Global GHS Training Course

No. 10 - What makes the classification different?

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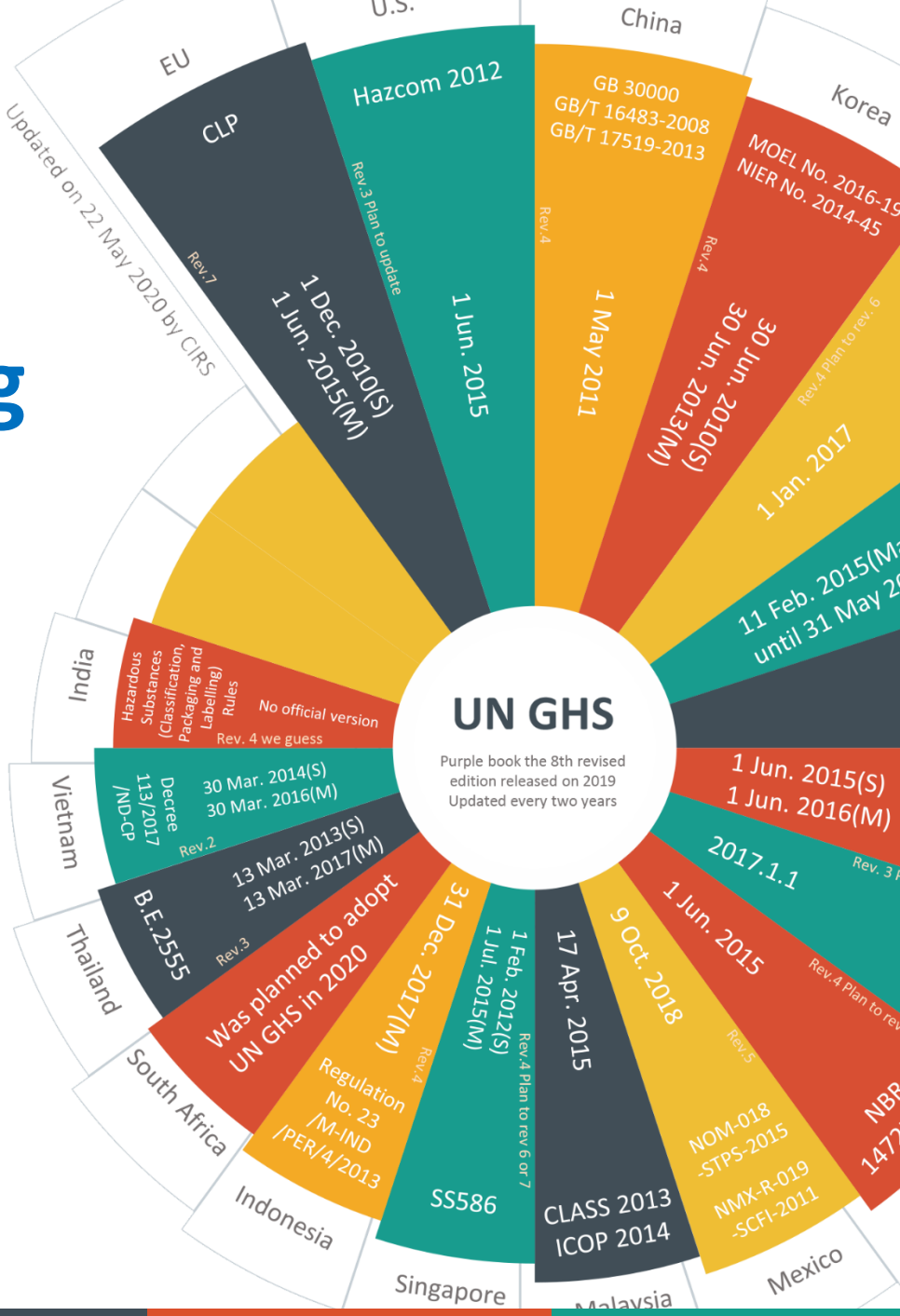

