

# OSHA Update on the Globally Harmonized System of Classification and Labeling of Chemicals

Directorate of Standards and Guidance  
Occupational Safety and Health Administration

Department of Energy – Chemical Management Seminar  
March 14-15, 2007  
Forrestall Building, Washington, DC





# What is the GHS??



- *The Globally Harmonized System of Classification and Labelling of Chemicals*
- *Standardizes Classification and Labeling of Chemicals*
- *Logical and Comprehensive Approach*
- *Based primarily on four existing systems*

# The Need for GHS



- Extensive Global Trade in Chemicals
- Many national systems of communication
- Need for internationally harmonized approach

## Acute oral toxicity LD<sub>50</sub> (mg/kg)

Organization/Country /Regulation or Standard	High Hazard					Low
	0	< 50	< 500	< 5,000	< 5,000	
ANSI/US/Z129.1	< 50 Highly Toxic	> 50 < 500 Toxic	> 500 < 2,000 Harmful			
CSHA/US/HCS	< 50 Highly Toxic	> 50 < 500 Toxic				
EPA/US/FIFRA	0 < 50 Toxicity Category I	> 50 < 500 Toxicity Category II	> 500 < 5,000 Toxicity Category III	> 5,000 Toxicity Category IV		
CPSC/US/RHSA	< 50 Highly Toxic	> 50 < 5,000 Toxic				
<b>GHS</b>	<b>≤ 5</b>	<b>&gt; 5 ≤ 50</b>	<b>&gt; 50 ≤ 300</b>	<b>&gt; 300 ≤ 2,000</b>	<b>&gt; 2000 ≤ 5000</b>	
DOT/US	< 5 Packing Group I	> 5 < 50 Packing Group II	> 50 < 200 (solid) Packing > 50 < 500 (liquid) Group III			
NFPA/US	≤ 5 Hazard Category 4	> 5 ≤ 50 Hazard Category 3	> 50 ≤ 500 Hazard Category 2	> 500 ≤ 2,000 Hazard Category 1	> 2,000 Hazard Category 0	
NFPA/US/HMIS	≤ 1 Toxicity Rating 4	> 1 ≤ 50 Toxicity Rating 3	> 50 ≤ 500 Toxicity Rating 2	> 500 ≤ 5,000 Toxicity Rating 1	> 5,000 Toxicity Rating 0	
EU	< 25 Very Toxic	> 25 < 200 Toxic	> 200 < 2,000 Harmful			
WHMIS/Canada	< 50 Very Toxic WHMIS Class D, Division 1, Subdivision A	> 50 < 500 Toxic WHMIS Class D, Division 1, Subdivision B				
Australia/NOHSC	< 25 Very Toxic	> 25 < 200 Toxic	> 200 < 2,000 Harmful			
Mexico	< 1 Extremely Toxic	> 20 < 50 Highly Toxic	> 50 < 500 Moderately Toxic	> 500 < 5000 Mildly Toxic		
Malaysia	< 25 Very Toxic		200 to 500 Harmful			
Japan	< 30 Poisonous		300 to 3000 Powerful			
Korea	< 25 Very Toxic	> 50 < 200 Toxic	> 200 < 2000 Harmful			

# *GHS*

- Proposes specific criteria for labels and safety data sheets (pictograms, signal words, hazard statements).
- Consistent MSDS format (16-section)
- Target audiences include workers, consumers, transport workers, and emergency responders.
- Provides infrastructure for establishment of national chemical safety programs – uniform international system.

# GHS-Benefits

- Differences impact protection and trade
  - Protection/Health & Safety
    - Differing label/SDS elements
    - Different definitions of hazard for same chemical
    - Different information is required in different systems
  - Trade/Economic
    - Multiple Regulations (domestically, internationally)
    - Burden of Compliance
    - Small/medium enterprises may be precluded

# *How this all started...*

**Commitment in the preamble to the final standard in 1983 – USTR**

**Build-up to current GHS:**

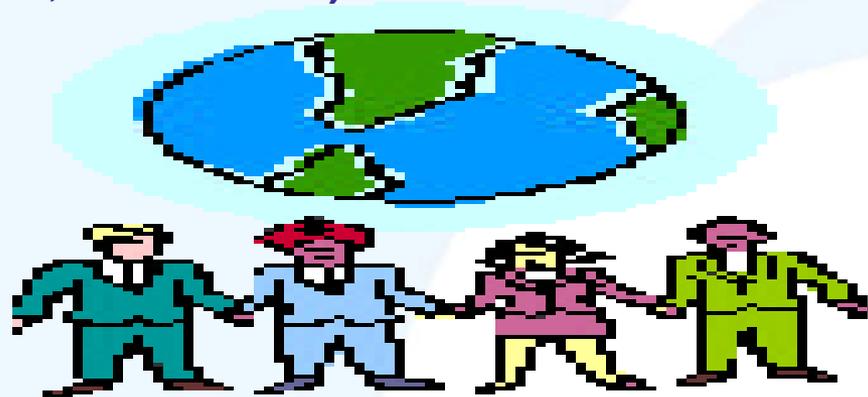
**Years of bilateral trade negotiations**

