Instructor Guide
Globally Harmonized System for
Hazard Communication (GHS)
Awareness Level Training
MU221-15

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Globally Harmonized System
For Hazard Communication

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GHS Awareness Level Training for Emergency Responders
Instructor Guide

Topic: Understanding the OSHA HazCom Plan Changes

Level of Instruction: Online or Direct Delivery

Time Required: 3 hours

This course intended as a hand-off for instruction by local fire department officers to their agency.

Materials:

- Appropriate audiovisual devices
- Internet Connectivity
- Instructor Lesson Plan
- PowerPoint Program
- Student Activity Sheets
- ERG 2012

References:

Globally Harmonized System
For Hazard Communication

GHS AWARENESS LEVEL TRAINING

CURRICULUM OUTLINE

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<th>SUBJECT</th>
<th>RECOMMENDED TIME</th>
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<td>Globally Harmonized System – Hazard Communication 2012</td>
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<td>Emergency Response Guidebook 2012</td>
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<td>Activity Worksheet ERG 2012</td>
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<td><strong>TOTAL RECOMMENDED HOURS</strong></td>
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Note: Personnel attending should have a current understanding of the Emergency Response Guidebook including its format and use, placards, and NFPA 704 markings, but it is not a formal prerequisite.
PREPARATION:

Motivation:

Recent changes in OSHA’s Hazard Communication Standard brought the regulation in line with international standards through the creation of the Global Harmonizing System (GHS). Implementing the Global Harmonizing System, helps ensure quality and consistency in the classification and labeling of all chemicals; improving emergency responders ability to quickly understand critical safety information.

Student Performance Objective:

Upon completion, the student will be able to identify major changes in the Safety Data Sheet (formally Material Safety Data Sheet) format, identify Safety and Health Labeling requirements. Describe the new GHS Pictograms and Signal Words that identify the hazards associated with a given chemical, understand the basics of the new system for Hazard Classification. Be able to recognize employer requirements to prepare for and implement the new requirements according to the allotted timeframe. Understand the conflict between GHS and NFPA 704.

Overview:

The Globally Harmonized System (GHS): This awareness level course is introductory in nature and is designed to inform the student of recent changes to OSHA’s Hazard Communication Standard and the movement to establish a Globally Harmonized Hazard Communication System. Major changes to the Hazard Communication Standard covered by this course include Hazard Classification, Labels and Safety Data Sheets (SDS), as well as benefits of changes, impacts on transportation, documentation, and information for the emergency responder.
This training course has been developed directly from the GHS requirements as outlined in the updated OSHA Hazard Communication Standard and is intended to help emergency responders meet the basic training requirements for GHS of the new Standard.

Understanding the OSHA HazCom Plan Changes

- Upon completion, the student will be able to identify major changes in the Safety Data Sheet (formally Material Safety Data Sheet) format, identify Safety and Health Labeling requirements. Describe the new GHS Pictograms and Signal Words that identify the hazards associated with a given chemical, understand the basics of the new system for Hazard Classification. Be able to recognize employer requirements to prepare for and implement the new requirements according to the allotted timeframe. Understand the conflict between GHS and NFPA 704.

- The emergency responder will be able to identify the new GHS Pictograms and Signal Words, identifying them in a timely manner from a given chart.

- The emergency responder will describe the basics of the new system for Hazard Classification and the differences of the NFPA 704 system by completing a written list of differences.

- The emergency responder will list and identify the major changes in the Safety Data Sheet, through completion of assigned activities.
The emergency responder will identify the employer requirements for implementation and the timeframe required.

The emergency responder will demonstrate understanding of the changes to National Fire Protection (NFPA) 704, though practical application and the activity completion process.
I. Lesson Plan Components

A. Preparation
   1. Preparing to teach
      a. Become familiar with the information to be taught.
      b. Use material provided to meet performance objectives.
      c. Ensure you have enough materials, activity worksheets, ERG’s.
      d. Know your material discuss the slides don’t read them to your students.
      e. Know your audience, delivering this material to rookie firefighters might require a
different approach than to a veteran hazardous materials technician level response
team.
   2. Prepare the students to learn
      a. Motivation.
      b. Relate lesson to past experience with examples or references, do not get off into
war stories unless relevant to specifics of this class
      c. State and show objectives.
      d. Overview/main points.