- CIRS is an individual consulting firm founded in 2007 and headquartered in China;
- Has 350+ employees and annual revenue approximately 50 M USD;
- Has branch offices in Dublin(Ireland), Arlington(US), Seoul（Korea）, Nanjing(China), Beijing(China), Hangzhou(China);
- CIRS provides regulatory compliance consulting, testing and training services.
- CIRS shares more than 70% Chinese consulting markets;
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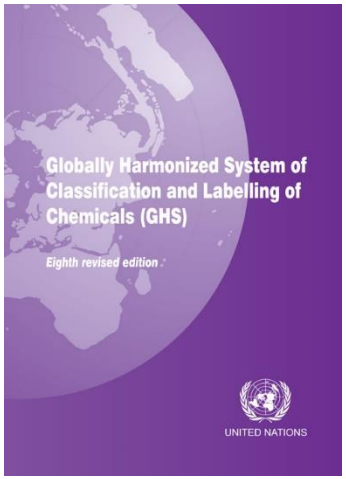
Contents

- What is GHS?
- Does adopted GHS criteria vary by country?
- What are building blocks?
- What are the global classification lists?
- Case Studies
- FAQ

Refresher: What is GHS?

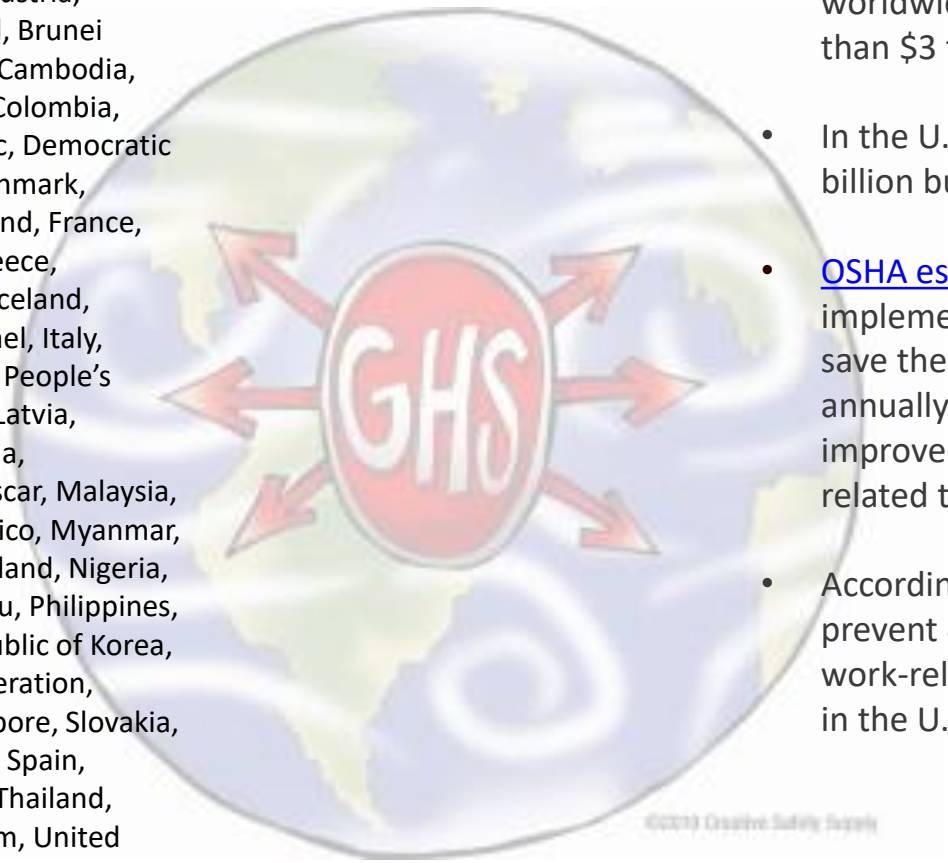
- GHS – Globally Harmonized System of Classification and Labelling of Chemicals
- Objective of GHS
- Managed by United Nations
- “The Purple Book”— Eighth Revised Version (June 2019)
- Updated every two years



https://www.osha.gov/dsg/hazcom/ghsguideoct05.pdf

Who implements GHS?

