Hazard Communication Standard Labels

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

Hazard Communication Standard Labels

- OSHA has updated the requirements for labeling of hazardous chemicals under its Hazard Communication Standard (HCS).
- As of June 1, 2015, all labels will be required to have pictograms, a signal word, hazard and precautionary statements, product identifier, and supplier information.
- Supplemental information can also be provided on the label as needed.

Review of DOT

- When a hazardous chemical is received, the first labels seen are the U.S. Department of Transportation (DOT) hazardous materials warning labels.
- DOT labels identify hazards by class and division.

Example of a DOT Label

OXI252
(disodiumflammy)
CAS #: 111-11-11xx

Danger
May cause fire or explosion; strong oxidizer
Causes severe skin burns and eye damage

Keep away from heat. Keep away from clothing and other combustible materials. Take any precaution to avoid mixing with combustibles. Wear protective neoprene gloves, safety goggles and face shield with chin guard. Wear fire/flame resistant clothing. Do not breathe dust or mists. Wash arms, hands and face thoroughly after handling. Store locked up. Dispose of contents and container in accordance with local, state and federal regulations.

First aid:
IF ON SKIN (or hair) or clothing: Rinse immediately contaminated clothing and skin with plenty of water before removing clothes. Wash contaminated clothing before reuse.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a doctor.
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
Immediately call poison center.
Specific Treatment: Treat with doctor-prescribed burn cream.

Fire:
In case of fire: Use water spray. In case of major fire and large quantities: Evacuate area. Fight fire remotely due to the risk of explosion.

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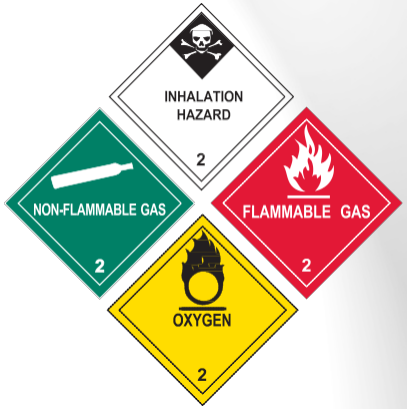
DOT hazardous materials warning labels

- Class 1 – Explosives
  - Division
    - 1.1 explosives with a mass explosion hazard
    - 1.2 explosives with a projection hazard
    - 1.3 explosives with predominantly a fire hazard
    - 1.4 explosives with no significant blast hazard
    - 1.5 very insensitive explosives with a mass explosion hazard
    - 1.6 extremely insensitive articles

DOT hazardous materials warning labels

- Class 2 – Gases
  - Division
    - 2.1 flammable gases
    - 2.2 non-flammable, non-toxic gases
    - 2.3 toxic gases



- Class 3 – Flammable liquids

DOT hazardous materials warning labels

- Class 4 – Flammable solids, Spontaneously combustible materials, and Dangerous when wet materials/Water-reactive substances
  - Division
    - 4.1 flammable solids
    - 4.2 spontaneously combustible materials
    - 4.3 water-reactive substances/dangerous when wet materials

DOT hazardous materials warning labels

- Class 5 – Oxidizing substances and Organic peroxides
  - Division
    - 5.1 oxidizing substances
    - 5.2 organic peroxides

DOT hazardous materials warning labels

- Class 6 – Toxic substances and Infectious substances
  - Division
    - 6.1 toxic substances
    - 6.2 infectious substances
- Class 7 – Radioactive materials

DOT hazardous materials warning labels

- Class 8 – Corrosive substances

- Class 9 – Miscellaneous hazardous materials/Products, Substances or Organisms

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OSHA's Revised HCS Label Elements

- Once the package is opened, each chemical will have the required OSHA label.
- Under the HCS, specific label elements are required:
  - Pictograms
  - Signal word
  - Hazard and precautionary statements
  - Product identifier
  - Supplier identification
  - Supplemental information (as needed)

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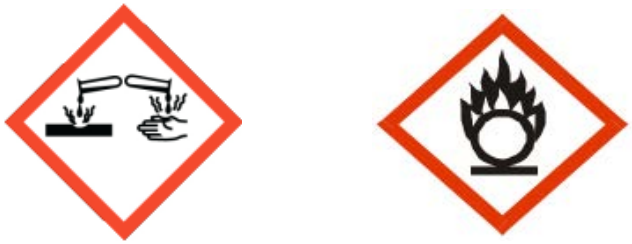

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HCS Label Elements

- Product identifier
  - This is how the hazardous chemical is identified. This can be the chemical name, code number or batch number.
  - The product identifier used shall permit cross-references to be made between the label and the safety data sheet.

