement in the world for safe usage and transportation of chemical materials.

At present, approximately 100,000 kinds of chemicals are produced and distributed throughout the world. According to the advancement, specialization and growth of various industries, it is expected that the distribution and kinds of chemicals will have a rapid increase every year and the toxicity resulting from such a phenomenon is also expected to increase. In order to prevent accidents that may happen in the processes of manufacturing, use, handling, storage and transportation of chemicals and for a safe use of chemicals, it is important to classify the kinds of danger and to make plainly known such dangers.

However, there are different systems of operation according to pertinent laws even in one country and respective countries can apply different systems, which in many cases pose unnecessary technical barriers to the trade of chemicals between countries. Under such circumstances, a strong necessity has risen of harmonizing the systems of classifying and labelling chemicals for human health and environmental preservation to the extent that the original purposes are not impaired.

1. The Systems of Classifying Chemicals at Home and Abroad

First, if we take a look at the management system of chemicals and the system of classifying chemicals at home, industrial chemicals are classified in accordance with the Act for the Management of Toxic Chemicals and the Act for Industrial Safety and Public Health with regard to the physical and chemical danger of chemicals and their toxic effects on Human body and environments. In classifying chemicals with toxic effects on the human body, the pharmaceutical law is applied; the law on the management of agricultural chemicals is applied to classifying chemicals with toxic effects on the human body and environments; the fire fighting law is applied in classifying chemicals with physical and chemical dangers. With regard to the sea transportation of chemicals, the marine transportation management law is applied for their classification. The Act for the Management of Toxic Chemicals and the Act for Industrial Safety and Public Health have an almost similar system of classifying the chemicals, but these Acts have systems that are not consistent with other laws.

Advanced countries such as the U.S., Germany and Japan have a long history of developing chemicals and chemical science and have a record of experiencing accidents and trials and errors before they have been able to establish the present systems of managing chemicals, thus forming a group of countries providing expertise knowledge as displayed in international activities such as OECD, IFCS and UNEP.

The U.S. system of managing toxic substances has a characteristic of making possible a systematic operation through the formation of the 'Inter-Agencies Committee' assuring a close cooperation and teamwork between departments. The major roles of this committee is to assure a joint operation of the toxic substance programs such as the selection of testing materials and joint appraisal, common sharing of related information and joint participation in policy decisions among departments.

In the case of Japan, they have a system of inspecting new chemicals in accordance with the Labor Safety and Hygiene Law (Safety and Hygiene Law) and the Regulations on Inspecting and Manufacturing Chemical Substances (Chemical Inspection Law). The Safety and Hygiene Law places a stress on the control of cancer-causing substances and the Chemical Inspection Law places an emphasis on non-decomposition and bio-accumulation substances.

2. Unification of International Classification and Labelling Systems

The necessity for an international harmonization of classification and labelling system has long been felt by nations and in other areas. The Rio summit of UNCED of the UN included the harmonization of the systems of classifying and labelling chemical substances as part of the 6 practice programs of Chapter 19, Agenda 21, in June 1992. It was resolved at the meeting that a system be provided that will unify the classification and interchangeable labelling of chemical substances in order to assure safety of chemicals in the aspects of environment, workers, consumer safety and transportation.

The harmonization job is being undertaken by IFCS, which was established in order to implement chapter 19 of Agenda 21, and by IOMC, an inter-organizational program intended for a safe control of chemicals. In addition, international organizations such as WHO, ILO, UNEP, FAO, UNIDO, UNITAR and OECD have joined this job. At present UNCETDG is operating the GHS subcommittee and the TDG subcommittee. These committees reached an agreement on July 1, 2001 on the physical danger of chemicals, their toxicity and their toxic effects on environments. Part of the standards on labelling remains to be determined, however, a decision is likely to be made by 2002 and the recommendation by GHS will be adopted by the U.N. The GHS system will probably be enforced in all countries of the world including developing nations by 2008.

● Classification System of GHS

The Globally Harmonized System (GHS) is intended to introduce a unified and consistent classification system with regard to physical dangers of chemical substances, their toxic effects on health and environmental hazards. In accordance with this unified system of classifying chemicals, the communications having to do with toxicity, such as interchangeable labelling of toxic effects and safety data for workers, will have to be developed.

