Introduction
Importance of chemicals Control

Workshop on Risk reduction
Brasilia 18-19 October 2018

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EU Member States

Source:http://europa.eu/about-eu/countries/index_en.htm

The Swedish Chemicals Agency

- Supervisory authority under the Government of Sweden
- Founded in 1986
- Responsible for ensuring that companies and society at large conduct controls of chemicals in an acceptable manner.
- Located in Sundbyberg
- Staff: about 290 people

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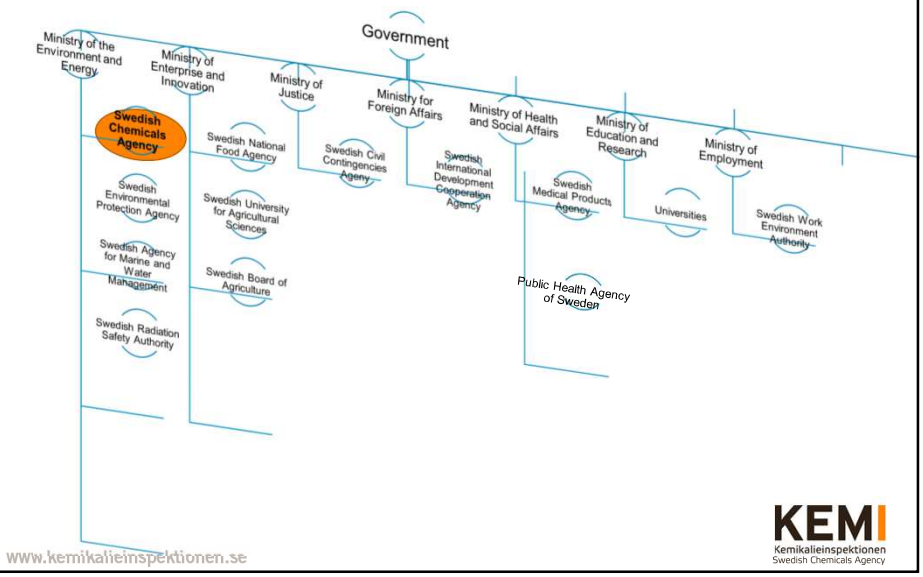
Swedish ministries and agencies involved in chemicals management



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GENERATIONAL GOAL

"The overall goal of Swedish environmental policy is to hand over to the next generation a society in which the major environmental problems in Sweden have been solved, without increasing environmental and health problems outside Sweden's borders."

RIKSDAG DECISION ON THE ENVIRONMENTAL OBJECTIVES

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Sweden's environmental objectives

Decision by the Swedish Parliament in 1999

"

- 16 environmental quality objectives
- 8 milestone targets on hazardous substances
- https://www.miljomal.se/environmental-objectives-portal/

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THE RIKSDAG HAS ADOPTED 16 OBJECTIVES FOR ENVIRONMENTAL QUALITY IN SWEDEN

- Reduced Climate Impact
- Clean Air
- Natural Acidification Only
- **A Non-Toxic Environment**
- A Protective Ozone Layer
- A Safe Radiation Environment
- Zero Eutrophication
- Flourishing Lakes and Streams
- Good-Quality Groundwater
- A Balanced Marine Environment, Flourishing Coastal Areas and Archipelagos
- Thriving Wetlands
- Sustainable Forests
- A Varied Agricultural Landscape
- A Magnificent Mountain Landscape
- A Good Built Environment
- A Rich Diversity of Plant and Animal Life

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A NON-TOXIC ENVIRONMENT

The Environmental Quality Object decided by the Riksdag:

- The occurrence of man-made or extracted substances in the environment must not represent a threat to human health or biological diversity.
- Concentrations of non-naturally occurring substances will be close to zero and their impacts on human health and on ecosystems will be negligible.
- Concentrations of naturally occurring substances will be close to background levels

Requirements to attain A Non-toxic Environment

- Better knowledge of the impact of chemical substances on the environment and health.
- Better information on which chemical substances we use.
- To get away from the use of particularly hazardous substances.
- To handle chemical substances more safely.