**1992 United Nations mandate adopted at the “Earth Summit”**

**Negotiations over 10 years**

**US supported the process and actively participated.**

**International implementation currently underway (EU, Japan, Canada, Brazil, North Korea, Australia...)**



# Guiding Principles

(Figure extracted from OSHA's Guide to the GHS)

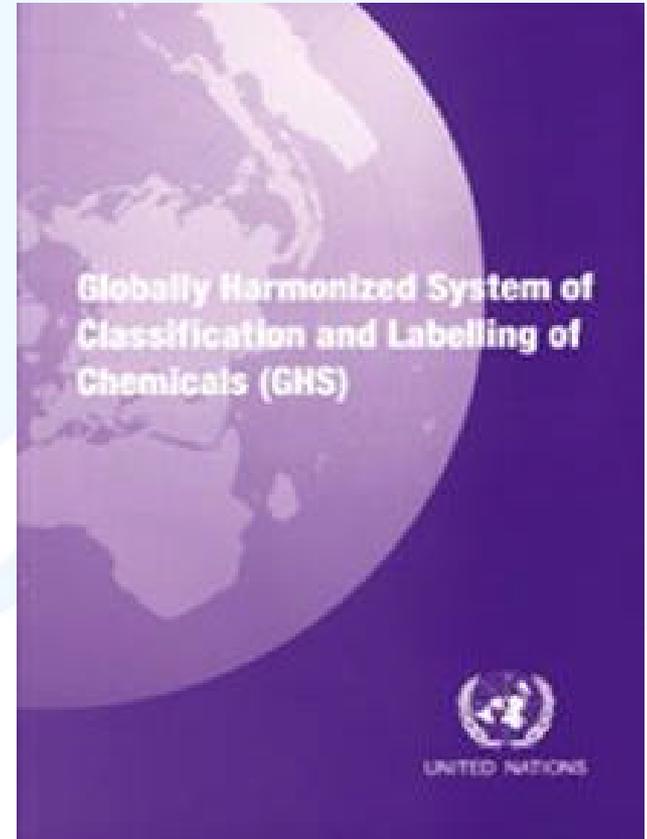
## Figure 1.6

### Key Guiding Principles of the Harmonization Process

- Protection will not be reduced;
- Will be based on intrinsic properties (hazards) of chemicals;
- All types of chemicals will be covered;
- All systems will have to be changed;
- Involvement of all stakeholders should be ensured;
- Comprehensibility must be addressed.

# The GHS

- *Provides*
  - *System of Classification*
  - *Label Elements*
    - *Pictogram*
    - *Signal Word*
    - *Hazard Statement*
  - *Safety Data Sheet (SDS) Format*



# Regulatory Agenda

- ANPR published in FR on Tuesday, September 12, 2006
  - ***Compared HCS/GHS***
  - ***Listed 20 questions and requested response***
- Comment period closed November 13, 2006
- Over 160 comments
- Comment summary completed/Analyzing

# Regulatory Process

- Rulemaking Steps
  - ANPR
  - Notice of Proposed Rulemaking
    - Public Comment Period
    - Public Hearing
    - Post-hearing Comment Period
  - Final Standard
  - Phase-in Period for Compliance

# Analytical Requirements

- Economic Feasibility
- Technological Feasibility
- Paperwork Burden
- Impact on Small Businesses (Small Business Regulatory Enforcement Fairness Act process)
- Peer Review



# The GHS Isn't...

...a model regulation or a standard that can simply be adopted. It has criteria and explanatory text.

- *Authorities choose parts of the system that apply to their sphere of regulation, and prepare implementing text consistent with their own requirements.*
- *The framework of the HCS will remain the way it is currently promulgated, i.e., those provisions not affected by the GHS will remain the same.*

# Impact on US Regulations

- Other agencies affected: EPA, DoT, CPSC
- OSHA has more requirements affected by the GHS than other US agencies:
  - Cover all acute and chronic health hazards.
  - Have requirements for labels and safety data sheets.
  - Cover over 7 million workplaces, 100 million employees, and 945,000 hazardous chemical products.

