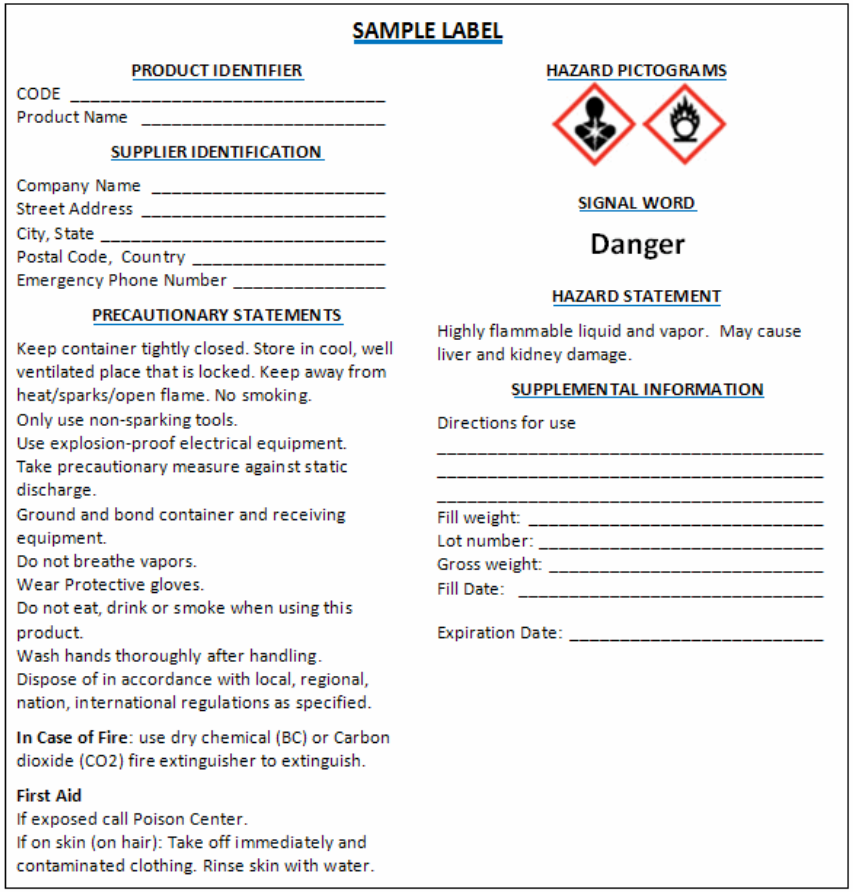

SAMPLE LABEL

PRODUCT IDENTIFIER

CODE _____
Product Name _____

SUPPLIER IDENTIFICATION

Company Name _____
Street Address _____
City, State _____
Postal Code, Country _____
Emergency Phone Number _____

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, nation, 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 and contaminated clothing. Rinse skin with water.

HAZARD PICTOGRAMS

SIGNAL WORD

Danger

HAZARD STATEMENT

Highly flammable liquid and vapor. May cause liver and kidney damage.

SUPPLEMENTAL INFORMATION

Directions for use
_____
_____
_____
Fill weight: _____
Lot number: _____
Gross weight: _____
Fill Date: _____

Expiration Date: _____

Globally Harmonized System of Classification and Labeling of Chemicals (GHS)

S.H. Futch and J.D. Burrow
University of Florida, IFAS, Citrus Research and Education Center

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University of Florida, IFAS, Office of Pesticide Inforamtion, Gainesville, FL

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Photo Credit: http://www.ehs.okstate.edu/hazcom/images/GHS/sampleLabel.gif

Globally Harmonized System (GHS) for Hazard Communication

- OSHA = Occupational Safety and Health Administration
- HCS = Hazard Communication Standard
- GHS = Globally Harmonized System
- Changes
  - Use of labelling elements
  - Standardized SDS format (formerly MSDS sheets)

Globally Harmonized System (GHS) for Hazard Communication

- An international system of classification and labeling of chemicals by type of hazard (e.g. acute toxicity; flammability, corrosive, etc.)
- System based upon hazards to:
  - Health
  - Physical
  - Environmental

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Myths about Globally Harmonized System (GHS) for Hazard Communication

- The GHS only effects pesticides

GHS addresses all hazardous materials including those used in other industries (ex. manufacturing)