The application of universally agreed systems will bring about the following benefits. (1) The establishment of safety with regard to the manufacturing, handling, using and transporting chemicals will be further facilitated, (2) the understanding will be enhanced of chemical substances through a uniformity of classifying standards, symbols, representations and warnings, thus protecting workers, consumers and those exposed to dangers. (3) The removing of international barriers, the industrial entities will be able to save their expenses in the development, manufacturing, sales, transportation and expressions of warnings.

The classification of the groups of physically and chemically toxic substances is shown in Table 1. Here the kinds of toxic substances (for example, inflammability) and the hazard category (for example, extremely flammable, highly flammable, flammable) were criteria for grouping. The environmentally hazardous substances now have a classification, the aquatic toxicity substance. The classification of the substance is divided into acute aquatic toxicity and chronic aquatic toxicity. The acute aquatic toxicity has three categories and the chronic aquatic toxicity has four categories. The toxic hazard has seven categories and each class is divided into a number of hazardous substances excluding the sensitization. For example, the five categories of acute toxicity is determined according to the value of LD50 (toxicity conveyable through mouth and skin) and LG50 (inhalation toxicity)

Table 1. 물리화학적 유해물질과 관련 주 유해성 물질군의 분류

Physical & Chemical Toxic Substances and Classification of Related Major Toxic Substance Groups

Physicochemical hazards	Toxicological hazards	Ecotoxicological hazard
<ul style="list-style-type: none"> • Explosivity • Oxidising properties • Flammability • Pyrophoricity • Self-reactivity • Reactivity with water 	<ul style="list-style-type: none"> Acute toxicity Irritancy/corrosivity (for skin and eyes) Sensitisation Carcinogenicity Mutagenicity Toxicity for reproduction Chronic/target organ toxicity 	<ul style="list-style-type: none"> Hazardous for the aquatic environment

● 심볼과 픽토그램

GHS에서 사용될 심볼과 픽토그램은 Table 2와 같다. 여기서 느낌표와 물고기 및 나무 표시를 제외한 나머지는 유엔 위험물운송권고(UNRTDG)의 위험물질 운송 규정에서 확정된 표준 심볼이며, 해골과 십자뼈 심볼은 심각한 독성 물질에 사용될 예정이다. 그리고 수질환경 위험에 대해 사용되어온 EU의 물고기와 나무 심볼은 GHS에서 그대로 채택하기로 하였다. 이러한 심볼들은 현재 위험물질의 운송 표시에 사용되는 다이아몬드 형태 속에 넣어서 사용될 예정이다.









3. 향후 전망과 대책

현재까지 물리적 위험, 독성, 환경유해성의 분류에 대해서는 최종 합의점에 도달하였으며, 표시 기준의 일부분만 아직 결정되지 못하고 있는 상태이다. 그러나 늦어도 2002년에는 모든 내용이 마무리되어 UN에서 GHS 권고안이 채택될 예정이고, 2008년에는 통일화안에 따라 국제적으로 시행될 예정이다. 따라서 장기적으로는 현재 추진되고 있는 이러한 세계 통일 분류체계의 도입이 불가피해질 전망이다.

또한 금년 5월에는 화학산업의 경쟁력 향상과, 교역 시 규제로 문제가 되고 있는 화학물질에 대한 커뮤니케이션의 개발을 최우선 의제로 하여 아태경제협력체(APEC) 내 화학대화협의체(The Chemical Dialogue) 회의가 개최되었는데, 이 회의에서 화학물질의 분류 및 라벨링, SDS제도가 포함된 GHS를 도입하여 2006년까지 자발적으로 이행하는 데 합의한 바 있다. GHS 이행 시 APEC 역내에서 거래비용이 5% 감축될 것으로 기대하고 있다.

새로운 통일 화학물질 분류 시스템은 건강유해성 및 환경유해성 부분이 기존의 선진국 시스템과도 매우 다를 뿐 아니라, 우리나라 제도와도 상당히 거리가 있다. 혼합물에 대한 기준도 급성독성에 대하여 가산법을 적용하는 등 복잡한 평가과정을 수반하기 때문에, 새로운 제도의 도입 전에 혼란이 예상되는 부분이 많다. 그러나 이와 같은 통일된 분류체계는 결국 국내 관련법과 동일하게 적용될 것이므로, 이에 대한 공동 대처방안을 강구하여야 한다. 관련 부처간 위원회를 구성하여 추후 시행방안 등을 논의하고, 또 관련 전문가, 산업계 대표, 시민 단체가 참여한 공동대책위원회를 구성하여 구체적인 절차와 도입에 따른 문제를 공동으로 해결하여야 할 것이다.

