

CSU Channel Islands HAZARD COMMUNICATION PROGRAM

1.0 REFERENCES

California Code of Regulations, Title 8, Section 5194 Hazard Communication.
Code of Federal Regulations, Title 29, Section 1910.1200

2.0 PURPOSE

Hazardous substances used in the workplace may pose health risks to employees under certain circumstances. Employees have a right to know the potential hazards of these substances and the precautions that must be taken to protect themselves. The Hazard Communication Program provides information and procedures to ensure that all affected employees know how to identify potentially hazardous substances, understand the health hazards associated with these chemicals, and follow safe work practices.

The Hazard Communication Program will help the University fulfill its obligation to provide a safe and healthful environment for employees, students and visitors.

3.0 SCOPE

The regulations create a University obligation to protect all employees who may be exposed to hazardous materials. Warehouse workers and others who handle only closed containers are exempt from most requirements, and laboratory workers are entirely exempt but are otherwise regulated by the Laboratory Safety Standard (8 CCR Sec. 5191, also known as the Chemical Hygiene Plan).

4.0 EXEMPTION AND EXCEPTION

This program does not apply to hazardous waste; tobacco or tobacco products; wood or wood products; food, drugs, or cosmetics intended for personal consumption by employees while in the workplace; retail food sale establishments; and consumer products packaged for distribution.

5.0 PROGRAM REQUIREMENTS

5.1 Written Program

A formal written program, compliant with regulatory criteria, is required. This written program shall serve as compliance with regulatory requirements.

5.2 Hazardous Substances List

All shops, labs, studios or other areas must each have a list of hazardous materials that are present.

5.3 Safety Data Sheets (SDS)

also referred to as Material Safety Data Sheets (MSDS)

Employees must have ready access to the current version of a SDS for every hazardous material with which they work. This "ready access" includes access in the event of an emergency. Each safety data sheet shall be in English and contains the required safety data as outlined below.

Section 1, Identification: includes product identifier; manufacturer or distributor name, address, phone number; emergency phone number; recommended use; restrictions on use.

Section 2, Hazard(s) identification: includes all hazards regarding the chemical; required label elements.

Section 3, Composition/information on ingredients: includes information on chemical ingredients; trade secret claims.

Section 4, First-aid measures: includes important symptoms/ effects, acute, delayed; required treatment.

Section 5, Fire-fighting measures: lists suitable extinguishing techniques, equipment; chemical hazards from fire.

Section 6, Accidental release measures: lists emergency procedures; protective equipment; proper methods of containment and cleanup.

Section 7, Handling and storage: lists precautions for safe handling and storage, including incompatibilities.

Section 8, Exposure controls/personal protection: lists OSHA's Permissible Exposure Limits (PELs); Threshold Limit Values (TLVs); appropriate engineering controls; personal protective equipment (PPE).

Section 9, Physical and chemical properties: lists the chemical's characteristics.

Section 10, Stability and reactivity: lists chemical stability and possibility of hazardous reactions.

Section 11, Toxicological information: includes routes of exposure; related symptoms, acute and chronic effects; numerical measures of toxicity.

Section 12, Ecological information: provides information to evaluate the environmental impact of the chemical(s) if it were released to the environment.

Section 13, Disposal considerations: provides guidance on proper practices, recycling or reclamation of the chemical(s) or its container, and safe practices.

Section 14, Transport information: provides guidance on classification information for shipping and transporting of the chemical(s) by road, air, or sea.

Section 15, Regulatory information: identifies the safety, health, and environmental regulations specific for the product that is not indicated anywhere else on the SDS.

Section 16, Other information: indicates when the SDS was prepared or when the last known revision was made. Any other useful information may be included here.

5.4 Labeling and Other Forms of Warning

All containers must be labeled with both the contents and a hazard warning (except secondary containers in immediate use). This includes stationary or process containers. In addition, above ground piping containing hazardous substances must be labeled.

