Corona Fire Department

Hazardous Materials Identification Signage Guideline per 2022 California Fire Code

PURPOSE

Fire incidents and other accidents involving hazardous materials require special consideration by emergency response personnel. In order to provide emergency response personnel with information about the nature of the materials that they may encounter within a business site, hazardous materials identification signs are required to be posted in accordance with these procedures.

SCOPE

This document was developed to provide details for the posting of signs and or placards in accordance with 2022 California Fire Code and NFPA 704. This guideline specifies the design and placement of hazardous materials identification signs on the property and within structures in which hazardous materials and hazardous wastes are stored, used, processed, or handled.

REQUIREMENTS

A. Applicability

Hazardous materials identification signs shall be required as specified in the California Fire Code. In general, signs are required when the quantities of hazardous materials at a single site are sufficient to warrant the issuance of a permit. Additionally, it is typical to placard with the numerals representing the highest hazard per classification, in the building or area, unless otherwise directed by the Fire Department. A table defining these quantities is referenced in Attachment I.

1. This standard is applicable to industrial, commercial, and institutional facilities that manufacture, process, use or store hazardous materials.
2. This standard is not applicable to transportation or to use by the public.
3. This standard is not applicable to chronic exposure or to non-emergency occupational exposure.

B. Classification of Hazardous Materials

The California Fire Code defines a variety of hazard classes associated with hazardous materials. These can be summarized into two distinct categories: **physical hazards** and **health hazards**. The standard for identification further identifies the need to address two additional categories: **reactivity hazards** and **special hazards**. Within each of these general hazard categories are numerous hazard classes. Many hazardous materials pose multiple hazards and thus warrant several hazard classes. In order to accurately assess the nature of the hazardous materials stored or used at a business, a Chemical Classification Package or Hazardous Materials Inventory Statement may be required to be completed by the business owner or their representative. This step requires the business to accurately assess their materials against the specific hazard class definitions found in the California Fire Code and to total the quantities of materials within each hazard class for both use and storage conditions. Once this has been accomplished, those hazard classes in which the aggregate quantity of materials exceeds the permit threshold are required to have hazardous materials identification signs posted.

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CALIFORNIA FIRE CODE HAZARD CLASSES AND RATINGS

Specific hazard classes as defined in the California Fire Code are listed below for reference:

PHYSICAL HAZARDS:			
FLAMMABLE SOLID	FLAMMABLE GAS	LIQUIFIED PETROLEUM GAS	FLAMMABLE LIQUID 1A, 1B, 1C
UNSTABLE REACTIVE 1, 2, 3, 4	OXIDIZER 1, 2, 3,4	WATER REACTIVE 1,2,3	COMBUSTIBLE LIQUID II, IIIA, IIIB
EXPLOSIVES	PYROPHORIC	ORGANIC PEROXIDE I, II,III, IV, V	
HEALTH HAZARDS:			
TOXIC	CORROSIVE	HIGHLY TOXIC	CRYOGEN
REACTIVITY HAZARDS:			
PYROPHORIC	EXPLOSIVES	WATER REACTIVE 1,2,3	UNSTABLE REACTIVE 1, 2, 3, 4
SPECIAL HAZARDS:			
WATER REACTIVE 1,2,3 **(~~W~~)**		OXIDIZER 1, 2, 3,4 **(OX)**	

Note #1: Many of these hazard classes may be found in all three material states (solid, liquid, gas).
Note #2: Many chemicals have two or more hazard classes.