B. Presentation
   1. Deliver instruction
      a. Present/explain new information.
      b. Demonstrate techniques.
      c. Provide for skills practice.
      d. Give assignments.
   2. Promote discussion
      a. Involve the class with discussion of their own response area and how it relates.
b. Ask questions.

3. Deliver in logical sequence
   a. Basic to complex steps.

4. Combine/vary teaching methods
   a. Accommodate various learning styles.

5. Summarize/review main points

C. Presentation

Globally Harmonized System Awareness Training

1. Slide: 1
   a. Number: 1
      i. This training session is designed to provide information to public response agencies concerning the changes in the MSDS system to the SDS system.
      ii. We will cover some of the basics concerning employees who work with hazardous chemicals and substances.
      iii. The dates we need to know concerning the changes and implementation schedule.
      iv. How it will affect us in response, and what we need to do for our own in station HazCom Plan.
      v. Employers are required to provide training to employees by December 1, 2013.

2. Slide: 2
   a. Course Paperwork at the start of the class
3. Slide: 3
   a. Course objectives.

4. Slide: 4
   a. Course objectives continues.
   b. Read slide for students to emphasis

5. Slide: 5
      i. Why the Changes to HazCom.
      ii. Who does it affect?
      iii. How it works.
      iv. What other standards are affected.
      v. Timeline for the changes.

6. Slide: 6
   a. So, why the change?
      i. Since 1992, the United Nations has been working to create and enhance a globally harmonized system for the classification and labeling of chemicals that can be used by importers, distributors, and manufacturers worldwide.
      ii. This has been an ongoing process and the new 2012 HazCom standard is based on the GHS revision 3 standard.
      iii. The goal is to provide a common and coherent approach to classifying chemicals.
      iv. How this will benefit employees and you as responders will be:
         1. Reduce confusion and increase understanding of the hazards.
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2. Have only one type of SDS – as opposed to the current different formats for MSDS.
3. Help address literacy problems particularly due to use of pictograms.

7. Slide: 7
   a. Manufacturers – Distributors – and Importers will face the biggest challenge due to a couple of factors:
      i. The change to SDS format and information.
      ii. The changes to container labeling and the requirements.
   b. Training Officers – both corporate and company officers within response agencies will have a responsibility to ensure that all employees are trained to the new standard effective December 1, 2013.
      i. This will include the new 16 section SDS format and the new labeling system which includes secondary containers.
   c. Employees will be affected in the fact they will need to recognize and understand hazards based on:
      i. Information in the new 16 section SDS format.
      ii. Pictograms on container labels and the format changes.
      iii. Precautionary and hazard statements.

8. Slide: 8
   a. The graph illustrates how the HazCom system is supposed to work.
      i. Talk through the graph to the class showing the relationships.

9. Slide: 9
   a. The language on some signs will also change.
   b. Other U.S. Agencies that are affected:
      i. The Department of Transportation (DOT)
1. DOT has already modified its requirements for classification and labeling to make them consistent with United Nations transport requirements and the new globally harmonized system.

ii. Environmental Protection Agency (EPA)

iii. Consumer Product Safety Commission (CPSC)
   1. Actively participated in developing the GHS.

   c. Other standards affected:
         1. Incorporates the current HCS definitions of flammable liquid and gas.
      ii. 1910.252 (Welding) standard.
         1. Requirements on labeling, welding, consumables to be consistent with GHS modifications to HCS.
         2. Amend paragraphs on flammable and combustible liquids to conform categories, terminology, flashpoints (FP), and boiling points to the GHS modifications to HCS.
      iii. 1910.106 (Flammable/Combustible Liquids) Standard.
         1. Incorporate the modified HCS definition of flammable aerosols into the Flammable and Combustible Liquids standard.
         2. Update the acceptable methods for determining flashpoints.