# Comparison of HCS-GHS

- HCS

- Scope & Application
  - Known to be present
  - Exemptions
- Performance Oriented
  - Provides framework
  - Allows any language
- Hazard Determination
  - Yes/No Decision
  - One Study or Floor

- GHS

- Scope & Application
- Specification Oriented
  - Labels – Pictograms/Signal words/Hazard Statements
  - 16- Section MSDS
- Hazard Classification
  - ID relevant data
  - Ascertain hazards
  - Determine classification
  - Determine category

# Scope and Application

- Anything not currently covered will not be covered
  - Radiologicals
  - Biologicals
  - Articles, etc.
- Framework will remain the same
  - Training required
  - MSDS accessibility
  - Labels required

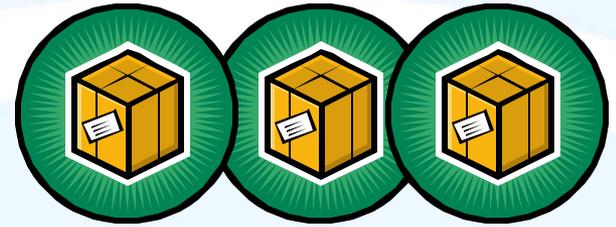
# Labels

- *Labeling provisions are the biggest difference between HCS and GHS*
- *The HCS is performance oriented*
- *Would change to adopt the label provisions of the GHS for harmonized pictograms, hazard statements, and signal words.*

# Allocation of Label Elements

CARCINOGENICITY				
Category IA	Category 1B	Category 2	-	-
				
<b>Danger</b>	<b>Danger</b>	<b>Warning</b>		
<b>May cause cancer</b> <i>(state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard )</i>	<b>May cause cancer</b> <i>(state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard )</i>	<b>Suspected of causing cancer</b> <i>(state route of exposure if it is conclusively proven that no other routes of exposure cause the hazard )</i>		
<b>Not required under the</b> <i>UN Recommendations on the Transport of Dangerous Goods, Model Regulations.</i>				

# Labels



- Identification of the chemical and supplier
- Precautionary information would also be included.
- Specific approach will require all labels to be modified to comply.
  - Should improve comprehensibility and facilitate compliance

# Example of Labels

- HCS

- GHS

ToxiFlam  
TOXIC  
COMBUSTIBLE LIQUID AND  
VAPOR

My Company, My Street, MyTown NJ  
00000  
Tel: 444 999 9999

ToxiFlam (Contains: XYZ)

 **Danger! Toxic If Swallowed, Flammable Liquid and Vapor** 

Do not eat, drink or use tobacco when using this product. Wash hands thoroughly after handling. Keep container tightly closed. Keep away from heat/sparks/open flame. – No smoking. Wear protective gloves and eye/face protection. Ground container and receiving equipment. Use explosion-proof electrical equipment. Take precautionary measures against static discharge. Use only non-sparking tools. Store in cool/well-ventilated place.

**IF SWALLOWED:** Immediately call a POISON CONTROL CENTER or doctor/physician. Rinse mouth.

In case of fire, use water fog, dry chemical, CO<sub>2</sub>, or "alcohol" foam.

See Material Safety Data Sheet for further details regarding safe use of this product

MyCompany, MyStreet, MyTown, NJ 00000, Tel: 444 999 9999

# Safety Data Sheets

- The HCS would likely be modified to include the GHS order of information, as well as the information title descriptions
- Consistent w/ANSI and ISO
- Improvements to comprehensibility and issues regarding accuracy of information

# *The Agency will need to consider:*

- Implementation Phase*
- Appropriate categories, e.g., acute toxicity*
- Impact on other OSHA standards*
- References to a “floor” of hazardous chemicals – TLVs, IARC, NTP*
- Requirements for training*

# What this means for employers...

- *Requirement for employee training on pictograms, hazard statements, signal words*
- *Perhaps (minimal) training on MSDS format*
- *Filing of new MSDSs...shouldn't be big impact*

# Compliance Assistance

- *NIOSH training on pictograms*
- *UNITAR\* training for broad audiences*
- *Requesting public input regarding other compliance assistance needed*

*\*United Nations Institute for Training and Research*

# Current Activities

- *Analyzing Comments*
- *Preparing draft regulatory text*
- *Preparing economic analysis*
- *Continue meetings with:*
  - *Other Affected Agencies*
  - *UN Subcommittee*
  - *OECD Dialogue on Hazard Classifications*

# International Efforts

- **EU** — *Proposal for public comment until October 21, 2006. Reviewing replies. To draft impact assessment. To E.C for decision.*
- **Japan** — *Classifying 1,500 chemical substances. Required classification of 99 substances and their mixtures by December 2006.*
- **Canada** — *Has conducted a gap analysis and held stakeholder meetings with effected industry sectors. Moving forward with implementation based upon input.*
- **Others** — *New Zealand, Brazil, China, North Korea...*

# The Future of Hazard Communication

- *Worldwide effort to apply GHS principles and classifications*
- *Implementation phase*
- *Moving towards global harmonization of hazard information*





**Occupational Safety and  
Health Administration**