KemI work areas

- Development of legislation in Sweden and EU
- International conventions* and agreements
  - Stockholm, Rotterdam, Minamata, SAICM, GHS
- Product register
- Assessment of information from industry
- Measures to reduce the use of hazardous chemicals
  - Bans and restrictions
  - Economic instruments
  - Dialogues
  - Webb-based tools
  - Information
- Inspections and guidance

*Basel convention (waste) is managed by the Swedish EPA

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KemI-cont.

- Placing on the market of chemicals and articles containing chemicals
- Ensure that the companies producing or importing chemicals take their responsibility
- Pesticides, industrial and consumer chemicals
- Environment and health
- Regulations harmonized within EU

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Action plan for a toxic-free everyday environment 2011–2020

- Assignment from the Swedish Government
- Focused on safeguarding the reproduction of human beings and child health.

https://www.kemi.se/en/about-us/our-work/action-plan-for-a-toxic-free-everyday-environment

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Collaboration for development of institutional capacity

Global level

- Collaboration with UN, some NGOs and others
- Advanced International Training Program (ITP) on chemicals management

Regional/bilateral level

- Eastern Europe
- Asia
- Africa

Strategic countries

- Indonesia, South Africa, Brazil, China

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Why do we need chemicals control?

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Why do we need chemicals control?
Benefits of Chemicals

- **Chemicals are part of every day's life**
  - In a modern society we can not live without functions such as cleaning agents, pesticides and fertilizers, plastics or petrol
  - For these functions we rely on chemicals
  - Chemicals are used in virtually every sector of modern society as such or as components of articles

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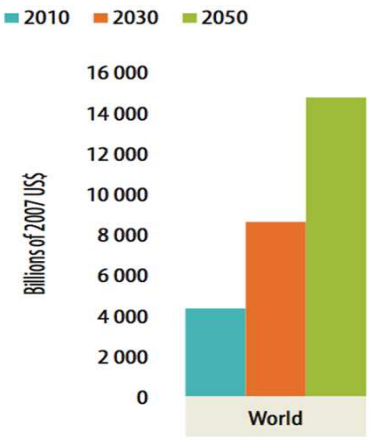
Why do we need chemicals control?
How many are there?

- Chemicals are part of every day's life
- **There are tens of thousands of chemical substances on the market**
- No one really knows how many!
- EU 2003 estimation of substances on the market in quantities over 1 tonne: **30 000**
- Pre-registrations in EU/REACH about 143 000 substances (not a true figure for what is used)
- Around 21 000 registered in REACH by 31 May 2018
- Swedish product register, substances ≥ 0,1 tonne: ~**14 700**

Why do we need chemicals control?
Production volumes are increasing!

- Chemicals are a part of every day's life
- There are many chemical substances on the market
- **The production volumes are high and they are increasing**
  - World production of chemical substances
    - 1950: About 7 000 000 tonnes
    - 2000: About 400 000 000 tonnes
  - Annual global sales doubled 2000-2009,
  - OECD countries **part** decreased 77% ☞ 63%
  - BRIICS **part** increased 13% ☞ 28%

The trend in world production of chemicals



Source: OECD Env. Outlook to 2050: The Consequences of Inaction, Chapter 6
OECD. 2012, http://dx.doi.org/10.1787/978926412246-en

