

# Chemical Industry and Responsible Care

The enormous achievements that have been made in the 20th century would not been possible without the contribution made by the chemical industry. It would neither have been possible for us to dramatically lengthening our life span without the outstanding advancements that took place in the chemical industry. But it is also true that there is a widespread negative perception of the chemical industry as a pollution-causing industry beginning from the latter half of the century, despite the material benefits of such a magnitude that the chemical industry has given to our lives as a result of its advancement. Since it had come into being in 1873, DDT was developed as a pesticide later on by Müller in 1939, and put into use in treating malaria worldwide during the World War II, and Müller received the 1948 Nobel Prize for his work.

Rachel Carson, in her book published in 1962, "Silent spring", wrote "Spring has come, but we can no longer hear the birds singing" to cite the misuse and abuse of chemicals like DDT for what has happened. Once acclaimed as a miracle pesticide, DDT is now stigmatized by WWF(World Wildlife Fund) as a representative substance that causes the endocrine system lesions, and its use is banned in most of the countries, including Korea. This is a classic example of the ambivalence of the chemical substances. People will keep developing more chemicals that we have never seen before and would bring wonders or curse. What should be done most urgently is to predict and minimize the harms that chemicals do to human beings and nature throughout the whole process from creation to termination of such harmful chemicals, while at the same time maintaining the richness and convenience these chemicals create in our lives.

The chemical industry has recently made historical developments. Some 80,000 chemicals are now in use worldwide, and nearly 2,000 more are being newly developed each year. In Korea, about 36,000 chemicals are on the market locally, and 200 plus are either newly imported or manufactured every year. In 1998, the world total sales were \$1,500 billion, which compares to the sales in less than \$200 billion in 1970. The Asian chemical industry, including Japan, Australia, and Korea, made up about 10% of the world market in 1970, and has since made noticeable growth at 16% in 1998. Korea had earned as little as 400 million in 1970, and has reached the \$45 billion level in 1998, ranking among the top 10 OECD nations in terms of the industry size as a most dramatically grown nation. (Source: CMA, 1999a)

Along with the developments of such magnitude that were made over the past years, the chemical industry

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\* The Chemicals Management Division of the Ministry of Environment is one of the KRCC's Advisory Panel.



has its own share of adverse feelings and concerns that have grown in the society. Japan got hit by minamata (cause: mercury poisoning) and itai-itai (cause: cadmium poisoning) earlier in the 1960s, awakening the world to the potent harms that heavy metal contaminations can bring about. The 1984 MIC - raw material for making pesticide - leak at Union Carbide plant in Bhopal, India killed 2,000 and seriously injured more than 100,000 in the space of just 2 hours. The dire warnings for catastrophe in the whole ecosystem that may happen as a consequence of chemical substances disrupting the human hormonal system are not new, as illustrated in "Our stolen future" by Theo Colborn which highlights the destruction in the bio system's reproductive ability that can be caused by the chemical contents present in the pesticides like DDT, beverage can coating agent bisphenol A, detergent ingredient alkylphenol, and other substances that have become part of our daily living.

The future of the chemical industry lies in how the industry pulls off in minimizing these adverse effects, while at the same time making our material living as rich as ever. It is such an inspiring and heartwarming thing that the Korean chemical companies took initiative in instituting the Responsible Care with a view to voluntarily take responsibility for and care of the hazards to the environment and people across the whole process from manufacturing and all the way down to scrapping.

**Responsible Care** is composed of six management practice guidelines: 1) Immediate response to chemical incident and community awareness; 2) Pollution prevention; 3) Process safety; 4) Distribution of chemical products; 5) Employee health and safety; and 6) Product stewardship. These demonstrate the industry's self-motivated willingness to make "sustainable development" happen, which is the central idea of Responsible Care. They are also keen to their corporate vision to conform to the government's policy for chemical substance management that the Environment ministry is currently working on for the materialization of the Rio Declaration for "sustainable development" that the world leaders made public at the 1992 Rio convention. In the works by the Environment ministry for the reduction of hazards to the public health and environment from chemical substances are system to prevent, prepare against, and respond to chemical accident, hazard test, system to identify chemical distribution and emission, and to assess chemical hazards. And the success in these governmental efforts will not be complete without industrial support.

