HAZARD COMMUNICATION- MODULE 2

Globally Harmonized System (GHS)

ATALIAN
GLOBAL SERVICES

This is the second of two required modules on this topic. During the modules you will answer Quick Quizzes to help you review and test your understanding; these are not scored.

There is also a short quiz at the end of each module, which will be scored. It is necessary to pass with a score of 80% or better to receive credit for these two modules.

This module will take 20 minutes to complete.

This second module of Hazard Communication will cover:

1. Permissible Exposure Limits (PELS).
2. Pictograms and Hazards
3. Container Labeling
4. Safety Data Sheets

Understanding Exposure Limits

- Chemical exposure limits are written using **units of measurement** and **periods of time.** PELs are typically expressed as a time weighted average (TWA). This is the average exposure over a defined time period, i.e., eight hours.
- The practical application of PELs is that they help to determine how long an employee may be exposed, provided that the average concentration over the course of eight hours does not exceed the TWA.
- There are also short term, ceiling and peak exposure limits that must be referenced in your hazard assessment and not exceeded.
- Based on the chemical hazard, PELs may apply to concentrations in the air or on the skin.

Units of exposure time:

- **Eight-hour time-weighted average (TWA):** Exposures throughout the work day should not exceed this value.
- **15-minute short term exposure limit (STEL):** Exposures during 15 minutes must not exceed this value.
- **Ceiling limit (c):** Exposures must never exceed this value.

Pictured here is a device that can be used to measure the concentration of a chemical in the workplace.

Routes of Chemical Exposure

Routes of exposure:

- **Breathing (inhalation)**

- **Contact with skin (dermal absorption)**

- **Swallowing (ingestion)**

- **Puncture (injection)**

ATALIAN
GLOBAL SERVICES

The use of pictograms is new under GHS. Comprehension of labels and development of the pictograms took into account the different philosophies and languages from around the world and the ability to understand and respond appropriately to the symbols or pictograms.

- GHS developed a series of nine pictograms for use in labeling.
- It is expected that **all** existing hazard communication programs will need to be changed in some way to comply with GHS in this area.
- The pictograms will convey any health, physical and environmental hazards that are assigned to a GHS category.
- Pictograms are used on both labels and Safety Data Sheets.

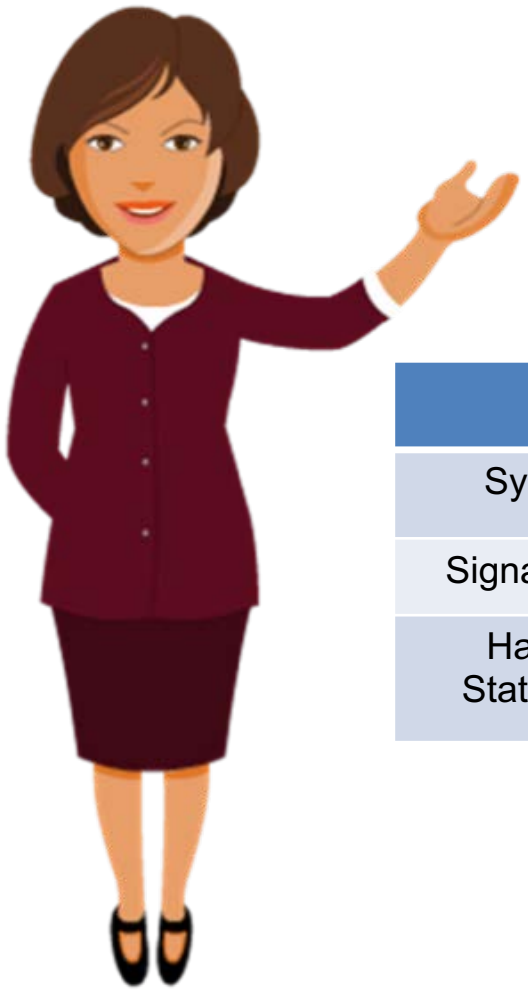
GHS has defined some principles of hierarchy for the symbols if there is more than one hazard. It is up to the manufacturer to follow this defined hierarchy. All assigned hazard statements must appear on labeling. The appropriate authority can determine the order of appearance.

Now let's discuss these pictograms and the hazards they represent.

The health hazard symbol may mean:

- Carcinogens.
- Mutagenicity.
- Reproductive toxicity.
- Respiratory sensitizers.
- Target organ toxicity.
- Aspiration toxicity.

