

GHS around the world - November 2010 status

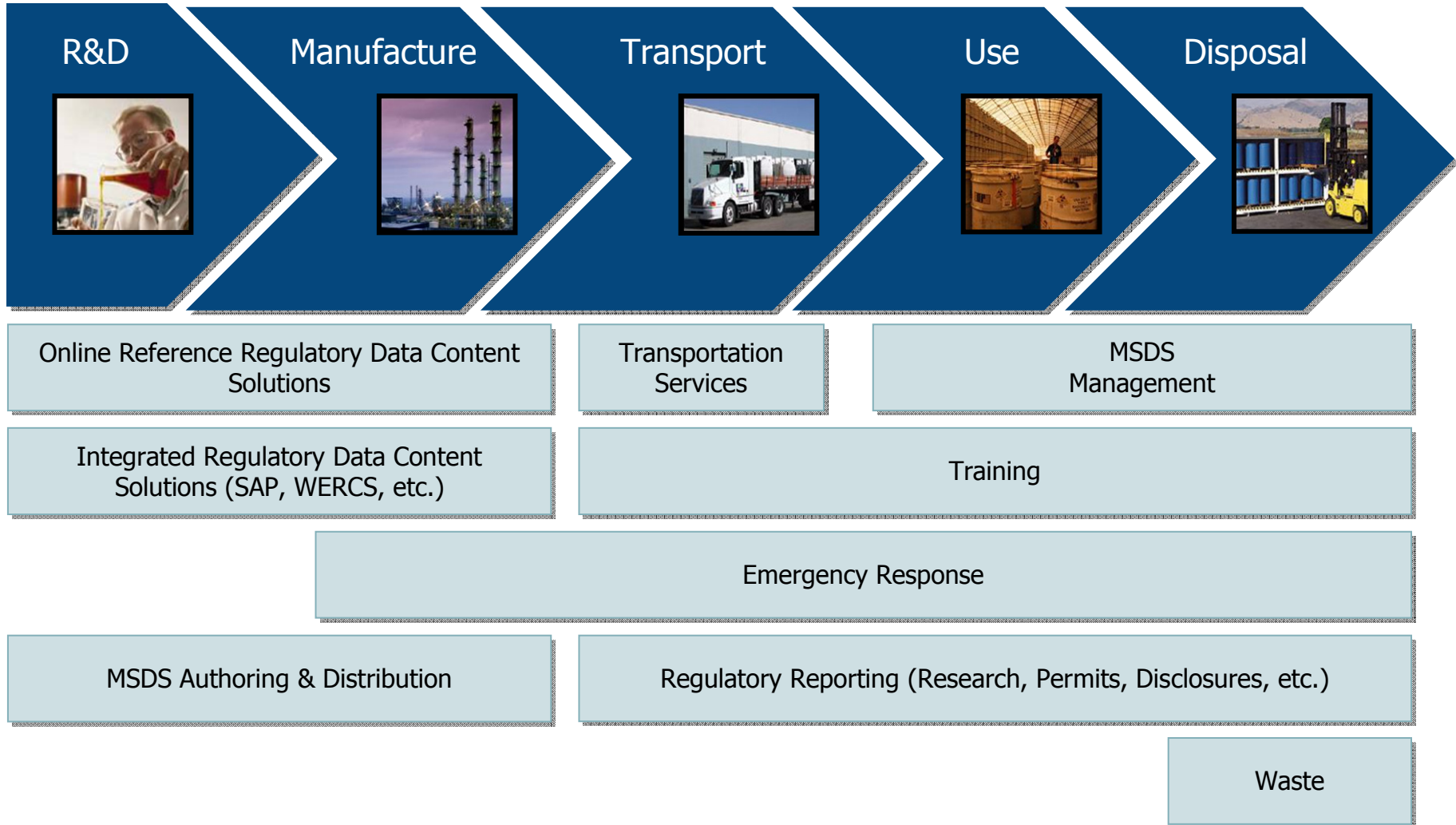
Chemical Supply Chain Conference
Antwerp November 23 – 24, 2010

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Managing Director 3E Europe
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Vision, Mission, and Goals

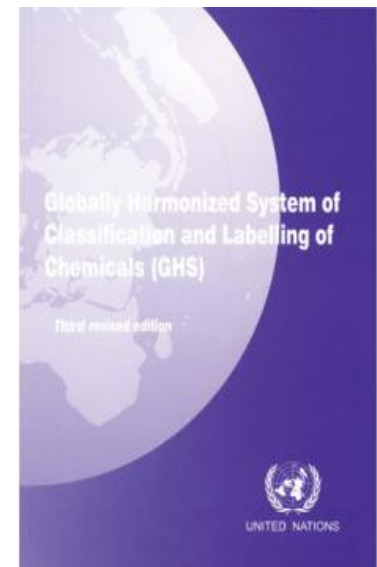
- Our vision:
 - Become the global strategic partner for EH&S compliance data across the supply chain and throughout the product life cycle
- How?
 - Provide our premier content as the platform for EH&S compliance management
 - Consolidate fragmented data flows
 - Become the trusted source for definitive, objective, and accurate data
 - Be a catalyst for change and innovation
 - Remove regulatory and product stewardship risk in the supply chain

3E Solutions Across the Supply Chain and Product Lifecycle



What is the GHS?