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Assignment of ratings and degrees of hazard, per NFPA 704:

Identification of **Health Hazard** Color Code: **BLUE**		Identification of **Flammability** Color Code: **RED**		Identification of **Reactivity** (Stability) Color Code: **YELLOW**	
Type of Possible Injury		Susceptibility of Materials to Burning		Susceptibility to Release of Energy	
Signal		Signal		Signal	
4	Materials that on very short exposure could cause death or major residual injury.	**4**	Materials that will rapidly or incompletely vaporize at atmospheric pressure and normal ambient temperature, or that are readily dispersed in air and that will burn readily.	**4**	Materials that in themselves are readily capable of detonation or of explosive decomposition or reaction at normal temperatures and pressures.
3	Materials that on short exposure could cause serious temporary or residual injury.	**3**	Liquids and solids that can be ignited under almost all ambient temperature conditions.	**3**	Materials that in themselves are capable of detonation or explosive decomposition or reaction but require a strong initiating source or which must be heated under confinement before initiation, or which react explosively with water.
2	Materials that on intense or continued but not chronic exposure could cause temporary incapacitation or possible residual injury.	**2**	Materials that must be moderately heated or exposed to relatively high ambient temperatures before ignition can occur.	**2**	Materials that readily undergo violent chemical change at elevated temperatures and pressures or which react violently with water, or which may form explosive mixtures with water.
1	Materials that on exposure would cause irritation but only minor injury.	**1**	Materials that must be pre-heated before ignition can occur.	**1**	Materials that in themselves are normally stable, but which can become unstable at elevated temperatures and pressures.
0	Materials that on exposure under fire conditions would offer no hazard beyond that of ordinary combustible material.	**0**	Materials that will not burn.	**0**	Materials that in themselves are normally stable, even under fire conditions, and which are not reactive with water.

C. Hazardous Materials Sign and Placard Requirements (See Attachment 2 for Examples)

1. Hazardous materials signs (and/or placards) indicate the degree of severity by a numerical rating that ranges from four (4), indicating severe hazard to zero (0), indicating no hazard.
2. The information is presented by a spatial arrangement of numerical ratings with the health rating always at the nine o'clock position; the flammability always at the twelve o'clock position, and the reactivity always at the three o'clock position. Each rating is located in a square-on-point field, each of which is assigned a color: blue for health; red for flammability hazard; yellow for reactivity hazard. The fourth space, the six o'clock position is reserved for indicating any unusual reactivity with water. The standard symbol for unusual reactivity with water is a "W" with a line through the center: W No special color is assigned to this square; it is typically white.
3. Individual Containers, Cartons & Packages:
    a. Individual containers, cartons, and packages shall be labeled with the appropriate hazard classes defined in the California Fire Code and specified in this document. Labels shall be both visible and legible. The label and lettering size shall be determined by the physical size of the container, package or vessel. This provides the inspector with considerable flexibility in determining the adequacy of labeling systems and that the intent of the CFC has been satisfied. The requirements of this section *may* be considered met if:
        1. An individual package has been labeled according to D.O.T. or O.S.H.A. Requirements and the label provides sufficient data to identify the consistent with the specific hazard classes defined in the California Fire Code.
        2. The label indicates the primary hazards of the product and is generally consistent with the specific hazard classes defined in the California Fire Code.

D. Hazardous Materials Identification Sign Placement (See Attachment 3 for examples).

Hazardous materials identification signs shall be located as specified by the California Fire Code and this document.

1. Rooms, Buildings or Outside Areas

Hazardous material identification signs shall be placed adjacent to or on all swinging doors providing direct access to any room, building, or area containing hazardous materials in sufficient quantities to require the issuance of a permit as specified by the California Fire Code. Signs may be located on or adjacent to the doors as directed by the inspector. The location and number of signs is subject to the approval of the inspector based on site-specific conditions.

2. Aboveground Tanks & Vats

Tanks and vats shall be posted with hazardous materials identification signs located so it is visible from all angles of approach. In general, this will require four (4) signs located at equal distant locations around the vessel. The number of signs may be reduced when the vessel cannot be approached from one or more sides.

3. Individual Containers, Cartons & Packages

Hazardous Materials Identification signs shall be located in a manner that allows the handler of the container, carton, or packages to see the label during the storage and handling process. One or more labels may be appropriate to meet these requirements.