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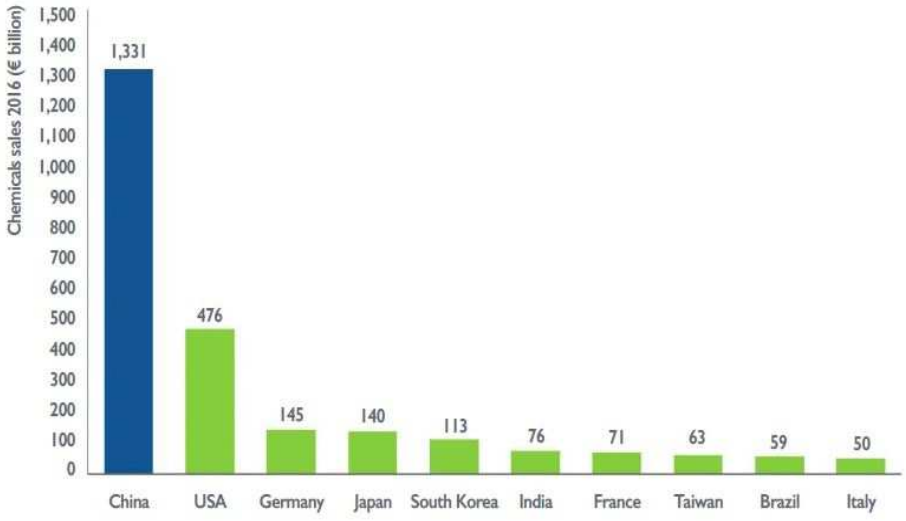
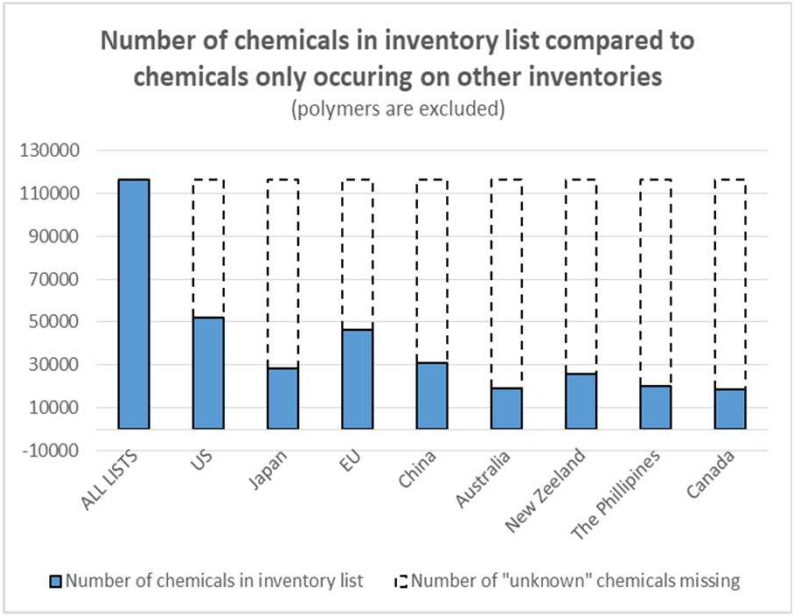
Chemicals sale by country: top 10



Source: Cefic Chemdata International



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Why do we need chemicals control?
Global Trade Influence

- Chemicals are a part of every day's life
- There are many chemical substances on the market
- The production volumes are high and they are increasing
- **Chemical substances are spread globally with trade – as such or in articles**

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Increasing trade of chemicals

Huge article flows in the society

↘

huge material flows

↘

large flows of chemicals

↘

chemical risks to H&E

Why do we need chemicals control?
Exposure

- Chemicals are a part of every day's life
- There are many chemical substances on the market
- The production volumes are high and they are increasing
- Chemical substances are spread globally with trade – as such or in articles
- **People are exposed to chemicals at work, at home and through the environment**

Impacts on Poverty & Economic Growth

- Poor disproportionately impacted, especially women, fetuses and children
- Exposures can cause long-term developmental and health problems
- Toxic chemicals can bioaccumulate up the food chain, impacting agricultural production
- Urban contamination can drive down property value and economic investment potential

GAHP GLOBAL ALLIANCE ON HEALTH AND POLLUTION

Why do we need chemicals control?

- Chemicals are a part of every day's life
- There are many chemical substances on the market
- The production volumes are high and they are increasing
- Chemical substances are spread globally with trade – as such or in articles
- People are exposed to chemicals in their work, at home and through the environment.
- **Many chemicals are hazardous to human health or the environment** – but do we know enough about the properties?

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Lack of data on health and environmental properties of substances

- A report from the prev. European Chemicals Bureau, ECB showed that only 14 % of the approximately 2 500 high-production-volume chemicals that were registered in the EU database EINECS had data complying with the basic requirements according to EU legislation in force at that time (~10yrs ago)

- US-EPA found in 1998 that only 7 % of the appr. 3000 substances produced or imported to the USA in volumes over 454 tonnes per year (1000000 pounds) had minimum data considered to be necessary by the OECD

Why do we need chemicals control?