10. Slide: 10

   a. This chart was provided by Federal OSHA.
      i. Effective on or by June 1, 2015:
         1. All SDS must be completed and shipped/sent to users with the 1st order shipped on or after June 1, 2015.
2. Employers/users of chemicals review to ensure all SDS received on or after June 1, 2015 are in the new format.
   
   ii. Per OSHA, employers are not required to pursue getting new SDSs for products received before June 1, 2015.
       
       1. Unless they are aware of changes to the hazards in the product.
       2. Older products, material safety data sheets for the products must kept as long as the chemical is onsite/used - then archived as required.

11. Slide: 11 –continuation of above
   
   i. Vertical chemical specific standards with label requirements.
      
      1. Must be changed to harmonize with 1910.1200 HazCom.
      2. Effective on or by June 1, 2016
         
         a. Employer/user must have program updated.
         b. Include any additional training.
         c. Ensure label changes are completed.
   
   ii. Vertical chemical specific standards with signage requirements will be changing to harmonize with 1910.1200 HazCom.

12. Slide – title - Classifications

13. Slide 13
   
   a. We will discuss the three chemical classifications.
   b. The comparison of changes between the 1994 and 2012 HazCom standard.
   c. The new definitions and the terms or words that have been removed from the older standard.

14. Slide: 14
   
   a. Previously, chemical hazards were evaluated in a more subjective manner.
b. Now we will be using a “specification” approach rather than a “performance-oriented” approach and it will be:
   i. “Hazard classification” rather than “hazard determination”

c. Chemicals must now go through a specific, prescriptive classification process.
   i. This will determine which hazards are present.
   ii. Which hazard and precautionary statements apply.
   iii. This can be a lengthy process.
   iv. Appendix A can tell you more about the classification process.

15. Slide: 15
      i. Discuss the changes and comparisons.

16. Slide: 16
   a. Definitions for both Standards:
      i. HazCom 1994
      ii. HazCom 2012
   b. Talk about slide – the comparisons – and or the changes.
   c. Note that:
      i. “Some definitions are revised to be GHS-consistent”.
      ii. New definitions have been added for classification.

17. Slide: 17 - title - Labels Overview
   a. Hazard Classification
      i. Note the changes.
      ii. Discuss the comparisons.
   b. Section contains the new information concerning the changes to labels

18. Slide: 18
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a. Labels and other information that has now changed along with a comparison of both the old and new standard
   ii. Information comparison of HazCom 2012.

19. Slide: 19
a. Container labels and the requirements to meet the 2012 HazCom standard
   i. This is a provided example of the new label style.
      1. Beginning no later than June 1, 2015.
         a. A provided exception will be Dec. 1, 2015 for distributers who still have product in inventory after the June 1, 2015 deadline.
   ii. The type of required information is noted in blue on the label.
      1. Keep in mind the actual statements and information will vary depending on the specific health and physical classification of the product.

20. Slide: 20
a. Note there is a difference in how the shipping labels and the containers look
   i. The purpose of this is for quick and easy identification.
   b. Department of Transportation (DOT) requires that additional information be noted on shipping containers.
      i. See bottom right corner of the label for shipping.

21. Slide: 21 (content on two slides for viewing)
   a. Side by side view of each type of label
   b. Discuss the differences and what information we need or want in emergency response.
   c. One on the right is a container label – one on the left is shipping label.
22. Slide 22
   a. The Department of Transportation (DOT) and shipping labels
      i. DOT does not view the GHS pictograms as a conflict.
      ii. It is permissible to have the DOT and GHS pictogram for representing
           the same hazard.
   b. OSHA will not be enforcing the “shall not appear” requirement in Appendix C
      i. Appendix C - (C.2.3.3. states “where a pictogram is required by DOT
         under Title 49 of the Code of Federal Regulations (CFR) appears on a
         shipped container, the pictogram specified in C.4 for the same hazard,
         shall not appear.”

23. Slide: 23 and 24
   a. Department of Transportation (DOT) placards and signage
      i. This chart illustrates the placard system of markings.
         1. Very little if any real noticeable changes have taken place.
      ii. Signage however, as we previously discussed will have some changes.
         1. Remember the sign concerning “Lead” we looked at earlier.

