# Chemical Hygiene Plan Appendix C: Container Labeling Systems, NFPA, MMIS, GHS and Longwood University Specific Labels

**NFPA Labeling System**



The NFPA hazard identification system is intended to provide basic information to emergency personnel so they can evaluate what firefighting techniques to employ when they enter a scene where hazardous materials are present. The system does not provide detailed hazard information. On a door or building or chemical container the NFPA diamond provides aggregate hazard data

There are three categories of hazards identified by the NFPA System:

* Health
* Flammability
* Instability

Five divisions ranging from zero – no hazard, to four – severe hazard, indicate the degree of severity for each hazard numerically.

The square - on – point (diamond) label contains four colored squares with a number appearing in the top three squares. The blue square indicates health hazard, the red square represents flammability, and the yellow square indicates instability. The fourth (bottom) square represents any special hazard presented, such as unusual reactivity to water.

**Health (Blue)**

 4 Danger: May be fatal on short exposure. Specialized equipment required

 3 Warning: Corrosive or toxic. Avoid skin contact or inhalation

 2 Warning: May be harmful if inhaled or absorbed

 1 Caution: May be irritating

 0: No unusual Hazard

**Flammability (Red)**

4 Danger: Flammable gas or extremely flammable liquid

 3 Warning: Flammable liquid flash point below 100⁰ F

 2 Caution: Combustible liquid flash point 100⁰ to 200⁰F

 1: Combustible if heated

 0: Not combustible

**Instability (Yellow)**

4 Danger: Explosive material at room temperature

3 Danger: May be explosive if shocked, heated under confinement or mixed with water

 2 Warning: Unstable or may react violently if mixed with water

 1 Caution: May react if heated or mixed with water but not violently

 0: Stable: Not reactive when mixed with water

**Special Notice Key (White)**

 **~~W~~** Water reactive

 **OX** Oxidizing Agent

**HMIS® Labeling System**



HMIS® stands for Hazardous Materials Identification System. The system is copyrighted by the American Coatings Association (ACA) and used by many chemical manufacturers. The program uses a numerical hazard rating system and labels with colored bars to indicate chemical hazards in the workplace. The HMIS label is intended for use on individual chemical containers.

There are four categories of hazards identified by the HMIS® System:

* Health
* Flammability
* Instability or Physical Hazard
* Personnel Protective Equipment (PPE)

HMIS® labels always appear as a rectangular – shaped block of colored bars with hazard ratings of zero through four. The blue bar indicates health hazard, the red bar represents flammability, the yellow or orange bar indicates instability and physical hazard, and the white bar represents recommended (PPE). There may be additional space on the label for other information, such as product name, supplemental warnings, manufacture information or additional HMIS® information.

**Health (Blue Bar)**

4 Severe Hazard: Life – threatening, major or permanent damage may result for single or repeated exposures; extremely toxic; irreversible injury may result from brief contact

3 Serious Hazard: Major injury likely unless prompt action is taken and medical treatment given; high level of toxicity; corrosive

2 Moderate Hazard: Temporary of transient injury may occur; prolonged exposure may affect the central nervous system and lead to apparent intoxication, nausea, headache, dizziness, weakness or fatigue

1 Slight Hazard: Minor injury may occur; may irritate the stomach if swallowed; may defat the skin and exacerbate existing dermatitis

0 Minimal Hazard: No significant health risk; no effect anticipated; practically non – toxic; irritation of skin or eyes not anticipated

**Flammability (Red Bar)**

4 Severe Hazard: Materials that will rapidly or completely vaporize at atmospheric pressure and normal ambient temperature or that are readily dispersed in air; flammable gases; materials that ignite spontaneously when exposed to air

3 Serious Hazard: Liquids and solids that can be ignited under almost all ambient temperature conditions; materials that produce hazardous atmospheres under almost all ambient temperatures; materials that are readily ignited under almost all conditions; materials that burn with extreme rapidity, usually by reason of self-contained oxygen

2 Moderate Hazard: Materials that must be moderately heated or exposed to relatively high ambient temperatures before ignition can occur; materials that normally would not form hazardous atmospheres but might under moderate heating

1 Slight Hazard: Materials that must be preheated before ignition can occur; most ordinary combustible materials

0 Minimal Hazard: Materials will not burn

**Instability and Physical Hazard (Yellow or Orange Bar)**

4 Severe Hazard: Materials that are readily capable of explosive water reaction; detonation or explosive decomposition; polymerization, or self-reactions at normal temperature and pressure

3 Serious Hazard: Materials that my form explosive mixtures with water and are capable of detonation or explosive reaction in the presence of a strong initiating source; materials ma polymerize, decompose, self-react, or undergo other chemical change at normal temperature and pressure with moderate risk of explosion

2 Moderate Hazard: Materials that are unstable and may undergo violent chemical changes at normal temperature and pressure with low risk for explosion; materials may react violently with water to form peroxides upon exposure to air

1 Slight Hazard: Materials that are normally stable but can become unstable (self-react) at high temperatures and pressures; materials may react non-violently with water or undergo hazardous polymerization in the absence of inhibitors

0 Minimal Hazard: Materials that are normally stable, even under fore conditions, and will wont react with water; polymerize; decompose; condense, or self-react

**GHS Labeling System**



The Globally Harmonized System of Classification and Labeling of Chemicals, often abbreviated GHS, is an effort to create a world-wide, universal chemical hazard communication and container labeling system. This harmonized and consistent approach is expected to have benefits both in terms of worker protection and trade.

GHS Labels have six required elements:

* Product identifier
* Pictogram
* Signal word
* Hazard statement(s)
* Precautionary statement
* Supplier Identification

**Product Identifier:**

The product identifier is the name or number used on the label and on the SDS. It can be a chemical name, a product name or some other unique identifier that allows you to locate the SDS quickly.

**Pictograms:**

GHS pictogram are standardized symbols on a white background with a red border that are intended to convey specific information about the hazards of a chemical. The pictograms which appear on the label are determined by the chemical’s hazard classification. The picture below shows the pictograms used on GHS Labels and explains what the pictograms represent.



**Signal Word:**

When a Signal Word is required GHS requires that it be either:

* **“Danger”** for more severe hazards, and
* **“Warning”** for less severe ones

When the signal word “Danger” appears, the signal word “Warning” shall not appear

**Hazard Statement(s):**

Hazard statements are standardized phrases assigned to a specific hazard class and category. Hazard statements are used to describe the nature of the hazard(s), including, where appropriate, the degree of hazard. Examples are “Causes serious eye damage.” and” Fatal if swallowed.”

**Precautionary Statements:**

Precautionary statements are standardized phrases assigned to a hazard class and category. There are four types of precautionary statements, covering prevention, response in case of accidental spills or exposure, storage and disposal. Use of precautionary statements, while optional in the GHS system, and mandatory in the OSHA’s Hazard Communication Standard. The statements are linked to each hazard class and category. Examples are “Store locked up.” and “wear protective gloves/protective clothing.”

**Supplier Identification:**

Supplier identification refers to the name, address, and telephone number of the chemical manufacturer, importer, or other responsible party.

**Longwood University Mixture Label**

If employees or student workers transfer chemicals from a labeled container to a portable, secondary container for **THEIR IMMEDIATE USE**, no labels, tags, or LU secondary label is required. In all other cases a secondary use container must be marked in accordance with our in house labeling system for work place containers.

The in house labeling system that we use for workplace containers is a simple NFPA chemical such as the one below:



Example



Supervisors and Area Coordinators are responsible for ensuring all hazardous chemical containers, in their area of responsibility, have the proper labels or other forms of warning that are legible, in English, and are displayed clearly on the container. Labels that fall off or become unreadable must be immediately replaced.

**Longwood University Secondary Label**

This label should be used when storing an unaltered chemical in a container other than the original container the chemical was received in. These labels can be made in CEMS or contact EHS for labels.



**Non-University Purchased Products**



**Labels for Food Products**



**Refrigerator Freezer Storage**