4. Other Warning Sign Requirements

The California Fire Code requires special warning signs for numerous potentially hazardous specialized activities. These include storage and dispensing of flammable liquids, Liquefied Petroleum Gas installations, welding operations, spray painting, dust-producing operations, supply piping, etc. This guideline shall not be used to prevent the installation of any specialized warning sign otherwise required by the California Fire Code.

Rooms or cabinets containing compressed gases shall be conspicuously labeled:

COMPRESSED GAS

Hazardous materials signs and markings shall not be obscured or removed and shall be in English as a primary language or in symbols allowed by the Fire Code. Signs shall be durable, and the size, color, and lettering shall be approved.

5. Existing Conditions

When hazardous materials identification signs have been previously approved by the Corona Fire Department and such signs continue to provide accurate information regarding the California Fire Code hazard classes present and the existing signs are in sufficient number, such signs shall be deemed as acceptable without modification.

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Attachment 1 - Hazardous Materials Permit Chart

Hazard Class/Permit Type	Permit Amount	Permit #	CUPA Disclosure Amount
Aerosol Product (Level 2 & 3)	500 pounds	105.5.2	55 gallons
Combustible Liquid, Class II & IIIA	> 25 gallons inside, or 60 gallons outside	105.5.18	55 gallons
Compressed Gas (Corrosive)	> 200 cubic feet	105.5.9	200 cubic feet
Corrosive Solid or Liquid	> 55 gallons, or 500 pounds	105.5.22	55 gallons 500 pounds
Cryogen, Flammable	> 1 gallon inside, or 60 gallons outside	105.5.11	55 gallons
Cryogen, Highly Toxic	Any amount	105.5.11	55 gallons
Cryogen, Inert	> 60 gallons inside or 500 gallons outside	105.5.11	55 gallons
Cryogen, Oxidizing	> 10 gallons inside or 50 gallons outside	105.5.11	55 gallons
Cryogen, Physical or Health Hazard not otherwise specified	Any Amount	105.5.11	55 gallons
Explosive materials	Any amount	105.5.16	55 gallons or 500 pounds
Flammable Gas	> 200 cubic feet	105.5.9	200 cubic feet
Flammable Liquid (Class I)	> 5 gallons inside or 10 gallons outside	105.5.18	55 gallons
Flammable Solid	> 100 pounds	105.5.22	500 pounds
Highly Toxic materials	Any amount; solid, liquid or gas	105.5.9 105.5.22	55 gallons 500 pounds 200 cubic feet
Inert or Simple Asphyxiant Gas	> 6000 cubic feet	105.5.9	1000 cubic feet
Liquefied Petroleum Gas	Any amount in storage or use	105.5.29	55 gallons
Organic Peroxide, Class I & II Organic Peroxide, Class III Organic Peroxide, Class IV Organic Peroxide, Class V	Any amount of solid or liquid > 1 gallon, or 10 pounds > 2 gallons, or 20 pounds No permit required	105.5.22	55 gallons 500 pounds
Oxidizing Gas	> 504 cubic feet	105.5.9	200 cubic feet
Oxidizing material, Class 4 Oxidizing material, Class 3 Oxidizing material, Class 2 Oxidizing material, Class 1	Any amount solid or liquid > 1 gallon, or 10 pounds > 10 gallons, or 100 pounds > 55 gallons, or 500 pounds	105.5.22	55 gallons 500 pounds
Pyrophoric Gas	Any amount	105.5.9	200 cubic feet
Pyrophoric materials	Any amount of solid or liquid	105.5.22	55 gallons 500 pounds
Toxic Gas	Any amount	105.5.9	200 cubic feet
Toxic material	> 10 gallons, 100 pounds	105.5.22	55 gallons, 500 pounds
Unstable Reactive, Class 3 & 4 Unstable Reactive, Class 2 Unstable Reactive, Class 1	Any amount solid or liquid > 5 gallons, or 50 pounds > 10 gallons, or 100 pounds	105.5.22	55 gallons 500 pounds
Water Reactive, Class 3 Water Reactive, Class 2 Water Reactive, Class 1	Any amount solid or liquid > 5 gallons, or 50 pounds > 55 gallons, or 500 pounds	105.5.22	55 gallons 500 pounds