24. Slide: 25
   a. Pictograms this is a new element of the 2012 HazCom Standard
   b. “Pictogram” means a composition that may include a symbol plus other graphic
      elements
      i. Examples include such items as:
         1. Borders.
         2. Background patterns.
         3. Color that is intended to convey specific information about the
            hazards of a chemical.
   c. There are 3 pictograms specific to health hazards:
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i. Exclamation.
ii. Health hazard (silhouette of a person with starburst on the chest).
iii. Skull and crossbones.

d. There is one pictogram that can represent both a physical and/or health hazard of corrosive.

e. There are four pictograms specific to physical hazards:
   i. Exploding bomb.
   ii. Flame.
   iii. Flame over circle (oxidizer)
   iv. Gas cylinder.

f. There is one for environment:
   i. Oxidizers are chemicals that can emit oxygen and increase the risk of fire.

25. Slide: 26

a. Boarders and the boarder colors
   i. Boarder colors are Red
   ii. Borders can also be the color back.

b. Red stands out more
   i. Remember no blank red diamonds.

c. OSHA proposed to require labels to be updated
   i. The period was to be within three months of getting new and significant information about the hazards.

   d. The final rule requires containers shipped six months after the information is available to be labeled accordingly.

26. Slide: 27
a. Signal words – this is another change and one that will help us as first responders for quick identification

b. In the past, there have been several signal words that may have been used to indicate a hazard.
   i. Words such as:
      1. Caution.
      2. Warning.
      3. Danger.

c. The GHS permits only the use of two signal words:
   i. Danger
   ii. Warning.

d. Only one of the signal words is permitted to appear on the label based on the classification of the chemical.

27. Slide: 28 Hazard Statement appears on the label
   i. Definition of Hazard Statement:
      1. "Hazard statement" means a 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.
   ii. Manufacturers, importers, and distributors use the classification system outlined in GHS.
      1. The purpose is to identify which statements must appear in the SDS and on the label found in Appendix C.
         a. Example: Fatal if swallowed (Acute Oral Toxicity).

28. Slide: 29
   a. Precautionary Statements
      i. Recommended measures related to:
1. Prevention.
2. Response.
3. Storage.
4. Disposal.
   a. Examples include things such as:
      1. Wear respiratory protection.
      2. Wash with soap and water.
      3. Store in a well ventilated place.

29. Slide: 30
   a. Product Identification in the 2012 HazCom Standard
      i. Definition of product identifier:
         1. "Product identifier" means the name or number used for a hazardous chemical on a label or in the SDS.
            a. It provides a unique means by which the user can identify the chemical.
            b. The product identifier used shall permit cross-references to be made among the list of hazardous chemicals required in the written hazard communication program, the label and the SDS.

30. Slide: 31
   a. This chart has all of the information we would need to know concerning labels
      i. Talk over the chart.

31. Slide: 32
   a. The OSHA quick card:
      i. You can find the cards with the ready to go information concerning labels.
ii. The cards are located at the OSHA website.

iii. The cards can be printed out as wallet cards.

32. Slide: 31

a. Secondary containment and the GHS vs. HazCom 2012 debate

33. Slide: 32

a. **Excerpt from the Hazard Communication Standard (f):**

i. (6) Workplace labeling. Except as provided in paragraphs (7) and (8) of this section.

   1. The employer shall ensure that each container of hazardous chemicals in the workplace is labeled, tagged or marked with **either:**

      a. (i) The information specified under paragraphs (1).

      b. (i) Through (v) of this section for labels on shipped containers.

   ii. **GHS Label or:**

   iii. (ii) Product identifier **and:**

      1. Words.

      2. Pictures.

      3. Symbols.

      4. Or combination thereof.

      a. Which provides 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.

1. Examples being.
   3. Or other label system.

34. Slide: 33 – title slide

35. Slide 34 Secondary containment defined

36. Slide 35
   a. Play the video – mention the importance and differences in the NFPA 704 and the HazCom 2012 rating scale
      i. The National Fire Protection Associations NFPA 704 will still be a viable system.
      ii. The HazCom 2012 rating will also be used.

