



SiteHawk

ELEVATING YOUR MSDS VISION



GHS Readiness Webinar

Real World Impacts of GHS on
SDS Management, Labels, and
Hazcom Training Programs

Event:

Date:

Presenter:

16th Annual Pollution Prevention (P2) Conference

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- GHS Overview & Status
- Specific Changes to (M)SDS, Labels and Hazcom Training Programs
- Transition Tips



- Globally Harmonized System of Classification and Labeling of Chemicals

- Standardized approach to:

- define health, physical and environmental hazards
- classify hazards
- communicate hazards in the workplace & beyond

- Guide for national chemical safety programs





Why do we need GHS?

Without GHS, every country has a different system for communicating chemical-hazard information, with little or no consistency among the systems. GHS is needed to:



Make all systems consistent for workers handling hazardous chemicals



Reduce costs to governments and companies complying with different systems



Enable better communication of chemical information

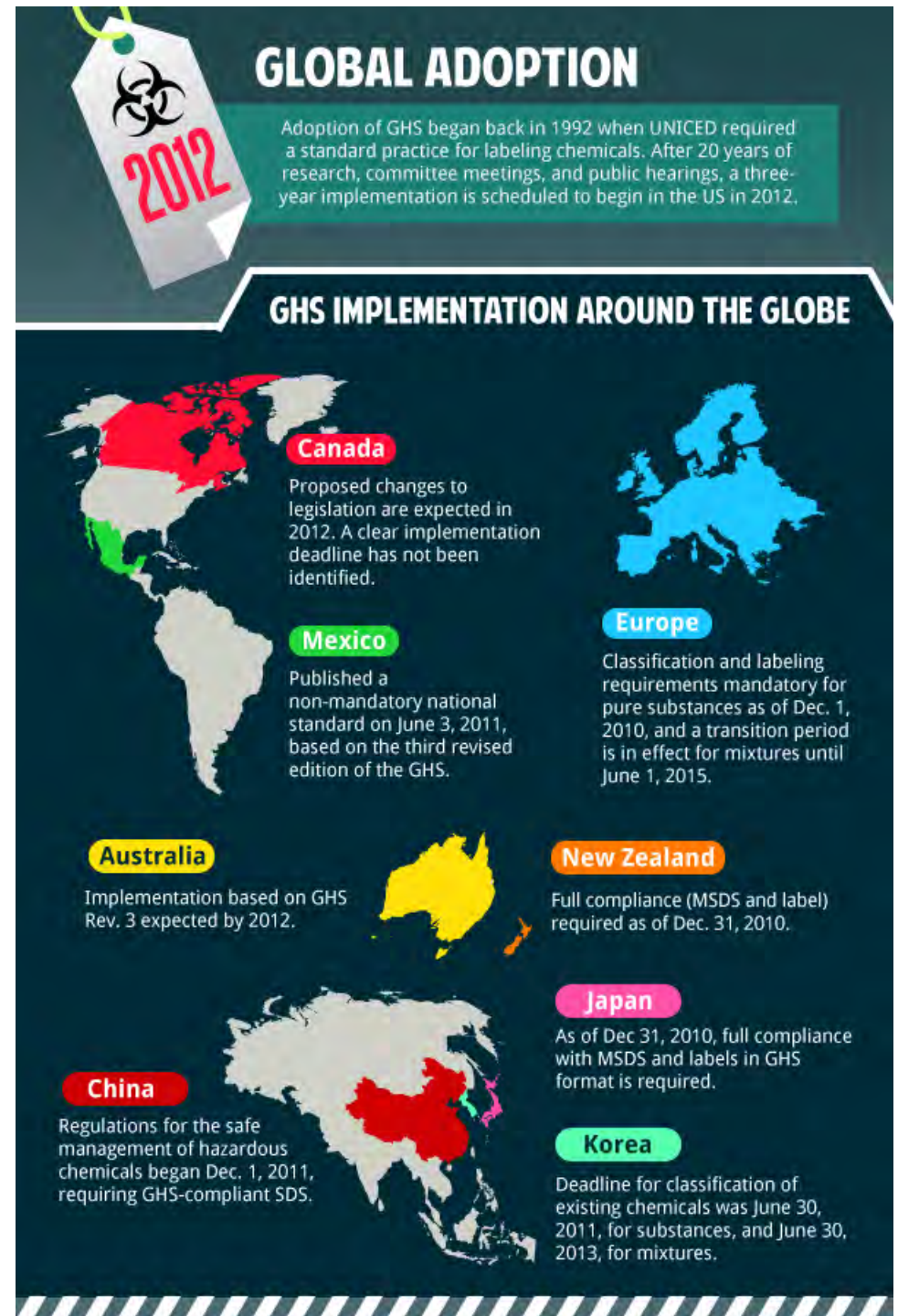


Protect workers



Increase international trade

An International Update

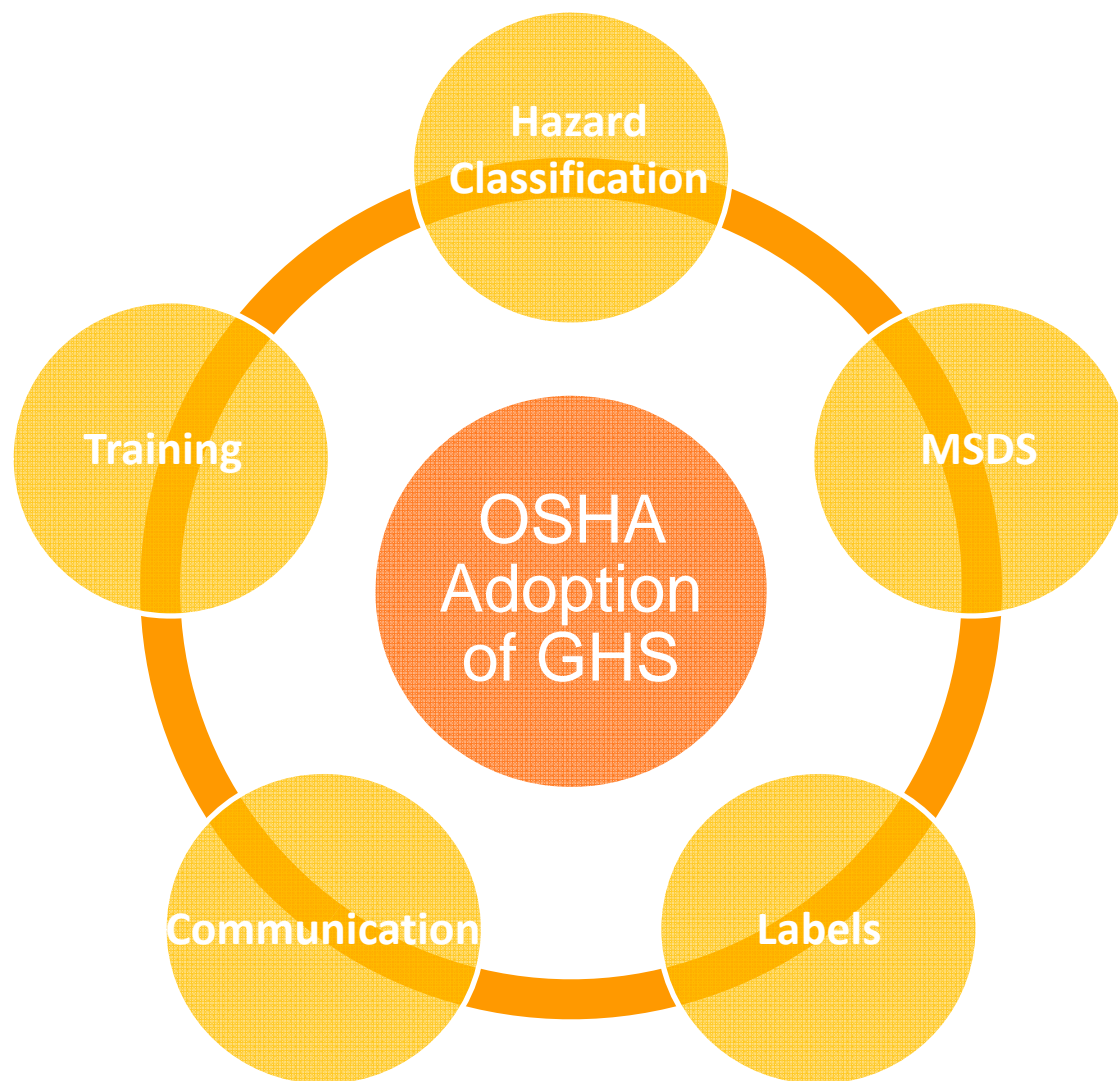


OSHA 2012 GHS Calendar

Completion Date	Requirements	Who
Dec. 1, 2013	Train employees on the new label and SDS format	Employers
