Guide to the California Hazard Communication Regulation

Department of Industrial Relations
Cal/OSHA Consultation Service
Education Unit

Guide to the California Hazard Communication Regulation

This guide is not meant to be substitute for—or a legal interpretation of—the occupational safety and health standards. The reader is cautioned to refer directly to the *California Code of Regulations, Title 8,* or the *Labor Code* for detailed and exact information, specifications, and exceptions.

Publishing Information

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About This Guide

Every day at workplaces throughout California, employees work with or are incidentally exposed to hazardous substances that can harm their health or cause safety hazards. This guide is designed to help employers and employees understand the requirements of the hazard communication regulation by providing a simplified and clear overview of the major program elements.

For easy reference, this guide is separated into seven main sections:

I. **Scope,** which explains what employers and what types of substances are subject to the regulation, as well as the exemptions from the regulation

II. **Hazard Determination,** which explains how responsible parties can determine which specific substances are hazardous

III. **Material Safety Data Sheets (MSDSs),** which explains what an MSDS is, what categories it must include, and how this information can be used to educate employees on the hazards of chemicals

IV. **Labels and Other Forms of Warning,** which explains labeling requirements and the importance of implementing a visual warning system that will quickly and effectively alert employees to potentially dangerous chemicals and situations

V. **Written Hazard Communication Program,** which explains all the requirements of such a program

VI. **Employee Information and Training,** which addresses employers' responsibilities for making sure that their employees are trained—prior to starting work—on the safe handling of hazardous substances they are or may be exposed to in their jobs and on the ways in which they can protect themselves from those hazards

VII. **Trade Secret Protection,** which addresses how manufacturers may comply with the regulation without revealing the specifics of a chemical compound

At the back of this guide, there are six attachments intended to further assist employers in setting up or improving an existing hazard communication program. Attachments A through D are samples of various elements of an effective written program. The basic format can be tailored to reflect your individual work site and the chemical substances found there. Attachments E and F relate to MSDS forms—how to request one from the manufacturer and what the appropriate form should look like.

Whatever the size of the facility or number of chemical hazards, it is essential that both employers and employees know how to identify potentially hazardous substances, understand the health hazards associated with these chemicals, and follow safe work practices. Every workplace which has or uses hazardous substances must have a written and effectively implemented hazard communication program that specifically addresses the potential hazards found at that particular site.

What's in It for Me?

Employers benefit from having an effective hazard communication program because it helps them:

- Identify and control hazardous substances present in their workplaces.
- Develop or rethink safe and efficient strategies for the use, handling, and disposal of these substances.
- Promote safe and effective work practices.
- Reduce workers' compensation losses.
- Comply with the law.

All these elements ultimately save money and increase employee morale and productivity.

Employees also benefit from a hazard communication program because they learn how to identify potentially hazardous chemicals to which they may be exposed in the workplace. This increased awareness promotes the greater likelihood that employees will:

- Reduce their exposure to hazardous substances.
- Follow safer work practices.
- Protect themselves, thereby preventing work-related injuries and illnesses.

Medical personnel, such as physicians, nurses, and other health care professionals, can best treat injured workers when they have complete background information on the substances to which an injured worker was exposed.

Emergency responders, such as firefighters and police, benefit because:

- An effective response strategy depends on advance knowledge of the chemical(s) involved in a fire or chemical spill.
- They can better protect themselves, thereby reducing the likelihood of work-related injuries and illnesses.

Regulatory Requirements

Under the California *Labor Code* and the California Occupational Safety and Health Act, all employers in California are legally obligated to provide and maintain a safe and healthful workplace for employees.

The hazard communication regulation emphasizes workplace safety and requires employers to inform their employees of the hazardous substances to which they are exposed at the job site. Requirements for developing, implementing, and maintaining a hazard communication program are found in Title 8 of the *California Code of Regulations* (T8 CCR), Section 5194. Subsection 5194(b)(6) contains the Safe Drinking Water and Toxic Enforcement Act (Proposition 65), which was added to the original hazard communication regulation in 1991.

Proposition 65 requires the governor to publish a list of chemicals known to the State of California to cause cancer, birth defects, or reproductive harm. Proposition 65 also requires that businesses provide a clear and reasonable warning before knowingly and intentionally exposing anyone to a listed chemical. An overview of Proposition 65 as it relates to the hazard communication regulation is noted throughout this guide. For complete details on the Proposition 65 regulation, please refer to T22 CCR, Section 12000 et seq., or contact the Office of Environmental Health Hazard Assessment (OEHHA) Web site:

<http://www.oehha.ca.gov>

Compliance with Proposition 65 requirements for notifying employees of hazards can be achieved simply by complying with the provisions of California's hazard communication regulation.

For a free copy of the hazard communication regulation or more information on its requirements, or if you wish to request free professional assistance with your hazard communication program, please call the nearest Cal/OSHA Consultation office listed on the last page of this guide. The hazard communication regulation can also be accessed through the Department of Industrial Relations Web site for Cal/OSHA Standards, *California Code of Regulations, Title 8:*

<http://www.dir.ca.gov/samples/search/query.htm>

Summary of California's Hazard Communication Regulation

I. Scope

II. Hazard Determination

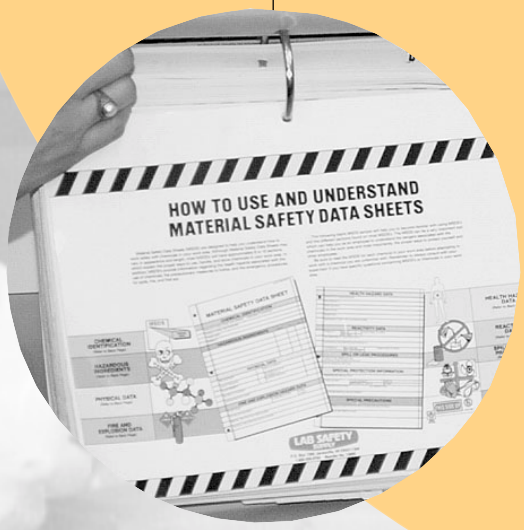
III. Material Safety Data Sheets (MSDSs)

IV. Labels and Other Forms of Warning

V. Written Hazard Communication Program

VI. Employee Information and Training

VII. Trade Secret Protection



I. Scope (T8 CCR 5194[b])

This section explains who is subject to the California Hazard Communication Regulation and what conditions must be present in order to be exempt from the regulation.

Application

Except for the exemptions and exclusions noted below, the hazard communication regulation applies to:

A. All California employers—regardless of size—whose employees may be exposed to hazardous substances

PROPOSITION 65

applies to all businesses except:

- Companies employing fewer than ten employees
- Any government agency
- All public water systems

B. All hazardous substances found in the workplace under normal conditions of use as well as in reasonably foreseeable emergency conditions (i.e., a spill or release of a flammable chemical)

PROPOSITION 65

applies only to:

- The specified list of chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm. These listed chemicals may be naturally occurring or synthetic, used as ingredients in materials and products, and/or generated as byproducts, emissions, and waste.

Exemptions

1. *Chemicals in closed containers*. Although operations in which **employees handle hazardous substances only in sealed containers** (e.g., warehouse, transportation, or retail sales) are exempt from the full standard, employers are still required to:
   - Ensure that labels on incoming containers are not removed or defaced.
   - Obtain and maintain Material Safety Data Sheets (MSDSs) and make them readily accessible to employees in their work area(s) during each work shift.

- Train employees so they know how to handle and protect themselves in the event of a chemical spill or a leak from a sealed container.

2. *Laboratories.* Employers who engage in the laboratory use of hazardous chemicals are exempt from the hazard communication regulation if they meet **all** of the following conditions:
   - Chemical manipulations are carried out on a "laboratory scale"—a single person using small quantities of hazardous chemicals in procedures that are not part of a production process, nor in any way simulate a production process; and
   - Multiple chemicals or chemical procedures are used; and
   - Protective laboratory practices and equipment are available and in common use industry-wide to minimize the potential for employee exposure to hazardous chemicals.

   These employers are, however, subject to T8 CCR, Section 5191, "Occupational Exposure to Hazardous Chemicals in Laboratories."