Table 1. GHS Symbols

Flame	Flame over circle	Exploding bomb	Corrosion
			
Skull and crossbones	Double exclamation mark	Exclamation mark	Environmental symbol
			

● Symbols and Pictograms

The symbols and pictograms to be used in GHS are shown in Table 2. Apart from exclamation marks, fishes and trees, other labels are the standard ones finalized in the Transportation Regulations on Hazardous Substances of UNRTDG. The symbols of skulls and crossbones will be used for acute toxic materials. These symbols are going to be put into the diamond form, which has been used to represent the transportation of hazardous substances.

3. Future Prospect and Countermeasures

So far, final agreements have been reached as to the classification of physical danger, toxicity and environmental hazards, and part of the standards of labelling has not been finalized. However, all the contents will be settled in 2002 at the latest and the GHS recommendations will probably be adopted at the U.N. The Globally Harmonized System will enter into practice internationally from 2008. As a result, the prospect of the introduction of GHS now being promoted is considered inevitable on a long-range basis.

In May this year, the meeting of the Chemical Dialogue was held within the APEC and in that meeting the strengthening of the competitive power of chemical industry and the problem of developing communications on chemicals in the aspect of the existing trade barriers were discussed as the agenda of the highest priority. It was agreed in the meeting that the GHS which includes the classification and labelling of chemicals and SDS be introduced and voluntarily implemented by 2006. When GHS is put into practice, they expect that transaction expenses will be saved by 5% within the APEC areas.

The new Globally Harmonized System for classifying chemicals differs greatly from the existing systems of advanced countries in the portions of health hazards and environmental hazards and is quite distant from the systems of Korea. The standards on mixed substances, involves a complicating appraisal process such as the adding methods on acute toxicity and there are many parts on which confusions are anticipated before the introduction of the system. However, because the unified system of classification is going to be practiced on an equal basis with the related domestic laws, a common measure to cope with the situation will have to be worked out. A committee should be organized between related government agencies in which the procedures on implementing the system should be discussed. In addition, related experts, representatives from the industry and civic organizations should form a joint deliberation committee in order to jointly solve problems in compliance with the detailed procedures of introducing the system.

2002 RCLG Meeting (August 20–23, 2002)

■ The meeting of RCLG(Responsible Care Leadership Group) was held on the subject of Responsible Care and Advancing Responsible Care Principles and Practices in Johannesburg, South Africa. Representing the KRCC, International Relations Committee Chairman Jongkoo Jeong, Regulatory Committee Member Lim Chang-hee and Kim Young-chan participated in the meetings. Mr. Jeong was designated as the Korean Mentor. Normally, an RC Mentor is appointed for each country and he or she is responsible for explaining the situations of his or her country such as codes or the performance indicators to other member countries.

At the meetings, discussions were made on various issues such as improvements on the participation and codes of RC activities and on the authentication problems. Multinational companies in connection with the execution of RC, which have subsidiary companies in many countries. These companies have the tendencies of following and using the policies of their head offices and their logo marks rather than the basic RC policies or logo marks of the residing countries. Opinions were expressed saying that and problems arise often in cooperating with the local companies. Chairman Chuck Walls of RCLG decided to make a recommendation that multinational companies follow the operating guidelines and logo marks of RC organizations of respective countries.

In the aspect of investigating the performance indicators in the wake of the execution of RC, in addition to the existing investigation of the outputs of COD, BOD, SO_x and dust, new items such as NO_x, energy, carbon dioxide and GHS (Globally Harmonized System) will be added in order to strengthen the standards and scope of environmental safety.

This year, an RC Peer Review was made of the activities of three countries such as South Africa, Italy and Spain. Brazil disclosed the case examples of the verification, which had been made of two companies for three days, drawing attention. The U.S. explained its plan on the security code and the RC verification, which is preparing in the wake of the September 11 disaster. The RC verification plan by the U.S. is based on ISO14001 using the method of verification by a third party and will be completed by 2007.