- Globally Harmonized System of Classification and Labelling of Chemicals
- Criteria for hazard classification and hazard communication (Labels and SDSs) are harmonized and standardized.
- Provides the underlying infrastructure for establishment of national, comprehensive chemical safety programs.
- Building block approach: countries and systems take what is required, choosing how to match their current level of protection
- One system for workers, consumers, transport and emergency responders.
 - Different target audiences may have different blocks
- The GHS/UN document is a living document and is updated every 2 years.
- National implementations to stay aligned with revisions



UN GHS structure

Classification:

- Hazard classes & categories; H statements
 - Classification based on existing data
 - Official lists of classifications (substances)
 - Mixtures are classified based on data or by calculation based on classification of ingredients



GHS classification - example

Physical hazards

Flammable liquids

Category 1

Extremely flammable liquid and vapor.

Self-reactive substances and mixtures

Classification not possible

Health hazards

Skin corrosion/irritation

Category 2

Causes skin irritation.

Germ cell mutagenicity

Category 1B

May cause genetic defects .

Carcinogenicity

Category 1B

May cause cancer .

Reproductive toxicity

Category 2

Suspected of damaging fertility.
Suspected of damaging the unborn child.

Specific target organ toxicity - repeated exposure

Classification not possible

Aspiration hazard

Category 1

May be fatal if swallowed and enters airways.

Environmental hazards

Hazardous to the aquatic environment - long-term hazard

Category 2

Toxic to aquatic life with long lasting effects.

UN GHS structure

UN Class	UN Categories
EXPLOSIVES	Unstable explosive and Division 1.1 - 1.6
FLAMMABLE GASES	Category 1 - 2
FLAMMABLE AEROSOLS	Category 1 - 2
OXIDIZING GASES	Category 1
GASES UNDER PRESSURE	Compressed gas; Liquefied gas; Refrigerated liquefied gas; Dissolved gas
FLAMMABLE LIQUIDS	Category 1 - 4
FLAMMABLE SOLIDS	Category 1 - 2
SELF-REACTIVE SUBSTANCES	Type A - G
PYROPHORIC LIQUIDS	Category 1
PYROPHORIC SOLIDS	Category 1
SELF-HEATING SUBSTANCES	Category 1 - 2
SUBSTANCES, WHICH IN CONTACT WITH WATER, EMIT FLAMMABLE GASES	Category 1 - 3
OXIDIZING LIQUIDS	Category 1 - 3
OXIDIZING SOLIDS	Category 1 - 3
ORGANIC PEROXIDES	Type A - G
CORROSIVE TO METALS	Category 1
ACUTE TOXICITY	Category 1 - 5
SKIN CORROSION / IRRITATION	Category 1 (incl. A, B and C) - 3
SERIOUS EYE DAMAGE / EYE IRRITATION	Category 1, 2A, 2B
RESPIRATORY SENSITIZATION	Category 1
SKIN SENSITIZATION	Category 1
GERM CELL MUTAGENICITY	Category 1A, 1B, 2
CARCINOGENICITY	Category 1A, 1B, 2
TOXIC TO REPRODUCTION	Category 1A, 1B, 2, EFFECTS ON OR VIA LACTATION
SPECIFIC TARGET ORGAN SYSTEMIC TOXICITY (SINGLE EXPOSURE)	Category 1 - 3
SPECIFIC TARGET ORGAN SYSTEMIC TOXICITY (REPEATED EXPOSURE)	Category 1 - 2
ASPIRATION HAZARD	Category 1 - 2
AQUATIC TOXICITY (ACUTE)	Category 1 - 3
AQUATIC TOXICITY (CHRONIC)	Category 1 - 4
HAZARDOUS TO THE OZONE LAYER	Category 1

UN GHS structure

Classification

Label – UN Purple book:

- Hazard Pictograms
- Signal word (“Danger” or “Warning”)
- Hazard statements
- Precautionary statements
- Product identifier (to match SDS)
- Supplier information



GHS label - example

Label according to Regulation (EC) No. 1272/2008 as amended

Contains: Naphtha (petroleum), full-range straight-run

Identification Number 649-265-00-X



Signal word Danger

Hazard statements Extremely flammable liquid and vapor. May be fatal if swallowed and enters airways. Causes skin irritation. May cause drowsiness or dizziness. May cause cancer. May cause genetic defects. Suspected of damaging fertility. Suspected of damaging the unborn child. Toxic to aquatic life with long lasting effects.