- Chemicals are a part of every days life
- There are many chemical substances on the market
- The production volumes are high and they are increasing
- Chemical substances are spread globally with trade – as such or in articles
- People are exposed to chemicals at work, at home and through the environment.
- Many chemicals are hazardous to human health or the environment
- **Chemicals control can save human lives, a good environment and money**

We need chemicals control to:

- Gain knowledge on the properties of chemical substances
- Gain knowledge on the occurrence of chemical substances
- Substitute substances of very high concern with less harmful alternatives
- Minimize the risks posed by chemicals

☞ Both industry and authorities play an important role – and they need to cooperate!

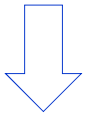
Benefits of sound management of chemicals

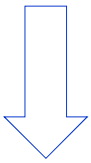
- Health (learning and working abilities, avoidance of health care costs)
- Environment (preserved biodiversity, ecosystem services, usable land and water, avoidance of remediation costs etc)
- Trade facilitated

⇒ Economic benefits

Summary

- All people on the globe are exposed to chemicals
- Exposure occurs during production, use and waste handling
- Both industrial chemicals and pesticides give rise to exposure
- Both urban populations and rural populations are exposed
- Ignorance causes careless or erroneous handling
- Poverty gives high risk for chemicals exposure
- Poor areas are more polluted, closer to the sources of release
- Vulnerable groups are hit the hardest; the unborn fetus, children, the sick and the elderly





- The overall results:
  - decreased life span,
  - increased sickness and disease,
  - lack in work capacity,
  - retarded economic growth and development,

These are **external costs** of using chemicals that are not often taken into cost-benefit equations

Pollution prevention

A sound chemicals management and control should be **preventive** and stop pollution at source in order to prevent emissions of hazardous chemicals and polluted waste hence eliminating i.a. costly cleaning-up actions “end-of-pipe!

Contributes to meet the SDGs

A Preventive Approach

- Making use of information on the properties of chemicals at an early point in the life cycle of the chemicals

- Prevents exposure to chemicals with adverse effects
- Avoids costly clean-up solutions at the end-of the pipe

and

- Appling risk reduction measures at an early stage in the life cycle of chemical, that is when placing the chemical on the market saves human and natural resources and have financial benefits both for society and industry.

“Prevention is better than cure”

Bernardino Rammazzini (1663-1714

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Roles and responsibilities

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Defining roles and responsibilities

Fundamental starting point and a cornerstone for achieving Sound Management of Chemicals SMC

- National administration
- Trade and industry

Needs to be clear from the (framework) legislation

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Responsibilities

The main responsibility for managing risk with chemicals should lie with the chemical producers and importers. They should e.g.

- Adjust use and production in line with bans and restrictions
- Gather data on hazards
- Assess risks and take risk reduction measures when needed
- Classify and label
- Transfer safety information

Downstream users need to:

- Adjust use and production in line with bans and restrictions
- Use obtained information on hazards and safety measure
- Transfer safety information

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The role of the legislator

- To adopt a legislative framework clarifying the roles and responsibilities of the government and authorities and industry
- To adopt detailed legislation supporting the sound management of chemicals, e.g. how to implement GHS
- To introduce bans, restrictions and other risk reduction measures when needed
- Supervise and enforce the legislation

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General obligations on industry

General requirements to assess and reduce risk via

- To gather knowledge about properties, hazards and risks of chemicals
- To classify and label - GHS
- To disseminate information on properties and safe handling, SDSs
- To take necessary action following the classification
- To make informed choices
- To substitute hazardous chemicals

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Responsibilities

For the vast majority of chemicals it is sufficient to place a general obligation on actors in the supply chain

- To communicate and make use of information conveyed in accordance with GHS (which should be mandatory) through labels and Safety Data Sheets (SDS)

This obligation falls on

- Companies producing or importing chemicals that they sell or use
- Downstream users of chemicals