37. Slide: 36
   a. The labeling of secondary containment and marking requirements
   b. This is covered by:
         1. The HMIS labeling system incorporates an “*” to inform employees of the presence of a chronic/target organ health effect.
         1. This labeling system does not incorporate chronic effects.
            a. However, this must be included on the NFPA labeled secondary containers.
1. Provided the product was noted on the original manufacturer container.
   1. The health hazard pictogram this would apply to is the (silhouette of a person with starburst on chest).

c. GHS vs. HMIS / NFPA 704
   i. NFPA & HMIS systems number “4” indicates a severe hazard.
   ii. Under the GHS HazCom standard, when a manufacturer, importer, distributor classifies a chemical, a category “4” is the least severe and a category “1” is the most severe.

d. GHS hazard category numbers may be noted in SDS;
   i. This is NOT required to be present on the container label.

e. ACA made modifications to HMIS ratings in 2001
   i. Reactivity was changed to a Physical Hazard and the defined ranges were modified.
      1. System is still:
         a. 0 = least hazard.
         b. 4 = greatest hazard.

1. More information available at
   www.paint.org/programs/hmis.html

38. Slide: 37 and 38
   a. This chart is provided to show a comparison between NFPA 704 and HazCom 2012
      i. Discuss the chart
         1. Point out the most import part, which is the rating scale.
            a. NFPA 704.
1. 0 = Least Hazardous.
2. 4 = Most Hazardous.

b. HazCom 2012.
   1. 1 = Most sever.
   2. 4 = Least sever.

   1. The required numbers are not required on labels.
   2. The numbers are required on the SDS.

   a. In Section Two.

a. Safety Data Sheets formerly known as Material Safety Data Sheets
   i. SDS went under a large format change.
      1. This however is a change for the better as now all SDS will be the same.
      2. Information will be in the same format regardless of product or country of origin.

40. Slide: 40
a. This is a brief that was produced by the Occupational Health and Safety Administration (OSHA)

b. What this is telling us is that manufacturers, importers and distributors may begin using the new 16-section format SDS (follows the ANSI standard) during the transition from the 1994 HazCom standard and the final 2012 HazCom standard but no later than June 1, 2015.

   i. They are required to provide a revised copy of the MSDS/SDS to the employer anytime changes are made to the product.
c. Employers are required to maintain copies of all SDSs for the chemicals used and/or stored within the work area.
   i. They should have a system to ensure all SDSs are present/accounted for.
   ii. Periodically check for the most current SDS (usually based on revision date) when received from a manufacturer, importer or distributor.
d. The most current SDS needs to be displayed or placed into the accessible HazCom location.
   i. Old or replaced MSDS should be archived prior to the new SDSs.
   ii. SDSs are to be accessible/available to employees.
   iii. Regular updates are required.
e. As stated previously, if a manufacturer is no longer in business, material safety data sheets for the product must kept as long as chemical is onsite/used then archived as required.

41. Slide: 41
   a. Section one of the SDS is **Identification**
      i. **Appendix D** provides additional requirements for the information to be included under each section heading.
      ii. **Section 1** requires restriction(s) on use.

42. Slide: 42
   a. Section two of the SDS is **Hazard(s) Identification**
      i. **Section 2** requires:
         1. Classification a Signal word.
         2. Symbols.
         3. Hazard and precautionary statements.
         4. Hazards not otherwise classified.
5. Unknown toxicity statements when 1% or more of the components has unknown toxicity.
   a. “X percent of the mixture consists of ingredients of unknown toxicity.”

43. Slide: 43
   a. Section three requires *Composition / Information on Ingredients*
      i. **Section 3** requires:
         1. Ingredient information.
         2. Substances.
         3. Mixtures
         4. Use of concentration ranges if the product is listed as a trade secret.

44. Slide: 44
   a. Section four is *First Aid*
      i. **Section 4** requires:
         1. To be designed for the untrained responder to provide care until medical care arrives.
   b. Section five is *Fire Fighting Measures*
      i. **Section 5** requires:
         1. Recommendations of suitable extinguishing equipment.
         2. Information about extinguishing equipment that is not appropriate for a particular situation.
         3. Advice on specific hazards that develop from the chemical during the fire.
            a. Any hazardous combustion products created when the chemical burns.
ii. Recommendations on special protective equipment or precautions for firefighters.