With the industry initiated Responsible Care in place, the governmental policies will effectively go hand in hand in pursuing and making happen the common goal of safe management of chemicals. Based on the understanding of and compliance with the governmental policy, the industry would definitely be able to see Responsible Care work in a timely manner with continuous development of practice guidelines geared to the local industrial environment as deemed appropriate on a longer term view. As we can see from the recently adopted PIC or POPs convention, the future world environment discussions will center around proper handling of chemicals. The prospect for PRTR on chemicals being signed up as an international convention is bright. The government policy will go in the same direction that the international trend will be going, and it is becoming increasingly important that the industry continues to be as conscious about the norms on chemical management that are formulated internationally as before in one way or another, including prudent investment decisions to this effect.



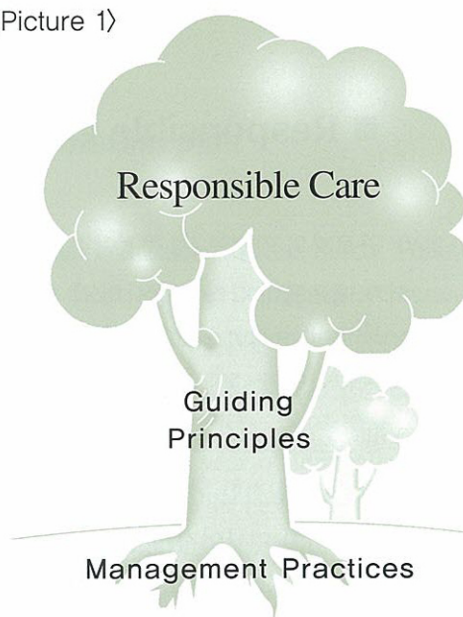


# KRCC Code of Management Practices Finalized

KRCC's 4 Responsible Care codes are now complete, after they were deliberated by the Board and got its approval on August 21, 2001 on the Management practice guideline for 3 codes on Employee Health and Safety, Pollution Prevention, and Emergency Response. The code on Process Safety had been made out early on.

Each code consists of three parts: 1) 'Purpose' that deals with the objective, principle, key issues for putting Responsible Care into practice; 2) 'Relationship to guiding principles' that describes chemical industry's role in the society; and 3) 'Management Practices' explaining things that should be done to accomplish the purpose. Management practices are the heart of Responsible Care, and therefore all member companies are strongly encouraged to put that into practice.

〈Picture 1〉



Management Practices were produced first designating leader company for each code, and having them refer to and rewrite ACC(American Chemistry Council) codes to suit the local characteristics. CAPRO's Oh Hyo-sun( Pollution Prevention Code), Samsung General Chemicals' Yoon Chun-Seok (Process Safety code) SK's Lee Su-Young (Employee Health and Safety Code) and Lee Hyung-Sik of Honam Petrochemical (Emergency Response code) were the code leaders. The number of management Practice for each code and example of the criteria is in Table 1.

〈Table 1〉 Number of Management Practices and Criteria (example)

Code	Management Practices	Criteria (example)
Employee Health and Safety	13	105
Process Safety	17	130
Pollution Prevention	14	109
Emergenay Response	8	61



