

MARKING REQUIREMENTS AND GUIDELINES FOR HAZARDOUS MATERIALS AND HAZARDOUS WASTES

For Use by Unidocs Member Agencies or where approved by your Local Jurisdiction

Authority Cited: California Fire Code; California Health and Safety Code (HSC); Title 22 California Code of Regulations (CCR) Hazardous Materials Storage Ordinance (HMSO)¹, Toxic Gas Ordinance (TGO)¹

I. General Information:

Hazardous materials and hazardous waste containers and storage areas shall be marked in order to identify their contents and the hazard(s) posed by them. This document is intended to supplement OSHA and DOT requirements for maintaining identification and hazard labels on containers and requirements of the National Fire Protection Association (NFPA) 704 "Standard System for the Identification of the Hazards of Materials for Emergency Response," as adopted by the California Fire Code. NFPA 704 is available for free online viewing at: www.nfpa.org/aboutthecodes/AboutTheCodes.asp?DocNum=704.

The NFPA 704 system is the predominant emergency response marking standard and may be required for buildings and areas containing regulated amounts of hazardous materials.

This document is divided into two main parts: Section III lists requirements which must be followed, and cites the specific code sections supporting them; Section IV is a collection of Guidelines which, when followed, will assist emergency response personnel in the event of an emergency at your facility. You are strongly encouraged to implement the Guidelines, although they are not required by code. Please note that the Guidelines may not be applicable in all circumstances. If assistance is needed in applying them, contact your local agency.

II. Definitions:

The following definitions apply with regard to requirements specified in this document:

Chemical Name -	The technical chemical identity of a material except where a common term (e.g., gasoline) is a generally recognized name.
Hazard Class -	As defined by the United States Department of Transportation (DOT). [See Title 49 Code of Federal Regulations, Part 173.2.]
Hazardous Material -	Any non-waste material regulated by federal, state, or local jurisdictions as hazardous.
Hazardous Waste -	Any waste material regulated by the State of California as hazardous waste.

III. Requirements:

A. General:

1. Markings shall be made of durable materials and shall be replaced as needed due to normal aging and fading. [CFC §2703.6]
2. Markings shall be in English. Markings in other languages should be provided where appropriate. [CFC §2703.6]
3. Signs prohibiting smoking shall be posted in enclosed hazardous materials storage/handling areas and within 25 feet of outdoor hazardous materials storage/handling areas. [CFC §2703.7.1]

¹ HMSO and TGO requirements are applicable only within Santa Clara County.

B. Specific for Hazardous Materials:

1. Compressed Gases and Liquefied Gases:

- a. Stationary compressed gas containers and tanks shall be marked with the name of the gas and NFPA 704 placards. Markings shall be visible from any direction or approach. [CFC §3003.4.1]
- b. Portable containers, cylinders, and tanks shall be marked in accordance with Compressed Gas Association (CGA) Standard C-7. [CFC §3003.4.2]
- c. All portable toxic gas tanks and cylinders shall be marked to indicate the valve's orifice size, in inches. The orifice size shall be printed on the certification tag for the portable tank or cylinder as well as on the vessel itself. The lettering shall be a minimum of 1/4" high. [TGO]
- d. Rooms or cabinets shall be conspicuously labeled "COMPRESSED GAS." [CFC §2703.5.1]

2. Piping and Tubing Containing Hazardous Materials Liquids and Gases:

- a. All exposed piping and tubing, including gas exhaust systems prior to treatment, which contain hazardous materials shall be marked at intervals no greater than every twenty (20) feet with the name of the material contained and the direction of flow. Lines shall be marked thus at each point where changes in direction occur and where wall, ceiling, or floor penetration occurs. Where lines are shorter than 20 feet in length, such markings shall appear at least once along the length of the run. Where supplementary color identification of piping is used, it shall be in accordance with the hazardous materials and colors indicated in nationally recognized standards as referenced in the California Fire Code. [CFC §§2703.2.2.1 and 3003.4.3]
- b. Emergency control valves and shut-off valves shall be marked to indicate their function. [CFC §2703.2.2.1]

3. Open Tanks, Vats, and Baths:

Open tanks, vats, and baths shall be marked in accordance with NFPA 704. [CFC §2703.5]

4. Aboveground Storage Tanks:

Aboveground tanks shall be marked in accordance with NFPA 704. [CFC §2703.2.4.2.1]

5. Storage Cabinets:

- a. Cabinets used for the storage of flammable liquids shall be provided with a conspicuous label in red letters on contrasting background which reads "FLAMMABLE - KEEP FIRE AWAY." [CFC §3404.3.2.1.2]
- b. Cabinets used for hazardous materials other than flammable liquids shall be provided with a conspicuous label in red letters on contrasting background which reads "HAZARDOUS - KEEP FIRE AWAY." [CFC §2703.8.7.2]

6. Empty Hazardous Materials Containers: [22 CCR §66261.7(f)]

Each empty container² larger than 5 gallons which previously held a hazardous material and is considered a hazardous waste shall be marked with the date it was emptied.