June 1, 2015	Compliance with all modified provisions of the final rule, except below:	Chemical manufactures, importers, distributors, and employers
Dec. 1, 2015	The Distributor shall not ship containers labeled by the chemical manufacturer or importer unless it is a GHS label.	Chemical manufactures, importers, distributors, and employers
June 1, 2016	Update alternative workplace labeling and hazard communication program as necessary, and provide additional employee training for newly identified physical or health hazards.	Employers
Data Transition Period	Comply with either 29 CFR 1910.1200 (this final standard), or the current standard, or both.	All chemical manufacturers, importers, distributors and employers



What are the Major Impacts?



Who is Affected?

- Manufacturers, Distributors, Importers

- Change SDS information and format
- Change container labeling

- Employers

- SDS
- Container labels

- Employees

Recognize and understand hazards based on:

- Information in new SDS format
- Pictograms on container labels
- Precautionary and hazard statements



Terms & Definitions

- **Classification:** A determination of the hazard class(es) (Physical, Health, Environmental) of chemicals, and where appropriate the category per class.
- **Pictogram:** Symbol plus other graphic elements, such as a border, background pattern, or color, intended to convey specific information about the hazards of a chemical. (8 pictograms designated under OSHA 2012)
- **Signal word:** used to indicate the relative level of severity of hazard and alert the reader to a potential hazard on the label.
“**Danger**” = more severe; “**Warning**” = less severe
- **Hazard statement:** statement assigned to a hazard class and category that describes the nature of the hazard(s) of a chemical, including, where appropriate, the degree of hazard.
Example: “Fatal if inhaled.” “Flammable liquid and vapor.”
- **Precautionary statement:** phrase describing recommended measures that should be taken to minimize or prevent adverse effects resulting from exposure to a hazardous chemical, or improper storage or handling. (4 types: Prevention, Response, Storage, & Disposal)
Example: “Wear protective gloves/eye protection/face protection.”



Red text = Changes in 2012 revised rule

- a) Purpose
- b) Scope and Application
- c) Definitions
- d) Hazard Classification
- e) Written Hazard Communication Program
- f) Labels and Other Forms of Warning
- g) Safety Data Sheets
- h) Employee Information and Training
- i) Trade Secrets
- j) Effective Dates
- Appendices A-F



Haz Com 1994

Performance-orientated

- Definitions in paragraph (c), Appendices A and B.
- Appendix B – parameters for evaluating data.
- Minimum concentration of chemicals considered hazardous.