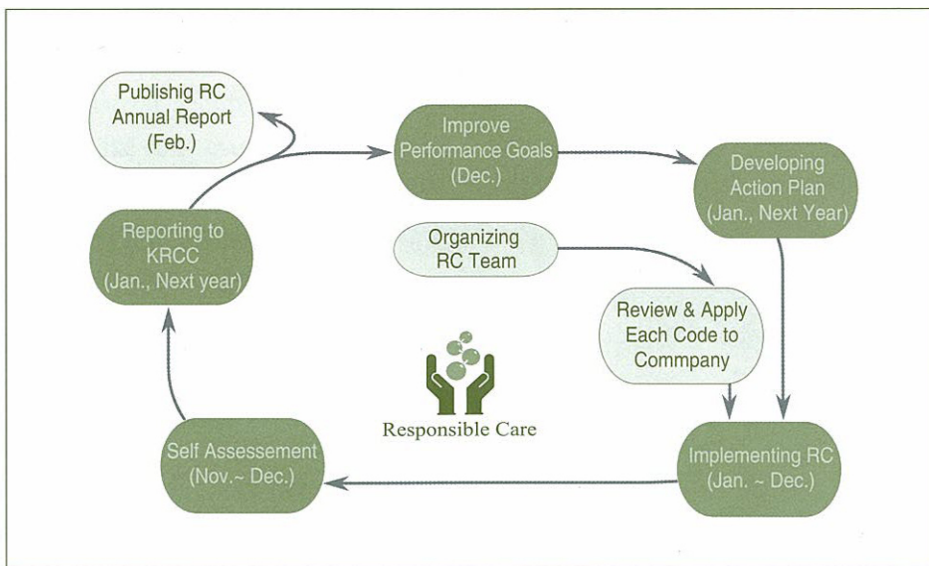
▲ 안내서 / Guidebook

KRCC published and released the complete code books, and Responsible Care guidebooks to the member companies to help persons in charge familiarize themselves with the codes and apply them to their work. The guidebook is made of the general idea of Responsible Care, its implementation procedure, individual Management practice guidelines with examples, glossary, FAQs.

## ■ Organizing Responsible Care team and implementation plan

With a complete Management practices for the 4 codes -Employee Health and Safety, Process Safety, Pollution Prevention, and Emergency Response - and guidebook that are available to them, member companies are currently working on staff formation to get the Responsible Care going and on the 2002 business plan. Since Responsible Care assumes involvement from across the board, not the environment/safety personnel, the organization should be shaped out in such a manner where all employees take part in with the president at its top. Next to organizing, implementation plan for the coming year based on status review should follow. A year of implementation is complete with the assessment of the yearly performance that should then be reflected into the next year's or mid/long term plans in such a manner that ensures gradual and continuing improvements in the corporate management of environment, safety, and health. Company's individual assessment will be examined by the inspection committee for yearly report, based on which case company will be selected for the sake of promoting excellent practice in the coming years. Picture 2 highlights the implementation procedure of member companies and KRCC.

〈Picture 2〉 Responsible Care Implementation Procedure





## Love for human beings, Responsible Care

Skies are blue and clear in the autumn in Korea. Like many other countries, Koreans enjoy the four distinctive seasons - spring, summer, autumn, and winter - through the changing colors of the nature. The late president Park addressed at the groundbreaking ceremony for Ulsan industrial complex on February 3, 1962, "The day will come when the sound of the construction trucks fills the air of the east sea and black smoke puffs off into the air from the smokestacks of the factories. This will be the day that our people will see with their own eyes the embodiment of the hope and development of our country ... My dear compatriots who are suffering from the pain of poverty ..."

And now we are here, asking ourselves if we are not suffocated with the very black smoke that we had so anxiously waited to see before our economy got to the point we had wished back in those days. The key word internationally now is quality, environment, safety, health with such coded new norms as Sigma 6, ISO/QS/TL/EL 9000, ISO/TS 16949, ISO 14000, SA8000, OHSAS/K-OHSMS/KOSHA 2000/KGS 18000, IMS/RC, etc and etc. Today, persons in charge of environment/safety try to provide expert opinions and advice whenever they spot non-compliances, risking being branded as persons not for supporting but for harassing with the conviction that this is the only way not just to keep the coworkers out of the process and workplace hazards, but also to pass on to our next generations a workplace worth their services.