PROPOSITION 65

warnings do not apply to:

- An exposure for which federal law preempts state authority
- An exposure that takes place less than twelve months from the time the chemical was officially listed in T22 CCR, Section 12000, "Chemicals Known to the State to Cause Cancer or Reproductive Toxicity"
- An exposure for which the employer can show that:
  a. The exposure of a given chemical from the list of carcinogens poses no significant cancer risk, assuming lifetime exposure at the level in question; *and*
  b. The exposure of a given chemical from the list of reproductive toxicants will have no observable effect, assuming exposure at one thousand (1,000) times the level in question.

Exclusions

The following are excluded from the hazard communication regulation:

- Hazardous wastes regulated by the EPA
- Tobacco products
- Natural wood or chemically untreated wood products for retail sale
- Manufactured items—articles that are handled/processed in a way that does not result in employee exposure via inhalation, ingestion, or skin absorption, such as items for immediate use or retail sale
- Food, drugs, and cosmetics consumed or used by the employees on the job site

- Retail trade establishments, except for processing and repair work areas
- Pesticide use regulated by the California Department of Food and Agriculture
- Consumer products, unless quantities used or exposures are greater than ordinary home consumer quantities or exposures

II. Hazard Determination (T8 CCR 5194[d])

Manufacturers, distributors (if they repackage and sell under their own label), and importers are required to assess the physical and health hazards associated with the substances they produce or repackage. They are also required to provide hazard information to employers by means of labels and MSDSs. From the MSDSs and sources listed below, employers can find out whether substances to which employees are exposed at the workplace are hazardous and, therefore, subject to the hazard communication regulation.

PROPOSITION 65

Note

California employers must determine whether any of the hazardous chemicals from their chemical inventory are subject to Proposition 65 requirements. To obtain this updated list of chemicals, please call OEHHA at (916) 445-6900; access the OEHHA Web site <http://www.oehha.ca.gov>; or subscribe to Division 2 of Title 22, *California Code of Regulations,* beginning with Section 12000, from Barclays Law Publishers.

A "hazardous substance" includes:

A. Any hazardous substances listed in:

1. *The Hazardous Substances List* (T8 CCR, Section 339), commonly known as "The Director's List of Hazardous Substances"
2. 29, *Code of Federal Regulations* (CFR), Part 1910, Subpart Z, "Toxic and Hazardous Substances," Occupational Safety and Health Administration (federal OSHA); and T8 CCR, Section 5155, "Air Contaminants"
3. *Threshold Limit Values for Chemical Substances in the Work Environment*, American Conference of Governmental Industrial Hygienists (ACGIH), 1991–1992
4. *Sixth Annual Report on Carcinogens,* National Toxicology Program (NTP), 1991
5. *Monographs,* International Agency for Research on Cancer (IARC), Vols. 1–53 and Supplements 1–8. World Health Organization

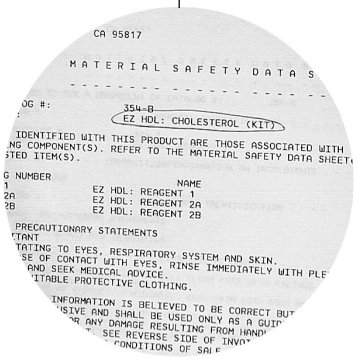
6. *Material Safety Data Sheets* as reproductive toxicants or cancer-producing substances
7. T22 CCR, Section 12000, under the Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65), "Chemicals Known to the State to Cause Cancer or Reproductive Toxicity," a list published at least once a year by Cal/EPA's Office of Environmental Health Hazard Assessment

B. Any other substances that present a physical or health hazard as determined by scientific evidence.

III. Material Safety Data Sheets (MSDSs) (T8 CCR 5194[g])

On each hazardous chemical, MSDSs provide information such as health hazards, special chemical and physical characteristics, protective measures, precautions for safe handling, use and storage of each chemical. Employers can use the information contained in MSDSs to educate employees on hazards associated with chemicals found in their workplace.

Because information contained in MSDSs can change, employers must review the MSDSs and ensure that employees are provided with the most current version. Also make sure that employees have ready access to MSDSs and are trained to understand the information (please see Attachment F, "MSDS Sample").



All parties should be aware of the following information:

A. Manufacturers, importers, or other responsible parties who prepare MSDSs are required to develop an MSDS for every hazardous substance or mixture they produce or import.

B. The MSDS must encompass **all** of the following categories. If there is no relevant information for a given category, or a category does not apply to the chemical in question, the MSDS must indicate that no information is applicable. Mandatory items are:

- For a single hazardous substance, the substance identity used on the label, *the chemical name, the common name, and the Chemical Abstracts Service (CAS) number* of the hazardous substance.

  For a hazardous mixture tested as a whole, all of the elements listed above for each hazardous ingredient and the common name of the mixture itself.

  For a hazardous mixture not tested as a whole, the chemical name, the common name, and the CAS number of all hazardous ingredients that compose 1 percent or greater of the mixture and carcinogens that are present in concentrations of 0.1 percent or greater. Refer to T8 CCR, 5194 (g)(2)(A)3 for full details.

The names used on the MSDS must allow for cross-referencing with the name that appears on the product label and on the inventory list of hazardous substances in the workplace.

- *Physical and chemical properties,* such as vapor pressure, flash point, and solubility of the chemical(s).
- *Physical hazards,* such as fire, explosion, or dangerous chemical reactions.
- *Health hazards,* including signs and symptoms of exposure, ranging from minor skin irritation to death. This section must also include any medical condition that could be made worse by exposure to the substance. These health effects can be acute (short-term) or chronic (long-term).
- *Potential routes of entry* of the hazardous substance into the body.
- *Permissible exposure limits* for hazardous substances. These are the legally required OSHA Permissible Exposure Limits (PELs), the recommended American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs), and any other limits recommended by the manufacturer, importer, or employer preparing the MSDS. Be aware that PELs listed on MSDSs are based on federal PELs; California PELs may be more stringent.
- Information on whether the hazardous substance is listed as a *carcinogen* by the National Toxicology Program (NTP), the International Agency of Research on Cancer (IARC), or the Occupational Safety and Health Administration (OSHA).
- *Precautions for safe handling, use, and storage,* including protective measures that should be taken prior to repair and maintenance of equipment and cleanup procedures for spills and leaks.

- *Known control measures,* including engineering, work practices, and personal protective equipment needed to protect employees from danger.
- *Emergency and first aid* procedures.
- *Date* of MSDS preparation or date of last change in contents.
- *Name, address, and phone number* of the party responsible for preparing the MSDS who could, if necessary, provide additional information, including emergency procedures on the hazardous substance in question.

C. MSDS preparers are required to update the MSDS within three months of learning new hazard data and/or ways to protect against the hazards.

D. Chemical manufacturers and importers of hazardous substances are required to provide an MSDS with each initial shipment and whenever an MSDS is updated. Distributors are required to provide MSDSs and MSDS updates to all purchasers of hazardous substances.

E. Employers must have an MSDS for every hazardous chemical in the workplace. If the delivered MSDS is missing any of the mandatory items, or if no MSDS is delivered with the substance, the employer must write asking the manufacturer or distributor for an MSDS containing all mandatory items.

F. Employers are also responsible for keeping MSDSs current and making them accessible to employees in their work area(s) during each work shift.

G. Businesses that have multiple workplaces to which employees travel must keep MSDSs at a primary central location and must establish a mechanism to ensure that employees can immediately obtain the required information in an emergency.

H. If you have a specific question or need additional information on an MSDS, please call the Cal/OSHA Consultation Service at 1-800-963-9424 or the Occupational Health Branch of HESIS at 510-540-3014 (English) or 510-849-5149 (Spanish).

I. If you are unable to obtain the MSDS from the vendor within 25 calendar days of the request, please call your local Cal/OSHA compliance office or write to:

Division of Occupational Safety and Health
Deputy Chief of Health and Engineering Services
P. O. Box 420603
San Francisco, CA 94142-0603

IV. Labels and Other Forms of Warning (T8 CCR 5194[f])

Employers are required to use **legible** labels and other forms of warning to clearly and quickly communicate the identity and hazard(s) of chemicals in the workplace. Labels and other forms of warning are to be conspicuously placed on containers so that the message is readily visible. If a business employs a large number of non-English-speaking employees, employers are required to use symbols, warning signs in English and other languages, or any other means necessary to ensure that their employees understand the dangers present in the workplace.