Health Hazard Symbol



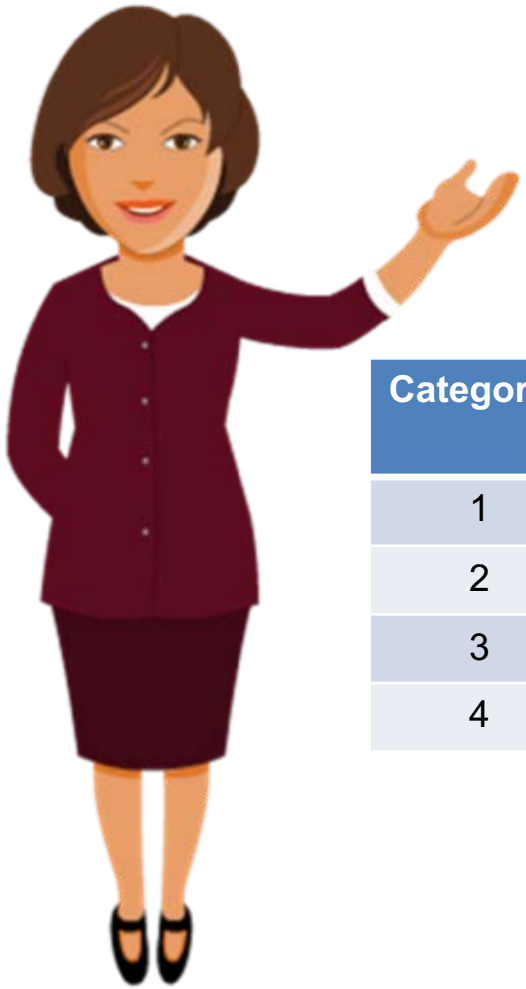
These are the hazard categories for the health hazard symbol. As you can see, category two means that the hazard is less severe than a category one. Therefore, the signal word ‘warning’ is used instead of ‘danger’.

	Category 1A	Category 1B	Category 2
Symbol	Health Hazard	Health Hazard	Health Hazard
Signal Word	Danger	Danger	Warning
Hazard Statement	May cause cancer	May cause cancer	Suspected of causing cancer

The flame symbol may mean:

- Flammables.
- Pyrophorics.
- Self-heating chemicals.
- Chemicals that emit flammable gas.
- Self-reactive chemicals.
- Organic peroxides.

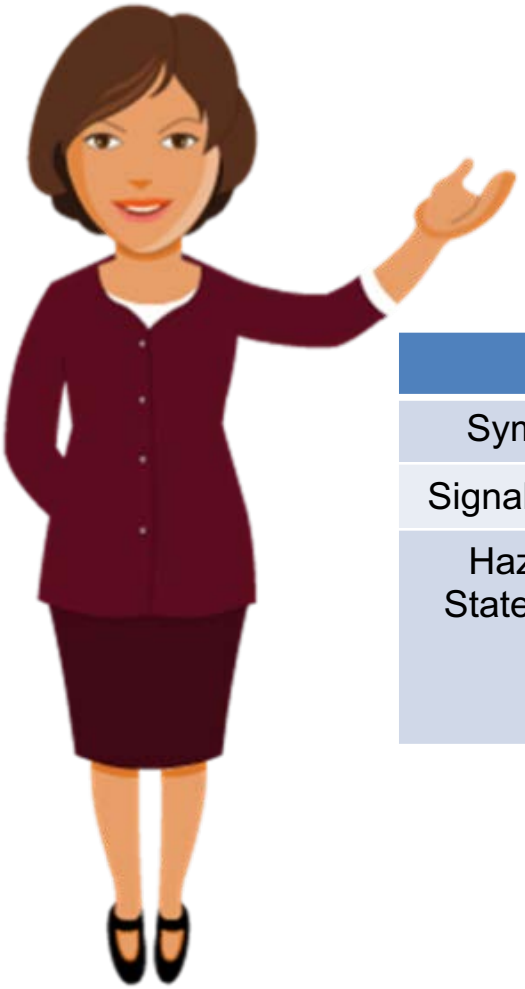
An example of the flame symbol is xylene, a common component of paint remover and solvent used in many workplaces. It is a flammable liquid that also creates a flammable vapor.



Criteria for Flammable Liquids:

Here is the criteria for determining which hazard category applies to flammable liquids.

Category	Criteria
1	Flash Point <73 ° F and initial Boiling Point ≤ 95° F
2	Flash Point <73 ° F and initial Boiling Point > 95° F
3	Flash Point >73 ° F and ≤ 140° F
4	Flash Point >140 ° F and ≤ 200° F (Combustible)



The symbols, signal words, and hazard statements have all been standardized (harmonized) and assigned to specific hazard categories and classes, as appropriate.

	Category 1	Category 2	Category 3	Category 4
Symbol	Flame	Flame	Flame	No Symbol
Signal Word	Danger	Danger	Warning	Warning
Hazard Statement	Extremely flammable liquid and vapor	Highly flammable liquid and vapor	Flammable liquid and vapor	Combustible liquid

The exclamation mark may mean:

- Irritants, such as skin or eye irritants.
- Skin sensitizers.
- Acute toxicity.
- Narcotic effects.
- Respiratory tract irritants.
- Chemicals hazardous to the ozone layer. (This is a non-mandatory category.) Acetone, a solvent used in various applications including women's cosmetics, is an eye, nose and throat irritant.

This is the gas cylinder symbol which refers to gases that are under pressure.

An example of a chemical stored this way is nitrogen gas, which is used as a shield gas in gas metal arc welding.