I guess it is time when we asked ourselves if we aren't becoming a little too complacent and if our awareness about environment and safety hasn't stopped maturing, as the industrial accidents are becoming more or less like daily event. One thing we have to keep in mind as we live in this modern era will be trying to come up with more advanced and fine-tuned systematic management tools, rather than simple-mindedly working hard. And I guess we give serious thoughts to the problems that chemical plants in Canada or the U.S. had to grapple with years back, before it's too late.





We may be making an anachronic mistake if we forget the reality whose culture features NIMBY or BANANA, where the industry should ask for community consent on constructing nuclear power plant in exchange of paying the community continuously an astronomical sum of money as an indemnity, if we let people get hurt from the accident by chemical carrying trucks, or if we let innocent children play with toxic chemicals. We should seriously think about what we will have to do in order not to be resented or rejected by the community, like in Canada 15 years back, and in order to get what we validly deserve as the significant pillar for the national economy.

Like a silent contributor, Responsible Care has come to us to help us solve not a few problems and troubles that are taking place in our production plant. The beauty of Responsible Care, by touching on the issues of environment, process safety, employee health and safety, emergency response to accident, community awareness, problems related to distribution of products and product liability, is in being not just a controlling tool, but a human factor that bonds the company, worker, and the community the company belongs to. There are many who toiled at a far corner of the workplace and did not hesitate to take the night train to help the company adopt Responsible Care, for they knew its worth, though still young and new. There were some rocky moments when the discussion of the Implementation Committee got stuck, failing to find a middle ground. Some open discussions went well into the night before the committee finally agreed at some point or another, and in other lengthy discussions the committee clashed head on with two contradicting propositions: either to put aside some practice guideline, or to include all as the sole means to accomplish the central spirit of the objective. The guidelines were given birth after a series of lengthy and heated discussions where the issues were thoroughly examined, caught in stalemate, and were eventually resolved by majority vote.

When I see the guidelines treated as nuisance by my co-workers, when I hear some persons in charge at the production site say in an assertive tone that production is their only interest and nothing else besides that, and when such assertions are echoed by their supervisors, off and on I feel like I am getting weaker and smaller. This is the reality I have to face day by day in regard to the industrial environment, safety, and health. But still I have hope that some day it will change, and armed with this conviction I know I will keep up with my task that will benefit my colleagues and the community.





## Off to becoming incident-free workplace...

The objective of the process safety code is to protect the health of workers and people in the community, property of the company, and the environment of the community by preventing fire, explosion, or leak at chemical plants, and ultimately earn the perception from the government, community, and all other concerned personnel that chemical plant is a safe place. Practice guideline of the code is made to fit into the code objective which can be achieved through a continuous improvement activities following the guidelines. It is made out on the assumption that facilities are designed/manufactured/constructed/tested/operated in accordance with the relevant engineering standards, and their safety is guaranteed by means of regular compliance test.

The 12-point process safety system was instituted in 1996 for the purpose of improving safety standard, and the Responsible Care's guidelines focuses on beefing up its role as a sustainable management system that motivates management and workers to work together to meet the goal that is set forth in the guidelines. Briefly mentioning the drafting process of these guidelines, it took one year and two months to produce a final version after the necessary steps were taken since the kick-off meeting was held in June 2000 among the member companies, Hanhwa, LG, and SK. Included in the steps are drafting of practice guidelines and evaluation items, seminar at Seoul, Yecheon, and Ulsan, discussion on the optimal implementation of Responsible Care, and deliberation and approval by the Board.

Process safety can be improved by following the 17 management practices and 130 exemplified criteria and self evaluation standards of the individual companies. In order to get the expected result, systematic efforts need to be put in, including 1) installation of implementation staff, such as operating committee; 2) selective adoption of the guidelines as deemed suitable to the plant operation; 3) orientation to boost consensus and sense of belonging; 4) evaluation standard befitting to the company's business objective and environment; and 5) evaluation by individual companies and future planning. Incident-free workplace would be around only if the management provide interest and support on the one hand, and workers and coordinators positively take part in this effort on the other hand so that Responsible Care could be in place as early as appropriate.