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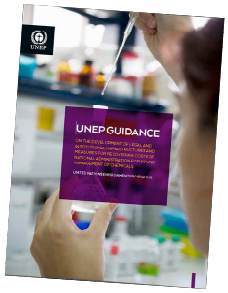
Main phases in managing placement of chemicals on the market

- Identification and assessment of chemicals' hazardous properties and risks
- Dissemination of hazard, risk and safety information
- Making informed choices about chemicals to be placed on the market
- Organisation of workers' and public safety
- Compliance monitoring



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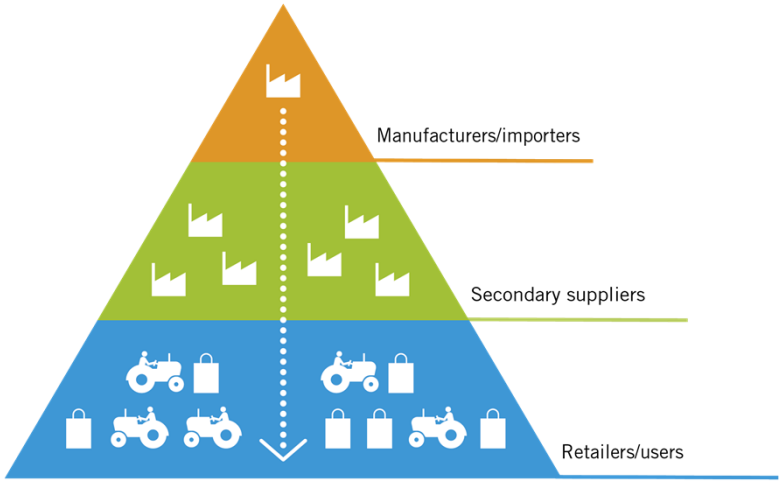
Flow of chemicals and associated information



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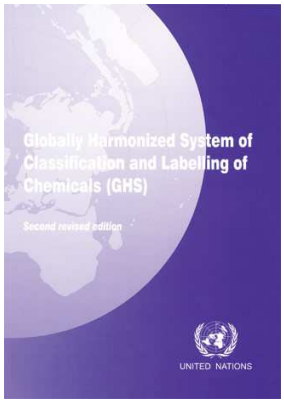
Improved information exchange is needed

- The Globally Harmonised System for Classification and Labelling (GHS)



- Chemicals in Products (CiP) Programme

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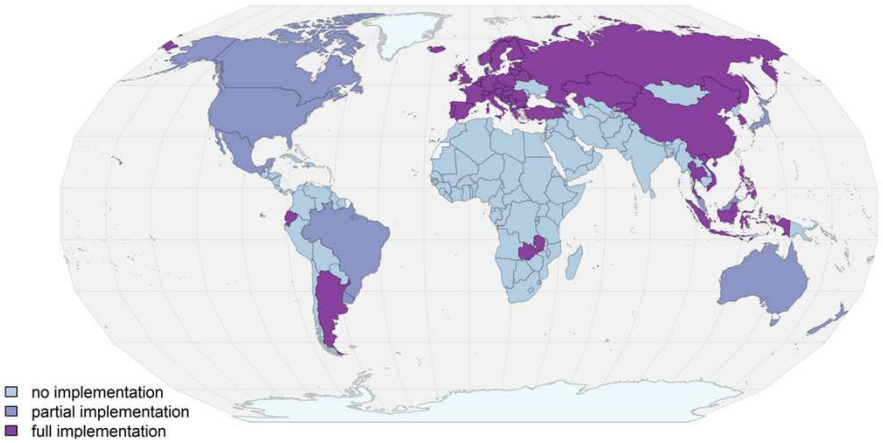
GHS implementation



Persson et al. (2017), Stockholm Environment Institute

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Hazard communication

- **Purpose**
  - To inform of hazardous properties and give information of how to reduce risk for damage
- **Labelling**
  - Consumers - only information
  - Professional users - 1:st warning
- **Safety Data Sheet**
  - Substantial information for <u>professional users</u>

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GHS labelling symbols

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On GHS labels

- Pictograms
- Signal words (Danger or Warning)
- Hazard statements – Example: Harmful if Swallowed
- Precautionary statements –
  - Prevention: Do not eat, drink or smoke when using this product.
  - Response: If swallowed: Call a doctor if you feel unwell.
  - Storage: None specified
  - Disposal: Dispose of contents/container in accordance with local/regional/national/international regulations.