The corrosive symbol may mean:

- Skin corrosion or burns.
- Eye damage.
- Corrosion to metals.

An example of a corrosive chemical is sodium hypochlorite, a common household bleach; it is corrosive to stainless steel.

The flame over circle symbol means Oxidizers.

An example of an oxidizer is sodium nitrate, which is a component of some fertilizers and occasionally used as a food preservative.

The exploding bomb symbol may mean:

- Explosives.
- Self–reactives.
- Organic peroxides.

Ammonium nitrate, used as a fertilizer, is an example of a chemical with an explosive hazard.

The skull and crossbones represent a hazard of acute toxicity, which can be fatal or toxic.

An example of a chemical with acute toxicity is hydrogen sulfide, a natural occurring gas in the earth. It is toxic if inhaled at high concentrations.

The environment symbol means Aquatic toxicity.

It is not enforceable by OSHA, however it is enforced by US/State EPA

Polybrominated diphenyl ether (PBDE), a liquid flame retardant, is an example of aquatic toxicants.

PBDE are shown to accumulate in fish fat and cause development issues in marine life

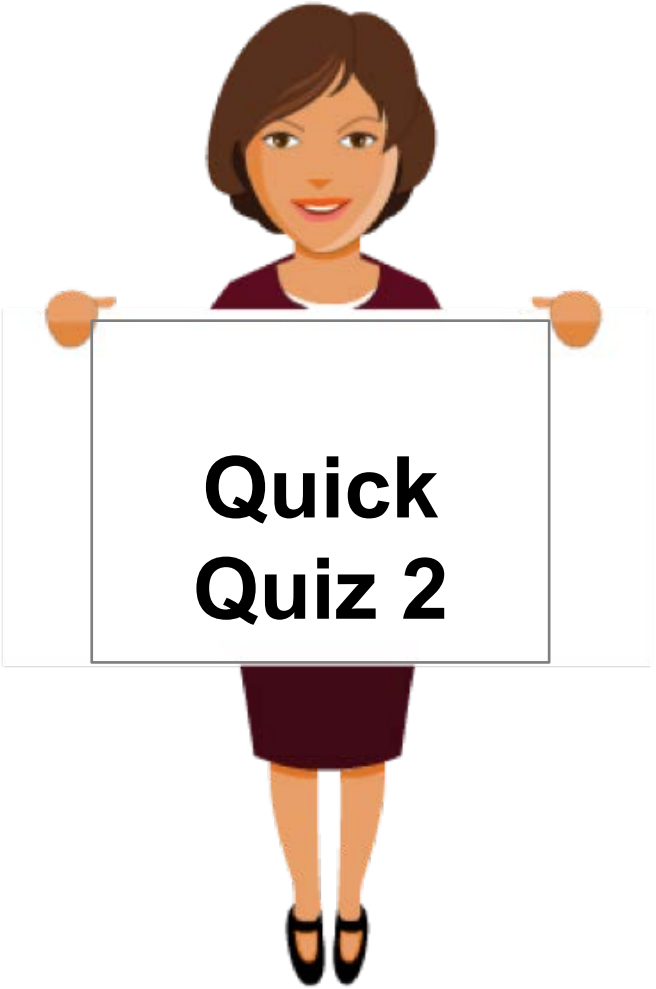
NFPA Diamond label

NFPA 704, *Identification of the Hazards of Materials for Emergency Response* – which uses a combination of color coding and numbers to describe a hazard's severity – provides a simple, readily recognized, and easily understood label designed to assist those who are responding to an emergency such as a fire or spill.

Purpose	Typical Label Location	NFPA Label Example	Numbering System	Label Information
Provides basic information for emergency personnel responding to a fire or spill and those planning for emergency response.	Outside buildings, on doors, on tanks, visible to emergency responders during spill or fire		0-4 0-least hazardous 4-most hazardous	•Health-Blue •Flammability-Red •Instability-Yellow •Special Hazards*-White * *OX Oxidizers* *W Water Reactives* *SA Simple Asphyxiants*