Practicing Responsible Care is just the first step in the journey for guaranteeing safety for community and workers. What is important is not the fact the guidelines are in our hand, but continuous improvement by acting faithfully and transparently, and that is what we have to do not only for ourselves, but also for our next generations. Thanks to the positive efforts of the representatives and cooperation among the member companies, KRCC's four codes are now complete. It is highly hoped that cooperation between early starters and late comers in sharing experiences and information will eventually reach to a point where the codes can grow into comprehensive guidelines that encompass the entire product life cycle, including distribution, community awareness, and product stewardship.





## Self-motivated and effective implementation

The negative perception of the chemical industry usually relates to pollution and explosion of a catastrophic scale that are caused by this industry. Occupational deceases that has pestered some chemical plants could be added to the negative public perception. Employee Health and Safety is for protecting the health and safety of workers from such large scale explosions or hazardous substance leaks. This code, as a basic element in act on Responsible Care, can contribute significantly to getting chemical industry clear of the defamatory nickname of 3D industry and placing it among safe and clean industries, instead.

This code, drafted with reference to practice guidelines of ACC's Employee health and safety and comprising 4 segments - 1) safety and health program management; 2) definition and evaluation of danger; 3) prevention and control for danger reduction; and 4) worker communications and orientation/training -, is aiming to deal with all imaginable activities related to Employee health and safety. The basic principle is dealt with in the Management practices and applications by individual companies is provided in practice examples, offering convenience to individual companies of various sizes in adopting the code to suit their different needs. Drafting of the Management practice guidelines were taken part in by many member companies and the final version was produced after several working group discussions, but is open to further improvements.

The effect of practicing this code will be maximized if it is used in reference to similar guidelines of other codes, and when it is put into use in the presence of well-defined, prioritized activities for Employee health and safety. Implementation based on self-motivation and commitment to improvement of Employee health and safety will bear the visible result of reduced rate of accident.

In the beginning stage of drafting the guidelines, it was hard to be certain regarding their operability because of the gap between the idea and real situation. But little by little I began to realize that Responsible Care is an activity initiated by member companies and am thankful for the opportunity to join in the preparation of Management Practices, the basic part of Responsible Care.





## A new management tool for environment, safety, and health

Last March, I got a call from the headquarters to inform me that I was assigned with drafting of a Responsible Care code on Emergency Response, for which Honam Petrochemical Corporation was designated as the subcommittee coordinator. My assignment was to produce Management practices for Emergency Response code, for which I was expected to meet with members of the subcommittee. I was more or less at a loss regarding the principles and ways of preparing the Management Practices, even though they were not completely new to me. At the end of 2000 when I was working on the 2001 departmental business objective, I put in Responsible Care on the list of the next year's business objectives with a brief statement about the need and importance of Responsible Care, in which I took some interest during the time around, but not deep enough to think about the formulating and operating Management Practices. Now I was charged with producing them within a given period.

The first thing I did was to discuss this issue with member companies, especially foreign-invested companies, for I thought they would turn out to be helpful. 5 out of 8 member companies were present, and we got to the drafting of practice guidelines that cover issues of general management. Referring to ACC's Responsible Care Management Practices, it was decided to produce guidelines for Emergency Response, and take out community awareness that was considered less suitable for the local industry. To encourage involvement of foreign-invested companies, it has also been decided to include some issues on distribution that bear close relevance to Emergency Response in the implementation items. The draft Management Practices were made for which ACC data and guidelines of foreign-invested companies, and in May-June when orientation was held, review and modification of the draft guidelines were done at the subcommittee meeting. Leader and member companies did a general review on the four codes in July-August, and the codes got official approval after discussions and board meeting in August 2001.