- GHS is regulated under FIFRA or FDACS

GHS is regulated under OSHA

Timeline of Effective Dates for GHS

Effective Completion Date	Requirement(s)	Who
December 1, 2013	Train employees on the new label elements and safety data sheet (SDS) format.	Employers
June 1, 2015* December 1, 2015	Compliance with all modified provisions of this final rule, except: The Distributor shall not ship containers labeled by the chemical manufacturer or importer unless it is a GHS label	Chemical manufacturers, 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
Transition Period to the effective completion dates noted above	May comply with either 29 CFR 1910.1200 (the final standard), or the current standard, or both	Chemical manufacturers, importers, distributors, and employers

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Globally Harmonized System (GHS) for Hazard Communication

- **Health Hazards** could include:
  - Acute Toxicity
  - Skin Corrosion/Irritation
  - Respiratory or Skin Sensitization
  - Carcinogenicity
  - Reproductive Toxicity

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Globally Harmonized System (GHS) for Hazard Communication

- **Physical Hazards** could include:
  - Explosives
  - Flammable Aerosols
  - Oxidizing Gases
  - Flammable Liquids
  - Flammable Solids
  - Oxidizing Liquids
  - Oxidizing Solid
  - Corrosive to Metals
  - Combustible Dusts

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Globally Harmonized System (GHS) for Hazard Communication

- **Environmental Hazards** could include:
  - Toxicity to fish
  - Toxicity to aquatic species

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Globally Harmonized System (GHS) for Hazard Communication

- The degree of its capacity to harm depends on a number of factors
  - Hazard times exposure = risk
  - Minimizing either hazard or exposure, you will minimize the risk or likelihood of harm
- Hazard will be communicated on product label and Safety Data Sheets (SDS), formerly Material Safety Data Sheets (MSDS)
- SDS must be readily accessible to employees
- Hazard statement, symbols and signal words have been standardized and harmonized

Globally Harmonized System (GHS) for Hazard Communication

- Appropriate labeling tools to convey information about each of the hazard classes and categories in the GHS
- New label elements and SDS requirements will improve worker understanding of the hazards associated with the chemicals in their workplace
- Requirements phased in over several years (December 1, 2013 – June 1, 2016)
  - By December 1, 2013 employers must train workers on new label elements and the SDS format

SAMPLE LABEL

PRODUCT IDENTIFIER

CODE _____
Product Name _____

SUPPLIER IDENTIFICATION

Company Name _____
Street Address _____
City, State _____
Postal Code, Country _____
Emergency Phone Number _____

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, nation, 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 and contaminated clothing. Rinse skin with water.

HAZARD PICTOGRAMS

SIGNAL WORD

Danger

HAZARD STATEMENT

Highly flammable liquid and vapor. May cause liver and kidney damage.

SUPPLEMENTAL INFORMATION

Directions for use
_____
_____
_____
Fill weight: _____
Lot number: _____
Gross weight: _____
Fill Date: _____

Expiration Date: _____

This label shows the product has multiple hazards, i.e. health hazard and oxidizers. (see pictograms)

Precautionary statement will provide protective information on the label.

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Photo Credit: http://www.ehs.okstate.edu/hazcom/images/GHS/sampleLabel.gif

Sample Label

Pictograms:
Flammable and Acute Toxicity - Severe

ToxiFlam (Contains XYZ)

Product Identifier

Danger!

Signal Word

Toxic If Swallowed, Flammable Liquid and Vapor

Hazard Statements

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

Precautionary Statements

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

Supplemental Information

In case of fire, use water fog, dry chemical, CO_2, or "alcohol" foam.