Affected parties should be aware of the following information:

A. When the employer receives hazardous substance containers, the supplier's original containers must be labeled with the following information:

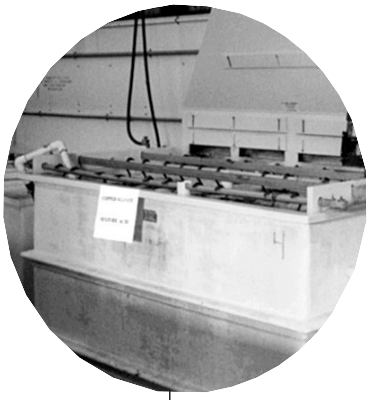
1. Identity of the hazardous substance, which must allow for cross-referencing with the MSDS and the inventory list of hazardous substances in the workplace

2. Hazard warning statements, including Proposition 65 warnings if applicable
3. Name and address of the chemical manufacturer, importer, or other responsible party

PROPOSITION 65

Note

Hazardous substance containers from out-of-state chemical manufacturers or distributors (who are not subject to Proposition 65) may not have Proposition 65 hazard warnings. California's suppliers/employers must meet the requirement in various ways, including affixing additional Proposition 65 warning labels on containers or posting signs in the workplace.



B. If during the course of work hazardous substances are transferred from the original container to a secondary portable container, the employer needs to ensure that the secondary container is labeled with the following information:

1. Identity of the hazardous substance
2. Hazard warning statements, including Proposition 65 warnings if applicable

Note: Portable containers for immediate use during a single shift by a single employee who performs the transfer himself/herself are exempt from the labeling requirement under California's Hazard Communication Regulation.

C. On individual stationary process containers—such as plating tanks—employers can use signs, placards, and other options in lieu of labels as long as the required information listed above is included.

D. Employers must relabel containers whenever labels are damaged or defaced.

E. Additional labeling requirements apply for specific chemicals listed under the substance-specific health standards as referenced in T8 CCR, Article 110, "Regulated Carcinogens" (all sections under this Article).

F. Above-ground pipes transporting hazardous substances (gases, vapors, liquids, semi-liquids, or plastics) shall be identified in accordance with T8 CCR, Section 3321, "Identification of Piping."

PROPOSITION 65

Note

The Right to Know warning requirement mandates that a clear and reasonable warning be given to all individuals **prior** to exposure to any listed chemical that can cause cancer, birth defects, or other reproductive harm. Businesses that have one or more of the listed chemicals in the workplace as an ingredient in a material they use, a product they manufacture, and/or an emission into the environment **must provide a clear and reasonable warning,** unless they can prove that the exposure causes no significant risk.

The language in the warning must clearly state that the chemical in question is known to cause cancer, birth defects, or other reproductive harm. The warning must be given so that it effectively reaches the person before he/she is exposed.

Under Proposition 65, warnings are required for:

1. Consumer product exposures
2. Occupational exposures
3. Environmental exposures

Warnings for exposure in the workplace can be communicated by one or a combination of the following:

1. A warning on a product label
2. A warning or sign posted conspicuously in the workplace
3. A warning that complies with the federal OSHA "Hazard Communication Regulation" (29 CFR, Section 1910.1200), the California "Hazard Communication Regulation" (T8 CCR, Section 5194), the "Pesticides and Worker Safety Requirements" (T3 CCR, Ch. 6, Subch. 3, Group 3, Section 6700)

V. Written Hazard Communication Program (T8 CCR 5194[e])

Employers whose employees may be exposed to hazardous substances are required to have a written hazard communication program that addresses all the requirements of the regulation. Employers who tailor a written program to meet the specific needs of their workplace will maximize the benefits of workplace safety.

A written hazard communication program must describe the procedures for meeting all the requirements of the regulation, including:

A. Developing and maintaining a list of the hazardous substances in the workplace. This list may be compiled for the workplace as a whole or for

individual work areas and can serve as a checklist to ensure that all hazardous substances in the workplace have MSDSs and labels.

PROPOSITION 65

Note

Establish an ongoing system to obtain the updated Proposition 65 list of chemicals. For chemicals that are newly added, warning requirements apply 12 months from the effective date of listing.

B. An explanation of how the employer will meet requirements for:

1. Labeling of containers of hazardous substances and other forms of warning
2. MSDSs and making sure they are readily accessible to employees and emergency responders
3. Employee training on hazardous substances they are or may be exposed to in their particular jobs during routine/nonroutine work, or emergency situations

C. A plan of how multi-employer workplace issues, if applicable, will be addressed:

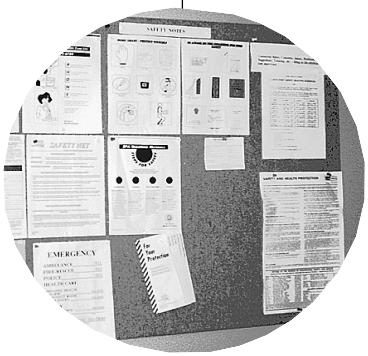
1. How an employer will inform a contractor—whose employees work in the employer's workplace—of the hazardous substances to which the contractor's employees may be exposed while performing their work, and how the employer's employees will be protected from hazardous substances brought into the workplace by the contractor's employees. If the hazardous substances include Proposition 65 chemicals, clear and reasonable warnings must be provided to all employees, from either the employer or the contractor, prior to exposure.
2. How the employer will inform other employers of precautionary measures needed to protect employees during normal work as well as emergency conditions.
3. How the employer will inform other employers of the labeling system in the workplace.

D. A plan for the periodic (e.g., annual) evaluation of program effectiveness and plans for updating the program, if necessary.

Note: The written hazard communication program must be available upon request to employees, their representatives, Cal/OSHA representatives, and others in accordance with Section 3204(e), "Access to Employee Exposure and Medical Records."

VI. Employee Information and Training (T8 CCR 5194[h])

Employee training is an integral part of the hazard communication program and must be provided at the time of initial assignment, whenever a new hazard is introduced into the workplace, and when employees may be exposed to other employers' workplace hazards. Employees need to know ahead of time the identity and hazards of all chemicals to which they may be exposed, including chemicals listed under Proposition 65. Once they have this knowledge, they will understand the need to protect themselves and are more likely to observe the company's safety rules.



Employee training on new or revised MSDS information must be provided within 30 days of the employer receiving that information. All training materials used must be appropriate in both content and vocabulary for the educational level, literacy level, and language comprehension level of the employees. Employees must be given an opportunity to ask questions of the person(s) conducting the training. Although not required, periodic refresher training in addition to the initial training is beneficial and encouraged.

Videotapes may be used to **supplement** your training; however, videos alone are not an acceptable substitute for training. The Cal/OSHA Video Library will loan health and safety videotapes to employers for up to two weeks at a time. This is a free service. Call (916) 574-1755, or fax your request to (916) 574-2532.

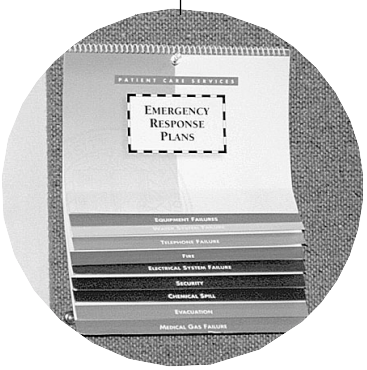
The Cal/OSHA Consultation Service is also available to answer health and safety concerns you may have, including questions on personal protective equipment (PPE). Refer to the list on the back cover of this guide to find the phone number of the Cal/OSHA Consultation Office nearest you.

Information and training must include:

1. Requirements of the hazard communication regulation, including employee rights (e.g., employees receiving and sharing with their physician information on hazardous chemicals to which they may be exposed)
2. Information about the location and availability of the employer's written hazard communication program
3. Identification of any operation in the employee work area where hazardous substances are present
4. Information on how to obtain, read, and understand MSDSs and labels, including data on the physical and health hazards of the substances
5. How to detect the presence or release of hazardous substances (e.g., appearance and odor)

6. Protective measures to be used, such as work practices, personal protective equipment, and emergency procedures

Note: T8 CCR, Section 3203(b)(1), "Injury and Illness Prevention Program," requires that employee training be documented and records retained for at least one year.