Printing of the code book and practice guidelines book is now finished, and with that the difficult time has gone. Presently my main concerns are about how to modify and operate the practice guidelines to best suit the conditions of individual companies, how to apply to company and get workers familiarized with Responsible Care, a new paradigm on environment, safety, and health. I am hopeful that the future is bright if we make ourselves ready to taking each careful step to this new method until we get used to Responsible Care and be among the world companies who adopt this new management tool. I would like to thank all the Emergency Response subcommittee member companies who took part in this project - attending meetings, data supply, and other supportive actions - at the request of leader company





## ❖ The 3rd Board of Directors meeting of the 2001 (September 5, Hotel Lotte)

The KRCC's 3rd Board of Directors meeting of the 2001 was held on September 5, 2001. The meeting was attended by Chairman No Ki-ho, and 17 executives and advisors. Reports were made on the status and progress of Responsible Care implementation, and it was decided to work on hosting the 8th APRC Conference. The meeting was presided by Chairman No and Vice Chairman Kim Jin-mo reported on the result of setting the Management practices for 4 codes, assessment of the 4 rounds of orientation/discussion, RC logo, Homepage service, publishing of newsletter as a channel for information exchange among member companies, and the progress of other activities. It is expected that hosting APRC will offer an excellent opportunity for promoting Korea's activity and raising industry's awareness about Responsible Care. Discussion was made regarding the benefit and need to give incentive to companies who implement Responsible Care. The advisory opinion was that if companies ask for incentive, the incentive giver will need standard or measuring basis for this purpose, which would eventually compromise the original idea of voluntary improvement activity.

## ❖ Discussion about Responsible Care implementation

(August 23, Seoul Chamber of Commerce & Industry)



Following up on the completion of 4 codes - Employee Health and Safety; Process Safety; Pollution Prevention; Emergency Response, the KRCC held discussion for the member companies in an effort to promote implementation by the member companies. The meeting, which was held at the SCCI conference room in Seoul on August 23, 2001, was attended by 47 RC coordinators and environment/safety personnel. Chairman No, in his opening speech, commended the coordinators and environment/safety personnel for their service to produce a complete codes, while at the same time asking for a continued contribution to its implementation at the workplaces. The forum was participated by 7 penalists - Kim Kyung-ok of BASF, Kim Bum of Bayer Korea, Billy Kim of Dow Corning Korea, Oh Hyo-sun of CAPRO, Yoon Chun-seok of Samsung General Chemicals, Lee Su-young of SK, and Lee Hyung-sik of Honam Petrochemical - and discussions were made regarding the features of each code, operating method, team formation, participation by top management, recording of implementation assessment, and other issues related to putting Responsible Care into practice.

## ❖ The 1st meeting of APEC Chemical Dialogue Steering Group

(August 19, China)

Jeong Jong-koo of Dongbu Hannong Chemical and KRCC's International Relations Committee chairman attended the meeting as KRCC's representative. The CDSG is a working group for supporting the preparation



of Chemical Dialogue. Representatives of the government and private sector from 14 countries, including the U.S. and Japan attended this year's meeting and agreed to put SDS(Safety Data Sheet) as the main agenda for the formation of Chemical Dialogue.

## ❖ Attending RCLG General meeting

(August 27-29, Mexico)

BASF Company's Yang Duck-yong and Kim Kyung-ok attended the meeting in the capacity of KRCC international committee members, together with Kim Young-chan from the KRCC office. The RCLG general meeting is held every year for the discussion of status of Responsible Care implementation and for information exchange among participants, and this year it was held in Mexico and 41 participants representing 27 member countries were present. ICCA Responsible Care implementation report, introduction of the U.S. Responsible Care program, issues on Responsible Care verification and CEO dialogue (for the purpose of launching Chemical Dialogue), and Responsible Care peer review were discussed. Membership change took place. Israel's membership was approved, and Zimbabwe who had been sustaining member lost its membership due to absence and inactivity. RCLG membership as of present is 46 countries. The meeting elected Mr. Chuck Walls of Shell's Global Chemical as the new chairman replacing the former chairman Mr. Stanley Szymanski. The 2002 meeting will be held between August 28 and 30 in Johannesburg, South Africa.