² The California Department of Toxic Substances Control (DTSC) Fact Sheet titled "Managing Empty Containers" (available at www.dtsc.ca.gov) defines what constitutes an "empty" container.

[Exceptions: (1) Empty gas cylinders are exempt when the pressure in the container reaches atmospheric pressure; (2) Aerosol cans are exempt provided that they are not a RCRA-regulated hazardous waste or California extremely hazardous waste and that the containers are emptied of contents and propellant to the maximum extent practical under normal use; (3) Containers or container liners made of wood, paper, cardboard, fabric, or any other similarly absorptive materials must be managed as hazardous wastes if they were in direct contact with and have absorbed the hazardous waste or hazardous material they held; (4) Containers or container liners which have held RCRA acutely hazardous (P List) wastes or California extremely hazardous wastes must be managed as hazardous wastes unless they have been triple rinsed or otherwise cleaned in a manner approved by the California Department of Toxic Substances Control.]

7. Stations Dispensing Gasoline or Other Flammable Liquids:

- a. Conspicuous signs shall be posted within sight of each dispenser prohibiting smoking, dispensing into unapproved containers, and filling portable containers in or on a motor vehicle. The signage shall also instruct the user to discharge static electricity before fueling and to wait until pumping is complete before reentering the vehicle. [CFC §2205.6]
- b. Dispenser operating instructions shall be conspicuously posted in approved locations on every dispenser. [CFC §2204.2.3]
- c. For unattended self-service dispensing, in addition to the dispensing operating instructions noted above, signage shall include the location(s) of the emergency fuel shut-off switch(es). [CFC §2204.3.4]
- d. The emergency shut-off switch(es) for the dispensing operation shall be marked "EMERGENCY FUEL SHUTDOWN DEVICE" [CFC §2203.2]
- e. For unsupervised dispensing, the following sign shall be posted in a conspicuous location: [CFC §2204.3.5]

<p>IN CASE OF FIRE, SPILL OR RELEASE</p> <p>1. Use emergency pump shutoff! 2. Report the accident! Fire Department No. 911 Facility address _____</p>

[Note: If applicable, a facility's internal fire department number may be shown on the sign in place of 911. However, the facility must still call 911 in the event of an emergency.]

C. Specific for Hazardous Wastes:

These requirements apply to generators of hazardous waste while waste is being accumulated or stored on-site. 22 CCR §§66262.31 and 66262.32 require that all applicable U.S. Department of Transportation (DOT) marking and labeling requirements be met prior to offering waste for transportation.

1. Accumulation/Storage Containers and Portable Tanks: *(Other than Point of Generation accumulation containers)* [22 CCR §66262.34(f)]

Accumulation or storage containers and portable tanks shall be marked with the following information:

- The words "HAZARDOUS WASTE"
- The accumulation start date for the waste in the container;

- Composition (*e.g., waste oil; acetone 40%, toluene 60%; etc.*) and physical state (*i.e., solid, liquid, etc.*) of the waste;
- Hazardous properties (*i.e., flammable, corrosive, reactive, toxic, etc.*) of the waste;
- Name and address of the facility generating the waste.

2. Accumulation/Storage Tanks: (*Non-portable*)

- a. Accumulation or storage tanks, including underground storage tank fill pipes, shall be marked with the following information: [22 CCR §66262.34(f)]
 - The words “HAZARDOUS WASTE”
 - The accumulation start date for the waste in the tank.
- b. Aboveground tanks shall also be marked in accordance with NFPA 704. [CFC §2703.2.4.2.1]

3. Point of Generation Accumulation Containers: [22 CCR §66262.34(e) and (f)]

Point of Generation accumulation containers shall be marked with the following information:

- The words “HAZARDOUS WASTE”
- The initial accumulation start date for the waste in the container;
- The date the Point of Generation accumulation quantity limit (*55 gallons for hazardous waste, 1 quart for extremely hazardous waste*) is reached;
- Composition (*e.g., waste oil; acetone 40%, toluene 60%; etc.*) and physical state (*i.e., solid, liquid, etc.*) of the waste;
- Hazardous properties (*e.g., flammable, corrosive, reactive, toxic, etc.*) of the waste;
- Name and address of the facility generating the waste.

4. Used Oil: [22 CCR §66279.21(b)]

In addition to all other information required to be marked on hazardous waste containers/tanks, containers and aboveground tanks used to store used oil and fill pipes used to transfer used oil into underground storage tanks shall be marked or clearly labeled with the words, “USED OIL.”