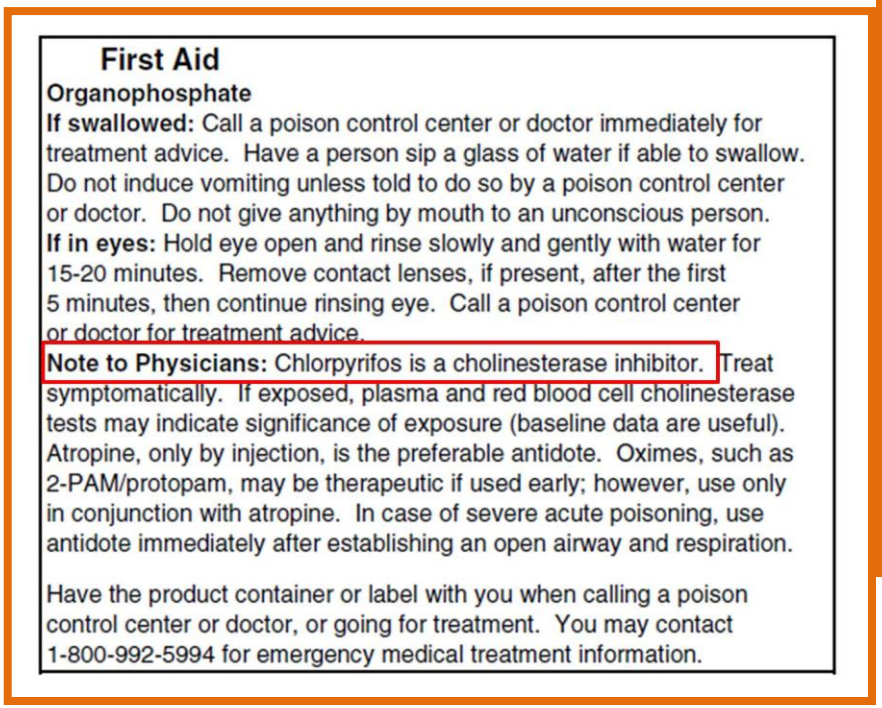
See Safety Data Sheet for further details regarding safe use of this product.

Supplier Information

FloriKill Chemical, 123 Toxic Turnpike, Someplace FL 00000 Tel: 800-222-2222

Using Labels in the Workplace

- Storage of chemicals
- First aid



First Aid

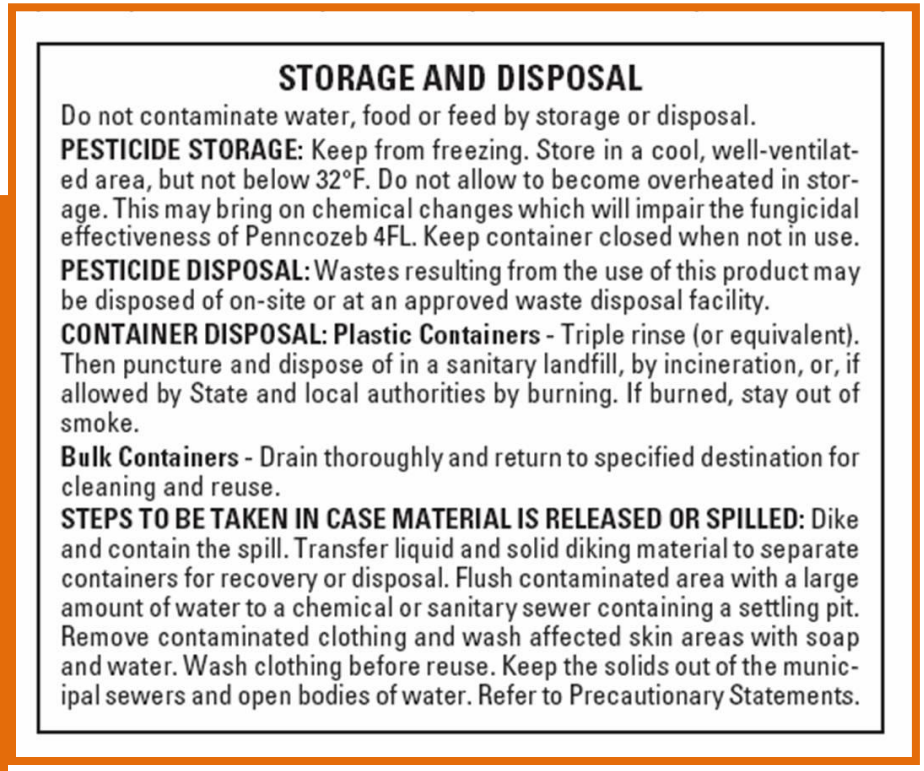
Organophosphate

If swallowed: Call a poison control center or doctor immediately for treatment advice. Have a person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.

If in eyes: Hold eye open and rinse slowly and gently with water for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Call a poison control center or doctor for treatment advice.

Note to Physicians: Chlorpyrifos is a cholinesterase inhibitor. Treat symptomatically. If exposed, plasma and red blood cell cholinesterase tests may indicate significance of exposure (baseline data are useful). Atropine, only by injection, is the preferable antidote. Oximes, such as 2-PAM/protopam, may be therapeutic if used early; however, use only in conjunction with atropine. In case of severe acute poisoning, use antidote immediately after establishing an open airway and respiration.