## ❖ The 7th APRC Conference (October 23-26, Indonesia)

Since the meeting in 1995, the APRC meeting has been held on yearly basis for the promotion of relationship and exchange of experiences and information on Responsible Care among RCLG's Asian Pacific nations. This year's meeting marks the 7th meeting and will be held October 23-26 in Bali, Indonesia by KNRCI(Komite Nasional Responsible Care Indonesia) which is Responsible Care promoting body of ICIC(Indonesian Chemical Industries Club) under the sponsorship of Indonesia government. Korea will propose hosting of the 8th meeting in 2002.







# DuPont(Korea) Inc.

## 1. Introduction to DuPont

A general chemicals and bioengineering company, DuPont deals in providing a wide variety of material and services for industries, including clothing, household goods, construction, electronics, food, and agriculture. Established in 1802, it has 94,000 employees at its operations in 70 more countries. With sales revenue in \$28.3 billion in the 2000, DuPont has safety, environment, ethics, and respect for people as its core values management principle. Dupont Korea was established in 1977, and its 370 employees are working in offices in Seoul, plants in Ulsan, Ichon, and Anyang. Its Ulsan plant produces Engineering Polymers, Butacite which is used for making binder safety glasses, and Ti-Pure(Titanium dioxide), and has 160 employees.

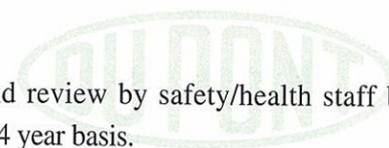
## 2. Responsible Care implementation in DuPont

The reason underlying the advanced management of DuPont, a multinational company, in areas of safety, environment, and health, is that Dupont has engineering standard of its own that is uniformly applied across its worldwide operations - The DuPont Commitment to Safety, Health and Environment. DuPont's top management demonstrated its commitment by signing DuPont Leadership - July 1994 that was titled The DuPont Commitment to Safety, Health and Environment. In brief, Safety, Health & Environment Section DuPont's Engineering Standard contain followings:

Policies	Standard and Guidelines
1. DuPont SHE Protocol	1.1 S-A Series : Process Safety Management
2. The DuPont Commitment	1.1.1 Process Safety Management
	1.1.2 Process Technology
3. Responsible Care	1.1.3 Process Hazard Analysis and other PSM related guideline, etc.
	1.2 S-U Series : Distribution and Emergency Response
	1.2.1 Responsible care for Distribution code
	1.2.2 Distribution incident report.
	1.2.3 Distribution incident prevention, etc.
	1.3 S-Y Series : Responsible Care and others
	1.3.1 Responsible Care Guide

\* This column will randomly select a company from members and they will explain how they implemented RC, in order to share information and increase the understanding of RC through the examples of companies in Korea that have implemented it.





These global standards are adopted across DuPont operations, and review by safety/health staff by headquarters and Asian operations is made for each code regularly on 3 to 4 year basis.

### 3. Responsible Care in DuPont Ulsan plant

#### 1) Integrated system of control

Ulsan plant is adopting 72 related provisions, including Responsible Care, as a total system of control so that it meets DuPont's global standard. Provisions related to Responsible Care are:

Policies	Standard and Guidelines
1. Ulsan plant EH&S policy	1.1 Safety/health/environment education
2. EH&S organization & responsibility	1.2 Accident investigation and report
	1.3 Safety/health/environment audit
3. Process safety control policy	2.1 Process risk analysis
	2.2 Process technology
4. Environment management manual and 8 others	2.3 Pre-use inspection of new/replacement equipment
	2.4 Process modification control guideline
	2.5 Quality guarantee on dangerous equipment
	2.6 Facility repairs and maintenance guideline
	3.1 Access to vessel or off-limit zone
	3.2 Safety/health/environment control for in-house contractors
	3.3 Emergency safety procedure
	3.4 Emergency measure against distribution accident
	4.1 Ergonomics
	4.2 Employee health examination and evaluation
	5.1 Waste management
	5.2 Environment objective-specifics & overall management plan
	5.3 Environmental effect assessment specifics

The integrated system of control completely meets the requirements of PSM, ISO 14000, and Responsible Care, Employee safety/health regulation, electricity/instrument regulation, fire prevention regulation, and general work permit regulation, for which a representative is assigned to review need for change and ensure compliance to all related requirements, including revision and application of related laws.