Haz Com 2012

Specific and detailed

- Concept of “classification” vs. “determination”.
- Each hazard class has detailed criteria to apply to data on the chemical.
- No minimum concentration.
- Mixture rules are specific to each hazard class.
- Use Criteria in New Appendix A and B.





d) Hazard Classification: 2012 Haz Com and GHS Differences



- Classifications in GHS **not** in 2012 Haz Com
 - Acute Toxicity Category 5
 - Skin Corrosion/Irritation Category 3
 - Aspiration Category 2

Note: Consumer products may include these categories in their classification requirements for labeling. May also appear in SDS.
- Unclassified Hazards (not in GHS, in 2012 Haz Com)
 - Simple Asphyxiants (health hazard category)
 - Pyrophoric Gases (physical hazard category)
 - Combustible Dust (physical hazard category)
 - Hazards Not Otherwise Classified (HNOC)



OSHA Building Blocks

UN GHS	OSHA HazCom 2012
Acute Toxicity (Oral, Dermal, Inhalation): 1, 2, 3, 4, 5	Acute Toxicity (Oral, Dermal, Inhalation): 1, 2, 3, 4
Skin Corrosion/Irritation: 1A, 1B, 1C, 2, 3	Skin Corrosion/Irritation: 1A, 1B, 1C, 2
Aspiration Hazard: 1, 2	Aspiration Hazard: 1
Hazardous to the Aquatic Environment - Acute Hazard: 1, 2, 3	na (EPA)
Hazardous to the Aquatic Environment - Long-Term Hazard: 1, 2, 3, 4	na (EPA)
Hazardous to the Ozone Layer: 1	na (EPA)
na	Simple Asphyxiant
na	Pyrophoric Gas
na	Combustible Dust
na	Hazards not otherwise classified (HNOC)



Hazard Classifications

Health Hazard Classifications

Acute Toxicity (Oral, Dermal, Inhalation):
Category 1, 2, 3, 4

Skin Corrosion/Irritation: Category 1A, 1B, 1C, 2

Serious Eye Damage/Eye Irritation:
Category 1, 2A, 2B

Respiratory or Skin Sensitization:
Category 1, 1A, 1B

Germ Cell Mutagenicity: Category 1A, 1B, 2

Carcinogenicity: Category 1A, 1B, 2

Reproductive Toxicity: Category 1A, 1B, 2,
Lactation

**Specific Target Organ Toxicity Single
Exposure:** Category 1, 2, 3

**Specific Target Organ Toxicity Repeated or
Prolonged Exposure:** Category 1, 2

Aspiration Hazard: Category 1

Simple Asphyxiant

Physical Hazard Classifications

Explosives: Unstable Explosive, Division: 1.1, 1.2, 1.3, 1.4, 1.5, 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, 2, 3, 4

Flammable Solids: Category 1, 2

Self-Reactive Chemicals: Type A, B, C, D, E, F, G

Pyrophoric Liquids: Category 1

Pyrophoric Solids: Category 1

**Chemicals which, in Contact with Water, Emit Flammable
Gases:** Category 1, 2, 3

Oxidizing Liquids: Category 1, 2, 3

Oxidizing Solids: Category 1, 2, 3

Organic Peroxides: Type A, B, C, D, E, F, G

Corrosive to Metals: Category 1

Self-Heating Chemicals: Category 1, 2

Pyrophoric Gas

Combustible Dust



Example – Flammable Liquids Hazard Categories

Category	Criteria
1	Flash point < 73 F (23°C) and initial boiling point ≤ 95°F (35°C)
2	Flash point < 73 F (23°C) and initial boiling point > 95°F (35°C)
3	Flash point ≥ 73 F (23°C) and ≤ 140°F (60°C)
4	Flash point >140°F (60°C) and ≤ 200°F (93°C)



Example of HazCom Changes

Classification: Determine hazard class(es) of chemicals, and where appropriate the category per class.