Have the product container or label with you when calling a poison control center or doctor, or going for treatment. You may contact 1-800-992-5994 for emergency medical treatment information.



STORAGE AND DISPOSAL

Do not contaminate water, food or feed by storage or disposal.

PESTICIDE STORAGE: Keep from freezing. Store in a cool, well-ventilated area, but not below 32°F. Do not allow to become overheated in storage. This may bring on chemical changes which will impair the fungicidal effectiveness of Penncozeb 4FL. Keep container closed when not in use.

PESTICIDE DISPOSAL: Wastes resulting from the use of this product may be disposed of on-site or at an approved waste disposal facility.

CONTAINER DISPOSAL: Plastic Containers - Triple rinse (or equivalent). Then puncture and dispose of in a sanitary landfill, by incineration, or, if allowed by State and local authorities by burning. If burned, stay out of smoke.

Bulk Containers - Drain thoroughly and return to specified destination for cleaning and reuse.

STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED: Dike and contain the spill. Transfer liquid and solid diking material to separate containers for recovery or disposal. Flush contaminated area with a large amount of water to a chemical or sanitary sewer containing a settling pit. Remove contaminated clothing and wash affected skin areas with soap and water. Wash clothing before reuse. Keep the solids out of the municipal sewers and open bodies of water. Refer to Precautionary Statements.

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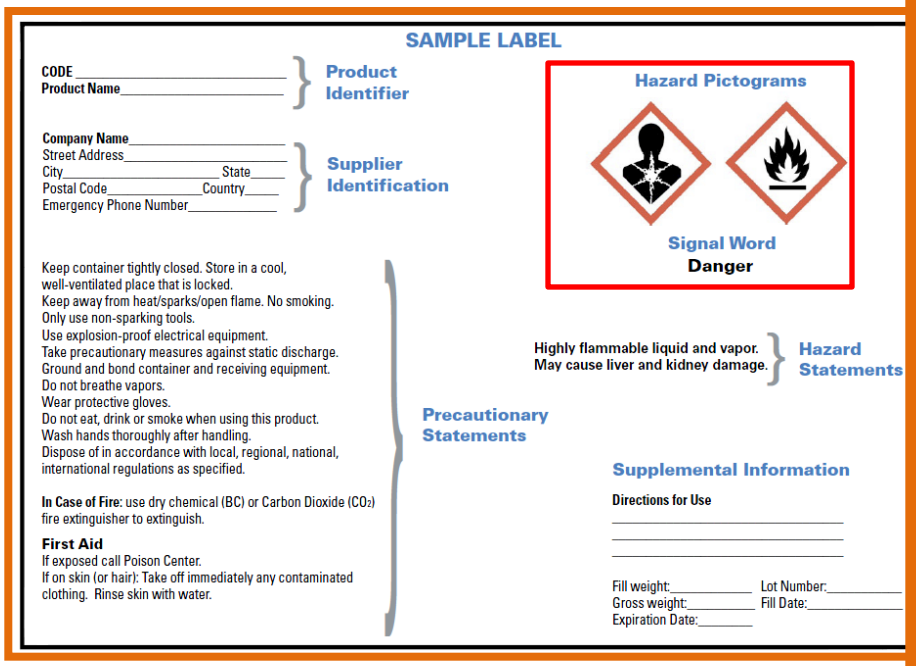
Using Labels in the Workplace

- A chemical may have multiple hazards
- When there are similar precautionary statements on a label, the one providing the most protective information will be included on the label



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Safety Data Sheets

- Under the new Haz Com Standard, Material Safety Data Sheets (MSDS) are now called Safety Data Sheets (SDS)
- All SDSs will have a consistent 16-section format
- Employers must ensure that SDSs are readily accessible to employees

Safety Data Sheets (SDS)
16 Sections

1. Identification
2. Hazards Identification
3. Composition/Ingredients
4. First-aid Measures
5. Firefighting Measures
6. Accidental Release Measures
7. Handling and Storage
8. Exposure Control and Personal Protection
9. Physical and Chemical Properties
10. Stability and Reactivity
11. Toxicological Information
12. Ecological Information
13. Disposal Considerations
14. Transportation Information
15. Regulatory Information
16. Other Information