Vice Chairman Terry Yosie of ACC explained the result of the Global CEO Dialogue, which was held on June 5, 2002. The dialogue organization has since its first meeting in June 2000 a participation of about twenty eight representatives from chemical companies and organizations from Europe, the U.S. and Japan and has had discussions on such comprehensive matters as the methods of heightening the image of the chemical industry. The member countries of RCLG reached an agreement on the necessity of Global CEO Dialogue, however, they decided to adjust matters in the future on the participation of medium and small size companies and their relationship with RCLG.

In this meeting, the admission of Venezuela was approved, making the number of member countries of ICCA/RCLG 47 as of 2002.

Retirement of Vice Chairman Richard Slack, the Korea Responsible Care Council

■ Vice Chairman Richard Slack (Executive Vice President of Samsung Petrochemical Co. and President of BP Korea) has retired as Vice Chairman, the Korea Responsible Care Council, as he was transferred to BP Taiwan. Before his retirement, Vice Chairman paid a visit to Chairman No Ki-ho on August 14 and told him that Responsible Care was making a successful settlement stage within a comparatively short period in Korea and expressed his hope that the Council would make continued developments by positively cooperating with such related organizations as the American Chamber of Commerce in Korea and the European Union Chamber of Commerce in Korea.



The First Meeting of the Board of Directors

■ The first board of directors meeting 2002 of the Korea Responsible Care Council was held at the conference room of Konjiam Country Club in the attendance of Chairman No Ki-ho and eleven other directors. In the board meeting, the report on the preparation of APRCC (Asia Pacific Responsible Care Conference) was made and discussions proceeded on the future promotion affairs. The meeting approved the admission of Degussa Korea, Korea Carbon Black and LG MMA Corp.

Seminar for the PL(Product Liability) Experts Course in the Chemical Industry

■ The Korea Responsible Care Council held a seminar on the subject of Chemical Industry PL Experts Course at Special Conference Room 2 of the Convention Center, the Federation of Korean Industries. More than 100 people including RC coordinators from member companies and directors and employees in charge of PL attended this seminar. The seminar, held through the cooperation of the Korea PL Center, was intended to help the chemical industry to take necessary actions in response to the Product Liability Law, which went into effect on July 1, 2002. At the seminar, Vice Chairman Park Hun emphasized the need for a firm determination of enterprises to manufacture complete defect-free products in the wake of the enforcement of the Product Liability Law and asked participating companies to prepare thorough ongoing measures. The major topics of the seminar were the presentation of the PL-related cases of the chemical industry, the management of representing the warning notices and the methods on utilizing and keeping records on FMEA (Failure Mode and Effect Analysis), mainly focusing on working-level measures for actual situations.



RC Launching Ceremony of Tongsuh Petrochemical Corp.

■ Tongsuh Petrochemical Corp. held a ceremony for launching its RC promotion team on July 23 at its Ulsan Plant in the attendance of all officers and employees, head office team leaders and officers. In the ceremony, President Lee Kyun-chul made an opening speech and the Safety and Environment Chief of the company introduced the progress of RC promotional activities and future plans. Kim Young-chan from the Korea Responsible Care Council explained the background and future plans of RC. The RC launching ceremony was also accompanied by the industrial safety and public health event which included such colorful occasions as a presentation of accident cases, a contest of predicting dangers and safety quizzes.

Bayer Korea held a 'Product Liability Act' Seminar for its customers

■ Bayer Korea's Polymer division held a seminar for customers with the topic of 'Right understanding of the Product Liability Act for Successful Business'. PL Act was set for manufacturers' responsibilities for their products. In the seminar Bayer Korea's President, Mr. Marcos Gomez, introduced the concept of 'Product Stewardship' which Bayer is adapting. It means that a company is taking responsibility for products throughout all the processes of manufacturing. Also he emphasized that Responsible Care activities will help chemical industry to establish desirable practices for product safety. As the first seminar Bayer Korea held, it has a meaning of taking a first step to disseminate Responsible Care ethics.

Image of Chemical Industry in Europe

A Pan-Europe Survey (PES 2002) of opinions, which was recently conducted by the European Chemical Industry Council, indicates that the image of the chemical industry in Europe did not improve over 2000. Especially in France and the Netherlands, the image got much worse according to explosion accidents. In Spain, however, according to steady efforts and positive public relations activities from 1998 with FEIQUE (Federacion Empresarial de la Industria Quimica Espanola) in the center of activities, the negative image of the chemical industry decreased by 14% while its positive image increased by 18%, showing good results.