Attachment 2 – Identification of Materials by Hazard Signal System

Figure 1:

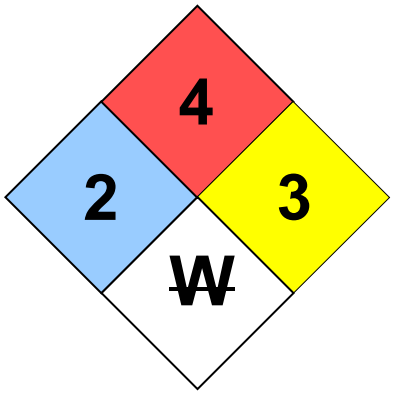


Figure 1:
Adhesive- backed plastic background pieces, one needed for each numeral, three needed for each complete signal to make up the three colors.

For use where specified color background is used with numerals of contrasting colors.

Figure 2:

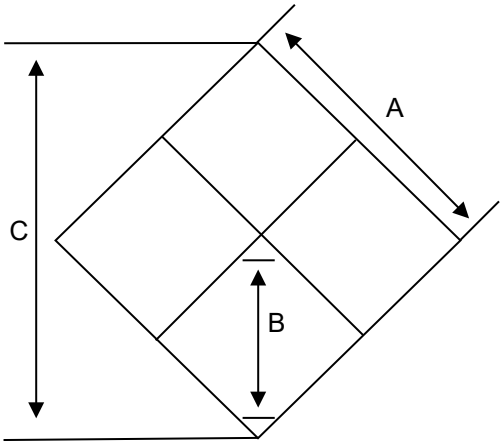


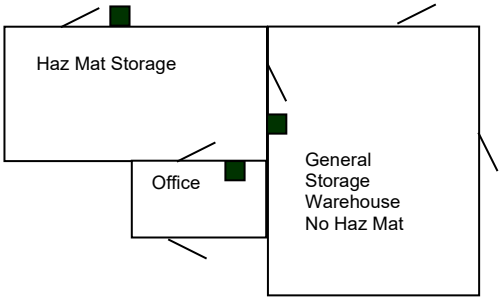
Figure 2:
Dimension of NFPA 704 placard and numerals.

See chart below for sizing.

Size of Numerals/ Signals: Height	Width	Stroke	"A" Placard Side dimension	"B" Letter height
1"	.7"	5/32"	2 ½"	1 ¼"
2"	1.4"	5/16"	5"	2 ½"
3"	2.1"	15/32"	7 ½"	3 ¾"
4"	2.8"	5/8"	10"	5"
6"	4.2"	15/16"	15"	7 ½"

Distance at which signals must be legible	"C" Minimum size required
50 feet	1"
75 feet	2"
100 feet	3"
200 feet	4"
300 feet	6"

Attachment 3 – Common Hazard Signal Locations



Example 1
Storage/Non-storage

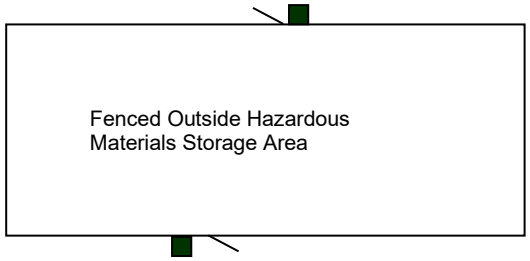
All doors leading into Hazmat Storage area are placarded.

■ = sign/placard location

Example 2
Warehouse/Office

All doors leading into Hazmat Storage areas are placarded.

■ = sign/placard location



Example 3
Outside Storage Area

All doors leading into Hazmat Storage areas are placarded.

■ = sign/placard location