Precautionary statements

Prevention Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat/sparks/open flames/hot surfaces. – No smoking. Take precautionary measures against static discharges. Use non-sparking tools and explosion-proof equipment. Ground/bond container and receiving equipment. Keep container tightly closed. Use only outdoors or in a well-ventilated area. Do not breathe dust/fume/gas/mist/vapors/spray. Use personal protective equipment as required. Wear protective gloves/protective clothing/eye protection/face protection. Wash thoroughly after handling. Avoid release to the environment.

Response Collect spillage. IF exposed or concerned: Get medical attention/advice. IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician. Do NOT induce vomiting. IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. IF ON SKIN: Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention. IF INHALED: Remove to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell. Take off contaminated clothing and wash before reuse. In case of fire: Use foam, carbon dioxide, dry powder or water fog for extinction.

Storage Store locked up. Keep cool. Store in a well-ventilated place.

Disposal Dispose of contents/container in accordance with local/regional/national/international regulations.

UN GHS structure

Classification:

- Hazard classes & Hazard categories

Label

MSDS: 16 sections

- Section 2 (Hazard Identification) to provide the GHS classification and the GHS label elements



The criteria for hazard classification is unified, but

- GHS building block approach allows for de-selection of low hazard classes and categories
 - Countries and systems take what is required, choosing how to match their current level of protection
- GHS also allows for national cut off levels to be selected from 2 options for some classifications
- Handling of CBI's (section 3: identification of hazardous component) is not regulated at the UN level
- Other national additions to SDS and labels are permitted and existing
 - For instance SDS section 3 (criteria for substance declaration); section 8, section 14 and section 15
 - For instance addition information on the label

Building blocks

Source: 2nd edition

Table 3.1.1: Acute toxicity hazard categories and acute toxicity estimates (ATE) values defining the respective categories

Exposure route	Category 1	Category 2	Category 3	Category 4
Oral (mg/kg bodyweight) <i>see: Note (a)</i>	5	50	300	2000
Dermal (mg/kg bodyweight) <i>see: Note (a)</i>	50	200	1000	2000
Gases (ppmV) <i>see: Note (a)</i> <i>Note (b)</i>	100	500	2500	5000
Vapours (mg/l) <i>see: Note (a)</i> <i>Note (b)</i> <i>Note (c)</i> <i>Note (d)</i>	0.5	2.0	10	20
Dusts and Mists (mg/l) <i>see: Note (a)</i> <i>Note (b)</i> <i>Note (e)</i>	0.05	0.5	1.0	5

Building blocks/example

Acute human toxicity, oral category 5

- Not implemented by Japan (JIS 7252-2009), Korea, EU, Singapore, OSHA (draft)
 - but by others including Taiwan, China, New Zealand, Brazil, Indonesia
- Hazard communication:
 - “Warning”
 - “May be harmful if swallowed”

Brief country update

Global GHS Development

- GHS legislation or standards have been passed in:
 - Asia Pacific:
 - New Zealand (2001) *
 - Korea (2008) (*)
 - Singapore (2008) (*)
 - China (2009) *
 - Japan (2006) *
 - Taiwan (2008) *
 - Vietnam (2008) *
 - Indonesia (2009) *
 - Europe
 - EU (2008) (*)
 - Serbia (2009)
 - Russia (2009)
 - Middle East & Africa
 - South Africa (2008)
 - Abu Dhabi (2009)
 - Americas
 - Brazil (2009)
 - Uruguay (2009) *
 - Transportation - SOLAS (International Convention for the Safety of Life at Sea) *
- But there will always be transition periods from the old system



Global GHS Development/cont

- Draft regulations on GHS published:
 - USA
 - Australia
 - Malaysia
 - India
- Preparation activities
 - Canada – GHS compliant SDS accepted with reference to WHMIS
 - MERCOSUR countries (Argentina, Brazil, Paraguay, Uruguay)– SDS standards
 - ANDEAN Community (Bolivia, Colombia, Ecuador and Peru, Ecuador) – National Plan, capacity building
 - Croatia, Turkey
 - Philippines
 - Thailand
 - UNITAR/ILO Global GHS Capacity Building Programme: Cambodia, Gambia, Laos, Nigeria, Senegal, Zambia

GHS classification lists

- EU CLP – **mandatory**; approx. 4,500 subs
- Japan
 - NITE (National Institute of Technology and Evaluation) – advisory (widely used by industry); approx. 1,900 subs classified
 - JAISH (Japan Advanced Information Center of Safety and Health) – substances of hazardous and harmful substances designated by EU or other countries
- Korea
 - MOE classification – **mandatory**; so far 20 subs
 - KOSHA – advisory; approx. 6,500 subs
 - NEMA – advisory; approx. 1,000 subs (DG)
- Taiwan CLA – advisory; approx. 2,000 subs
- South Africa – advisory; derived from EU CLP list

Conclusion

- Harmonizations to GHS is taking place at high speed and involves changes in related regulations
- GHS – not straightforward!
 - Implementation vary on classification (pure substance or mixture), MSDS, labeling
 - Transitional period
 - Mandatory vs. Recommended
- Requires companies to stay up to date
 - Knowledge
 - Processes
 - Systems

Thank you for your
attention!
Any questions?

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