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Safety Data Sheets

- **Section 1 (Identification):**
  - The product identifier used on the label
  - Name, address, and phone number of the manufacturer
  - Recommended use of the chemical
- **Section 2 (Hazards Identification):**
  - Hazard classification
  - Signal word, hazard statement(s), pictograms

For a mixture that contains an ingredient(s) with unknown toxicity, a statement describing how much (percentage) of the mixture consists of ingredient(s) with an unknown acute toxicity

Safety Data Sheets

- **Section 3 (Composition/Ingredients):**
  - Chemical name
  - Common name and synonyms
  - CAS number and other unique identifiers
  - Impurities and stabilizing additives
  - For mixtures:
    - Same information is required as for substances
  - Chemicals where a trade secret is claimed:
    - A statement that the specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret

Safety Data Sheets

- **Section 4 (First-aid Measures):**
  - First-aid instructions
  - Description of the most important symptoms or effects
  - Recommendations for immediate medical care
- **Section 5 (Firefighting Measures):**
  - Recommendations of suitable extinguishing equipment
  - Advice on specific hazards that develop from the chemical during the fire
  - Recommendations on special protective equipment or precautions for firefighters

Safety Data Sheets

- **Section 6 (Accidental Release Measures):**
  - Use of personal precautions
  - Emergency procedures
  - Methods and materials used for containment
  - Cleanup procedures
- **Section 7 (Handling and Storage):**
  - Precautions for safe handling
  - Recommendations on the conditions for safe storage

Safety Data Sheets

- **Section 8 (Exposure Control and Personal Protection):**
  - Limits
  - Appropriate engineering controls
  - Recommendations for personal protective measures
  - Any special requirements for PPE

Safety Data Sheets

Section 9 (Physical and Chemical Properties):

- Appearance
- Upper/lower flammability or explosive limits
- Odor
- Vapor pressure
- Odor threshold
- Vapor density
- pH
- Relative density
- Melting point/freezing point
- Solubility(ies)
- Initial boiling point and boiling range
- Partition coefficient: n-octanol/water
- Flash point
- Auto-ignition temperature
- Evaporation rate
- Decomposition temperature
- Flammability (solid, gas)
- Viscosity

Safety Data Sheets

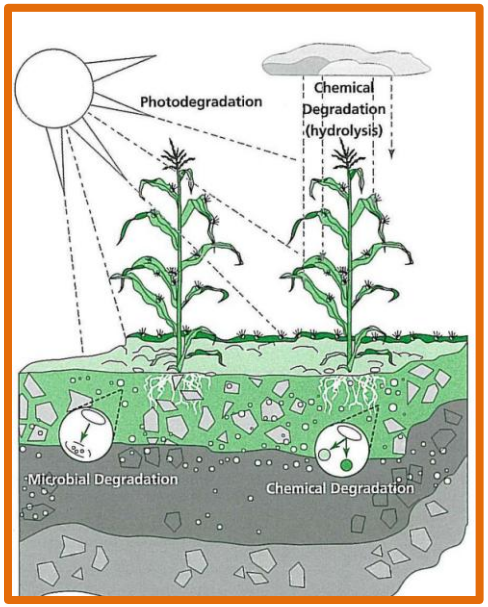
- **Section 10 (Stability and Reactivity):**
  - Description of the specific test data for the chemical(s)
  - Indication of whether the chemical is stable or unstable
  - Description of any stabilizers that may be needed to maintain chemical stability
  - Indication of any safety issues
  - Indication of the possibility of hazardous reactions
  - Description of the conditions under which hazardous reactions may occur
  - Conditions that should be avoided

Safety Data Sheets

- **Section 11 (Toxicological Information):**
  - Likely routes of exposure
  - Description of exposure effects
  - Numerical measures of toxicity
  - Description of symptoms
  - Indication of carcinogenicity

Safety Data Sheets

- **Section 12 (Ecological Information):**
  - Indicator species
  - Environmental fate
    - Photolysis
    - Hydrolysis



Safety Data Sheets

- **Section 13 (Disposal Considerations)**

Safety Data Sheets

- **Section 14 (Transport Information)**
  - Official U.S. DOT shipping name
    - DOT recognizes 9 classes of hazardous materials
  - Lists the number assigned for identification by the UN convention
  - Contains special provisions for a hazardous material
  - Specifies the packing group
    - I (great)
    - II (medium)
    - III (minor)