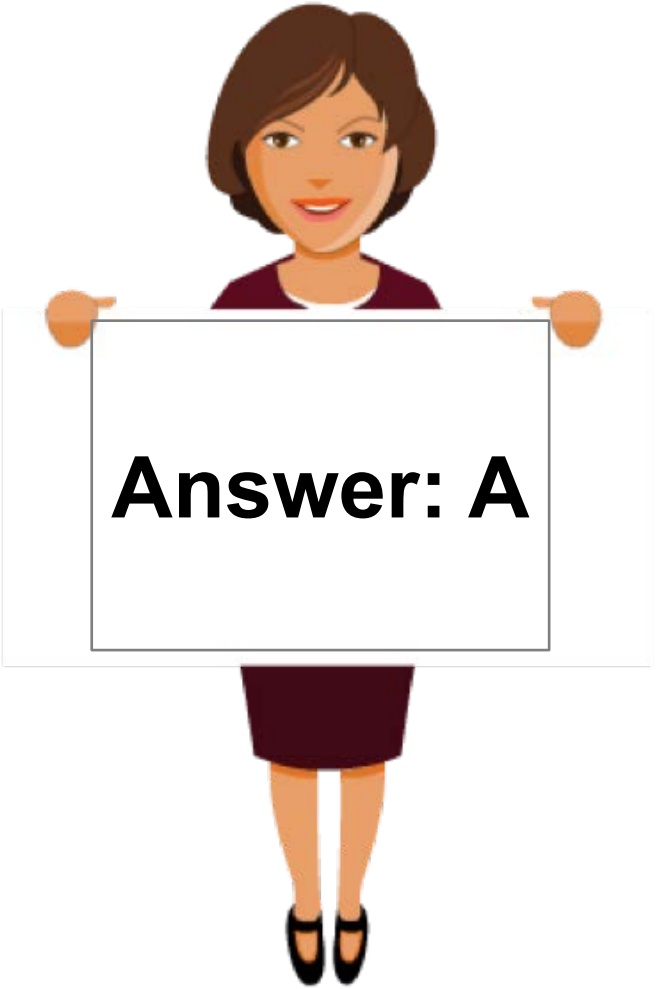
The hazard category “**Warning**” is less severe than “**Danger**”

A. True
B. False



The hazard category “**Warning”** is less severe than “**Danger”**

A. **True**
B. False



Container Labeling

Although GHS does not specify an actual label format, individual countries may do so. GHS does stipulate that the hazard pictogram, signal word and hazard statements be located together on the label.

As of June 1, 2015 all labels of hazardous chemicals must contain the following information:

- Product identifiers: A unique name or number used for a hazardous chemical that can be cross-referenced between the label, SDS and written hazard communication program.
- Supplier identification: The name, address and telephone number of the responsible party.

Xcelenté®
Multi Purpose Cleaner
USER PREPARED SOLUTION
Diluted at 1:43 (or greater) in water

HMIS HAZARD RATING:
Health = 1, Flammability = 0, Physical Hazards = 0
INGREDIENTS: See original label or Safety Data Sheet.
Personal Protective Equipment (PPE) Recommendations:
None required with expected use.
Follow the directions for use on the original container label.
Read Safety Data Sheet before use.

GHS Classification: Not classified as hazardous by 29 CFR 1910.1200 (OSHA HazCom-GHS)
FIRST AID:
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses. If present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.
IF ON SKIN: Wash with soap and water. If skin irritation occurs: Get medical attention.
IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a poison control center or physician if you feel unwell.
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention if you feel unwell.
Specific Treatment: See Safety Summary Sheet Section 4: "First Aid Measures" for additional information.
Other Information: May be harmful if swallowed. May cause eye irritation. May cause skin irritation. Inhalation of vapors or mist may cause respiratory irritation. Keep out of reach of children.
MEDICAL EMERGENCY: 888-314-6171

Xcelenté®
Limpiador Multi-Uso
SOLUCIÓN USUARIO PREPARADO
Diluido a 1:43 (o mayor) en agua

ÍNDICE DE PELIGROS HMIS:
Salud = 1, Inflamabilidad = 0, Riesgos Físicos = 0
INGREDIENTES: Consulte la etiqueta original o la Hoja de Seguridad.
Recomendaciones para Equipo de Protección Personal (PPE): Ninguno se requiere con el uso esperado.
Siga las instrucciones de uso en la etiqueta del envase original.
Lea la Hoja de datos de seguridad antes de su uso.

Clasificación GHS: No clasificado como peligroso según 29 CFR 1910.1200 (OSHA-GHS HazCom)
PRIMEROS AUXILIOS:
SI ENTRA EN CONTACTO CON LOS OJOS: Enjuáguese cuidadosamente con agua durante varios minutos. Quítese las lentes de contacto, si las tiene puestas y es fácil hacerlo. Siga enjuagándose. Si la irritación en los ojos persiste: Busque atención médicos.
SI ENTRA EN CONTACTO CON LA PIEL: Lave con agua y jabón. Si se irrita la piel: Busque atención médicos.
SI SE INHALA: Traslade a la víctima para que respire aire fresco en una posición cómoda. Llame a un centro de envenenamiento o a un médico si no se siente bien.
SI SE INGIERE: Enjuáguese la boca. NO induzca el vómito. Nunca le dé algo por boca a una persona inconsciente. Busque atención médica si no se siente bien.
Tratamiento Específico: Ver Hoja Resumen de Seguridad Sección 4 "Primeros Auxilios" para obtener información adicional.
Información Adicional: Puede ser nocivo si es tragado. Puede causar irritación en los ojos. Puede causar irritación de la piel. La inhalación de los vapores o la niebla puede causar irritación a las vías respiratorias. Mantenga lejos del alcance de los niños. **EMERGENCIA MÉDICA: 888-314-6171**

Xcelenté®
Multi-Usages Nettoyant
SOLUTION DE L'UTILISATEUR PRÉPARÉ
Diluée à 1 : 43 (ou plus) dans l'eau

ÉVALUATION DES RISQUES HMIS :
Santé = 1, Feu = 0, Risques Physiques = 0
INGREDIENTS : Voir l'étiquette d'origine ou de la fiche de données de sécurité.
Recommandations pour l'utilisation d'équipement de Protection Individuelle (PPE) : Aucun requis avec l'utilisation prévue.
Suivre les indications pour l'utilisation sur l'étiquette du contenant d'origine.
Lire la fiche de données de sécurité avant utilisation.

