Chemicals Management Policy in Korea

Ministry of Environment
Republic of Korea

CONTENTS

1. Overview
2. Chemicals Management System
3. Emerging Issues
4. Future Policy Direction
Overview

- Background
- History of Chemicals Management
- Legal Framework
- Organization

Background

- Major player in the Korean economy
- Accounts for 10% of the domestic manufacturing industry
- Ranked 7th in the global chemical industry

Chemical Production in Major Countries (Korea NSO, 2003)

Manufacturing Scale (US$1 billion)
Background cont’d

- More than 40,000 chemicals in the market
  - 400 new chemicals are produced or imported annually
- 287.4 million tons in trade (2002)
  - HPV (>1,000 ton/yr) chemicals (287)

### Domestic Chemical Circulation (x10^6 ton)

<table>
<thead>
<tr>
<th>Year</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1998</td>
<td>174</td>
</tr>
<tr>
<td>2002</td>
<td>287</td>
</tr>
</tbody>
</table>

### History of Chemicals Management

<table>
<thead>
<tr>
<th>History</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toxic chemicals management ('63~'90) (Act on Poisons and Toxins)</td>
<td>Hazard/noxious substances to prevent poisoning</td>
</tr>
<tr>
<td>Beginning of full-scale chemicals management policy ('90~'96) (Toxic Chemicals Control Act)</td>
<td>Systematic chemicals management including hazardous assessment</td>
</tr>
<tr>
<td>Setting up a basis for advanced chemicals management ('96~'05)</td>
<td>OECD accession in 1996, introduction of TRI, GLP and risk assessment</td>
</tr>
<tr>
<td>Policy shift to enhance public health based on risk assessment ('06~) (Revision of TCCA)</td>
<td>Chemical Self-confirmation, banned/restricted chemicals</td>
</tr>
</tbody>
</table>
Legal Framework

Toxic Chemicals Control Act (rev. 2004)

- Basic law regarding chemicals management in Korea
  "To prevent risk caused by chemicals to human health or the environment" and "to control hazardous chemicals so that everyone can live in a healthy environment"
- Five Chapters
  - Framework Plan for Hazardous Chemicals Control, TRI, etc.
  - New Chemical Notification, Risk Assessment, etc.
  - Safe Control of Toxic Chemicals, Banned or Restricted Chemicals, Responses to Chemical Accidents, etc.
  - Supplementary Provisions
  - Penalty Provisions

Legal Framework cont’d

Relevant laws

<table>
<thead>
<tr>
<th>Laws</th>
<th>Ministries</th>
<th>Major contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Industrial Safety and Health Act</td>
<td>Ministry of Labor</td>
<td>• MSDS, occupational health management</td>
</tr>
<tr>
<td>High Pressure Gas Safety Control Act</td>
<td>Ministry of Commerce, Industry</td>
<td>• Toxic gas storage and transportation</td>
</tr>
<tr>
<td>• Quality Management and Industrial</td>
<td>and Energy</td>
<td>• Hazardous chemicals standard for industrial products</td>
</tr>
<tr>
<td>Products Safety Control Act</td>
<td>National Emergency Management</td>
<td></td>
</tr>
<tr>
<td>• Explosives Safety Control Act</td>
<td>Agency</td>
<td>• Explosives storage and transportation</td>
</tr>
<tr>
<td>• Ship Safety Act</td>
<td>Ministry of Maritime Affairs &amp;</td>
<td>• Explosives classification and labelling, maritime</td>
</tr>
<tr>
<td></td>
<td>Fisheries</td>
<td>transportation</td>
</tr>
<tr>
<td>• Agricultural Chemicals Control Act</td>
<td>Ministry of Agriculture &amp; Forestry</td>
<td>• Agricultural chemicals management</td>
</tr>
<tr>
<td>• Fertilizers Control Act</td>
<td></td>
<td>• Fertilizer management</td>
</tr>
<tr>
<td>• Pharmaceutical Affairs Act</td>
<td>Ministry of Health &amp; Welfare</td>
<td>• Pharmaceuticals management</td>
</tr>
</tbody>
</table>
Institutional Framework

- Ministry of Environment
  - Environment Health Policy Division, Chemicals Safety Division, Hazardous Chemicals Division (Total 3 Divisions) ('04)
  - Chemicals Management Division in each River Basin/Regional Environmental Office