5. Hazardous Waste Treatment Units: [22 CCR §67450.3(c)(7)]

- a. Hazardous waste tanks or treatment units operating under Tiered Permit provisions shall be marked with:
 - The name of the person/facility (*legal entity*) which owns the tank/unit;
 - The facility’s EPA ID number;
 - The tank/unit’s individual serial number.
- b. Tanks not subject to continuous throughput shall additionally be marked with:
 - The words “HAZARDOUS WASTE.”
 - The accumulation start date for the waste in the tank.

6. Containers Holding Used Oil Filters (not commingled with gasoline fuel filters): [22 CCR §66266.130(c)(3) and [HSC §22250.22(b)(1)]

Containers holding drained used oil filters and/or drained Diesel fuel filters to be transported off-site - either directly or via a storage or consolidation facility - to a smelter for recycling shall be marked with the following information:

- The words “DRAINED USED OIL FILTERS”
- The accumulation start date for the filters in the container.

[Note: All other used oil filter containers shall be marked per hazardous waste accumulation/storage container requirements.]

7. Containers Holding Used Gasoline Fuel Filters:

Containers holding drained used gasoline fuel filters to be transported off-site - either directly or via a storage or consolidation facility - to a smelter for recycling shall be marked with the following information:

- The words “USED OIL AND GASOLINE FILTERS” [HSC §22250.22(b)(1)]
- The accumulation start date for the filters in the container. [22 CCR §66266.130(c)(3)]

[Note: All other used gasoline fuel filter containers shall be marked per hazardous waste accumulation/storage container requirements.]

8. Containers and Tanks Holding Recyclable Hazardous Materials: [HSC 25143.9(a)]

Containers and tanks holding recyclable hazardous materials excluded from classification as hazardous waste pursuant to HSC §25143.2(b) or (d) shall be marked as follows.

a. Containers or Portable Tanks:

- The words “EXCLUDED RECYCLABLE MATERIAL”
- The accumulation start date for the material in the container;
- Composition (*e.g., oil; acetone 40%, toluene 60%; etc.*) and physical state (*i.e., solid, liquid, etc.*) of the material;
- Hazardous properties (*e.g., flammable, corrosive, reactive, toxic, etc.*) of the material;
- Name and address of the facility generating the material.

b. Non-Portable Tanks:

i. Accumulation or storage tanks shall be marked with the following information:

- The words “EXCLUDED RECYCLABLE MATERIAL”
- The accumulation start date for the material in the tank.

ii. Aboveground tanks shall also be marked in accordance with NFPA 704. [CFC §2703.2.4.2.1]

9. Universal Wastes:

Universal Wastes (UW) are wastes regulated pursuant to Chapter 23 of Division 4.5, Title 22 CCR or HSC §25201.16. UW must be marked as follows:

- a. Aerosol Cans** – Each container holding UW aerosol cans shall be clearly marked with any one of the following phrases: “Universal Waste – Aerosol Cans,” “Waste Aerosol Cans,” or “Used Aerosol Cans.” [HSC §25201.16(f)(6)]
- b. Batteries** – Each battery, or each container in which UW batteries are held, shall be marked with any one of the following phrases: “Universal Waste – Battery(ies),” or “Waste Battery(ies),” or “Used Battery(ies).” [22 CCR §66273.14(a) or 66273.34(a)]

- c. Dental Amalgam** – Each container holding UW dental amalgam shall be marked with any one of the following phrases: “Universal Waste – Dental Amalgam,” “Waste Dental Amalgam,” or “Scrap Dental Amalgam.” [22 CCR §66273.14(f) or 66273.34(f)]
- d. Electronic Devices** – Each electronic device, or each container or pallet in or on which UW electronic devices are held, shall be marked with any one of the following phrases: “Universal Waste – Electronic Device(s)” or “UW – Electronic Device(s).” [22 CCR §66273.14(d) or 66273.34(d)]
- UW electronic devices may instead be accumulated within a designated area demarcated by boundaries that are clearly marked with any one of the following phrases: “Universal Waste – Electronic Device(s)” or “UW – Electronic Device(s).” [22 CCR §66273.14(d)(1) or 66273.34(d)(1)]
- e. Lamps** – Each lamp, or each container or package in which UW lamps are held, shall be marked with any one of the following phrases: “Universal Waste – Lamp(s),” or “Waste Lamp(s),” or “Used Lamp(s).” [22 CCR §66273.14(e) or 66273.34(e)]
- f. Other Universal Wastes** – The following Universal Wastes, or containers holding such Universal Wastes, shall be marked as indicated:
- **Counterweights and Dampers** or products containing such items shall be marked per 22 CCR §66273.14(i) or 66273.34(i), as appropriate.
 - **Dilators and Weighted Tubing** shall be marked per 22 CCR §66273.14(j) or 66273.34(j), as appropriate.
 - **Gas Flow Regulators** shall be marked per 22 CCR §66273.14(l) or 66273.34(l), as appropriate.
 - **Mercury Switches and Thermometers** shall be marked per 22 CCR §66273.14(e) or 66273.34(e), as appropriate.
 - **Novelties Containing Mercury** shall be marked per 22 CCR §66273.14(h) or 66273.34(h), as appropriate.
 - **Pressure or Vacuum Gauges and containers holding mercury drained from such gauges** shall be marked per 22 CCR §66273.14(g) or 66273.34(g), as appropriate.
 - **Rubber Flooring Containing Mercury** shall be marked per 22 CCR §66273.14(k) or 66273.34(k), as appropriate.
 - **Thermostats** shall be marked per 22 CCR §66273.14(b) or 66273.34(b), as appropriate.