Hazard Determination (OLD)

Corrosive

Irritant



Hazard Classification (NEW)

Skin Corrosion 1A

Skin Corrosion 1B

Skin Corrosion 1C

Skin Irritation 2

Serious Eye Damage 1

Eye Irritation 2A

Eye Mild Irritation 2B

STOT-SE 3 (Resp. Irr.)










d) Hazard Classification - Mixtures

- 1994 – Mixture health hazards included if:
 - 0.1% for carcinogens.
 - 1% for all other effects.
- 2012 -GHS uses tiered approach within each hazard class.
 - Step 1: Use available test data on the mixture as a whole to classify the mixture based on the substance criteria.
 - Step 2: Use bridging principles to extrapolate from other data (e.g. dilution principle for acute toxicity).
 - Step 3: Estimate hazards based on known information regarding ingredients of the mixture (cut-offs may be applied) exception for chronic hazards.
- Chemical manufactures and importers may rely on the information provided in ingredient SDSs; unless they believe it is inaccurate.



HCS Pictograms

HCS Pictograms and Hazards

Health Hazard  <ul style="list-style-type: none"> ▪ Carcinogen ▪ Mutagenicity ▪ Reproductive Toxicity ▪ Respiratory Sensitizer ▪ Target Organ Toxicity ▪ Aspiration Toxicity 	Flame  <ul style="list-style-type: none"> ▪ Flammables ▪ Pyrophorics ▪ Self-Heating ▪ Emits Flammable Gas ▪ Self-Reactives ▪ Organic Peroxides 	Exclamation Mark  <ul style="list-style-type: none"> ▪ Irritant (skin and eye) ▪ Skin Sensitizer ▪ Acute Toxicity ▪ Narcotic Effects ▪ Respiratory Tract Irritant ▪ Hazardous to Ozone Layer (Non-Mandatory)
Gas Cylinder  <ul style="list-style-type: none"> ▪ Gases Under Pressure 	Corrosion  <ul style="list-style-type: none"> ▪ Skin Corrosion/Burns ▪ Eye Damage ▪ Corrosive to Metals 	Exploding Bomb  <ul style="list-style-type: none"> ▪ Explosives ▪ Self-Reactives ▪ Organic Peroxides
Flame Over Circle  <ul style="list-style-type: none"> ▪ Oxidizers 	Environment (Non-Mandatory)  <ul style="list-style-type: none"> ▪ Aquatic Toxicity 	Skull and Crossbones  <ul style="list-style-type: none"> ▪ Acute Toxicity (fatal or toxic)

How Will the MSDS Change?

- Now “Safety Data Sheets”
- GHS Format: 16 sections required, in specified order
- Reclassification based on GHS Criteria
 - Health & Environmental
 - Physical
 - Building Block Approach

GHS Format Example SDS

Safety Data Sheet

Section 1: Identification

Product identifier

Product Name • GHS Format Example SDS

Product Code • 123456

Relevant identified uses of the substance or mixture and uses advised against

Recommended use • Hazard Communication & Compliance

Details of the supplier of the safety data sheet

Manufacturer • SiteHawk
709 Nissan Drive
Smyrna, TN 37167
United States
www.sitehawk.com
support@sitehawk.com
615-459-0064

Telephone (General) • 615-459-0064

Emergency telephone number

Manufacturer • 800-424-9300 - CHEMTREC

Section 2: Hazard Identification

United States (US)
According to OSHA 29 CFR 1910.1200 HCS

Classification of the substance or mixture

OSHA HCS 2012 • Flammable Liquids 2 - H225
Skin Irritation 2 - H315
Specific Target Organ Toxicity Single Exposure 3: Narcotic Effects - H336

Label elements

OSHA HCS 2012

DANGER

Hazard statements • Highly flammable liquid and vapour - H225
Causes skin irritation - H315
May cause drowsiness or dizziness - H336

Precautionary statements • Keep away from heat, sparks, open flames and/or hot surfaces. - No smoking. - P210
Keep container tightly closed. - P233
Keep cool. - P235

Revised Date: 08/09/2011
Version: 08/01/2011

Format: GHS Language: English (U.S.)
Printed: 08/09/2011

Required SDS Format

Section 1 Identification

Section 2 Hazard Identification

Section 3 Composition

Section 4 First-Aid Measures

Section 16 Other Information

Sections 12-15 Ecological Information Disposal Considerations Transport Information Regulatory Information

Section 11 Toxicological Information

Section 10 Stability & Reactivity

Section 9 Physical & Chemical Properties

Section 8 Exposure Controls

Section 5 Fire Fighting Measures

Section 6 Accidental Release Measures

Section 7 Storage and Handling



How Will the Workplace Label Change?