- Argentina, Australia, Austria, Belgium, Bolivia, Brazil, Brunei Darussalam, Bulgaria, Cambodia, Canada, Chile, China, Colombia, Cyprus, Czech Republic, Democratic Republic of Congo, Denmark, Ecuador, Estonia, Finland, France, Gambia, Germany, Greece, Guatemala, Hungary, Iceland, Indonesia, Ireland, Israel, Italy, Japan, Kyrgyzstan, Lao People's Democratic Republic, Latvia, Liechtenstein, Lithuania, Luxembourg, Madagascar, Malaysia, Malta, Mauritius, Mexico, Myanmar, Netherlands, New Zealand, Nigeria, Norway, Paraguay, Peru, Philippines, Poland, Portugal, Republic of Korea, Romania, Russian Federation, Senegal, Serbia, Singapore, Slovakia, Slovenia, South Africa, Spain, Sweden, Switzerland, Thailand, Turkey, United Kingdom, United States of America, Uruguay, Vietnam, and Zambia



- The chemical business worldwide amounts to more than $3 trillion, annually
- In the U.S. alone, it is a $750 billion business
- OSHA estimated that the implementation of GHS will save the U.S. $585 million annually in productivity improvements and $266 million related to reduced safety risks
- According to OSHA, the changes prevent 43 deaths and 585 work-related injuries/illnesses in the U.S. each year

The Reference Version of Purple Book

Examples of country/regional variation:

3rd rev. edition

- The United States, Australia, Malaysia, Thailand, Turkey, Vietnam

4th rev. edition

- China, Russia, Japan, Korea, Indonesia, Brazil, Singapore, Taiwan, Uruguay, Philippines

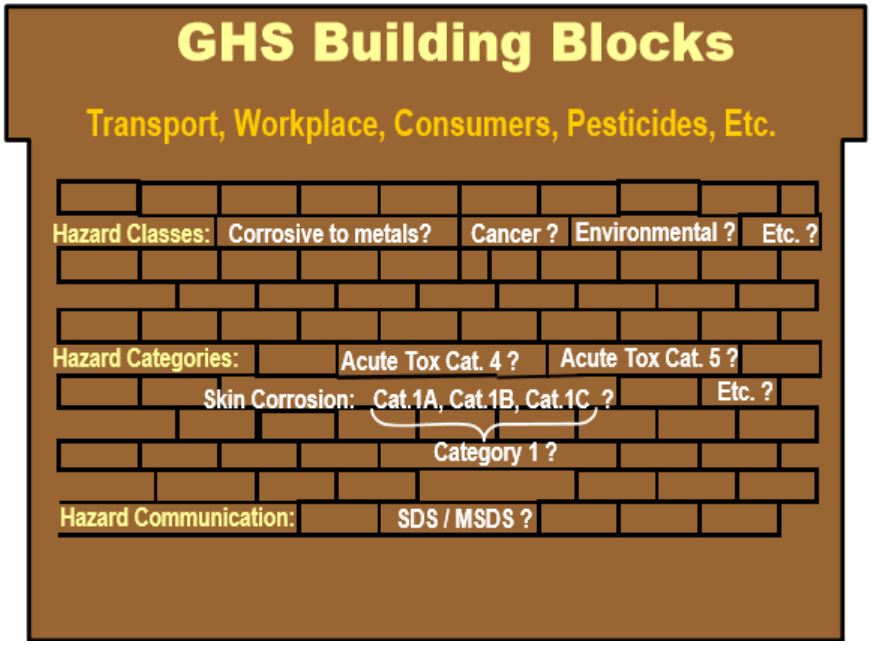
5th rev. edition

- The European Union, Canada, Switzerland, Argentina, Chile, Mexico

Updates often

What are, "building blocks?”

- GHS was designed to contain the hazard endpoints and communication tools necessary for application to known regulatory schemes
- The full range of these elements does not have to be adopted
- Countries can determine which of the building blocks will be applied in different parts of their systems



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Different Building Blocks (Example)

Hazard Classes	EU CLP	China GB	Korea MoEL	Japan JIS
Flammable liquids	Category 1-3	Category 1-4	Category 1-3	Category 1-4
Acute toxicity	Category 1-4	Category 1-5	Category 1-4	Category 1-4
Skin irritation / corrosion	Category 1-2	Category 1-3	Category 1-2	Category 1-2
Aspiration toxicity	Category 1	Category 1-2	Category 1-2	Category 1
Hazardous to aquatic environment (acute)	Category 1	Category 1-3	Category 1	Category 1-3

Building Blocks Cont.