VII. Trade Secret Protection (T8 CCR 5194[i])

Under the trade secret provision, manufacturers, importers, or employers who wish to withhold the specific identity of a hazardous chemical from the MSDS **must meet all the specific requirements of T8 CCR, Section 5194(i),** including:

A. The MSDS must state that the specific identity of the chemical mixture is being withheld as a trade secret. All other MSDS categories must be addressed.

B. Trade secret information must be released in certain circumstances. Information on the specific chemical identity of a trade secret substance may be requested in medical emergencies as well as in non-emergency situations.

   In the case of a medical emergency, the chemical identity must be immediately disclosed to medical personnel. In non-emergency situations, disclosure shall be made to health or safety professionals and to employees and their designated representatives upon a written request, which

   - Explains why the disclosure of the specific chemical identity is essential, and
   - Describes the procedures by which the disclosed information will be kept confidential.

   Note: A trade secret cannot include chemical identity information that is already discoverable through laboratory qualitative analysis. Refer to T8 CCR, Section 5194(i), for complete information on conditions for releasing a trade secret and for holding the information confidential.

Throughout industry, the risks of chemical exposure are real and often, a component of every workday. For these reasons, it is Cal/OSHA's aim to increase awareness of chemical hazards and thereby contribute to greater workplace health and safety.

In addition to a safer workplace, employers should consider—in today's highly competitive business climate—the rewards that a sound hazard communication program can provide. Any workplace would welcome such benefits as enhanced chemical inventory control, safer chemical processes, reduced workers compensation premiums, and reduced waste and disposal costs.

It takes time and effort to set up and maintain a successful hazard communication program. However, it is critically important for both employers and employees to collaborate in its implementation and maintenance. It is like a safety net that can help prevent injuries, illnesses, and accidents while protecting your workers and your business and saving you money.

Remember—it is required by law, but it is also good business practice.

Attachment A

Hazard Communication Program: Step by Step

Step 1	Read this guide for an overview of the regulation.
Step 2	Read the Hazard Communication Regulation, Title 8, *California Code of Regulations*, Section 5194.
Step 3	Designate staff responsible for developing, implementing, and monitoring the hazard communication program.
Step 4	Develop and maintain a **current inventory of all hazardous substances** to which employees may be exposed.
Step 5	Collect current Material Safety Data Sheets (MSDSs) for **all** hazardous substances listed on the workplace inventory prepared in Step 4.
Step 6	Check original and secondary containers to ensure they are properly labeled. Include Proposition 65 warning requirements if applicable.
Step 7	Develop a plan for your written hazard communication program. Put into writing how you are implementing the program (see Attachment B, "Written Hazard Communication Program Sample").
Step 8	Train employees on the Hazard Communication Regulation and on the hazardous substances that may be found on your work site. This training must include, but is not limited to: • What MSDSs are and how to interpret them • Proper labeling procedures • Employee protective measures • Signs and symptoms of excessive exposure
Step 9	Keep your written hazard communication program current by ensuring that: • New employees are trained. • Employees are retrained whenever new hazardous substances are introduced into the workplace. • New chemicals are received with proper labels and MSDSs, and secondary containers are also properly labeled. • Contractors' issues are addressed. Your employees could be exposed to new chemicals brought onto the site by the contractor's employees, or the contractor's employees could be unfamiliar with the chemicals already on your site.

Attachment B

Written Hazard Communication Program Sample

for XYZ COMPANY

This is an example only. Employers are encouraged to develop their own program, specifically tailored to their operation and needs.

To enhance our employees' health and safety, our company has developed, implemented, and maintains a hazard communication program as required by the Hazard Communication Regulation (T8 CCR 5194). The hazard communication manager, *(name)*, has full authority and responsibility for implementing and maintaining this program. We provide information about the hazardous substances in our workplace, the associated hazards, and the control of these hazards through a comprehensive hazard communication program that includes the elements listed below.

1. List of hazardous substances

(Person/position) will prepare and keep current an inventory list of all known hazardous substances present in our workplace. Specific information on each noted hazardous substance can be obtained by reviewing the MSDSs (see Attachment C, "Hazardous Substance Inventory List Sample").

2. Propostion 65 list of chemicals

(Person/position) is responsible for obtaining updates of Proposition 65 listed chemicals and providing new information to affected employees. In the case of newly added chemicals to the Proposition 65 list, warning requirements take effect 12 months from the date of listing.

3. Material Safety Data Sheets (MSDSs)

(Person/position) is responsible for obtaining the MSDSs, reviewing them for completeness, and maintaining the data sheet system for our company. In the review of incoming data sheets, if new and significant health/safety information becomes available, this new information is passed on **immediately** to the affected employees by additional training sessions, posting of memos, and other means of communication.

Legible MSDS copies for all hazardous substances to which employees of this company may be exposed are kept in *(list all locations)*. MSDSs are readily available for review to all employees in their work area and during each work shift. If MSDSs are missing or new hazardous substance(s) in use do not have MSDSs, or if an MSDS is obviously incomplete, please contact *(person/position)* immediately, and a new MSDS will be requested from the manufacturer. If we are unable to obtain the MSDS from the vendor within 25 calendar days of the request, we will either call our local Cal/OSHA compliance office or write to:

Division of Occupational Safety a nd Health
Deputy Chief of Health and Engineering Services
P. O. Box 420603
San Francisco, CA 94142-0603

If anyone has a specific question or needs additional information on an MSDS, please call the Cal/OSHA Consultation Service at 1-800-963-9424 or the Occupational Health Branch of HESIS at 510-540-3014 (English) or 510-849-5149 (Spanish).

If we use alternatives other than paper MSDSs—computer or microfiche machines with printers or telefax machines—we will make sure that employees have ready access to and know how to operate these devices for retrieval and printing of legible hard copies. Our backup system in the event of failure of the primary MSDS retrieval system will require employees to request paper MSDSs by telephone. An MSDS hard copy will be provided to the requester as soon as possible after the telephone request is made.

4. Labels and other forms of warning

Before hazardous substance containers are released to the work area, it is the policy of our company that *(person/position)* will verify that all primary and secondary containers are labeled as follows:

Label Information	*Primary Container*	*Secondary Container*
Identity of the hazardous substance(s)	✔	✔
Applicable hazard warnings	✔	✔
Name and address of the manufacturer	✔	

To address exposures to Proposition 65 chemicals, *(person/position)* will provide clear and reasonable warnings to individuals prior to exposure by means of posting signs conspicuously, labeling consumer products, and training employees.

If applicable, *(person/position)* will arrange for labels, signs, and other warnings to be printed in other languages.

5. Employee information and training

Employees are to attend a health and safety training session set up by *(person/position)* prior to starting work. This training session will provide information on the following:

- The requirements of the hazard communication regulation, including the employees' rights under the regulation
- The location and availability of the written hazard communication program
- Any operation in their work area, including nonroutine tasks, where hazardous substances or Proposition 65 carcinogens/reproductive toxins are present and exposures are likely to occur
- Methods and observation techniques used to determine the presence or release of hazardous substances in the work area
- Protective practices the company has taken to minimize or prevent exposure to these substances
- How to read labels and review MSDSs to obtain hazard information
- Physical and health effects of the hazardous substances

- Symptoms of overexposure
- Measures employees need to put into practice to reduce or prevent exposure to these hazardous substances by engineering controls, work practices, and use of personal protective equipment
- Emergency and first-aid procedures to follow if employees are exposed to hazardous substances
- The location and interpretation, if needed, of warning signs or placards to communicate that a chemical known to cause cancer or reproductive toxicity is used in the workplace

Employees will receive additional training when a new hazard is introduced into the workplace or whenever employees might be exposed to hazards at another employer's work site.

6. Hazardous nonroutine tasks

Periodically, our employees are required to perform hazardous nonroutine tasks. Prior to starting work on such projects, affected employees will be given information by their supervisor on hazards to which they may be exposed during such an activity.

This information will cover:

- Specific hazards
- Measures the company has taken to reduce the risk of these hazards, such as providing ventilation, ensuring the presence of another employee, providing a respiratory protection program, and establishing emergency procedures
- Required protective/safety measures

Examples of nonroutine tasks performed by employees of this company:

Sample Nonroutine Task	*Hazardous Substance*
Cleaning sewage tank	Sodium hydroxide

7. Labeled/unlabeled pipes (if applicable)

Above-ground pipes transporting hazardous substances (gases, vapors, liquids, semi-liquids, or plastics) shall be identified in accordance with T8 CCR, Section 3321, "Identification of Piping."