Classification SGH : Non classifié comme dangereux par la norme 29 CFR 1910.1200 (OSHA HazCom-SGH)
PREMIERS SOINS :
EN CAS DE CONTACT AVEC LES YEUX : Rincer avec précaution à l'eau pendant plusieurs minutes. Retirer les lentilles de contact, si cela est facile à faire. Continuer à rincer. Si l'irritation oculaire persiste : Obtenir une aide médicale.
EN CAS DE CONTACT AVEC LA PEAU: Laver à l'eau savonneuse. En cas d'irritation de la peau: Obtenir une aide médicale.
EN CAS D'INHALATION : Transporter la victime à l'extérieur et la maintenir au repos dans une position où elle peut confortablement respirer. Appeler un centre antipoison ou un médecin si vous vous sentez mal.
EN CAS D'INGESTION : Rincer la bouche. NE PAS causer le vomissement. Ne jamais donner ce produit par voie orale à une personne inconsciente. En cas de malaise, demander un avis médical.
Traitement Spécifique : Voir la Sécurité Fiche de Récapitulative Section 4: "Premiers Secours" pour des informations supplémentaires.
Autres informations : Peut être nocif par ingestion. Peut provoquer une irritation des yeux. Peut causer une irritation de la peau. L'inhalation de vapeurs ou de brouillards peut provoquer une irritation des voies respiratoires. Conserver hors de la portée des enfants. **URGENCE MÉDICALE : 888-314-6171**

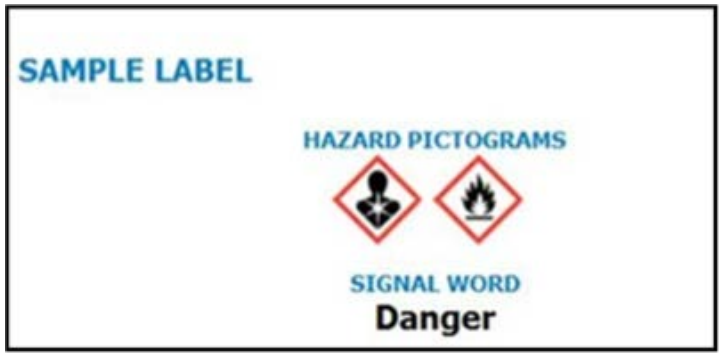
The concentrate of this product meets the Green Seal™ GS-37 standard for industrial and institutional cleaners.
Le concentré de ce produit satisfait à la norme GS-37 Green Seal™ pour les nettoyants industriels et institutionnels.
El concentrado de este producto cumple con la norma GS-37 de Green Seal™ para los limpiadores industriales e institucionales.

SPARTAN CHEMICAL COMPANY, INC., 1110 Spartan Drive, Maumee, OH 43537 USA / 1-800-537-8990 / www.spartanchemical.com #960019 © SCC 9/18

Labels (continued)

- Signal words: Used to indicate the severity of the hazard, the signal words are “danger” or “warning.” Danger is for more severe hazards.
- Pictograms: These are symbols that indicate the hazard of the material.

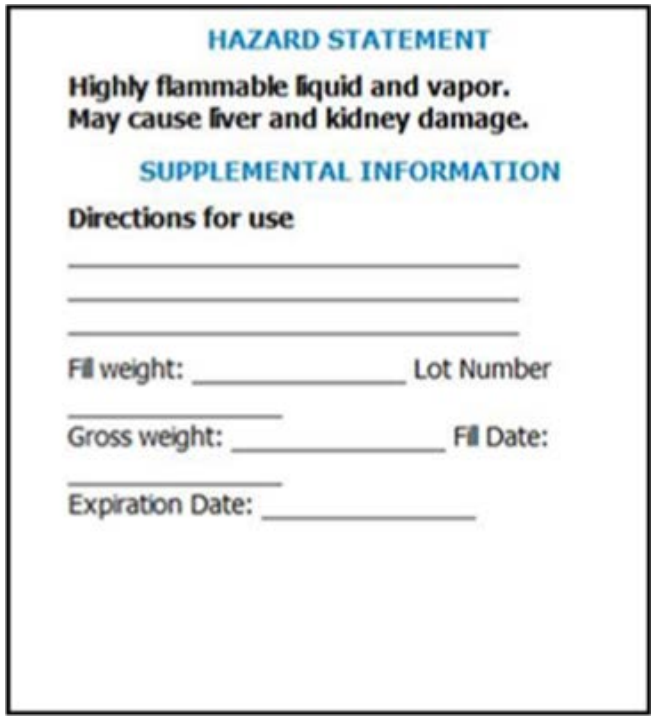
If a chemical has two hazard classifications and one indicates that “Danger” should be on the label while the other indicates “Warning,” then only “Danger” will appear.