- GHS implementation is dictated by a Competent Authority (CA)
  - **EPA**
  - **OSHA**
  - **Health Canada**

- Different target audiences or sectors receive and use hazard information in different ways
  - Transport
  - Workplace
  - Consumers
  - Agriculture (pesticides)

Health Canada

Building Blocks Cont.

Transport

- GHS physical, acute and environmental hazard criteria ARE expected to be adopted in the transport sector.
- Containers of dangerous goods WILL have pictograms that address acute toxicity, physical hazards, and environmental hazards.
- GHS hazard communication elements such as signal words, hazard statements and SDS are NOT expected to be adopted in the transport sector.

Building Blocks Cont.

Workplace

- GHS physical and health hazard criteria, as appropriate, ARE expected.
- Labels that have the harmonized core information under the GHS (signal words, hazard statements and symbols, etc.) ARE expected.
- Safety Data Sheets ARE expected.
- Employee training to help ensure effective communication is also anticipated IS expected.
- All workplace systems may not have the jurisdiction to adopt environmental hazards.

Building Blocks Cont.

Consumer

- Labels are the primary focus of GHS application.
- The appropriate GHS hazard criteria ARE expected to be adopted.
- These labels DO include the core elements of the GHS (signal words, hazard statements and symbols, etc.), subject to some sector-specific considerations in certain systems (e.g., risk-based labeling).

Building Blocks Cont.

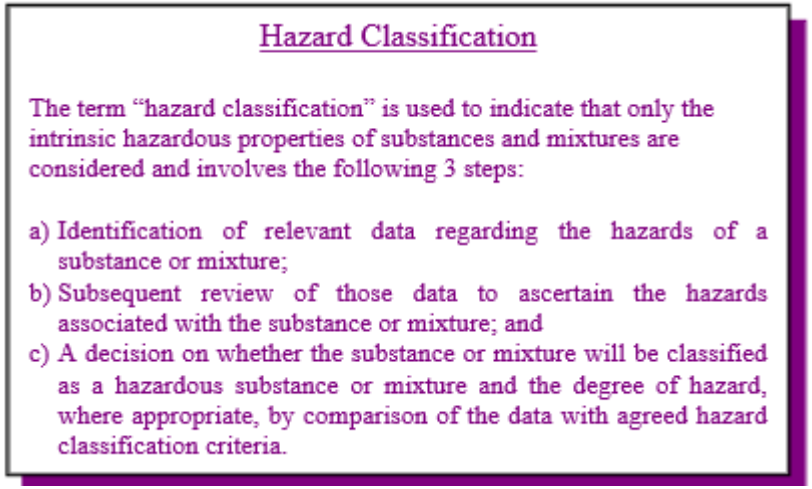
Agriculture (Pesticides)

- The appropriate GHS hazard criteria ARE expected to be adopted.

- Pesticide labels will include the core elements of the GHS (signal words, hazard statements and symbols, etc.), subject to some sector-specific considerations in certain systems.

Global classification lists?

- Classification is the starting point for hazard communication.
- Classifications are based upon endpoints laid out by the GHS.
- These classifications fall under three sub-categories of hazards:
  - **Physical hazards**
  - **Health hazards**
  - **Environmental hazards**



Hazard Classification

The term "hazard classification" is used to indicate that only the intrinsic hazardous properties of substances and mixtures are considered and involves the following 3 steps:

a) Identification of relevant data regarding the hazards of a substance or mixture;
b) Subsequent review of those data to ascertain the hazards associated with the substance or mixture; and
c) A decision on whether the substance or mixture will be classified as a hazardous substance or mixture and the degree of hazard, where appropriate, by comparison of the data with agreed hazard classification criteria.

https://www.osha.gov/dsg/hazcom/ghsguideoct05.pdf

Classifications Cont.

Physical Hazards

- There are a total of 17 separate physical hazards that are explicitly laid out by the GHS standards. (Note: There are 16 hazards on the below list, which does not include the newest physical hazard recognized by GHS— Desensitized Explosives)

- Within each of the classifications, there are separate categories/tiers to most specifically label each substance or mixture.