HCS Label Elements

- Signal word
  - This is a single word used to indicate the relative level of severity of hazard and alert the reader to a potential hazard on the label.
  - The signal words used are
    - “Danger” – for more severe hazards
    - “Warning” – for less severe hazards

HCS Label Elements

- Signal word
  - There will only be one signal word on the label no matter how many hazards a chemical may have.
  - If one of the hazards warrants a “Danger” signal word and another warrants a “Warning”, only “Danger” will appear on the label.

HCS Label Elements

- Pictogram
  - OSHA's required pictograms must be in the shape of a square set at a point and include a black hazard symbol on a white background with a red frame sufficiently wide enough to be clearly visible.

HCS Label Elements

- Pictogram
  - A square red frame set at a point without a hazard symbol is not a pictogram and is not permitted on the label.
  - OSHA has designated eight pictograms under the HCS for application to a hazard category.
  - There are requirements for pictograms based on precedence of hazard.

HCS Label Elements

- Pictogram - precedence of hazard
  - If the skull and crossbones pictogram is included, the exclamation mark pictogram shall not appear where it is used for acute toxicity.
  - If the corrosive pictogram is included, the exclamation mark pictogram shall not appear where it is used for skin or eye irritation.
  - If the health hazard pictogram is included for respiratory sensitization, the exclamation mark pictogram shall not appear where it is used for skin sensitization or for skin or eye irritation.

HCS Label Elements

- Pictogram
  - There are some cases where other label elements are present but there is no pictogram.

HCS Label Elements

- No pictogram
  - Where a label required by DOT under Title 49 of the Code of Federal Regulations appears on a shipped container, the pictogram for the same hazard shall not appear.
    - Example: a chemical that requires the flame and skull and crossbones pictograms may only have DOT class 3 and class 6 labels on the outer container or drum.

HCS Label Elements

- No pictogram
  - Reversible eye effects
    - Eye irritation that fully reverses within 21 days is an Eye Irritant Category 2A and will have an exclamation mark pictogram.
    - Eye irritation that fully reverses within 7 days is an Eye Irritant Category 2B and will not have a pictogram.

HCS Label Elements

- No pictogram
  - Reproductive toxicity
    - Adverse effects on sexual function, fertility, and development of the offspring will have a health hazard pictogram.
    - Adverse effects on or via lactation does not have a hazard category or signal word and will not have a pictogram.

HCS Label Elements

- No pictogram
  - Explosives
    - Divisions 1.1, 1.2, 1.3 and 1.4 include chemicals or items which have a mass explosion, fire or projection hazard and will have an exploding bomb pictogram.
    - Divisions 1.5 and 1.6 are chemicals or items that are so insensitive that there is very little probability of initiation and will not have a pictogram.

HCS Label Elements

- No pictogram
  - Flammable gases
    - Category 1 are ignitable when in a mixture of 13% or less by volume in air or have a flammable range with air of at least 12 percentage points regardless of the lower flammable limit. These will have a flame pictogram.
    - Category 2 are those that do not meet the requirements of category 1 and have a flammable range while mixed in air. These will not have a pictogram.

HCS Label Elements

- No pictogram
  - Flammable liquids
    - Flammable liquids that have a flash point ≤ 60°C will be a category 1, 2 or 3 and will have a flame pictogram.
    - Flammable liquids that have a flash point > 60°C and ≤ 93°C will be a category 4 and will not have a pictogram.

HCS Label Elements

- Hazard statement(s)
  - Statement(s) 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.
  - All of the applicable hazard statements must appear on the label.
  - Hazard statements may be combined where appropriate to reduce redundancies and improve readability.