## 2) Sustained improvement

The subcommittee or person in charge reviews on a continual basis the requirements of PSM, ISO 14000, and Responsible Care to ensure sustainable improvement.

## 4. Exemplary cases

### 1) Process safety

Referring to DuPont's 14 point guidelines, recording in policy, procedure, or individual process work instruction is done for implementation.

#### ■ Accident investigation and report

In accordance with the requirement in Responsible Care's worker safety/health, process safety, and pollution prevention codes, this regulation provides an integrated system criteria - Env. A.B.C - for assessing contract worker accident, environmental accident, process accident, distribution accident, physical accident, near-miss accident, fire accident.

#### ■ Contract worker management

As required in Responsible Care's process safety, pollution prevention (contract worker environment), and worker safety/health (contract worker) codes, DuPont has provisions to fully satisfy the requirements of these codes.

### 2) Revision and application of regulation

#### ■ Revision

- Persons from safety/environment department are assigned ==> each for specific regulation to review revision every two years ==> The revision proposals are then pass over to the related persons for review and circulation inviting opinions and proposals for revision across the board.
- Revisions of about 3 to 8 rounds are done to make the revised provisions operable
- When there are revisions in the related law, Dupont engineering standard is immediately put to revision.

#### ■ Implementation

- The contents that are reviewed for revision are highlighted to accommodate easy understanding, and distributed
- Departmental orientation on the revised provisions is held
- Employees are committed to compliance with the corporate regulations
- Regular compliance review on daily work
- To induce employees to check for themselves make the regulation a living one

### 3) Subcommittee Case;

The 2001 plan for occupation health subcommittee Occupational Health





## ■ Vision

- Industrial health accident prevention
- Ergonomics-related accident prevention, such as simple, repetitive, or heavy material handling work
- Enhancement of safety and work efficiency through harmony between human and machine/work environment, which ultimately realizes optimized human activity

## ■ Mission

- Raising employee awareness about ergonomics
- Job performance that follows DuPont Corporate Direction
- DuPont in-house RC compliance review(2nd party audit)
- Occupation decease prevention regulation and new/revised ergonomics regulation

## ■ Team composition (8 persons):

Assistant manager, section chief, staff from each production department

- Subcommittee leader: BCC
- Production department-1: MJL, CKM
- Production department-2: BCC, BWY
- Production department-3: NBS
- Support department: YHP, SYC
- Subcommittee activity assistant: plant manager, head of safety/environment head

## ■ The 2001 business plan

- Potential ergonomic hazard cause analysis and review
- Preventive measure based on the above analysis and implementation
- DuPont in-house RC compliance review(2nd party audit)
- Campaign to raise awareness on ergonomics
- New institution/revision of worker health related regulation
- Employee health education

## ■ Team tasks

- Development of education material - back safety, ergonomics
- Translation of AP Guideline for Managing OH Injury and Illness with necessary modification to meet Ulsan plant condition ⇒ Combined with ergonomics ⇒ Review by subcommittee ⇒ the provision will be put into the safety/health regulation (plan: end of June)
- Audit checklist translation ⇒ review ⇒ check status, listing up key elements for each stage ⇒ interdepartmental sharing (one topic for each month by BCC/CKM)data ⇒ preparation for audit
- Departmental review and analysis on ergonomic hazard factors in accordance with the review form
- Education plan and scheduling for individual departments.