Globally Harmonized System of Classification and Labelling of Chemicals (GHS)

Scoping meeting for the study of stakeholder needs for information on chemicals in products
(UNEP Geneva, 17 December 2009)

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- GHS background and scope
- GHS classification and labelling
- Building block approach (BBA)
- GHS implementation status worldwide

The GHS: Why was it needed?

Before the GHS, for the same hazard:

- different classification criteria:
  - "Toxic" = LD50 < 25
  - "Toxic" = LD50 < 50

  } if LD50 between 50 and 25 ?

- different labels/pictograms ;
- different requirements for Safety Data Sheets;

Need to harmonize classification and labelling systems

GHS: International mandate

UN Conference on the Environment and Development (1992)

Paras. 26 and 27 of Agenda 21, Chapter 19, Programme Area B:

- Need to develop harmonized hazard classification and compatible labelling system, building on ongoing work
- New system of classification and labelling (including material safety data sheets and easily understandable symbols) should be available (if feasible) by 2000

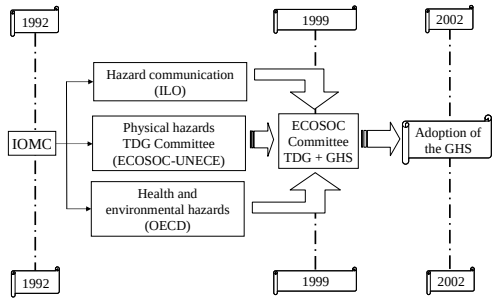
The GHS: Agreed principles for its development

- Based on existing classification and labelling systems
- Classification based on intrinsic properties (hazards)
- Scope of harmonization: hazard classification criteria + hazard communication tools (different sectors)
- No need for additional testing (i.e.: existing validated data accepted)
- No reduction in the level of protection offered
- Protection of confidential business information (CBI), as prescribed by competent authorities (CAs)
- Allow transitional measures for its implementation

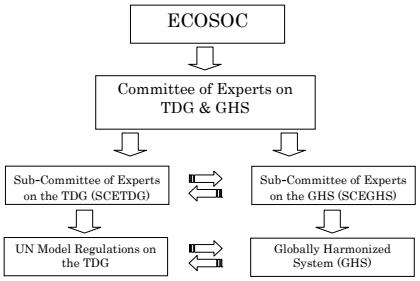
The GHS: How was it developed?

1) Examination of existing systems
2) Determination of "major" systems to be used as a primary basis for the GHS:
   1) UN Model Regulations on the TDG
   2) EU Directives for classification and labelling
   3) USA/Canada (workplace, consumers, pesticides)
   4) ...
3) Distribution of the work: focal points

The GHS: from 1992 to 2002



ECOSOC Committee of experts on TDG and GHS



All documentation (agendas, reports, working and information documents) is available at: http://www.unece.org/trans/danger/danger.htm

GHS Sub-Committee Fonctions

- **Acts** as custodian of the system
- **Manages** the harmonization process
- **Keeps** the system up-to-date
- **Considers** the need to introduce changes/updates
- **Makes** the system available
- **Provides** guidance (application/interpretation/use)
- **Prepares** work programs and submit recommendations to the Committee

GHS: Scope (1)

The GHS includes:

- Harmonized criteria for the classification of substances and mixtures according to their:
  - Physical hazards;
  - Health hazards; and
  - Environmental hazards;
- Harmonized hazard communication elements:
  - labels; and
  - safety data sheets (SDS).

GHS: Scope (2)

Harmonization means:

Establishing a common and coherent basis for chemical classification and communication, from which the appropriate elements relevant to means of transport, consumer, worker and environment protection can be selected ("buiding block approach).

GHS: Scope (3)

All hazardous chemicals, although the application of the hazard communication elements may vary by product category or stage in the life cycle (GHS, section 1.1.2)

Ex.: pharmaceuticals, veterinary products, food additives, cosmetics and pesticide residues in food :

- Not covered at the point of intentional human intake or ingestion or intentional application to animals;
- Covered by workplace (manufacturing, storage) and transport requirements (when applicable);

GHS: Scope (4)

Articles as defined in the Hazard Communication Standard (29 CFR 1910.1200) of US OSHA*, or similar definition are not covered by the GHS (para. 1.3.2.1 of the GHS).

"Article : manufactured item other than a fluid or particle (i) which is formed to a specific shape or design during manufacture (ii) which has end use function(s) dependent in whole or in part upon its shape or design during end use; and (iii) which under normal conditions of use does not release more than very small quantities, e.g., minute or trace amounts of a hazardous chemical (as determined under paragraph (d) of this section), and does not pose a physical hazard or health risk to employees."