Safety Data Sheets

- **Section 15 (Regulatory Information):**
  - SARA Title 3
  - TSCA status
  - RCRA classification
  - CERCLA reportable quantity

Safety Data Sheets

- **Section 16 (Other Information):**
  - Indicates when the SDS was prepared/revised
  - States where the changes have been made to the previous version

Globally Harmonized System (GHS) Training

- Initial training (by Dec. 1, 2013)
  - Product identifier: how the hazardous chemical is identified
  - Signal word: indicates the relative level of severity of hazard and alert the reader to a potential hazard on the label.
    - Danger and Warning
  - Pictogram: shape (square with point to the top or diamond shaped) and symbol in black on white background and a red frame
  - Hazard statement(s): nature of hazard

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Globally Harmonized System (GHS) Training

- Precautionary statement(s): describes recommended measures that should be taken to minimize or prevent adverse effects resulting from exposure

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Globally Harmonized System (GHS) Symbols

- Pictogram includes a symbol plus other graphic elements, such as a border, background pattern or color that is intended to convey specific information
- Pictogram is a square set at a point (or diamond shaped)

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Globally Harmonized System (GHS) Signal Word

- Signal word is used to indicate the relative level of severity of hazard and alert the reader to the potential hazard
- Signal word
  - Danger – more severe hazards
  - Warning – less severe hazards

Globally Harmonized System (GHS) Precautionary Statements

- Recommended statements describes recommended measures that should be taken to minimize or prevent adverse effects

OSHA Quick Card

Health Hazard	Flame	Exclamation Mark
		
• Carcinogen • Mutagenicity • Reproductive Toxicity • Respiratory Sensitizer • Target Organ Toxicity • Aspiration Toxicity	• Flammables • Pyrophorics • Self-Heating • Emits Flammable Gas • Self-Reactives • Organic Peroxides	• Irritant (skin and eye) • Skin Sensitizer • Acute Toxicity (harmful) • Narcotic Effects • Respiratory Tract Irritant • Hazardous to Ozone Layer (Non Mandatory)
Gas Cylinder	**Corrosion**	**Exploding Bomb**
		
• Gases under Pressure	• Skin Corrosion/ burns • Eye Damage • Corrosive to Metals	• Explosives • Self-Reactives • Organic Peroxides
Flame over Circle	**Environment *(Non Mandatory)**	**Skull and Crossbones**
		
• Oxidizers	• Aquatic Toxicity	• Acute Toxicity (fatal or toxic)

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Symbols

Health Hazard

- Carcinogen
- Mutagenicity
- Reproductive Toxicity
- Respiratory Sensitizer
- Target Organ Toxicity
- Aspiration Toxicity

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Flame

- Flammables
- Pyrophorics – capable of igniting
- Self-Heating
- Emits Flammable Gas
- Self-Reactive
- Organic Peroxides

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Exclamation Mark

- Irritant (skin and eye)
- Skin Sensitizer
- Acute Toxicity
- Narcotic Effects
- Respiratory Tract Irritant
- Hazardous to Ozone Layer (Non-Mandatory)