All-out efforts are being made in order to improve the image of the chemical industry and chemical companies in Korea prompt Responsible Care, are carrying out activities intended to be on an increasing scale. BASF is operating the Community Advisory Panel in order to attain an efficient communication with the regional communities and Tongsoh Petrochemical Corp. is carrying various activities in order to implement RC.

A Formal Communication Channel between Regional Communities and Chemical Companies

Community Advisory Panel of BASF Company, Yeosu Plant

1. The background of CAP Establishment

BASF was promoting the construction of a TDI plant with an annual capacity of 140,000 tons in its Yeosu Plant in accordance with a large-scale investment plan in 1997, the year in which the foreign exchange crisis occurred.

However, BASF was confronted with an unexpected opposition from the Yeosu City Council and environmental organizations in Yeosu because they gave vent to the environmental safety problems, long-existed to the petrochemical complex in Yeosu.

BASF Korea, based on its study of the standards of excellent environment safety management and the status of verification at home and abroad, had a series of positive discussions and dialogues with the Yeosu City Council and NGOs in Yeosu. In the process of such efforts, BASF Korea was able to obliterate all the environmental concerns and suggested to the local community that it would establish the Community Advisory Panel (CAP) in the Yeosu Plant in order to build up a lasting trust between the regional community and the Yeosu Plant.

With such a background, it was announced at the end of December 2001 that CAP would be operated in BASF Korea Yeosu Plant for the first time in Korea.

2. Efforts for A Successful Embarkation

First of all, the study and review were performed on the literature of operating case examples of chemical companies in the U.S. where comparatively smooth communications are being maintained with regional communities with regard to environmental safety of chemical companies. Moreover study and review were made of the merits and demerits of BASF CAP operations in Germany and those of similar councils being operated in Korea. As result of such efforts, the draft of Bylaws of CAP was also completed. However, consultations with those experienced in CAP operation were considered desirable because an attempt as above was made for the first time in Korea. Therefore, CAP expert from BASF U.S. was invited to Korea and provided various expertise opinions on CAP operation experience in the U.S. and suggestions for a successful CAP Operation in Korea.

The commission of the panelists for CAP, the most important and difficult job to do, could be completed only after personal contacts and explanation of the sincere determination of BASF. The

starting members, ten panelists, consisted of SHE experts, a professor, a doctor, a teacher and some opinion leaders in Yeosu community.

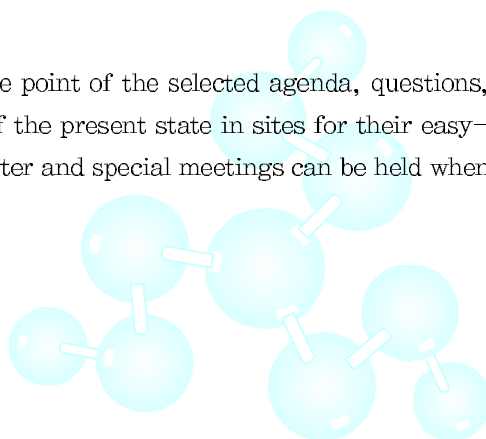
On the other hand, in order to convey the commitment and determination on the part of implementing CAP, invitations for CAP panelists were extended NGOs who have a negative opinion on the construction of new chemical plants in Yeosu industrial park. Even though the invitations were courteously refused, BASF expects their positive participation in the future.

3. Major Contents of Operating Regulations

The purposes of CAP are to promote trust through open and direct dialogues and to obliterate concerns of the regional community on the environmental safety of the BASF, Yeosu plant, thus building up the relationship of a joint development.

The agenda discussed at CAP included affairs of safety and environmental management, affairs of emergency communication systems and measures to cope with emergencies, affairs of safety in transportation and handling of chemicals and other safety and environmental affairs. The composition of panelists can have a maximum of fifteen persons, whose tenure is two years, which can be renewed, and no remuneration is made in principle for them because they are supposed to be a volunteer service.

The meeting is operated like this way(Explanations for the point of the selected agenda, questions, answers and discussions) and there is also explanations of the present state in sites for their easy-understanding. Regular meetings are held once every quarter and special meetings can be held when it is necessary.



4. Progress of the Meeting

● Inauguration Meeting(March 28, 2002)

The inauguration meeting was held in the attendance of ten panelists on March 28, 2002. At this meeting, the operating regulations were finalized after discussions, laying a foundation for a successful operation of CAP.