GHS: Contents (3rd revised edition)

4 parts and 10 annexes with additional information and guidance

Part 1:	Introduction *(5 chapters)*
Part 2:	Physical hazards *(16 chapters)*
Part 3:	Health hazards *(10 chapters)*
Part 4:	Environmental hazards *(2 chapters)*
Annexes 1, 2:	Allocation of label elements and classification and summary tables
Annex 3:	Codification and use of hazard and precautionary statements
Annex 4:	Guidance on the preparation of SDS
Annex 5:	Consumer product labelling based on the likelihood of injury
Annex 6:	Comprehensibility testing methodology
Annex 7:	Examples of arrangements of the GHS label elements
Annex 8:	Example of classification according to the GHS
Annex 9, 10:	Guidance on hazards to the aquatic environment and on transformation/dissolution of metals and metal compounds in aqueous media

GHS classification (1)

28 hazard classes (GHS Rev.3) divided in 3 groups:

GHS: Hazard based

- **Physical hazards**: 16 classes
- **Health hazards**: 10 classes
- **Environmental hazards:** 2 classes

Severity of hazard within a class = hazard category

Category 1: Extremely flammable
Category 3: Flammable

GHS classification (2)
physical hazard classes

- Explosives;
- Flammable gases;
- Flammable aerosols;
- Oxidizing gases;
- Gases under pressure;
- Flammable liquids;
- Flammable solids;
- Self-reactive S/M;
- Pyrophoric liquids;
- Pyrophoric solids;
- Self-heating S/M;
- S/M which in contact with water emit flammable gases;
- Oxidizing liquids;
- Oxidizing solids;
- Organic peroxides;
- Corrosive to metals;

GHS classification (3)
health and environmental hazard classes

Health hazards
- Acute toxicity
- Skin corrosion/irritation
- Serious eye damage/irritation
- Respiratory or skin sensitization
- Germ cell mutagenicity
- Carcinogenicity
- Reproductive toxicity
- STOT -single exposure
- STOT - repeated exposure
- Aspiration hazard

Environmental hazards
- Hazardous to the aquatic environment
- Hazardous to the ozone layer

GHS hazard communication (1)
labelling

Pictograms:

Ex: health hazard pictogram

Signal words (severity of hazard): "Danger" or "Warning"

Hazard statements (nature of the hazard): e.g. "may cause cancer"

Precautionary statements (5 types) and precautionary pictograms:
- **General: "Read label before use"**
- **Prevention: "wear respiratory protection"**
- **Response (when spillage/exposure): "get medical advice"**
- **Storage: "protect from sunlight"**
- **Disposal: "Dispose contents/container in accordance with…"**

Product identifier: (proper shipping name (transport), chemical id.…)

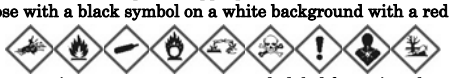
Supplier identification: (Name, address and phone number of the manufacturer or supplier)

GHS hazard communication (2) labelling

For transport of dangerous goods, GHS pictograms are those prescribed by the UN Model Regulations

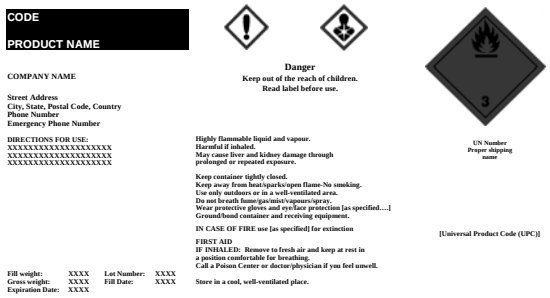
For other sectors, GHS pictograms may be :

- those used for transport, if appropriate; or
- those with a black symbol on a white background with a red frame



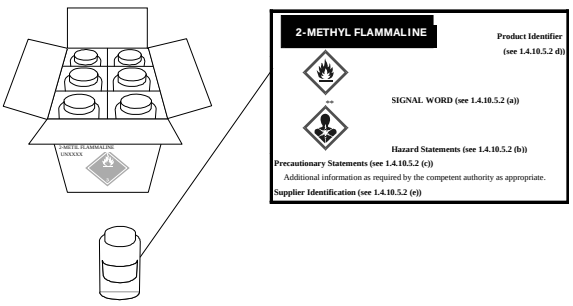
If a transport pictogram appear on a supply label for a given hazard, other GHS pictograms for the same hazard should not appear

GHS hazard communication (3) Example of arrangement of label elements



Additional examples of arrangements of the GHS labels may be found in Annex 7 of the GHS

GHS hazard communication (4) Example of arrangement of label elements



GHS hazard communication (5) Safety Data Sheets

Information should be presented as follows:

1. Identification
2. Hazard(s) identification
3. Composition/information on ingredients
4. First-aid measures
5. Fire-fighting measures
6. Accidental release measures
7. Handling and storage
8. Exposure controls/personal protection
9. Physical and chemical properties
10. Stability and reactivity
11. Toxicological information
12. Ecological information
13. Disposal considerations
14. Transport information
15. Regulatory information
16. Other information.

Details about the information to be included under each item are given in Annex 4 of the GHS

Implementation of the GHS (1) building block approach

Competent authorities (CAs) decide how to apply the various elements of the GHS based on:

- their needs; and
- the target audience/sector (workplace, transport, supply and use, etc.)