Other above-ground pipes that do not contain hazardous substances but may have associated hazards if disturbed or cut (e.g., steam lines, oxygen lines) shall be addressed as follows:

Before employees enter the area and initiate work, *(persons/position)* will inform them of:

- The location of the pipe or piping system or other known safety hazard
- The substance in the pipe
- Potential hazards
- Safety precautions

8. Informing contractors

To ensure that outside contractors work safely in our plant and to protect our employees from chemicals used by outside contractors, *(person/position/department)* is responsible for giving and receiving the following information from contractors:

- Hazardous substances, including Proposition 65 chemicals, to which they may be exposed while on the job site as well as substances they will be bringing into the workplace (To this end, we will provide contractors with information on our labeling system and access to MSDSs.)
- Precautions and protective measures the employees may take to minimize the possibility of exposure

If anyone has questions about this plan, please contact *(person/position)*. Our plan will be maintained by *(person/position)* to ensure that the policies are carried out and the plan is effective.

_____

(Signature of Owner or Management Representative)

Attachment C

Hazardous Substance Inventory List Sample

Hazardous Substance	*Operation/Work Area*	*MSDS*
Trichloroethylene	Degreaser – Finish Dept.	Complete
Muriatic Acid	Metal Stripper – Prep Dept.	Incomplete
Acetone	Manufacturing Area	Complete

Attachment D

Hazard Communication Employee Training Program Sample

COMPANY: _____ DATE: _____

DEPARTMENT: _____

We have developed a training program to increase employee awareness of hazardous substances in our workplace and to motivate employees to protect themselves. The training program is based on the types of hazardous substances used at the work site and the associated hazards.

Overview of Hazard Communication Regulation

The hazard communication regulation is intended to ensure that both employers and employees understand the dangers associated with hazardous substances in the workplace. The following information is a review of the specific requirements of a hazard communication program, including container labeling, MSDSs, and training.

Written Hazard Communication Program

We have a written program that outlines how we provide information on and control your exposure to hazardous substances. This plan is available to you during our training or during your work shift from *(person)* at *(location)*.

Hazardous Substances Used in Our Workplace

In our shop we use a variety of chemical products. Most of these products contain one or more hazardous substances. Let's review the hazardous substance inventory list in your work area. For specific hazard information on each brand of material, review the MATERIAL SAFETY DATA SHEETS (MSDSs) and, if applicable, the Proposition 65 list of chemicals.

Reading Labels, Warnings, and MSDSs

Labels. A product label on both the original and secondary containers should be read before working with the material. Each label has two important pieces of information:

1. Identity of the hazardous substance
2. Hazard warnings

The label on the original container also gives the name and address of the manufacturer.

The label should act as a visual reminder of the information we have presented in this training session and of the detailed information on the MSDS.

Proposition 65 warnings. These are provided to you prior to exposure in the form of labels, placards, employee training, and the like so that you know that certain chemicals in your workplace are known to the state to cause cancer, birth defects, or other reproductive harm.

It is essential to your safety that you read the hazard warning and use the hazardous substances only within the prescribed guidelines. Questions concerning any of the warning message(s) should be directed to your supervisor or foreman.

Material Safety Data Sheets (MSDSs). Manufacturers and importers are responsible for providing us with adequate information for using the hazardous substances safely. We use MSDSs as the primary source for informing you about the hazards of the substances in our plant. MSDSs are kept at *(location)* and are readily available to you in every shift.

You will be trained on the specific hazards of the substances in **your** work area. You will also be trained on how to read the information in the MSDSs. The information includes:

1. Chemical and physical properties of hazardous substances, such as vapor pressure or specific gravity
2. Physical hazards of the chemicals, such as flammability or reactivity
3. Health hazards of the hazardous substances, such as signs and symptoms of exposure
4. Routes of entry
5. Protective measures, such as work practices, engineering controls, and use of personal protective equipment
6. Methods to detect the release of a hazardous substance in the work area
7. Emergency and first-aid procedures

You can read the California Hazard Communication Regulation for additional information on any specific program element.

Attachment E

MSDS Request Letter Sample

Date: _____

Chemical Company or Distributor: _____

RE: MSDS for *(product[s])*

Please send me an up-to-date copy of your Material Safety Data Sheet (MSDS) for the above product. The MSDS is needed for compliance with the State of California Hazard Communication Regulation, Title 8, *California Code of Regulations*, Section 5194.

Please send the MSDS to:

(Name)

(Company name)

(Address)

If this product does not require an MSDS, please notify us in writing.

If you have any questions regarding our request, please contact *(name and phone number).*

Sincerely,

Firm Representative

Attachment F

MSDS Sample

Guide to Understanding MSDSs

This attachment provides information for understanding and interpreting the Material Safety Data Sheet (MSDS). A typical MSDS (for Methyl Ethyl Ketone) is shown and then analyzed section by section to aid in understanding the terms and contents.

Note: The information in this section comes from the California Chamber of Commerce's *Hazard Communication Handbook,* 1997 edition. Used by permission.

Material Safety Data Sheet

May be used to comply with
OSHA's Hazard Communication Standard,
29 CFR 1910.1200. Standard must be
consulted for specific requirements.

U.S. Department of Labor
Occupational Safety and Health Administration
(Non-Mandatory Form)
Form Approved
OMB No. 1218-0072

IDENTITY *(As used on Label and List)*
Methyl Ethyl Ketone (MEK)

Note: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that.

Section I

Manufacturer's Name XYX Chemical Company	Emergency Telephone Number (204) 123-4566
Address *(Number, Street, City, State, and ZIP Code)* 111 Main Street	Telephone Number for Information (204) 123-4522
New York, NY 10012	Date Prepared January 5, 1990
	Signature of Preparer *(optional)* John Doe

Section II — Hazardous Ingredients/Identity Information

Hazardous Components (Specific Chemical Identity; Common Name(s))	OSHA PEL	ACGIH TLV	Other Limits Recommended	% *(optional)*
Methyl Ethyl Ketone (2-butanone)	200 ppm	200 ppm	N/A	100%
CAS No. 78-93-3				

Section III — Physical/Chemical Characteristics

Boiling Point @ 760 mm HG	175.3°F	Specific Gravity (H_2O = 1)	0.8061
Vapor Pressure (mm Hg.) @ 20°C	70mmHg	Melting Point	N/A
Vapor Density	2.5	Evaporation Rate (Butyl Acetate = 1)	5.7

Solubility in Water
Appreciable = 24%

Appearance and Odor
Clear liquid with sweet odor similar to acetone

Section IV — Fire and Explosion Hazard Data

Flash Point (Method Used) Tag. Open Cup = 22°F	Flammable Limits In air % by volume	LEL 1.8	UEL 10

Extinguishing Media
Use carbon dioxide or dry chemical for small fires.

Use alcohol-type foams for large fires.

Special Fire Fighting Procedures
Self-contained (NIOSH-approved) breathing apparatus and protective

clothing should be used in all fires involving chemicals.

Unusual Fire and Explosion Hazards
Vapors are heavier than air and may travel along the ground, or be

moved by ventilation, and be ignited by various ignition sources.

(Reproduce locally) OSHA 174, Sept. 1985

Section V — Reactivity Data

Stability	Unstable		Conditions to Avoid
	Stable	X	None

Incompatibility (*Materials to Avoid*) May react with oxidizing agents and/or organic peroxides. Avoid alkaline materials, mineral acids and halogens.

Hazardous Decomposition or Byproducts
Burning can produce carbon monoxide and/or carbon dioxide.

Hazardous Polymerization	May Occur		Conditions to Avoid
	Will Not Occur	X	None

Section VI — Health Hazard Data

Route(s) of Entry:	Inhalation?	Skin?	Ingestion?
	Yes	Yes	Yes

Health Hazards (*Acute and Chronic*)
Acute LD_{50} (oral rat) = 3,100 mg/kg. Inhalation: lung irritation, central nervous system effects (dizziness and headaches). Skin: irritation, rashes, dermatitis. Eyes: irritation, redness, pain.