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Gas Cylinder

- Gases Under Pressure

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Corrosion

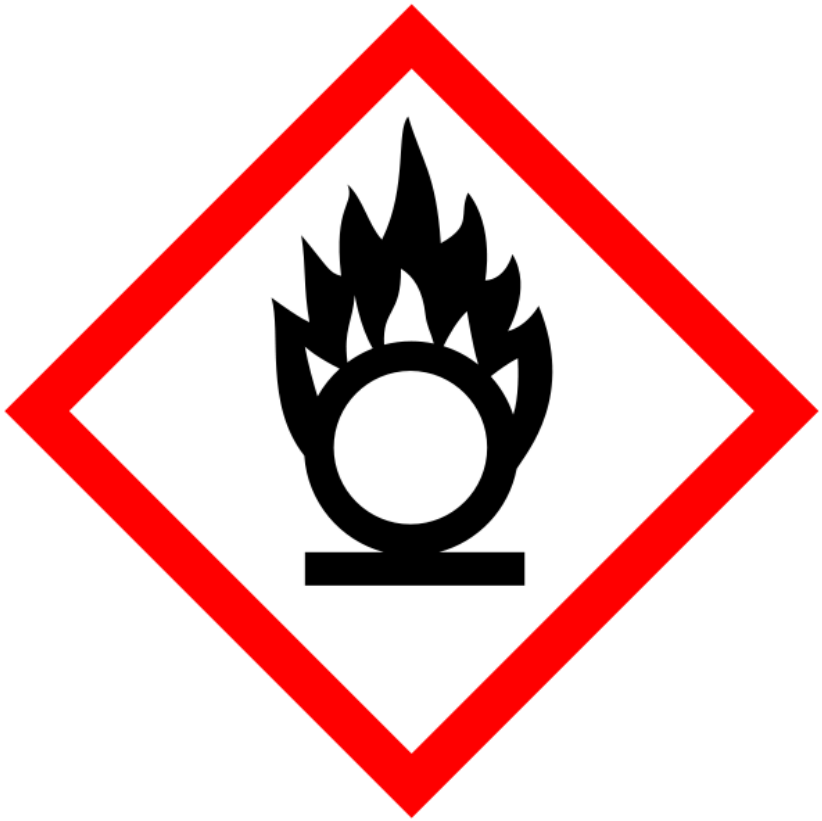
- Skin Corrosion/Burns
  - Ulcers, bleeding, bloody sca
- Eye Damage
- Corrosive to Metals

Exploding Bomb

- Explosives
- Self-Reactives
- Organic Peroxides

Flame Over Circle

- Oxidizers
  - High fire potential



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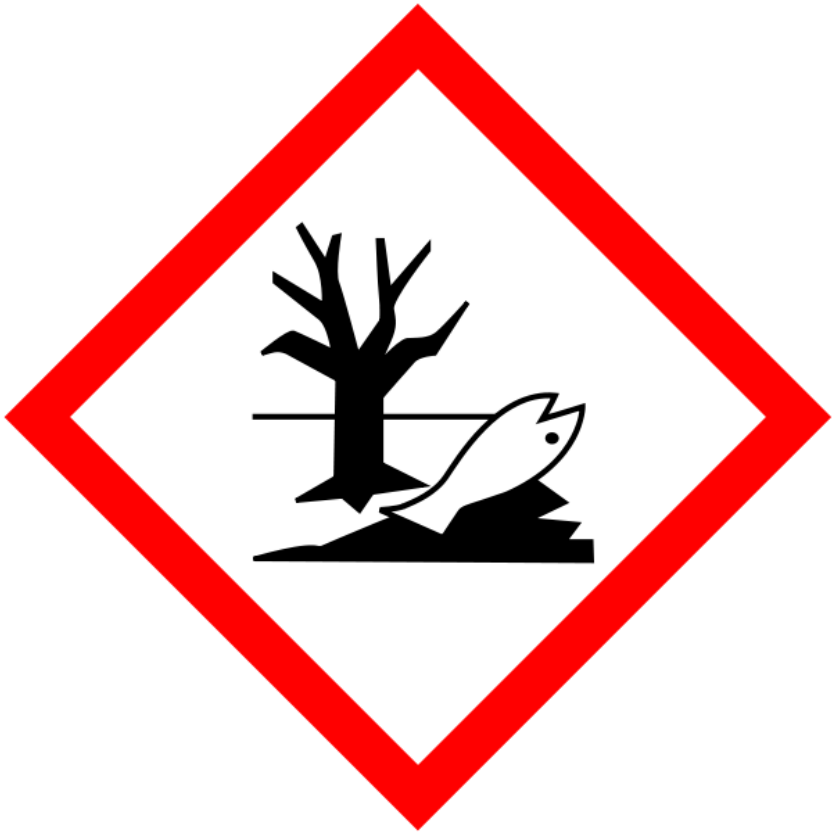
Environment (Non-Mandatory)

- Aquatic Toxicity
  - Fish
  - Other aquatic life



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Skull and Crossbones

- Acute Toxicity
  - (fatal or toxic)

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OSHA Training Materials

- OSHA developed 3 YouTube videos in English (only) to assist with training
- http://www.oshatraining.com/free-online-osha-training-tutorials.php
- All OSHA Materials
- Look under Hazard Communications
  - Check the DATES carefully
- https://www.osha.gov/pls/publications/publication.html

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More Information

- **OSHA website about Hazard Communication**
- https://www.osha.gov/dsg/hazcom/index.html

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Questions?

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