HCS Label Elements

- Hazard statement(s)
  - The hazard statements are specific to the hazard classification categories, and chemical users should always see the same statement for the same hazards, no matter what the chemical is or who produces it.
  - Review the *HCS Hazard Statements* document for the list of statements.

HCS Label Elements

- Precautionary statement(s)
  - These are phrases that describe recommended measures to be taken to minimize or prevent adverse effects resulting from exposure to a hazardous chemical, or improper storage or handling of a hazardous chemical.

HCS Label Elements

- Precautionary statement(s)
  - There are four types of statements:
    - Prevention
    - Response
    - Storage
    - Disposal
  - Review the *HCS Precautionary Statements* document for the list of statements by type.

HCS Label Elements

- Precautionary statement(s)
  - When a backslash (/) appears in the precautionary statement text, it indicates that a choice has to be made between the separated phrases.
  - In such cases, the chemical manufacturer can choose the most appropriate phrase(s).
    - For example, "Wear protective gloves/protective clothing/eye protection/face protection" could read "wear eye protection".

HCS Label Elements

- Precautionary statement(s)
  - Statement(s) may be combined or consolidated to save label space and improve readability.
    - For example, "Keep away from heat, sparks and open flame," "Store in a well-ventilated place" and "Keep cool" can be combined to read "Keep away from heat, sparks and open flame and store in a cool, well-ventilated place."

HCS Label Elements

- Precautionary statement(s)
  - Where a chemical is classified for a number of hazards, and the precautionary statements are similar, the most stringent shall be included on the label.
  - An order of precedence may be imposed by the chemical manufacturer in situations where phrases concern "Response."

HCS Label Elements

- Precautionary statement(s)
  - If a chemical is carcinogenic and acutely toxic, rapid action may be crucial, and first aid measures for acute toxicity will take precedence over those for long-term effects.
  - In addition, medical attention to delayed health effects may be required in cases of incidental exposure, even if not associated with immediate symptoms.

HCS Label Elements

- Supplier identification
  - Must include:
    - Company name
    - Address
    - Phone number

HCS Label Elements

- Supplemental information
  - To ensure that non-standardized information does not lead to unnecessarily wide variation or undermine the required information, supplementary information on the label is limited to when it provides further detail and does not contradict or cast doubt on the validity of the standardized hazard information.

HCS Label Elements

- Supplemental information
  - Where the chemical manufacturer chooses to add supplementary information on the label, the placement of supplemental information shall not impede the required label elements.

HCS Label Elements

- Supplemental information
  - Where an ingredient with unknown acute toxicity is used in a mixture at a concentration ≥ 1%, and the mixture is not classified based on testing of the mixture as a whole, a statement that X% of the mixture consists of ingredient(s) of unknown acute toxicity is required on the label.

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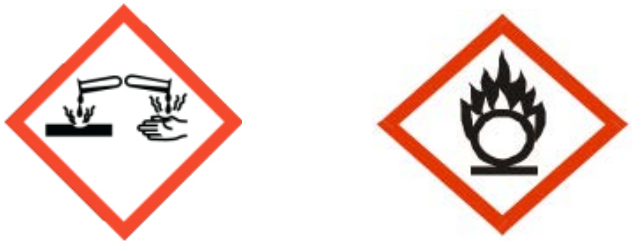

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Using label elements in the Laboratory

- A key component for chemical safety is proper handling and storage.
- The precautionary statements will provide this information on the label of every chemical.
  - Prevention statements
  - Storage statements

Using label elements in the Laboratory

- In the event of an exposure, the label may be used to quickly locate first aid information.
  - Response precautionary statements
- The product identifier and supplier identification can help you in several ways:
  - Chemical inventory
  - Purchasing/restocking
  - Acquiring a safety data sheet

Time for a look at some labels!

- This concludes the online training for labels.
- The class segment will involve looking at some labels to ensure an understanding of:
  - How label elements are assigned.
  - How the label elements work together for chemicals with multiple hazards.
- The test for labels will be at the conclusion of the class segment.




For more information:

OSHA® Occupational Safety and Health Administration

U.S. Department of Labor

www.osha.gov (800) 321-OSHA (6742)