GHS harmonized elements = building blocks

Implementation of the GHS (2) building block approach

Building blocks are:

- Hazard classes, and
- Hazard categories within a hazard class

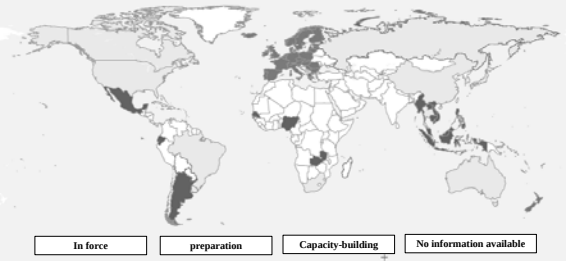
Will all hazard classes/categories be implemented in all sectors?

Not necessarily. However…

… where a system covers something that is in the GHS, and implements the GHS, that coverage should be consistent…

GHS implementation status (1)
(sectors other than transport of dangerous goods)

Detailed information about the status of implementation worldwide:
http://www.unece.org/trans/danger/publi/ghs/implementation_e.html



GHS implementation status (2)
National/Regional level

New Zealand:

- GHS implemented since 2001 (for new hazardous substances) and applicable to all (new and existing substances) since July 2006

Mauritius:

GHS implemented since November 2004

Australia:

- Workplace: Expected date of entry into force of GHS-based regulations: 2012.

GHS implementation status (3)
National/Regional level

Indonesia:

- Issuance of a Presidential Decree on GHS implementation expected by 2008

Japan, Republic of Korea and China:

- Currently working on a joint project for classification of chemicals according to the GHS

Singapore:

- Revision of standards on labelling of chemicals, in accordance with GHS provisions

Thailand:

Expected entry into force of the Haz. Subs. Committee's Notification on GHS

GHS implementation status (4)
National/Regional level

Canada:

- **Development of final recommendations and draft regulations expected by 2008**

USA:

- **OSHA:** GHS-based proposed rule for hazard communication published on 30 September 2009.

GHS implementation status (5)
National/Regional level

European Union:

"CLP Regulation" (Regulation (EC) 1272/2008 of the European Parliament and of the Council on classification, labelling and packaging of substances and mixtures, and amending Directive 67/548/EEC and Regulation (EC) No 1907/2006)

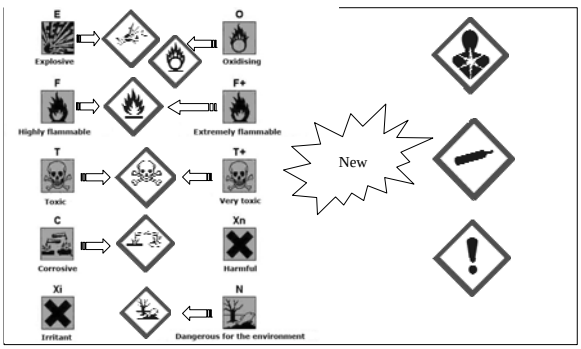
In force since 20 January 2009.

Proposed deadlines, after entry into force:

- **reclassification of substances: 30 November 2010**
- **reclassification of mixtures: 31 May 2015**
- **Repeal of current Directives (67/548/EEC and 1999/45/EC):1 June 2015**

(During the transitional period, both systems (current legislation and the new GHS-Regulation) will coexist)

GHS implementation status (6)
EU pictograms – GHS pictograms



GHS implementation status (7) National/Regional level

Effects of the CLP Regulation on "EU downstream legislation":

- Regulation (EC) No 1907/2006 (REACH Regulation)
- Directive 76/768/EEC (Cosmetics directive)
- Directive 2009/48/EC (Toy safety directive)
- Directive 1999/13/EC (VOC solvents directive)
- Directive 2000/53/EC (End of life vehicles)

GHS implementation status (8) National/Regional level

UNITAR/ILO projects for GHS implementation and or capacity building activities in:

Cambodia, Gambia, Indonesia, Lao People's Democratic Republic, Nigeria, Philippines, Senegal, South Africa, Thailand and Zambia

Central and South America: *(under consideration)*

Detailed information about all the GHS training and capacity-building activities is available at: http://www.unitar.org/cwm/ghs

GHS implementation status (9) through transport international instruments

GHS is implemented in transport of dangerous goods sector through:

- IMDG Code (maritime transport)
- ICAO Technical Instructions (air transport)
- ADR (road transport)
- RID (rail transport)
- ADN (inland waterways transport)

} EU: Directive 2008/68/EC on inland transport of dangerous goods

(Further information about the implementation of the GHS in transport: http://www.unece.org/trans/danger/publi/ghs/implementation_e.html#transport)

GHS implementation status (10) through international instruments

FAO:	in the process of integrating GHS into its guidelines for pesticide evaluation, registration and labelling
WHO:	revising "WHO Classification of pesticides by hazard" in accordance with GHS
WHO/ILO:	working on the review of the International Chemical Safety Cards (ICSC) to make them GHS compliant
ISO:	Expected revision of ISO standards on SDS's to meet GHS requirements

For detailed information about the status of implementation of the GHS: http://www.unece.org/trans/danger/publi/ghs/implementation_e.html

Thank you for your attention!

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Further information on the GHS and on the transport of dangerous goods is available at:
http://www.unece.org/trans/danger/danger.htm