Labels (continued)

- Hazard statements: Assigned statements that describe the hazard's nature and its degree of severity. For example:
  - "Fatal if swallowed."
  - "Harmful if inhaled."
  - "Toxic in contact with skin.

All hazard statements must appear. They can be combined where appropriate to reduce the information on the label and make them easier to read as long as all the hazards are conveyed



The specified hazard statements are found in Appendix C

Labels (continued)

- Precautionary statements: Phrases describing recommended methods to avoid adverse effects. There are only four types:
  - Prevention
  - Response
  - Storage
  - Disposal

The manufacturer determines what is included in each precautionary statement. Certain text is required, but in some cases the manufacturer can choose the most appropriate statement.

PRECAUTIONARY STATEMENTS

Keep container tightly closed. Store in cool, well ventilated place that is locked.
Keep away from heat/sparks/open flame. No smoking.
Only use non-sparking tools.
Use explosion-proof electrical equipment.
Take precautionary measure against static discharge.
Ground and bond container and receiving equipment.
Do not breathe vapors.
Wear Protective gloves.
Do not eat, drink or smoke when using this product.
Wash hands thoroughly after handling.
Dispose of in accordance with local, regional, national, international regulations as specified.

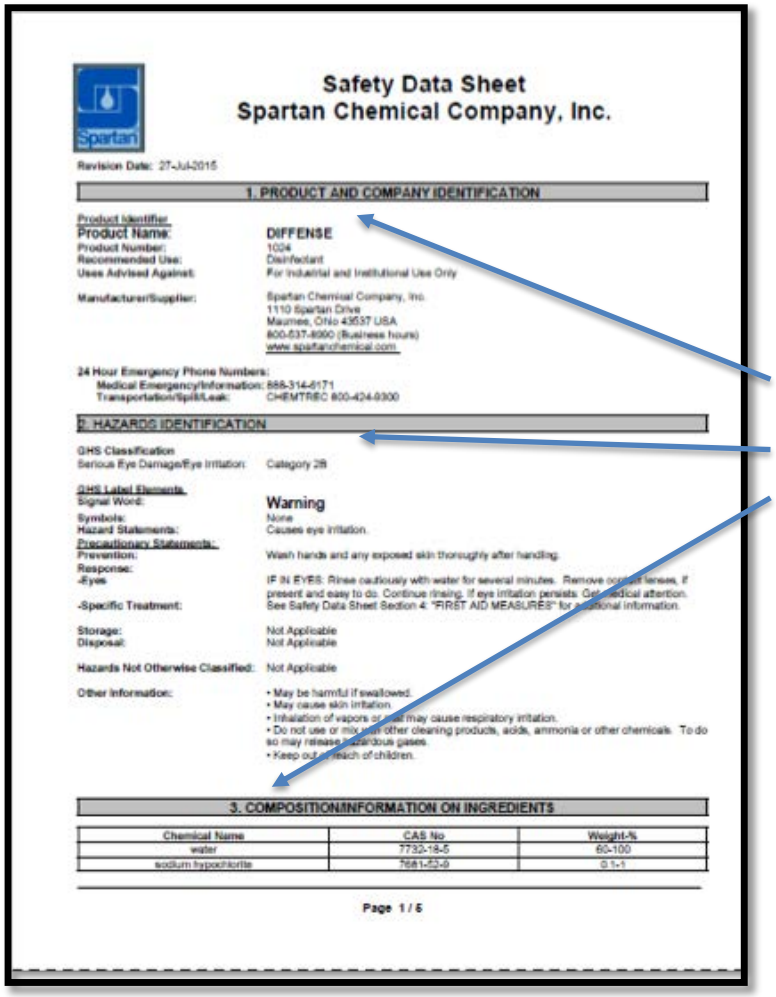
In Case of Fire: use dry chemical (BC) or Carbon dioxide (CO_2) fire extinguisher to extinguish.

First Aid
If exposed call Poison Center.
If on skin (on hair): Take off immediately any contaminated clothing. Rinse skin with water.

The specified hazard statements are found in Appendix C

A Safety Data Sheet (SDS) lists the characteristics of a particular substance:

- Understanding the hazards of the materials you are working with can help you protect yourself against them.
- A SDS must be on file and readily available for each substance listed in the hazardous materials inventory section of the hazard communication program. .
- In the United States, OSHA requires that SDSs be in English although additional languages can be added.



Safety Data Sheet
Spartan Chemical Company, Inc.