45. Slide: 45

a. Section six is *Accidental Release Measures*

i. **Section 6** requires:

1. Use of personal precautions.
2. Such as removal of ignition sources.
3. Providing sufficient ventilation.
4. Protective equipment.
   a. To prevent the contamination of:
      1. Skin.
      2. Eyes.
      3. Clothing.

5. Emergency procedures, including instructions for
   a. Evacuations.
   b. Consulting experts when needed.
   c. Appropriate protective clothing.

6. Methods and materials used for containment.
7. Covering the drains and capping procedures.
8. Cleanup procedures.
   a. Appropriate techniques for Neutralization.
      1. Contamination.
      2. Cleaning.
      3. Vacuuming.
      5. Equipment required for containment/clean up.
46. Slide: 46
a. Section seven *Handling and Storage*
   i. The required information in section seven consists of:
      1. Precautions for safe handling.
         a. Including recommendations for handling incompatible chemicals.
      2. Minimizing the release of the chemical into the environment.
      3. Providing advice on general hygiene practices such as:
         a. Eating.
         b. Drinking.
         c. Smoking in work areas is also prohibited.
   ii. Recommendations on the conditions for safe storage.
      1. Including any incompatibilities.
      2. Providing advice on specific storage requirements.

b. Section eight consists of *Exposure Controls and Personal Protection*
   i. The required information consists of:
      1. OSHA Permissible Exposure Limits (PELs).
      2. American Conference of Governmental Industrial Hygienists (ACGIH) threshold Limit Values (TLVs).
      3. Any other exposure limit used or recommended by the:
         a. Chemical manufacturer.
         b. Importer.
         c. Employer preparing the safety data sheet.
   ii. Appropriate engineering controls such as:
      1. Local exhaust ventilation.
iii. Recommendations for personal protective measures to prevent illness or injury from exposure to chemicals, such as personal protective equipment (PPE).

1. Appropriate types of:
   a. Eye.
   b. Face.
   c. Skin.
   d. Respiratory protection needed based on hazards.
   e. Potential exposure.

iv. Any special requirements for PPE, protective clothing or respirators (e.g., type of glove material, such as PVC or nitrile rubber gloves; and breakthrough time of the glove material).

47. Slide: 47

a. Section nine includes *Physical and Chemical Properties*
   i. The SDS may not contain every item on the above list because information may not be relevant or is not available.
   ii. When this occurs, a notation to that effect must be made for that chemical property.
   iii. Manufacturers may also add other relevant properties.
      1. Such as the dust deflagration index (Kst) for combustible dust, used to evaluate a dust’s explosive potential.

48. Slide: 48

a. Section ten consists of *Stability and Reactivity*
   i. The required information consists of:
   ii. *Reactivity*
      1. Description of the specific test data for the chemical(s).
a. This data can be for a class or family of the chemical if such data adequately represents the anticipated hazard of the chemical(s).

iii. Chemical stability

1. Indication of whether the chemical is stable or unstable under normal ambient temperature and conditions while in storage and being handled.
2. Description of any stabilizers that may be needed to maintain chemical stability.
3. Indication of any safety issues that may arise should the product change in physical appearance.

iv. Other

1. Indication of the possibility of hazardous reactions, including a statement whether the chemical will react or polymerize, which could release excess pressure or heat, or create other hazardous conditions.
2. Also, a description of the conditions under which hazardous reactions may occur.
3. List of all conditions that should be avoided such as:
   a. Static discharge.
   b. Shock.
   c. Vibrations.
   d. Environmental conditions that may lead to hazardous conditions.
4. List of all classes of incompatible materials such as:
   a. Classes of chemicals or specific substances.
1. Which the chemical could react to produce a hazardous situation.

5. List of any known or anticipated hazardous decomposition products that could be produced because of:
   a. Use.
   b. Storage.
   c. Heating.