Carcinogenicity:	NTP?	IARC Monographs?	OSHA Regulated?
	No	No	No

Signs and Symptoms of Exposure
Inhalation: irritation of respiratory tract, coughing, headache, nausea. Skin: Dryness, redness, rashes. Eyes: irritation, pain, conjunctivitis (redness). Ingestion: abdominal spasms, nausea, vomiting.

Medical Conditions
Generally Aggravated by Exposure None known.

Emergency and First Aid Procedures Inhalation: move to fresh air, provide oxygen, obtain medical help. Eyes: flush with water for at least 15 minutes, obtain medical help if irritation persists. Skin: thoroughly wash affected areas with water, remove contaminated clothing, obtain medical help if irritation persists or large body areas are affected. Ingestion: give water to drink, obtain medical help.

Section VII — Precautions for Safe Handling and Use

Steps to Be Taken in Case Material is Released or Spilled
Collect leaking liquid in sealable containers. Absorb spilled liquid in sand or inert absorbent and remove to a safe place. Cleanup personnel should wear protective clothing, including a self-contained respirator. Avoid contact with the skin. Remove all sources of ignition.

Waste Disposal Method
Consult a licensed waste disposal service firm for disposal in accordance with all federal, state and local regulations.

Precautions to Be Taken in Handling and Storing Drums must be grounded and electrically bonded to the receiving vessel while dispensing in order to avoid static sparks. Store away from oxidizing agents, heat and ignition sources. Handle small quantities in approved safety cans. Handle as a Class 1B flammable liquid.

Other Precautions
Good Personal hygiene practices should always be followed.

Section VIII — Control Measures

Respiratory Protection (*Specify Type*) Not required if concentration is below PEL. At higher concentrations, NIOSH-approved respirator with organic vapor filter should be worn.

Ventilation	Local Exhaust	Special
	Required for high concentrations.	All electrical equipment must be Class 1, Group D; fans must be non-sparking
	Mechanical (*General*)	Other

Protective Gloves	Eye Protection
Rubber.	Chemical goggles and/or face shield.

Other Protective Clothing or Equipment
Eye-wash fountains, safety showers, barrier creams, etc.

Work/Hygienic Practices

☆U.S. Government Printing Office: 1987 — 181-584/64362

SECTION I: MATERIAL AND MANUFACTURER IDENTIFICATION

IDENTITY *(As used on Label and List)* Methyl Ethyl Ketone (MEK)	*Note: Blank spaces are not permitted. If any item is not applicable, or no information is available, the space must be marked to indicate that.*
Section I	
Manufacturer's Name XYX Chemical Company	**Emergency Telephone Number** (204) 123-4566
Address *(Number, Street, City, State, and ZIP Code)* 111 Main Street	**Telephone Number for Information** (204) 123-4522
New York, NY 10012	**Date Prepared** January 5, 1990
	Signature of Preparer *(optional)* John Doe

① **Identity of substance —** should be the same as on label and hazardous substance inventory.

② **Name and address of manufacturer.**

③ **Emergency telephone number of manufacturer.**

④ **Information number for non-emergency calls.**

⑤ **Date MSDS was prepared.**

Identification of preparer.

SECTION II: INGREDIENTS

Section II — Hazardous Ingredients/Identity Information

Hazardous Components (Specific Chemical Identity; Common Name(s)) *(optional)*	OSHA **PEL**	ACGIH **TLV**	**Other Limits Recommended**	**%**
Methyl Ethyl Ketone (2-butanone)	200 ppm	200 ppm	N/A	100%
CAS No. 78-93-3				

① **Composition:** Hazardous substances must be identified as ingredients of a product if they exist at concentrations exceeding 1% by weight or 0.1% if the ingredient is an identified carcinogen (see Section VI).

② **CAS number.** When applicable, the Chemical Abstract Service (CAS) registry number is listed as a key to definitive identification of the material, without regard to any government regulation. Most products consisting of one chemical will have a number. Mixtures do not have a CAS number. The California Hazard Communication Regulation requires CAS numbers, whereas the federal standard does not.

③ **Common names or synonyms should be identified.**

④ ⑤ **TLV and PEL.** The TLV or Threshold Limit Value and PEL or Permissible Exposure Limit are occupational exposure standards that express the airborne concentration of a material to which *nearly* all healthy persons can be exposed day after day without adverse effects. Some shorter-term exposure limits (ceiling values, excursion limits and short-term exposure limits or STELS) also may be included.

⑦ **Percentage.** Describes the percentage by weight of each component listed.

SECTION III: PHYSICAL DATA

Section III — Physical/Chemical Characteristics

Boiling Point @ 760 mm HG	175.3°F	**Specific Gravity** (H_2O = 1)	0.8061
Vapor Pressure (mm Hg.) @ 20°C	70mmHg	**Melting Point**	N/A
Vapor Density	2.5	**Evaporation Rate** (Butyl Acetate = 1)	5.7
Solubility in Water Appreciable = 24%			
Appearance and Odor Clear liquid with sweet odor similar to acetone			

The physical data section describes the physical characteristics of the material.

① **Boiling point.** Refers to the temperature, in degrees F, at which a liquid changes to a vapor state, generally at a pressure of one atmosphere. For mixtures or process streams, the initial boiling point or boiling range may be given. Flammable materials with low boiling points generally present special fire hazards.

② **Specific gravity.** Refers to the ratio of the weight of a volume of material to the weight of an equal volume of water. In other words, how dense (heavy) the material is in comparison with water. For insoluble materials, a ratio of less than one means the material is lighter than water and will float on the surface. If the ratio is greater than one, the insoluble material will sink. Most flammable liquids (but not all) are lighter than water.

③ **Vapor pressure.** Refers to the pressure of a saturated vapor above a liquid, in millimeters of mercury (mm of Hg) at 20°C (unless stated otherwise). For example, the vapor pressure of water at 20°C is 17.5 mm of Hg; by comparison, sea level atmospheric pressure at 20°C is 760 mm of Hg. The lower the boiling point of a liquid, the higher the vapor pressure.

④ **Melting Point.** The point where a solid becomes a liquid measured in degrees F or C.

⑤ **Vapor density.** Refers to the relative density or weight of a vapor or a gas compared with an equal volume of air. Air is rated at 1.0. A figure greater than 1.0 indicates a vapor or gas heavier than air, and vice versa. Concentrated vapors which are heavier than air can accumulate in low places, such as along floors, in sewers, elevator shafts, floor drains.

Evaporation rate. Evaporation rate is the rate at which a material is converted to the vapor state at any given temperature and pressure. All materials evaporate; it is the differing rates that are of concern in addressing worker exposures and fire protection. Butyl acetate is rated at 1.0 as a reference.

⑦ **Solubility in water.** The following is an explanation of terms used to express the solubility of a product by weight in water at ambient temperatures. Most solvents are tested at 68°F.

Negligible ……. less than 0.1 percent
Slight …….. 0.1 to 1.0 percent
Moderate …….. 1.0 to 10 percent
Appreciable …….. more than 10 percent
Complete …….. in all proportions

Solubility information is useful in determining effective fire extinguishing methods and spill cleanup procedures.

⑧ **Appearance and odor.** A brief description of the product under normal room temperature and atmospheric conditions.

SECTION IV: FIRE AND EXPLOSION HAZARD DATA

Section IV — Fire and Explosion Hazard Data			
Flash Point (Method Used) Tag. Open Cup = 22°F	**Flammable Limits** In air % by volume	LEL 1.8	UEL 10
Extinguishing Media Use carbon dioxide or dry chemical for small fires. Use alcohol-type foams for large fires.			
Special Fire Fighting Procedures Self-contained (NIOSH-approved) breathing apparatus and protective clothing should be used in all fires involving chemicals.			
Unusual Fire and Explosion Hazards Vapors are heavier than air and may travel along the ground, or be moved by ventilation, and be ignited by various ignition sources.			

① **Flash point and method used.** The flash point is the lowest temperature at which vapor is given off in sufficient quantity so that the vapor/air mixture above the surface of the material will propagate a flame away from the source of ignition. Since flash points vary according to how they are obtained, the methods used are also listed. Tag Closed Cup (TCC), Pensky-Martins Closed Cup (PMCC), and Setaflash (SETA) methods are those used most extensively.