● The Second Meeting(April 26, 2002) and the Third Meeting(June 11, 2002)

The letter commissioning the panelist was presented to all the panelists of CAP with the 'Responsible Care (RC)' badge, thus it confirmed the prestige and meaning of CAP activities. In order to help the understanding of the Yeosu Plant, the uses of products and the production capacity of the Yeosu Plant were explained in addition to safety environments and a general management of the plant.

Discussions were held on the point of prejudice of the public and the region who have misunderstanding about the chemical plant and tried to find possible methods of obliterating such misunderstandings. For example, the events of inviting students and inhabitants of the area to the plant were discussed and opinions were expressed on what efforts would be made in order to build up a desirable relationship between the regional community and the chemical company from a long-range view point.

A consensus was reached on the necessity of BASF Yeosu Plant carrying out activities intended to build up trust in the community and it was agreed by the panelists that a concrete plan be worked out for achieving this purpose.

In addition, it was resolved that a regular news magazine 'Love of Environment and Love of Safety' be published for heightening the safety consciousness in addition to making known the CAP activities of the Yeosu Plant.

● The Fourth Meeting(August 29, 2002)

At the forth meeting, an introduction was made of the general status of the plant, and visits were made to all the premises of the plant. In addition to taking a look at the existing MDI plant, they also visited the new plant which is now under construction and listened to an introduction by the site manager and had a session of questions and answers. They took a look at the process facility and also got technical explanations about them from the engineers that would eliminate their vague doubts and misgivings.

The panelists had a final review of the news magazine, 'Love of Environment, Love of Safety' before its publication. The news magazine gives a detailed information on the use of products and on how they are used in daily life and in industry, as well as news on Safety, Health & Environmental activities in an effort to heighten understanding and consciousness on Safety, Health & Environmental management.

The news magazine was distributed to employees, interested people & parties in the regional community and also was put on the Internet homepage for reference by everyone. The data contained therein will be distributed on request for free.

5. Achievements and Future Tasks

It is too early to talk about achievements, however, the positive aspects of operating CAP may be summarized;

First, doubts on a successful operation of CAP have been greatly reduced. The meticulous and sincere preparations made by the Yeosu Plant and the frank attitudes led to the positive participation of panelists, making CAP a substantial body of consultation.

Second, the responses from the industry and mass media were comparatively positive. While BASF Korea did not make known the CAP activities, related companies and the mass media showed a favorable response.

Third, attention could be brought to the successful operation of CAP in BASF Asia Pacific region. The business group of BASF made a detailed report on the Yeosu Plant CAP activities in its annual Social Responsibility Report 2001.

However, there lie many tasks, which must be overcome.

First of all, for a continued result from CAP activities, the development of new and beneficial programs is required such as a good selection of agenda. Secondly, the additional introduction of panelists from the Yeosu regional community is required.

As the existing panelists agree, we are exerting efforts to enlist representatives from the community of women in CAP in order to listen to and reflect more diverse opinions from the Yeosu community. This will serve as a driving force for further development of CAP.

Third, it is necessary to make a review of the operation of CAP in BASF Korea plants in other areas. For the Ulsan Plant and the Gunsan Plant, additional operation of CAP should be reviewed in full consideration of the social conditions of the concerned areas.

If we continue our efforts as noted above on a long-term basis, BASF Korea expects that it will provide an opportunity to make a joint development with the regional community through cooperation between the regional community and the chemical company based on the original spirit of open communication. BASF Korea plans to exert its efforts to make successful model of CAP in the future.





Tongsuh Petrochemical Corp. Ltd.

The domestic petrochemical industry will have a thirty-year history this year. If its history can be compared to a man's life, it has reached an age of youth. However, its facilities are old and the handling volume of toxic substances has increased. The problems of environmental pollution and the prevention of accidents cannot be overemphasized.

Tongsuh Petrochemical Corp. handling the large quantities of hazardous substances has adopted Responsible Care(RC) in 2001 and is now operating it. We would like to introduce the progress of our RC efforts since the first inception of RC, our efforts to minimize trials and errors and our company-wide efforts to make a success of it.