1. Hazardous combustion products should also be included in Section 5 (Fire-Fighting Measures) of the SDS.

49. Slide: 49
   a. Section eleven consists of *Toxicology Information*
      i. The required information consists of:
         1. Information on the likely routes of exposure such as:
            a. Inhalation.
            b. Ingestion.
            c. Skin contact.
            d. Eye contact.
      ii. The SDS should indicate if the information is unknown.
      iii. Description of the delayed, immediate, or chronic effects from short- and long-term exposure.
      iv. The numerical measures of toxicity (e.g., acute toxicity estimates such as the LD50 (median lethal dose)) - the estimated amount [of a substance] expected to kill 50% of test animals in a single dose.
      v. Description of the symptoms.
1. This description includes the symptoms associated with exposure
to the chemical including symptoms from the lowest to the most
severe exposure.

vi. Indication of whether the chemical is listed in the National Toxicology
Program (NTP) Report on Carcinogens (latest edition) or has been found
to be a potential carcinogen in the International Agency for Research on
Cancer (IARC) Monographs (latest editions) or found to be a potential
carcinogen by OSHA.

50. Slide: 50

a. Section twelve consists of Ecological Information (non-mandatory)

i. Non-mandatory is the key to this whole area, the majority of the time
responsible manufacturers will complete this section.

ii. To be GHS-compliant, the requirements for this section would be:

1. Eco-toxicity both:
   a. Aquatic
   b. Terrestrial where available.

2. Persistence.

3. Degradability.

4. Bioaccumulative potential.

5. Mobility in soil.

6. Any other adverse effects.

51. Slide 51

a. Section thirteen consists of Disposal Considerations (non-mandatory)

i. To be GHS compliant, this section is provided, but compliance is outside
OSHA jurisdiction.
1. However, OSHA may enforce provisions associated with safe handling and use, including appropriate hygienic practices.
   
   ii. Description of waste residues.
   
   iii. Information on their safe handling.
   
   iv. Methods of disposal.
   
   v. Disposal of any contaminated packaging.
   
   vi. Again, keep in mind this is a non-mandatory section.

52. Slide: 52

   a. Section fourteen consists of Transport Information (non-mandatory)

   i. To be GHS compliant, this section is provided, but compliance is outside OSHA jurisdiction.

   1. The required transport information however should include:

   a. UN number.
   
   b. UN proper shipping name.
   
   c. Transport hazard classes.
   
   d. Packing group, if applicable

   2. Environmental hazards such as marine pollutant (yes/no)

   3. Transport in bulk (per Annex II of MARPOL 73/78 and IBC Code).

   4. Special precautions which a user needs to be aware of or needs to comply with, in connection with transport or conveyance either within or outside their premises.

53. Slide: 53

   a. Section fifteen consists of Regulatory Information (non-mandatory)

   i. To be GHS compliant, this section is provided, but compliance is outside OSHA jurisdiction.
1. Things that might be included in this section consist of:
   a. Safety.
   b. Health.
   c. Environmental regulations specific to product.

b. Section sixteen consists of Other Information
   i. New requirements to the SDS include this section which is used for:
      1. Date of preparation of SDS.
      2. The last revision date of the SDS.
      3. Any additional information desired to be included that has no specific location in the other sections.

54. Slide: 54
   a. Employer Responsibilities
      i. Discussion of the employer’s responsibilities in a wrap up of the presentation.

55. Slide: 55
   a. Summary
      i. The student should now have better insight into the program changes.
      ii. Methods to research material hazards.
      iii. An understanding for a safer workplace.
      iv. The changes to 2012 HazCom which includes:
         1. MSDS to SDS.
         2. Completing, reading and understanding the SDS.
         3. Labeling requirements.
         5. The differences between HazCom 2012 and NFPA 704.
Globally Harmonized System
For Hazard Communication

a. References
   i. Occupational Safety and Health (OSHA) 29 CFR 1910.1200(g) and Appendix D.
   iv. Department of Transportation (DOT).
   v. Environmental Protection Agency (EPA).
Summary:

Review:

Remotivation:

Assignment:

EVALUATION: