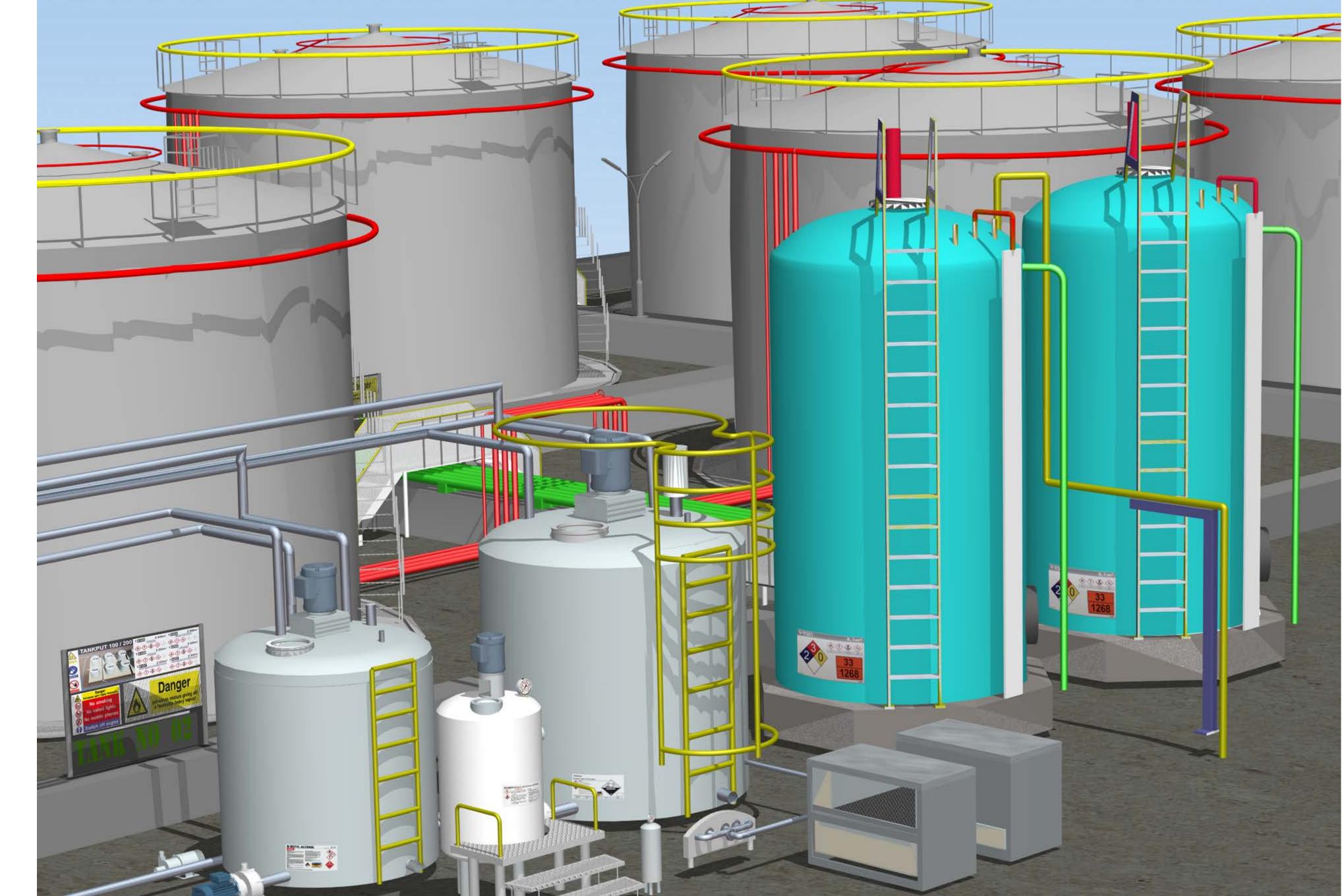
Innovations in Workplace Labelling

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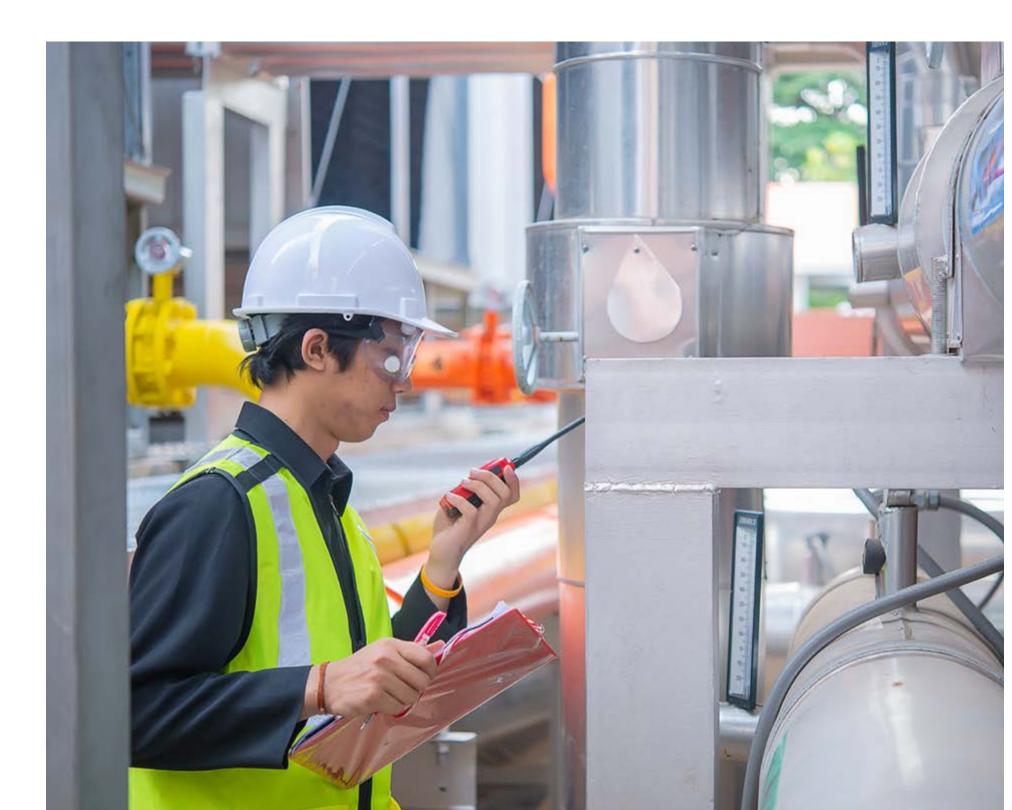
covestro

- At Covestro LLC, an ACC Responsible Care Company, we have taken workplace labeling to a new level.
- At our largest North American plant, over 500 unique intermediate mixtures housed in approximately 2500 tanks, vessels, and other equipment required workplace labeling.
- Given the large size of the production site and large number of tanks, vessels, and other equipment needing labeling, using an approved OSHA alternative such as color coding, a numbering system, or production tickets is usually favored because of lower costs and quicker implementation time.
- However, when GHS was adopted by OSHA, plant safety personnel viewed this as an opportunity to further increase chemical safety awareness.
- Label creation was especially challenging as the complexity of these intermediates required verification from various departments of the site such as safety personnel and production engineers, followed by determination of classification and label content by Product Safety staff, and then printing of the labels (various sizes) by a third party firm.
- This process involved nearly forty different persons.
- Nearly 2000 man hours of Product Safety time alone was required.
- The complexity of the mixtures resulted in the following classifications:
 - Irritant to eye and/or skin
 - Corrosive to eye and/or skin
 - Corrosive to metal
 - Toxic via skin, and/or inhalation, and/or ingestion
 - Target organ repeated exposure - STOT RE
 - Target organ single exposure - STOT SE

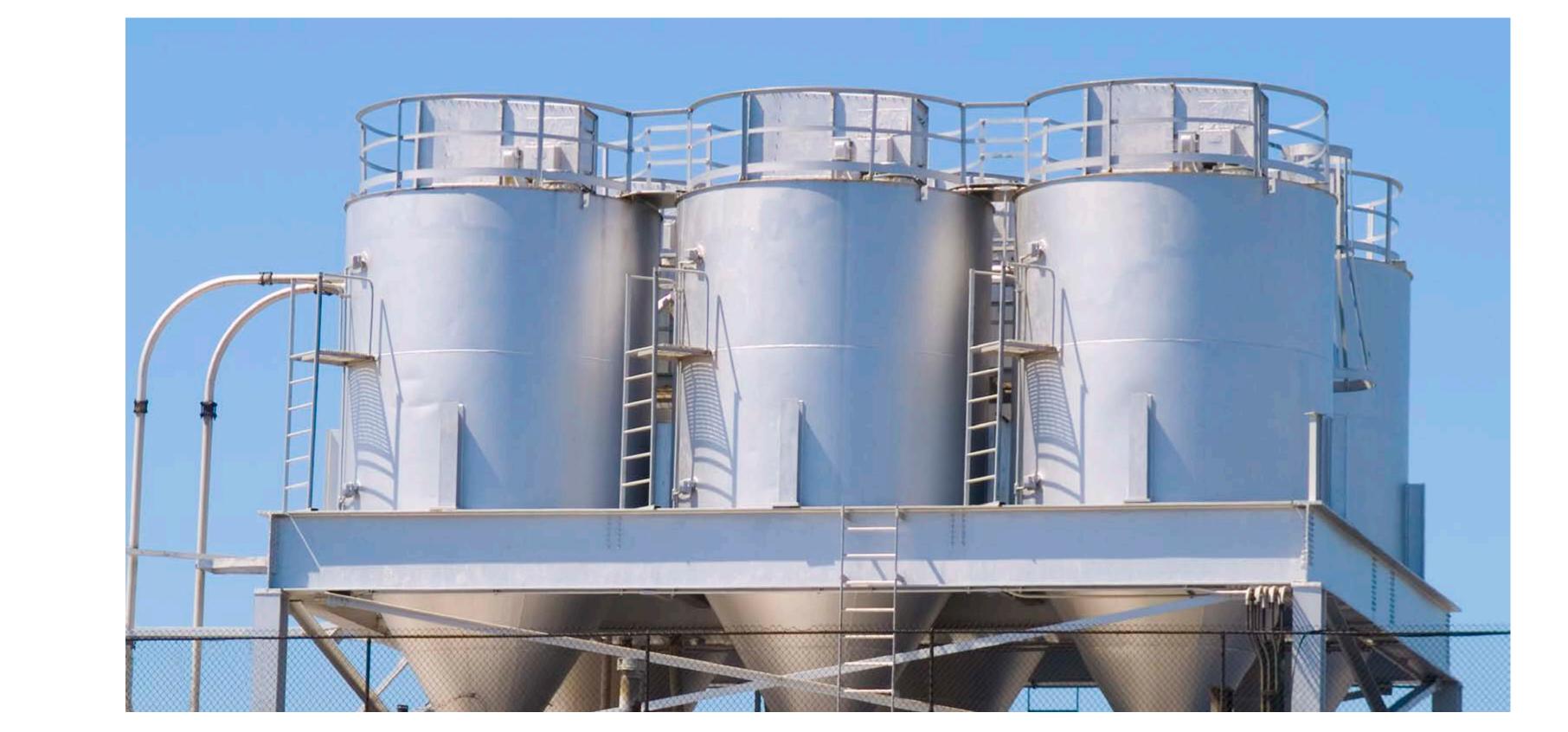
- Flammable (liquids and gasses)
- **HNOCs**
- Skin sensitizer
- Respiratory sensitizer
- Mutagen
- Carcinogen
- Reproductive Toxin
- **Aspiration**

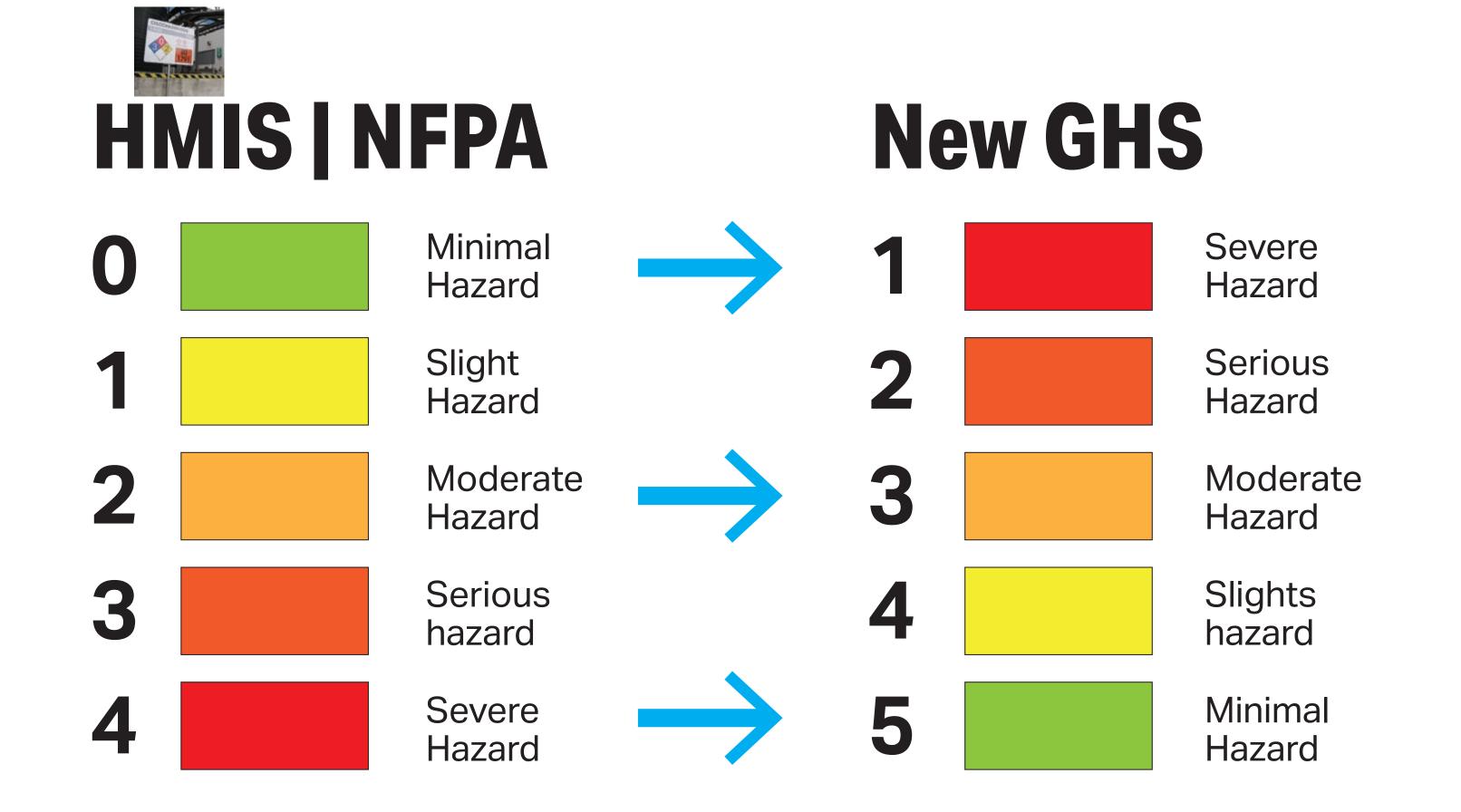


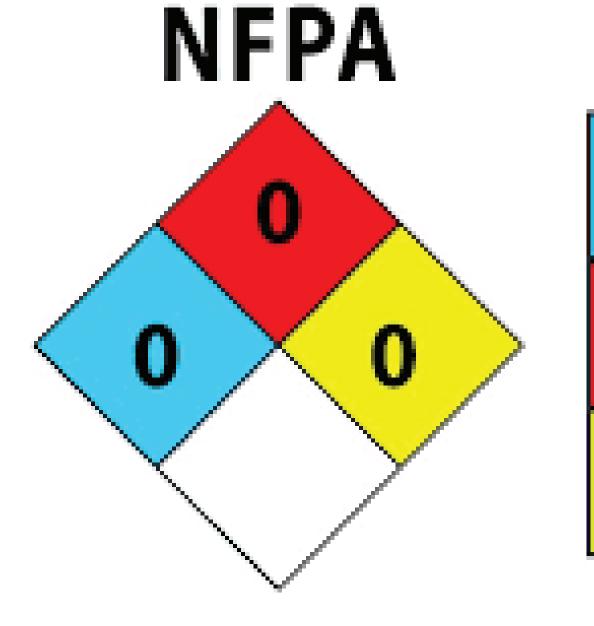




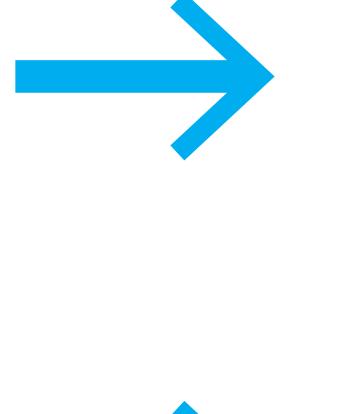
- Before HAZCOM 2012, there was no site standard labeling system. HAZCOM 1986 requirements were met by including the information required at that time.
- Pre-GHS there was HMIS, NFPA and ANSI labeling standards that were used to meet the 1986 OSHA HAZCOM standard.
- At our largest production plant in the United States, we used a variety of labeling systems on site pre-GHS, primarily NFPA 704 and ANSI formats.
- Given how large this production plant is and how different the chemistries produced there are, converting to GHS by June 1st 2016 was not logistically practical.
- Since the alternative labeling met the OSHA requirements, GHS conversion of all vessels began shortly after this deadline.
- The GHS conversion prioritization was based primarily on logistics factors so that designated units became GHS labeled all at once.
- This made the most sense for physical installation of the labels as well as gathering all of the appropriate personnel to provide the required information for the contents of all the vessels. Installations began in late 2016.
- By the end of the first quarter of 2019, all units are expected to be GHS labeled.
- At the end of this 4 year project, about 2500 GHS labels will have been installed site wide.

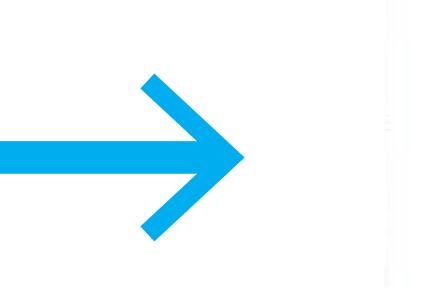


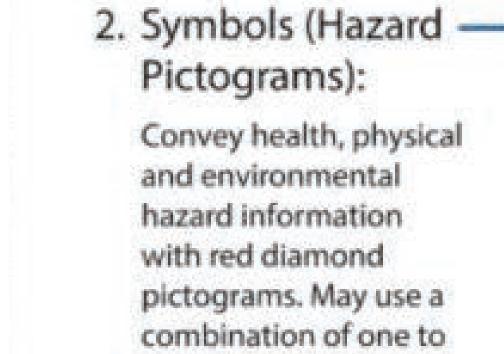




HMIS Health Hazard 0 Fire Hazard 0 Reactivity







five symbols.

1. Signal Word:

level of hazard.

Indicates relative

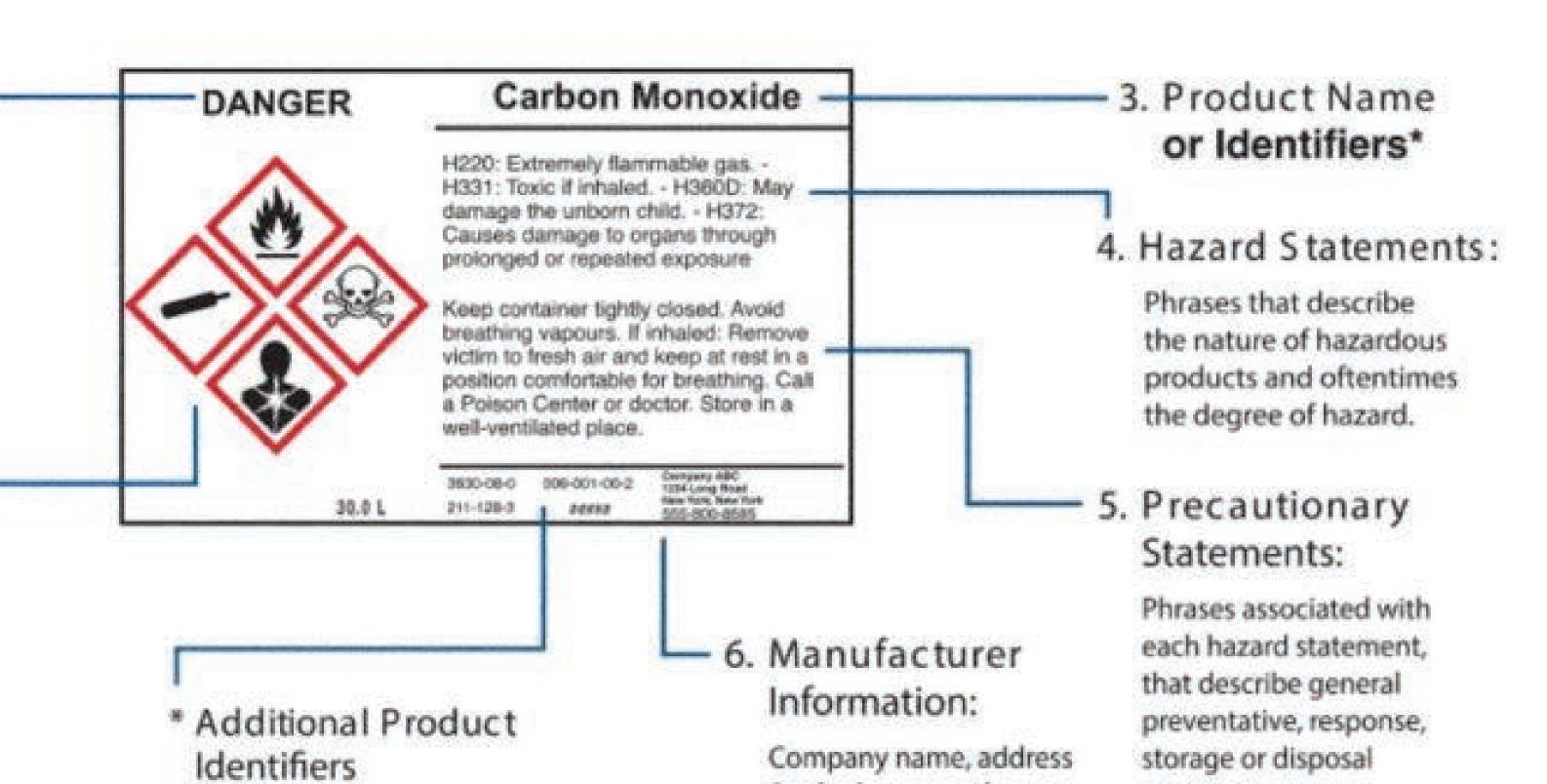
"Danger" is used

for most severe

instances, while

"Warning" is less

severe.



& telephone number.

precautions.

GHS Label Elements