② **Flammable limits/percent volume in air.** When flammable vapors are mixed with air in the proper proportions, the mixture can be ignited by a spark or flame. The range of concentrations over which the flash will occur is designated by the Lower Explosive Limit (LEL) and the Upper Explosive Limit (UEL). Flammable limits (explosive limits) are expressed in percent by volume of vapor in air.

③ **Extinguishing media.** The selection of fire extinguishing media is based on the type of chemical, its physical properties and flammable characteristics. The most common types of extinguishing media are water, CO_2, dry chemical and foam.

④ **Special fire fighting procedures.** General fire fighting methods are not described but special procedures or exceptions to the rule are listed.

⑤ **Unusual fire and explosion hazards.** Described are the hazards associated with a chemical reaction or change in chemical form or composition that might occur under heat or fire conditions. Also described are hazards that may need to be considered while extinguishing a fire with one of the available types of extinguishing media.

SECTION V: REACTIVITY DATA

Section V — Reactivity Data			
Stability	Unstable		**Conditions to Avoid**
	Stable	X	None
Incompatibility (*Materials to Avoid*) May react with oxidizing agents and/or organic peroxides. Avoid alkaline materials, mineral acids and halogens.			
Hazardous Decomposition or Byproducts Burning can produce carbon monoxide and/or carbon dioxide.			
Hazardous Polymerization	May Occur		Conditions to Avoid
	Will Not Occur	X	None

This section describes the general reactivity of the material, conditions to avoid in order to prevent an unwanted reaction and toxic substances emitted from the reaction.

① **Stability.** Indicates whether the material is susceptible to dangerous decomposition and under what conditions it might occur.

② **Conditions to avoid.** Conditions to avoid are described, such as temperature extremes, jarring, inappropriate storage.

③ **Incompatibility.** Lists materials that could react with the substance.

④ **Hazardous decomposition products.** Describes hazardous materials produced from a reaction by burning, oxidation, heating or reacting with other chemicals.

⑤ **Hazardous polymerization.** Polymerization is a chemical reaction in which two or more small molecules combine to form larger molecules that contain repeating structural units of the original molecules. A hazardous polymerization may result in an uncontrolled release of energy and hazardous materials.

SECTION VI: HEALTH HAZARD DATA

Section VI — Health Hazard Data

Route(s) of Entry:	Inhalation?	Skin?	Ingestion?
	Yes	Yes	Yes

Health Hazards *(Acute and Chronic)*

Acute LD_{50} (oral rat) = 3,100 mg/kg. Inhalation: lung irritation, central nervous system effects (dizziness and headaches). Skin: irritation, rashes, dermatitis. Eyes: irritation, redness, pain.

Carcinogenicity:	NTP?	IARC Monographs?	OSHA Regulated?
	No	No	No

Signs and Symptoms of Exposure

Inhalation: irritation of respiratory tract, coughing, headache, nausea. Skin: dryness, redness, rashes. Eyes: irritation, pain, conjunctivitis (redness). Ingestion: abdominal spasms, nausea, vomiting.

Medical Conditions Generally Aggravated by Exposure None known.

Emergency and First Aid Procedures Inhalation: move to fresh air, provide oxygen, obtain medical help. Eyes: flush with water for at least 15 minutes, obtain medical help if irritation persists. Skin: thoroughly wash affected areas with water, remove contaminated clothing, obtain medical help if irritation persists or large body areas are affected. Ingestion: give water to drink, obtain medical help.

This section in general describes any important health information relating to the hazardous substance or its components. Symptoms resulting from acute and chronic (low-level exposure over an extended period of time) overexposure are listed if available. Epidemiological data are provided if pertinent.

① **Routes of entry.** This information identifies the relevant route of entry into the body which may cause harm. The preparer must use knowledge of physical properties of the substance and how it usually is handled to judge whether inhalation, skin and ingestion are significant routes of exposure. This information suggests what types of personal protective equipment, for example gloves, respirators, or both, are needed.

② **Health hazards.** This information includes known toxicity data from animal tests and from what is known about human health effects. It should address recognizable symptoms by route of exposure so that workers will know if they are being overexposed. This section also may contain other more comprehensive toxicity data, such as the representative results of toxicological studies conducted with the material or its listed components, usually in rats, mice or rabbits.

The LD50 (Lethal Dose to 50 percent), if given, is the single dose of the material which on the basis of laboratory tests is expected to kill 50 percent of a group of the test animals. The LD50 usually is expressed as milligrams or grams of material per kilogram of animal body weight (mg/kg or g/kg). The material may be administered by mouth (oral) or applied to the skin (dermal or cutaneous).

The LC50 (Lethal Concentration to 50 percent), if given, is the concentration of the material in air which on the basis of laboratory tests is expected to kill 50 percent of the test animals when administered as a single exposure (usually one or four hours). The LC50 is expressed as parts of material per million parts of air, by volume (ppm) for gases and vapors, or as micrograms of material per liter of air (ug/l) or milligrams of material per cubic meter of air (mg/mm3) for dusts and mists.

The LD50 and LC50 values are intended only to provide an estimate of the relative degree of toxicity associated with a particular material. They should not be used in estimating any absolute level of intake or exposure that might be safe or unsafe for humans.

Relative Toxicity Levels

Term	*LD50-Rat Single Oral Dose*	*Probable Lethal Dose for Humans*
Extremely toxic	1 mg/kg or less	Less than 1 gram
Highly toxic	1 to 50 mg/kg	Several grams
Moderately toxic	50 to 500 mg/kg	1 ounce
Slightly toxic	500 to 5,000 mg/kg	½ pound
Practically non-toxic	5,000 to 15,000 mg/kg	1 pound
Relatively harmless	15,000 mg/kg and up	1 quart

	Typical LD50 Values Oral-Rat	
	Nicotine	53 mg/kg
	Table Salt	3,000 mg/kg
	Citric Acid	11,700 mg/kg

③ **Carcinogenicity.** Refers to whether any of the ingredients have been identified as potentially cancer-causing by any of the agencies recognized as authorities in testing and classifying carcinogens. They are: National Toxicology Program (NTP), the International Agency for Research on Cancer (IARC) and the federal Occupational Safety and Health Administration (OSHA), which develop regulations governing exposures to occupational carcinogens. If a carcinogenic substance is included in a product, it must be identified at concentrations of 0.1 percent or more (1,000 ppm) in Section II. In California, such materials also will be subject to Proposition 65.

④ **Signs and symptoms of overexposure.** This information identifies what signs or discomfort a person who is overexposed is likely to experience. This information describes a clear physical warning that a worker should know about to protect himself/herself from overexposure due to misuse or protective equipment failure. Workers should be taught to immediately respond to such warnings and not ignore them, or more serious harm may result.

⑤ **Medical conditions generally aggravated by exposure.** To the extent that this information is known, it should be included on the MSDS. For example, persons who are strongly allergic may experience an adverse reaction to certain chemicals. Those with respiratory problems may be more sensitive to irritating and corrosive gases and vapors.

Emergency and first aid procedures. In general, this section gives emergency and first aid instructions for treatment of victims of acute inhalation, ingestion and skin or eye contact. It is not intended to take the place of professional medical assistance and treatment.

SECTION VII: PRECAUTIONS FOR SAFE HANDLING AND USE

Section VII — Precautions for Safe Handling and Use
Steps to Be Taken in Case Material is Released or Spilled
Collect leaking liquid in sealable containers. Absorb spilled liquid in sand or inert absorbent and remove to a safe place. Cleanup personnel should wear protective clothing, including a self-contained respirator. Avoid contact with the skin. Remove all sources of ignition.
Waste Disposal Method
Consult a licensed waste disposal service firm for disposal in accordance with all federal, state and local regulations.
Precautions to Be Taken in Handling and Storing Drums must be grounded and electrically bonded to the receiving vessel while dispensing in order to avoid static sparks. Store away from oxidizing agents, heat and ignition sources. Handle small quantities in approved safety cans. Handle as a Class 1B flammable liquid.
Other Precautions
Good personal hygiene practices should always be followed.

This section describes methods for the proper handling of spills and leaks, disposal and safe storage.

① **Spill and leak procedure.** Methods for controls and cleanup of spills or leaks. Appropriate materials, equipment and personal protective clothing also are generally listed.