1. Introduction of the Company

Tongsuh Petrochemical Corp. is a 100% subsidiary company of Asahi Kasei Corporation of Japan, ranking No. 2 in the world and is manufacturing and selling AN, NaCN, EDTA and AMD. Its acrylonitrile process, the main process, went on stream with an annual capacity of 30,000 tons and has grown to 130,000 tons. It will be increased to 270,000 tons when a new plant of 200,000 tons is completed in early 2003, becoming the largest company among the single plants in Asia. As part of business diversification, the business of NaCN was started in 1985 and since 1995 Tongsuh Petrochemical Corp. has entered into the business of AMD and EDTA, thus turning from petrochemical industry to specialty chemical industry to do business in a highly valued industry.

2. Principles in Introducing Rc

1) Development of a Program in which the Management and Employees Participate

- Holding of periodic events to induce the participation of management and employees
- The progress of RC is publicized to all management and employees
- The atmosphere of giving incentives is created in order to encourage continued activities

2) Maximum Utilization of Existing Systems

- Maximum utilization and efficient management of duplicated processes from existing organizations and systems such as PSM and ISO

3) Thorough-going execution and continued improvement of P(Plan), D(Do), C(Check) and A(Action)

- "What we are doing" and "what we are going to do" is stated first and what has been said shall be performed in a proper way and what we have done shall be demonstrated and inspected.



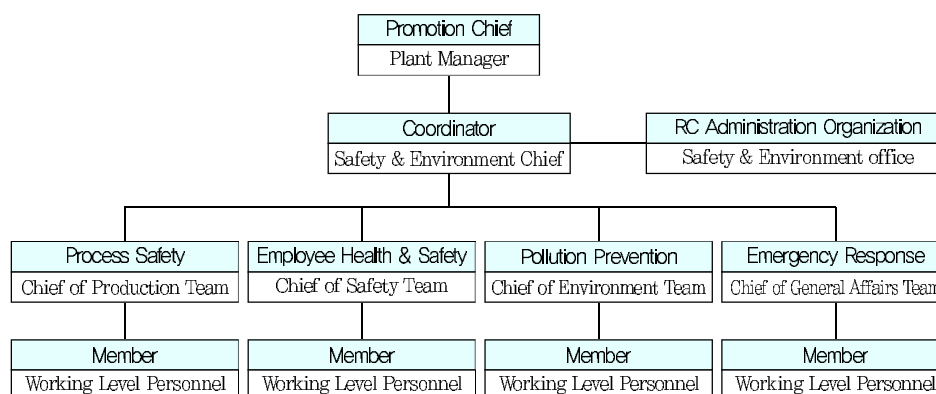
- The objectives of the individual and the department shall be established and a continuous management for attaining the objectives shall be performed.
- The lesson and evaluation of mistakes will be used for a continuous improvement and shall be reflected in operating policies through reports to the management.

The above objectives are established as a basis for setting up the direction of promotion. However, the most important thing lies in the reflection of such objectives in the policy through the attention of the management and the execution by all employees. Most of the enterprises place their priority on the operating profit, and as a result, it's a reality that safety, health and environmental management have a lower priority. However, the importance of risk management should be emphasized through RC and the consciousness of creating operating profits from no accident, no pollution and minimized damages should be reflected as part of the operating strategy.

3. Status of RC Promotion

A brief introduction of RC promotion is introduced in the following in order of its processes.

1) Formation of Promotion Team : August 2001



2) Functions and Responsibilities

- Coordinator
 - The Chief of The Safety and Environment Office, which is in charge of promoting RC, performs duties as the coordinator, establishes the promotion plan and provides real time solutions to problems in the progress and the reporting of progress to the management.
- Leader of Subcommittee
 - Chief of the team with proficient knowledge of related sub-committees has been appointed as the leader. The leader of the sub-committee performs the review of factor analysis, guidelines and revision of RC CODE.
- Members of Subcommittee
 - Personnel capable of performing related jobs were selected from engineering, production and supporting departments. They will assist with the job of the sub-committee leader and will prepare various guidelines and revised guidelines in accordance with their assigned duties.
 - In assigning the duties, consideration should be given so that all members may participate.



3) Grasp of Present Status

The Promotion Bureau prepared check sheets and forms of the neighboring companies were used for reference. The RC Code requirements as requested by the Korea Responsible Care Council were determined through performing a self-evaluation in establishing objectives and guidelines. According to lack of knowledge in applying check sheets and the increased requirement of duties, there occurred a delay of about one month in grasping the present status. The RC promotion Bureau and subcommittees have found a solution to this problem through several meetings and discussions.