Physical Hazards

- Explosives
- Flammable Gases
- Flammable Aerosols
- Oxidizing Gases
- Gases Under Pressure
- Flammable Liquids
- Flammable Solids
- Self-Reactive Substances
- Pyrophoric Liquids
- Pyrophoric Solids
- Self-Heating Substances
- Substances which, in contact with water, emit flammable gases
- Oxidizing Liquids
- Oxidizing Solids
- Organic Peroxides
- Corrosive to Metals

Classifications Cont.

Health Hazards

- There are a total of 10 separate health hazards that are explicitly laid out by the GHS standards.

- As with physical hazards, there are separate categories/tiers to most specifically label each substance or mixture.

https://www.osha.gov/dsg/hazcom/ghsguideoct05.pdf

Classifications Cont.

Environmental Hazards

- Environmental criteria has been laid out in order to account for the possibility of contamination of waterways via marine transport. It consists of acute and chronic toxicity ratings:
  - Acute – short-lasting and assigned through three different categories: LC50 (fish), EC50 (crustacea) or ErC50 (for algae or other aquatic plants).
  - Chronic – long-lasting effects and assigned through four different categories: LC50 (fish), EC50 (crustacea), ErC50 (for algae or other aquatic plants), **and** degradation/bioaccumulation.

https://www.osha.gov/dsg/hazcom/ghsguideoct05.pdf

Global classification lists?

Mandatory	Advisory
• Inventory of Hazard Chemicals in China (2015 version) • EU CLP Annex VI: • Toxic Substance List in South Korea • Malaysia ICOP Part 1	• Japan • South Korea KOSHA • Australia • New Zealand • Taiwan MOL: 2 lists, 6000+3000

Non-GHS Hazards

Australia	U.S.A	Canada
• Non-GHS hazards statements（appendix C of SDS guidance） • eg：AUH001：Explosive when dry; AUH006：Explosive with or without contact with air;	• Simple asphyxiant; • Pyrophoric gas; • Combustible dust; • “Hazards Not Otherwise Classified” HNOCs	• Combustible Dusts • Simple Asphyxiants

Differences In Official Lists

Ethanol (CAS#64-17-5)	
EU CLP – Annex VI	H225
Guidance of Inventory of Hazard Chemicals in China (2015 version)	H225
Japan (MHLW, MOE, 2013)	H225，H320，H350，H360，H335，H336，H372 (liver)，H373（Central nervous system）

Sulfuric Acid (CAS#7664-93-9)	
EU CLP – Annex VI	H314
Guidance of Inventory of Hazard Chemicals in China (2015 version)	H314，H318
Japan（Inter-ministerial Committee on GHS, 2006）	H303，H330，H314，H318，H370（Respiratory system），H372（Respiratory system），H402

Concentration limit

- **For example：** concentration limits for H317 (Skin sensitization)

Ingredient Classified As	Concentration Limits Triggering Classification Of A Mixture		
	UN GHS 5 rev.	CLP	HCS 2012 appendix C
H317	≥ 0.1%(note) ≥ 1.0%	≥ 1.0 %	≥ 0.1 %
H317 1A	≥ 0.1%	≥ 0.1 %	≥ 0.1 %
H317 1B	≥ 1.0%	≥ 1.0 %	≥ 1.0 %

Frequently Asked Questions

- For series products with similar components, is it possible to generate one SDS for all these products?

- I have a product which contains 30% flammable solid— can I assign a flammable solid hazard category to the product ?

Q&A Session

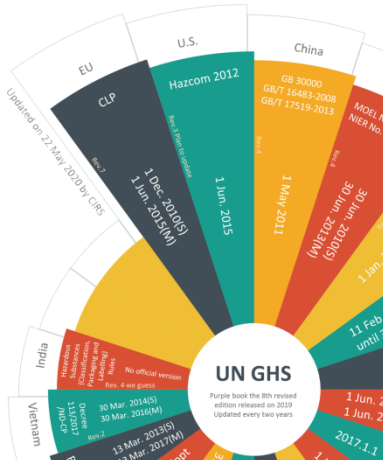
Following our event, please always click

http://www.cirs-reach.com/news-and-articles/2020-CIRS-Training-Courses-Global-GHS.html

to find further updates

Contact Email: service@cirs-reach.com
For our Consultation

Next Webinar: Labeling for Small and Awkward Packages
Time & Date: (GMT+1) 15:00 P.M. , September 9th
Registration still Available



Thank you for your time!

For questions regarding this presentation:

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