- No longer performance oriented, labels will be standardized.
 - Signal Words
 - Hazard Statements
 - Precautionary Statements
 - Pictograms



Chart 1: Standardized GHS Pictograms

(f) Secondary Container Labels

Excerpt from the Hazard Communication Standard:

- (6) Workplace labeling. Except as provided in paragraphs (f)(7) and (f)(8) of this section, the employer shall ensure that each container of hazardous chemicals in the workplace is labeled, tagged or marked with **either:**
- (i) The information specified under paragraphs (f)(1)(i) through (v) of this section for labels on shipped containers [GHS Label]; **or,**
- (ii) Product identifier **and** words, pictures, symbols, or combination thereof, which provide at least general information regarding the hazards of the chemicals, and which, in conjunction with the other information immediately available to employees under the hazard communication program, will provide employees with the specific information regarding the physical and health hazards of the hazardous chemical [e.g. HMIS, NFPA or other label system].



(f) Labels and Other Forms of Warning - Workplace Labeling for Secondary Containers

- Must be consistent with the revised Haz Com.
- No conflicting hazard warnings or pictograms.
- May use written materials (e.g., signs, placards, etc.) in lieu of affixing labels to individual stationary process containers.
- Employer can use GHS compliant labels (same as shipping).

HMIS Label



NFPA Label



Labeling Changes

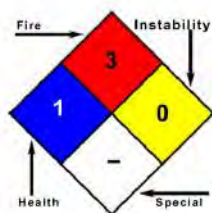

Workplace Label

Workplace Material
CAS# 55-55-5

Health Hazards/Target Organ Effects
Irritant to: Eye, Respiratory system and mucous membranes, Liver, Kidney, Eyes, Skin, Lungs and/or Respiratory System

Physical Hazards:
Flammable Liquid

Route of Entry: Inhalation, Skin, Eye, Ingestion

Consult corresponding MSDS for ingredients and handling instructions

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GHS Label

GHS Material
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 a 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, CO2, or "alcohol" foam.

Consult corresponding MSDS for ingredients and handling instructions

SiteHawk®, 709 Nissan Drive, Smyrna TN 37167 (615) 459-0064

- Current OSHA Standard
 - Material identity
 - Hazard warnings
 - Supplier information

- Updated OSHA GHS Standard
 - Product identifier
 - Signal word
 - Hazard statements
 - Precautionary statements
 - Pictograms
 - Supplier information
 - Supplemental information



(h) Employee Information and Training – Training Revisions

Haz Com training requirements now include:

- Signal words
- Pictograms
- Hazard classes and categories
 - Physical hazards
 - Health hazards
 - Hazards not otherwise classified
- Labels received on shipped containers
- Safety data sheet (SDS)
 - Including the order/format of information



Employee training to be completed by December 1, 2013

Where will GHS related data be of Value?

- R&D
 - Understand the hazards of the ingredients related to the new mixture you are developing
- Training
 - A consistent message
 - More accurate information on the hazards of the material
- Level Playing field
 - More and more manufacturers will have similar information on the SDS—somewhat leveling the “consumer” playing field
- Reduced Risk (Continuous improvement initiatives)



- Take advantage of Expanded SDS data indexing framework via the incorporation of GHS hazard classifications, pictograms, signal words and H&P statements by country/agency
- SDS Update Services-contact MFGs at least every 24 months to update and acquire most current—asking for an appropriate country/region specific (example- **U.S.** GHS, EU CLP) compliant SDS
- GHS Labeling-labeling functionality should incorporate site GHS data and provide output in GHS compliant formats
- GHS Audit Report-We recommend having a GHS Audit report detailing GHS compliance to identify any compliance gaps in your SDS database.