4. Establishment of the Direction of Mid-term Promotion

Improvements were made on problem areas, which were proved in the process of grasping the present status and the following mid and long-term plans have been established in order to achieve objectives and to meet the requirements of RC.

1) First Stage : Introduction of RC and Constitution of Foundation(July 2001~January 2001)

- Establishment of promotion plan including policies and objectives and formation of team(August, 2001)
- A review of safety, health and environmental level at present

2) Stage 2 : Settlement of RC activities(February 2002~2003)

- Regulations and revised regulations were made of environments, health, and safety
 - Regulation guidelines (12 items), revision guidelines (18 items)
- Level improvements through implementing RC CODE and self-appraisal,
 - Objective: 3 or 4 stages among 6 stages (50% level up from the present level.)

3) Stage 3 : Furthering of RC activities (2004 – 2005)

- Additional implementation of RC CODE: from 4 CODES to 6 CODES
- Level improvements through implementing RC CODE and self-evaluation
 - Objective 5 or 6 stages among 6 stages (90 % level up from the present level)

5. Status of Promotion in 2002

1) Regulation of Procedures through Promulgation and Revision of guidelines on Safety, Health and Environments (April 2002 through 2003)

Because Tongsoh Petrochemical Corp. was operating only ISO 9002 and PSM System; it was necessary to regulate procedures on health and environments and to reflect the contents of health and environments in the existing guidelines. On the basis of confirming the existing status, plans were made on regulations(12 items) and revisions(18 items) and the Promotion Bureau assigned one or two guidelines individually so that all members could participate in such plans.



After six months of promoting RC, the performance so far is equal to only 60 % against the plan and the Promotion Bureau Chief is directly controlling the progress by holding meetings. The guidelines of Asahi Kasei Corporation, the holding company, have been translated for reference to be used in promulgating regulations and revisions thereof of Tongsoh Petrochemical Corp.

2) Company-wide Launching Ceremony (July 23, 2002)

Since the formation of the RC Promotion Team in August 2001, the promotion affairs had been carried out by personnel limited to the promotion members and it was necessary to publicize RC throughout the company. The management and all employees including the president, accounted for about 90% of all employees excluding the employees working at the sites, attended the launching ceremony. In the ceremony, a declaration for RC implementation was read and all officers and employees affixed their signatures on the declaration in order to inculcate the RC consciousness. The books of signatures were put on display in the lobby of the main building. Representatives from related companies such as subcontractors doing work on the premises were also invited to attend the ceremony to bring safety and environment consciousness to their attention.

3) Company-wide Questionnaires (August 2002~)

Prizes are being awarded to those who prepare questionnaires and those give correct answers in order to publicize the contents of RC promotion to all employees, thereby heightening the consciousness in safety and environments. For the preparation of questionnaires, company mails are being utilized in order to facilitate participation. Two employees are selected by drawing lots for every round of questionnaires and are presented with a gift certificate equal to 30,000 won. Four rounds of questionnaires have been held since August. About 20 % of employees participated in the questionnaires with the number of reference accounting for 65 % of all employees. The questionnaires are considered a good system in heightening the awareness of RC being promoted.

4) Establishment and Control of Company-wide Objectives(September 2002~)

The company set forth policies as follows.

- Assurance of process safety
- Assurance of Employee Health & Safety
- Reduction of pollutants
- Assurance of safety in the process of transporting products and raw materials
- Strengthening of controlling wastes
- Measures & activities in case of emergencies
- Assurance of safety for product consumers

In compliance with the RC policies established by the RC Promotion Bureau, as in the above, the plans for implementation have been prepared and are being managed in participation by all departments. For execution of detailed plans, the dates and the personnel in charge will be designated and the performance will be confirmed by self-evaluation at the end of the year.

The management of RC policies versus objectives is considered an important method for a continued development of RC in the future. The performance at plants in Japan of Asahi Kasei Corporation, the holding company, is being reviewed for reference in our efforts to vitalize the RC promotion in Tongsoh. Because the holding company introduced RC in 1995, which has been in operation, the present status of RC there is being reviewed by concerned personnel and will be used in solving problems and in establishing future plans. Annual inspections will be made twice a year for a substantial and on-going improvement of RC.