② **Waste disposal.** Accepted methods for disposing of excess, used or spilled material in order to comply with government requirements.

③ **Precautions to be taken in handling and storing.** Based on the physical properties of the material and reactivity data, this section should include storage temperatures, containers, dispensing procedures and other information.

④ **Other precautions.** This information relates to miscellaneous materials, handling and safety equipment, and procedures such as personal hygiene.

SECTION VIII: SPECIAL PROTECTION INFORMATION

Section VIII — Control Measures		
Respiratory Protection *(Specify Type)* Not required if concentration is below PEL. At higher concentrations, NIOSH-approved respirator with organic vapor filter should be worn.		
Ventilation	Local Exhaust Required for high concentrations.	Special All electrical equipment must be Class 1, Group D; fans must be non-sparking
	Mechanical *(General)*	Other
Protective Gloves Rubber.		**Eye Protection** Chemical goggles and/or face shield.
Other Protective Clothing or Equipment Eye-wash fountains, safety showers, barrier creams, etc.		
Work/Hygienic Practices		

① **Respiratory protection.** This section provides information and general statements relevant to the need and type of respiratory protection that should be used while handling the material.

② **Ventilation.** Describes the type of ventilation recommended, such as local exhaust hoods or vents at the source of the vapors or dust, as well as general ventilation, which refers to general room ventilation. It also will state whether electrical equipment should be spark proof to safeguard against explosions if the material is flammable.

③ **Protective gloves.** Describes when gloves should be worn and the materials from which they should be fabricated in order to give proper protection from the substance being handled.

④ **Eye protection.** Describes the correct type of eye protection, such as safety glasses, chemical goggles, face shields.

⑤ **Other protective equipment.** Refers to the need for such items as protective garments, boots, aprons, eye wash fountains, safety showers.

Work/hygienic practices. Include information such as whether clean lunch rooms should be provided, personal hygiene practices such as post-shift handwashing or showering, and soiled clothing/laundry handling procedures.

Other MSDS Information

Some MSDSs will include information that describes and categorizes the material in accordance with the U.S. Department of Transportation classification for purposes of safe packaging, handling and transportation. Other regulatory requirements also may be referenced.

Resources

Cal/OSHA Regulations (Title 8, *California Code of Regulations*);
Web site <http://www.dir.co.gov/samples/search/query.htm>

Airborne Contaminants, Section 5155
Body Protection, Section 3383
Eye and Face Protection, Section 3382
Foot Protection, Section 3385
Hand Protection, Section 3384
Hazard Communication, Section 5194
The Hazardous Substances List, Section 339
Head Protection, Section 3381
Injury and Illness Prevention Program, Section 3203
Regulated Carcinogens, Article 110, Sections 5200 et seq.
Respiratory Protection, Section 5144

Cal/OSHA Publications and Web site <http://www.dir.ca.gov>:

DOSH Policy and Procedure Manual, P&P C-43 Hazard Communication
Guide to Developing Your Workplace Injury and Illness Prevention Program (CS-1), April 1998
New Respirator Regulation Fact Sheet, Novemeber 1998
Workplace Injury and Illness Prevention Model Program
- *For high-hazard employers* (CS-1A), August 1995
- *For non-high hazard employers* (CS-1B), August 1995
- *For employers with intermittent workers* (CS-1CS), October 1996
- *For employers with intermittent workers in agriculture* (CS-1CS Ag), January 1997

California Chamber of Commerce <http://www.calchamber.com>:

California Environmental Compliance Manual, 1997-98
Hazard Communication Handbook, 1997-98
Proposition 65 Handbook, 2nd ed., 1989

Nossaman, Guthner, Knox, and Elliot. *Surviving Proposition 65,* 1987

Cal/EPA Office of Environmental Health Hazard Assessment (OEHHA)
<http://www.oehha.ca.gov>:

Proposition 65 in Plain Language

Occupational Safety and Health Administration (OSHA) <http://www.osha-slc.gov>:

Hazard Communication Guidelines for Compliance, OSHA 3111, 1995
Instruction CPL 2-2.38D—Inspection Procedures for the Hazard Communication Standard, 1998
Supplement to California State Plan; Approval-62:31159-31181, 1997

National Advisory Committee on Occupational Safety and Health (NACOSH)
<http://www.osha-slc.gov/STLC/hazardcommunications/wgfinal.html>:

Report to OSHA on Hazard Communication, 1996

Evaluation

Dear Reader,

We value and welcome your comments on the *Guide to the California Hazard Communication Regulation*. To better assist employers and employees, Cal/OSHA invites you to participate in a brief evaluation. Please copy this page and fax to (916) 574-2532 or mail to Cal/OSHA Education Unit, 2211 Park Towne Circle, Suite 4, Sacramento, CA 95825. **We thank you for your participation!**

Yes	No	*Please ✔ and comment. Thank you.*
☐	☐	1. Has the guide helped you to understand why businesses that handle hazardous substances need to integrate the requirements of a hazard communication program in their everyday work activities? Why or why not? _____ _____
☐	☐	2. Did we miss any important hazard communication issues? If yes, what? _____ _____
		3. Has the information contained in the guide encouraged you to:
☐	☐	Develop a written hazard communication program for your workplace?
☐	☐	Assess an existing hazard communication program?
☐	☐	Make improvements to your current hazard communication program?
☐	☐	4. As a whole, is the guide informative, useful, and easy to understand? Why or why not? _____ _____
☐	☐	5. Do you have any specific comment(s) regarding the text of any section of this guide? If so, write your comment(s) and refer to specific page number(s), text, or section. _____ _____
☐	☐	6. Do you have any success stories (avoided accidents, reduced number of injuries, etc.) that you would like to share with us? If so, please provide your company name and a brief description. _____ _____ _____ _____

Acknowledgments

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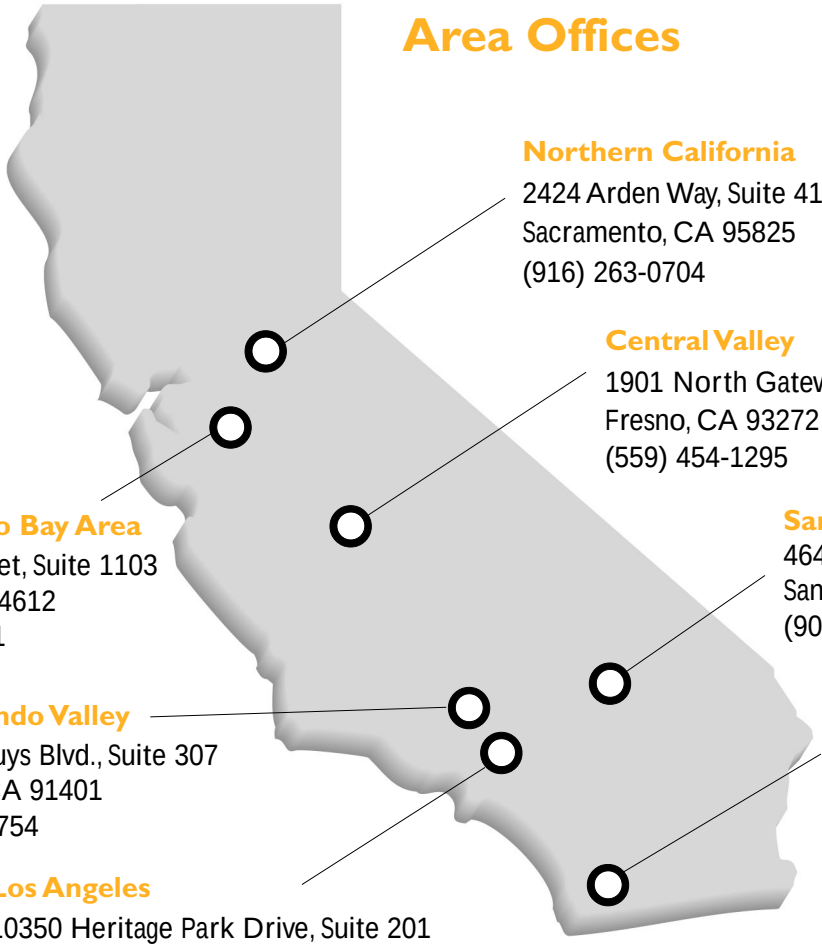

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