Revision Date: 27-Jul-2015

1. PRODUCT AND COMPANY IDENTIFICATION

Product Identifier
Product Name: DIFFENSE
Product Number: 1004
Recommended Use: Disinfectant
Uses Advised Against: For Industrial and Institutional Use Only

Manufacturer/Supplier: Spartan Chemical Company, Inc.
1110 Spartan Drive
Maumee, Ohio 43537 USA
800-537-8990 (Business hours)
www.spartanchemical.com

24 Hour Emergency Phone Numbers:
Medical Emergency/Information: 888-314-6171
Transportation/Spill/Leak: CHEMTREC 800-424-9300

2. HAZARDS IDENTIFICATION

GHS Classification
Serious Eye Damage/Eye Irritation: Category 2B

GHS Label Elements
Signal Word: Warning
Symbols: None
Hazard Statements: Causes eye irritation.
Precautionary Statements:
Prevention: Wash hands and any exposed skin thoroughly after handling.
Response:
-Eyes: IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical attention.
-Specific Treatment: See Safety Data Sheet Section 4: "FIRST AID MEASURES" for additional information.

Storage: Not Applicable
Disposal: Not Applicable

Hazards Not Otherwise Classified: Not Applicable

Other Information:
- May be harmful if swallowed.
- May cause skin irritation.
- Inhalation of vapors or mist may cause respiratory irritation.
- Do not use or mix with other cleaning products, acids, ammonia or other chemicals. To do so may release hazardous gases.
- Keep out of reach of children.

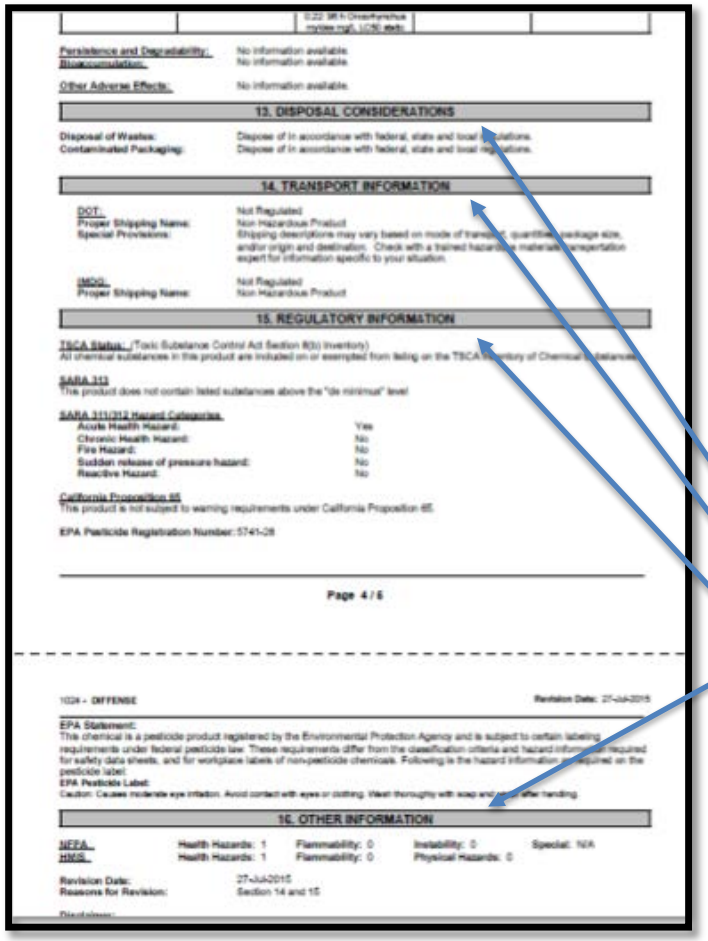
3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS No	Weight-%
water	7732-18-5	60-100
sodium hypochlorite	7681-52-9	0.1-1

Page 1 / 6

To align with the Global Harmonization System, SDSs must have these 16 headings in this order. If there is no pertinent information in the category, it must be marked that no applicable information was found.

1. Identification
2. Hazard(s) identification
3. Composition and information on ingredients
4. First-aid measures
5. Fire-fighting measures
6. Accidental release measures
7. Handling and storage
8. Exposure controls and personal protection



Persistence and Degradability: No information available.
Bioaccumulation: No information available.
Other Adverse Effects: No information available.

13. DISPOSAL CONSIDERATIONS

Disposal of Wastes: Dispose of in accordance with federal, state and local regulations.
Contaminated Packaging: Dispose of in accordance with federal, state and local regulations.

14. TRANSPORT INFORMATION

DOT:
Proper Shipping Name: Not Regulated
Special Provisions: Non Hazardous Product
Shipping descriptions may vary based on mode of transport, quantities, package size, and/or origin and destination. Check with a trained hazardous materials transportation expert for information specific to your situation.

IMDG:
Proper Shipping Name: Not Regulated
Non Hazardous Product

15. REGULATORY INFORMATION

TSCA Status: (Toxic Substance Control Act Section 8(b) Inventory)
All chemical substances in this product are included on or exempted from listing on the TSCA Inventory of Chemical Substances.