- National Institute of Environmental Research
  - Environmental Health Research Department, Chemicals Assessment Department ('07)

- Related Ministries

Chemicals Management System

- Overview of Management Framework
- Assessment of New & Existing Chemicals
- Regulation of Hazardous Chemicals
- Risk Assessment
- Information Sharing
- Participation of Stakeholders
- Partnership with Enterprises
- Capacity Building
Overview of Management Framework

**Basic Data Collection**
- New Chemicals: 400 kinds/year
- Existing Chemicals: 40,000 kinds
- Information gathering: Hazard Assessment, expected amount of use, chemicals use
- Information gathering: Safety test, Env’t Monitoring, Survey of distribution/release

**Risk Assessment**
- Impact Assessment: (health/env’t)
- Exposure Assessment
- Risk Assessment

**Risk Management/Communication**
- Risk Management
- Restriction/Ban
- Management Standard
- Accident Prevention

Categorization of Chemicals

- According to their hazard and risk

- **Toxic Chemicals** (558)
- **Banned/Restricted Chemicals** (58/5)
- **Observational Chemicals** (21)
- **General Chemicals** (40,000)
  - No specific regulations
- **Accident Prevention Chemicals** (56)
Definitions

- **Toxic chemicals**
  - Harmful to human health or the environment
- **Observational chemicals**
  - Being likely to be harmful to human health or the environment
- **Restricted or banned chemicals**
  - Severely harmful to human health or the environment
- **Accident precaution chemicals**
  - High acute toxicity, explosive hazard, etc. and thus presents a high risk at an accident

Chemicals Self-confirmation

- Manufacturer or importer of chemicals shall submit chemicals self-confirmation sheet to MOE prior to manufacturing or import
  - Confirmation of New Chemicals, Toxic Chemicals, Observational Chemicals, Restricted Chemicals

- Submit only once for the same product
  - Exporters in overseas need to offer chemicals information to their importers in Korea

- Result of Chemicals Self-confirmation(2006)
  - 439 Manufacturer(6,828 chemicals), 9,336 importer(210,269 chemicals)
Assessment of New & Existing Chemicals

New Chemicals
- Chemicals produced/introduced in Korea for the first time (approx. 400 kinds/yr)
  - Completion of 4,679 chemicals evaluation from 1991 to 2006
  - Designate 125 chemicals as toxic chemicals and 12 chemicals observational chemicals
- Assess six items for toxicity
  * 13 items recommended by the OECD
    - Acute oral toxicity, genetic toxicity, biodegradability, fish acute toxicity, daphnia toxicity, algae toxicity

Assessment of New & Existing Chemicals

Existing Chemicals
- Safety test: approx. 15 kinds/yr according to priorities of chemical distribution
  - Completion of 983 chemicals evaluation by 2006
  - Designate 440 chemicals as toxic chemicals and 9 chemicals observational chemicals
- Risk assessment for hazardous chemicals
  - Annual risk assessment by stage
  - Chemicals management plans based on survey of toxicity, distribution, emissions of chemicals
Regulation of Toxic Chemicals

❖ Required to register
  • People who want to produce, market, store, transport, or use toxic chemicals
  • 558 toxic chemicals

< Number of Toxic Chemicals Business Entities > (2006)

<table>
<thead>
<tr>
<th></th>
<th>Total</th>
<th>Manufacturing</th>
<th>Sales</th>
<th>Storage</th>
<th>Transportation</th>
<th>Use</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>5,783</td>
<td>449</td>
<td>3,332</td>
<td>104</td>
<td>214</td>
<td>1,684</td>
</tr>
</tbody>
</table>

❖ Regulation on the import of toxic chemicals
  • People who intend to import a toxic chemical for the first time shall give notice of its type, applications, etc. to MOE
  • Reagents for tests, research, and inspection are exempted

Regulation of Toxic Chemicals  cont’d

❖ Regular/irregular facility inspection
  • Applications for regular inspection (every year) and safety inspection (If necessary)
  • MOE guidance for managing toxic chemicals during storage, transportation and distribution

❖ Post management for toxic chemicals handlers
  • Reporting annual results of manufacturing, sales, storage, transportation by Feb. next year
  • Keeping documents and their preservation for 3 years (chemicals Self-confirmation, import license, etc.)
Regulation of Restricted Chemicals