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Industry "self-classification" vs authority classification

- One objective of the GHS is to be:
  - **simple and transparent**
  - and allows for **"self-classification"** as far as possible.

- Authorities may however allocate some resources for classification of some prioritised substances and affects
  - See the EU harmonised classification for certain prioritized substances (CMRs, respiratory sensitizers)
  - Pesticidal & biocidal active substances
  - Others case-by-case
    - binding

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Intention of SDS

- Comprehensive information to professional users of how to protect health and the environment
- Tool for the employer to perform risk assessment at the workplace

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Increased safety at the workplace and increased protection for health and environment

- A carrier of information throughout the distribution chain of chemical products

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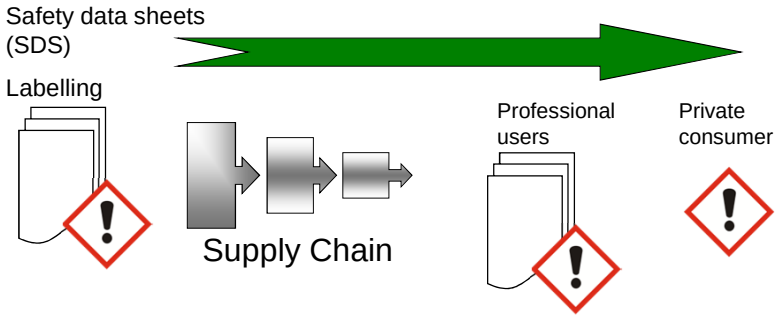
Flow of product information



GHS as a basis for risk management

The Key role of Substance Classification

Hazard statements, precautionary statements

The classification is a package of important knowledge on the hazards of a substance and the precautions to be undertaken

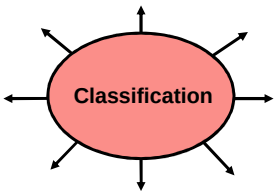
It feeds the classification of mixtures and the further information and management recommendations to be provided with the SDS

Classification is used for various purposes downstream:

- to take decisions on chemicals choice, purchase and use manners,
- assess chemicals hazards at sites of hazardous installations,
- for the classification of hazardous waste

It is advisable to issue a national list of binding classifications for the most common substances in order to help SMEs

”Downstream” legislation benefit from GHS



There are many EU-legislations that depend on the classification system:

- Registration, evaluation, authorisation and restriction of chemicals (REACH)
- Prevention of major chemical accidents (Seveso)
- Workplace safety
- Biocides, Plant protection products
- Toys, Waste, Pressure equipment, Aerosols, etc etc….

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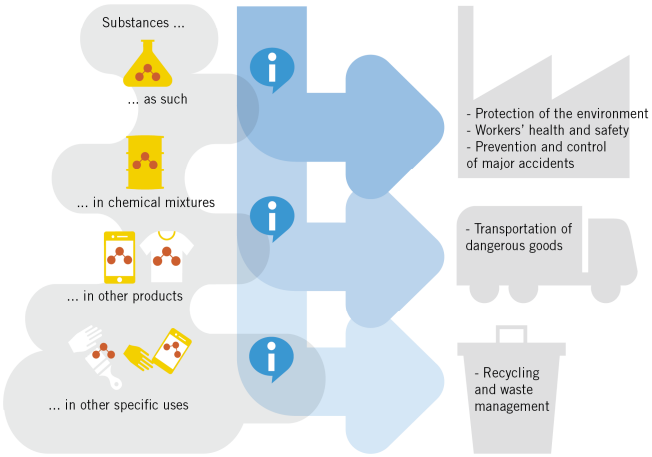
Information on hazards and precautionary measures according to chemicals legislation

Examples of legislation that benefits from information



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Common non-compliances

- Incorrect classification
- Incorrect labelling
- SDS not provided to buyer
- Inconsistent information within SDS
- Inconsistent information SDS – label

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Thank you!

Global market and lifecycle for products
– global co-operation needed

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