Universal Waste items, the containers they are accumulated/stored in, or their designated storage areas are also subject to accumulation start date marking requirements of 22 CCR §66273.15 or 66273.35 unless the UW handler maintains an inventory system for tracking UW accumulation times per 22 CCR §66273.15(c)(3), (4), or (6) (for small quantity UW handlers); or 22 CCR §66273.35(c)(3), (4), or (6) (for large quantity UW handlers).

IV. Guidelines:

A. General:

1. Storage areas should be identified by markings (e.g., signs, stenciling, etc. on walls or fences) as described below.
2. Unless specified otherwise, lettering should be large enough to be read from a distance of 20 feet. For recommendations regarding small containers or unusual circumstances, contact your local agency.
3. Lettering should contrast highly with the background.

4. Markings should not be located where they might be obstructed (e.g., by open doors, equipment, etc.). Drums with side markings or labels shall be positioned with the markings/labels facing outwards.
5. To assist emergency response personnel, it is recommended that empty container storage areas and pipes or containers holding non-hazardous materials be clearly identified.

B. Specific for Hazardous Materials:

1. Chemical Storage Areas; Drum and Container Storage Areas, Rooms, or Sheds; and Cylinder Rack Storage Areas:

Areas should be marked with signs which show each of the hazard class(es) of the chemical(s) stored.

EXAMPLES:

<i>If acids and alkaline corrosives are stored</i>	<i>If flammable solids are stored:</i>
CORROSIVE (ACID) ³ CORROSIVE (BASE) ³	FLAMMABLE SOLID

2. Compressed Gases and Liquefied Gases:

- a. Gas cylinders should have marked, on the cylinder body, the chemical name and hazard class of each gas contained within and, in the case of mixtures, the percentage or parts-per-million (ppm) concentration(s) of the hazardous constituent(s). This information should be visible from the front side of the cylinder. If the DOT label is not readily visible, a label indicating the DOT hazard class of the gas should be placed above the cylinder.
- b. Gas cabinets should be marked with the same information required on cylinders.
- c. Excess flow control valves on all portable toxic gas tanks and cylinders should be marked to indicate the maximum design flow rate, based on air under standard conditions.

3. Safety Cans:

All safety cans should be marked with the chemical name and hazard class of the liquid contained within. If safety cans are used for the collection of hazardous waste, they shall be labeled in accordance with the requirements specified in section III, C, above.

4. Open Tanks, Vats, and Baths:

- a. Open tanks, vats, and baths should be identified with a marking on the tank or on a wall directly behind the vessel. The marking should show the chemical name, hazard class, and percentage concentration of the single highest-hazard material, including constituents of mixtures or solutions contained within the vessel.
- b. Rinse-dragout tanks should be marked "RINSE WATER" or equivalent.

5. Aboveground Storage Tanks:

- a. Aboveground tanks should be identified with a marking on the tank which shows the chemical name, hazard class, and percentage concentration of the single highest-hazard material, including constituents

³ Information in parentheses is optional.

of mixtures or solutions contained within the tank. Such markings should be easily visible from a distance of 60 feet.

- b. Tanks holding liquid cryogenics should be marked as per the following examples:

	<i>If liquid oxygen is stored</i>	<i>If liquid hydrogen is stored</i>
Tank marking:	LIQUEFIED OXYGEN	LIQUEFIED HYDROGEN FLAMMABLE GAS
Storage site marking:	OXYGEN NO SMOKING NO OPEN FLAMES WITHIN 10 FEET	LIQUEFIED HYDROGEN FLAMMABLE GAS NO SMOKING NO OPEN FLAMES WITHIN 50 FEET

- c. Tanks containing water, process cooling water, rinse water, deionized water, etc. should be marked with the name of the material contained.

6. Storage Cabinets:

Hazardous materials storage cabinets should be marked with the hazard class(es) of the materials contained.