- Required to obtain business permission
  - People who want to produce, market, store, transport, or use restricted chemicals
  - 5 restricted chemicals (Methyl bromide, Malachite Green, Carbon tetrachloride, etc.)
  - * 58 banned chemicals (PCBs, Aldrin, Endrine, etc.)
- MOE Guidance for managing restricted chemicals during storage, transportation and distribution
- Needs prior authorization for the import of restricted chemicals
  - Reagents for tests, research, and inspection are exempted

Accident Precaution Chemicals

- Designation of 56 accident precaution chemicals
  - phosgene, benzene, ammonia, chlorine, etc.
- Emergency Preparedness Plan for certain sized facilities
- Report of accident
  - Report to the local government, local environmental office, police station, fire station, or local labor authority
  - MOE distributes the report to other organizations
- Survey on post accident impact and establishment of restoration guideline
Management of Persistent Organic Pollutants (POPs)

- Enactment of POPs Control Act (Jan. '07)
  - Objective
    - To protect human health and environment from POPs
  - Contents
    - Set up the emission standards for POPs
    - Preparing treatment method and recycling standards of POPs waste
    - To implement Stockholm Convention which was ratified in Jan. '07
Management of POPs cont’d

Dioxin

- Risk assessment project of dioxin
  - Assessing the current pollution level of dioxin in Korea using the existing dioxin measurement data
    ※ Dioxin Risk Assessment Committee (’05.7~)
- Establishment of ‘dioxin emission allowable standards’ (’08.1)
  - Considering with the current status of each industry with the full review by stakeholders

PCBs

- Checking the PCBs-containing stockpiles such as transformer
  - Examine oil-filled transformers and set up a database
- Development of ‘Guideline for handling PCBs-containing waste’
  - For handling PCBs-containing waste during waste collection and transportation
- Collection and storing methods of PCBs-containing waste
  - Attachment of identification tag and RFID (’06.4)
- Considering the use of chemical reaction methods rather than using high temperature incineration
Risk Assessment

- 107 high-risk priority chemical substances were selected based on their potential hazard and distribution amount ('02~'03)
- An initial risk assessment about 17 chemicals among the priority chemicals ('03~'06)
  - Previous screening test for selecting chemicals and concerned area
  - Based on chemicals toxicity, monitoring, exposure assessment, etc.
- A detailed risk assessment of 7 chemicals ('07~)
  - Lead, Cadmium, Mercury, Arsenic, Chrome, Nickel, Benzene
  - Kyunggi Banweol, Sihwa, Gumi, Incheon industrial complex, etc.

Toxics Release Inventory (TRI)

- To report the amount of chemicals released to the environment in the process of production or use, as well as the amount transferred to other places
  - 388 chemicals from companies with > 30 employees
  - Annual ('00~)

* Chemicals Distribution Amount Survey
  - Facilities which manufacture or use > 100 Kg
  - Every 4 years ('98~)
Amount of Chemicals Released

![Bar chart showing the amount of chemicals released (ton) from 2000 to 2005.](image)

<table>
<thead>
<tr>
<th>Year</th>
<th>Amount of Chemicals Released (ton)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>11,327</td>
</tr>
<tr>
<td>2001</td>
<td>9,077</td>
</tr>
<tr>
<td>2002</td>
<td>93,797</td>
</tr>
<tr>
<td>2003</td>
<td>96,520</td>
</tr>
<tr>
<td>2004</td>
<td>113,188</td>
</tr>
<tr>
<td>2005</td>
<td>112,878</td>
</tr>
</tbody>
</table>

TRI Information System

- Government is opening TRI results to the public
  - Statistics by regions, Industries, etc. (~'99)
  - Statistics of each enterprise will be available from 2008
National Chemicals Information System

- Ongoing project of NCIS construction (’05~’09)
  - Providing domestic chemicals database, information on toxic substances and regulations

Participation of Stakeholders

- Chemical Policy Councils
  - Hazardous Chemicals Management Committee
    - 26 peoples (MOE and related ministry : 10, company, NGO, institute, university : 16)
    - Deliberation on risk management, toxicity confirmation, substitute for hazardous chemicals, public relation about pollution prevention, international cooperation, etc.
  - PCBs Committee
  - Dioxin Risk Assessment Committee
  - Hazardous Materials Life-Cycle Risk Assessment Committee
  - Household Utensils Government-NGOs Committee, etc.
    (children goods, adhesives, cellular phone…)
Ministry of Environment
Republic of KOREA
Partnership with Enterprises