SARA 313
This product does not contain listed substances above the "de minimus" level

SARA 311/312 Hazard Categories
Acute Health Hazard: Yes
Chronic Health Hazard: No
Fire Hazard: No
Sudden release of pressure hazard: No
Reactive Hazard: No

California Proposition 65
This product is not subject to warning requirements under California Proposition 65.

EPA Pesticide Registration Number: 5741-28

Page 4 / 6

1024 - DEFENSE Revision Date: 27-JUL-2015

EPA Statement:
This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information required on the pesticide label:
EPA Pesticide Label:
Caution: Causes moderate eye irritation. Avoid contact with eyes or clothing. Wash thoroughly with soap and water after handling.

16. OTHER INFORMATION

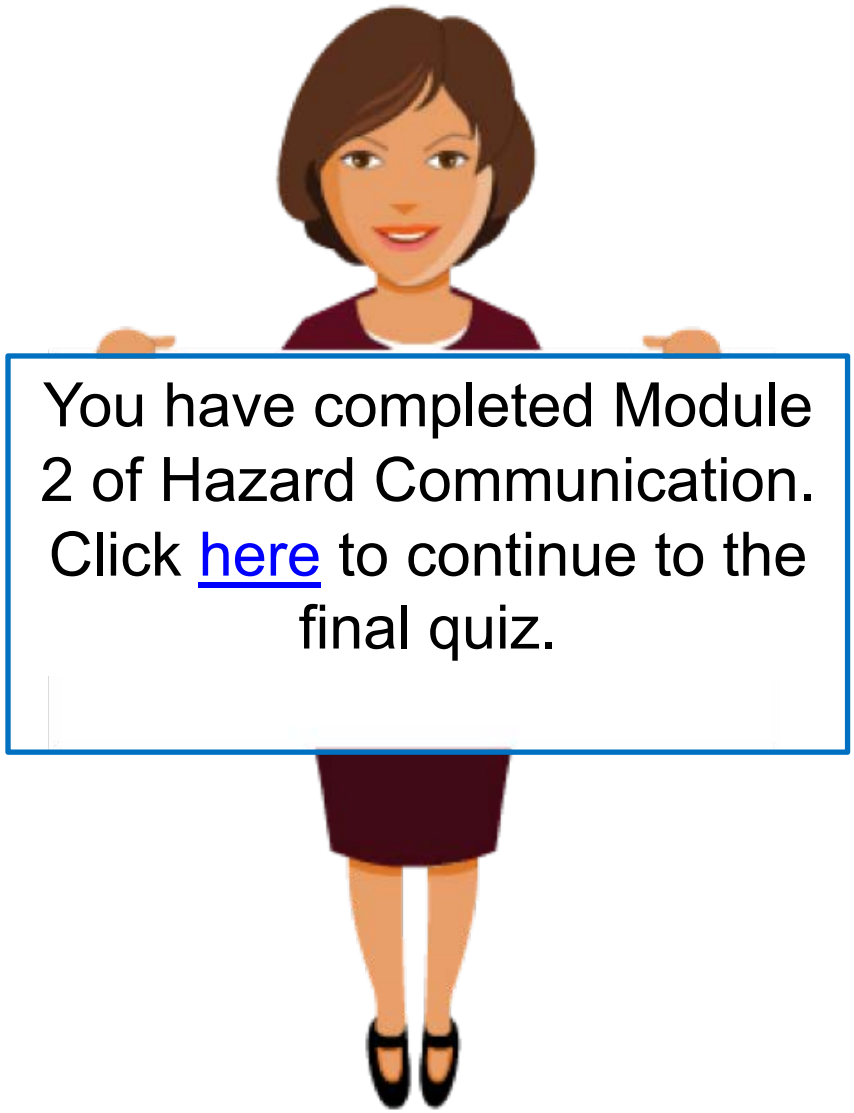
NFPA: Health Hazards: 1 Flammability: 0 Instability: 0 Special: N/A
HMIS: Health Hazards: 1 Flammability: 0 Physical Hazards: 0

Revision Date: 27-JUL-2015
Reasons for Revision: Section 14 and 15

To align with the Global Harmonization System, SDSs must have these 16 headings in this order. (continued)

9. Physical and chemical properties
10. Stability and reactivity
11. Toxicological information
12. Ecological information
13. Disposal considerations
14. Transport information
15. Regulatory information
16. Other information including the date of preparation or last revision

- Comprehensive hazard communication training is essential to a safe and healthful work environment.
- To ensure your safety, as well as the safety of your co-workers, you must fully understand the types of hazardous materials used at your workplace. If you have any questions, ask your supervisor.
- You must also know what to do in case something unexpected happens during chemical use.
- GHS requires that chemical hazards are communicated in an organized way on labels and Safety Data Sheets (SDSs).
- Labels must have a product identifier that cross references with the SDS, a pictogram and a hazard statement to indicate the degree of severity.
- A good hazard communication program will keep you prepared and safe.


You have completed Module 2 of Hazard Communication. Click here to continue to the final quiz.