- Update SDSs for your products—Section 2 contains much of the information needed for product labels
- Understand where/agencies impacting labeling (Product label, shipping label, consumer product, FIFRA, etc.).
- Decide if/when you will transition workplace labels
- If not transitioning workplace labels—you must insure “consistent” hazard message
- Leverage the SDS management system of indexed data to output compliant labels (red border, elements co-located, consistent).



- Gather data (testing, properties, ingredients, raw material mixture data)
- Know Regulatory Requirements (where, agency differences, format requirements)
- Develop a Document Review Process (resources, agreement!)
- Have controlled change management for your documents (no changes unless approved, communicated, understand minor/major change)
- Decision – Use Software or Authoring Service Provider (resources, knowledge base, budget)



Transition Tips:

1. Create a Transition Plan and identify critical impact areas (specialty providers, main product lines)
2. Perform Chemical Inventory
3. Conduct Training
4. Acquire & Update SDS
5. Update Labels
6. Maintain!



Approaches & Challenges

- OSHA estimates that, in the US alone, over seven million workplaces and 945,000 hazardous chemical products will be affected by the GHS. The changes are far-reaching and vast in nature.
 - GHS is having profound effects on chemical data management initiatives, both for companies that must author and publish material safety data sheets (MSDS) for their chemical products, as well as those companies that must manage MSDS and related chemical data for onsite chemical inventories.
 - As countries around the world continue to adopt the Globally Harmonized System of Hazard Communication (GHS), the question at the top of many lists is, "how will I apply the GHS at my facility?"
1. **Get Informed** – Find a good resource for gathering GHS related information and check it often.
 2. **Timeframes** – Be sure you are aware of implementation dates in your country as well as in the countries with which you do business.
 3. **Don't Go It Alone** – Make sure your product and service providers have a transition plan in place and are able to support you as you make the necessary changes.
 4. **SDS Management System** – Updates, Tracking and Agency hazard classifications, per country. Global, Multi-agency Indexing and Document Management.
 5. **Workplace Labels** - GHS labels may need to be created before an updated vendor SDS is available. How will you create such MSDS labels and classify it appropriately.
 6. **Product SDS Authoring and Distribution** – Be sure your authoring method will support GHS classification according to the various countries' requirements
 7. **Training Program** – Training will be a key component of your overall GHS approach and should incorporate information as it is introduced into the workplace.



Regulatory

- Haz Com 2012 Final Rule
- Haz Com Comparison: (1994 vs. 2012)
 - Side-by-side
 - Redline Strikeout of the Regulatory Text
- FAQs

Guidance

- OSHA Briefs
- Fact Sheet
- Quick Cards
 - Labeling
 - Safety Data Sheets
 - Pictograms
 - Effective Dates
- OSHA Guide to GHS
www.osha.gov/dsg/hazcom/ghs.html
- GHS documents (links to purple book)



- GHS text, UN papers and reports
www.unece.org/trans/danger/danger.htm
- OSHA GHS information
<http://www.osha.gov/dsg/hazcom/HCSFactsheet.html>
<http://www.osha.gov/dsg/hazcom/side-by-side.html>
<http://www.osha.gov/dsg/hazcom/ghs-final-rule.html>
- EPA GHS information
www.epa.gov/oppfead1/international/globalharmon.htm
- DOT GHS information
www.hazmat.dot.gov/regs/intl/globharm.htm
- Canada GHS information
http://www.hc-sc.gc.ca/ewh-semt/occup-travail/whmis-simdut/ghs-sgh/index_e.html
- www.ghsinformation.com





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