• 30/50 Program
  - Enterprises’ voluntary agreement to reduce chemicals release (’04-)
  - 30% decrease by 2007 and 50% by 2009
  - Participation of 167 Enterprises, MOE, local government, NGOs

Partnership with Enterprises cont’d

• Voluntary Agreement to exterminate PCBs
  - Technology development and provision of funding for exterminating PCBs by 2015
  - Participation of 7 Electric power companies, MOE, NGOs

• Voluntary Agreement to reduce dioxin
  - 30% decrease of dioxin release by 2008 and 50% by 2010
  - Participation of 19 companies, MOE, NGOs
Capacity Building

○ Periodic mandatory education for field managers dealing with toxic chemicals and restricted/banned chemicals (every 3 years)
  • TCCA regulation, toxic chemicals property, general chemistry

○ Education for officeholders in charge of chemicals management
  • MOE and local government: TCCA regulation, GHS, risk assessment, chemicals accident precaution
  • Emergency response agencies (fire station, police): chemicals accident precaution, CARIS, emergency preparedness plan

Capacity Building cont’d

○ Distribution of Policy Information Pamphlet
  • TCCA, TRI, accident precaution
Emerging Issues

- Health Protection Policy for Children
- REACH
- GHS
- SAICM

Health Protection Policy for Children

- Securing environmental safety of children activity places (playground, school zone)
  - Indoor air quality management
- Protecting children health from hazardous chemicals release from children goods
  - Introduction of recall system
- Establishment of risk assessment for children
- Development of risk communication
  - Teach program, symbol mark
Building a Response System to REACH

- MOE has been a leading role in coping with REACH in its early stage of REACH
- The Goal
  - Providing systematic support service to related industry and improving domestic chemical management system
- Established the “REACH Task Force” in Sep. 2006 under MOE
- Operation of “Helpdesk” for Industry
  - Homepage: http://reach.me.go.kr

GHS

- Operation of Inter-Ministerial Committee since 2004
  - MOE, Ministry of Labor, National Emergency Management Agency, etc.
  - UN GHS Purple Book published (Korean Version)
- Preparation of national GHS regulation
  - MOE will prepare regulation on toxic chemicals (2,000 kinds) by 2007
  - Development of GHS guideline and education program

* Ministry of Labor revised the Industrial Safety and Health Act relating to GHS and the detailed notification was announced Dec 2006, which ask mandatory application from July 2008
Establishment of “SAICM Promotion Council” ('06.10)
- Participation of government, industry, expert, etc.
- Under development of national implementation plan
Framework Plan (2006-2010) on Hazardous Chemicals Management

<GOAL>
Protecting human health and environment from the hazard of chemicals

<STRATEGIES>
- Expanding management coverage: Hazard → Risk
- Utilization of diverse policy tools
- Enhancing cooperation mechanism among all stakeholders

<MAJOR TASKS>
- Strengthening the basis for safe management of hazardous chemicals
- Risk management of chemicals from a standpoint of human health protection
- Establishing a focused control system on specific hazardous chemicals
- Enhancing Risk Communication
- Introducing a new chemical registration & evaluation system

New Chemicals Evaluation System

- Introduction of a “new” system by 2010 to address global flow
  - Expansion of the assessment items to meet OECD recommendation (6 → 13 items)
  - Enhancing the role of industry in chemicals data production
  - Strengthening information sharing on chemicals through supply chain
Risk management of Chemicals Based on Public health

- Establishment of receptor-oriented risk assessment system
- Life cycle management of living goods containing hazardous substances
  - Chemical exposure monitoring on a daily basis
- Protection of vulnerable people (e.g. children) from hazardous substances
  - Periodic monitoring of exposure to hazardous substances contained in children's goods and establishment of management system

Integrated Risk Assessment & Management (IRAM)

- Promotion of environmental health policy focused on the risk of receptor such as human health and environment
  - Integrated Environmental Standards (incorporation of air, water and soil)
- Implementation plan for risk assessment and management ('02~'05, first stage)
- IRAM TF and Forum('06)
- Implementation plan for risk assessment and management ('07~'10, second stage)
THANK YOU

감사합니다