Each container of hazardous substances in the workplace shall be labeled, tagged, or marked as follows:

- A. Identity of the hazardous substance(s) contained therein; and
- B. Appropriate hazard warnings in picture, symbols, and/or words and may include formats of the *Global Harmonized System (GHS)*, *Hazardous Material Identification System (HMIS)*, and/or *National Fire Protection Association diamond (NFPA)*.
Appendix A- Hazard Symbols and Labeling.
- C. Signs, placards, etc., may be used to label individual stationary process containers.
- D. Portable containers are not required to be labeled *if intended for immediate use by the employee who performs the transfer*.
- E. Labels shall not be removed or intentionally defaced.
- F. Labels or other forms of warning shall be legible, in English, and prominently displayed on the container, or readily available in the work area throughout each shift.
- G. New labels do not need to be affixed if existing labels already convey the required information.
- H. Facility piping must be labeled with the contents and direction of the flow.

5.5 Multi-employer workplace

The University must inform contractors regarding hazardous substances to which they may be exposed and precautionary measures to take during normal work and emergencies. Contractors, in turn, must inform the University of hazardous substances they will use.

5.6 Employee Information and Training

All employees who work with hazardous materials shall be provided with:

- A. Information and training on hazardous substances in the work area at the time of their assignment, and whenever a new hazard is introduced into the work. Information and training may relate to general classes of hazardous substances to the extent appropriate and related reasonably foreseeable exposures of the job.
- B. Information and training consisting of at least the following topics:
 - (1) The requirements of the Hazard Communication Standard.

- (2) Employee rights under the standard:
- To personally receive information regarding hazardous substances to which they may be exposed;
 - For their physician or collective bargaining agent to receive information regarding hazardous substances to which the employee may be exposed;
 - Against discharge or other discrimination due to the employee's exercise of rights afforded pursuant to the provisions of the Hazardous Substance Information and Training Act.
- (3) The Location of the Hazard Communication Program
- (4) Any operation in the employee's work area where hazardous substances are present.
- (5) An explanation of the labeling system and the Safety Data Sheet (SDS), and how employees can obtain and use the appropriate hazard information. *Employees must be trained to understand the information on a SDS.*
- (6) How to detect the presence or release of each hazardous substance in the workplace.
- (7) Physical and health hazards of the hazardous substances in the work area, to include:
- Health hazard and symptoms of excessive exposure;
 - How to prevent or mitigate exposure through engineering controls, work practices, and personal protective equipment;
 - What to do in an emergency involving hazardous substances (emergency procedures)
- (8) Whenever a department receives a new or revised safety data sheet, such information shall be provided to employees on a timely basis not to exceed 30 days after receipt.

5.7 Employees who handle only closed containers

Employees who handle ONLY closed containers of hazardous substances (employees in warehouse, delivery, etc.) are largely exempt from Program requirements. However, they must still ensure labels are not defaced, be provided access to SDS files, and be trained on how to protect themselves in the event of a chemical spill or leak.

6.0 RESPONSIBILITIES AND PROCEDURES

6.1 Department Managers

Program implementation is the general responsibility of managers who have subordinates that may be exposed to hazardous substances. This is consistent with the universal responsibility of managers for the health and safety of their subordinates.

Initial hazard communication training for new employees is the responsibility of the department manager and shall include the following:

- A. Ensure that all requirements of the Hazard Communication Program have been met before employees are exposed to hazardous substances under normal conditions of use or in a foreseeable emergency.
- B. Develop procedures to ensure effective compliance with requirements of this standard.
- C. Provide the resources necessary to ensure that Personal Protective Equipment (PPE) is available for affected employees.
- D. Develop and maintain an inventory of hazardous substances present in all work areas within the department.
- E. If an SDS is not currently present in the department, obtain the SDS by contacting the manufacturer or visiting the manufacturer's website.
- F. Inform employees of the hazards of non-routine tasks.
- G. Inform outside contractor's employees who work in areas under department jurisdiction of the hazardous substances to which those employees may be exposed.
- H. Ensure that all exposure incidents are documented by completion of the Supervisors Accident Investigation Report, and reported to Human Resources and Environmental Health and Safety (EHS).

6.2 Supervisors

- Supervisors within each work area are responsible for ensuring that hazard communication training is provided when new workplace hazards are introduced, non-routine activities are assigned, or new SDS information becomes available. *The training shall be hazard specific and videotape training alone is inappropriate.*
- Supervisors must also *provide appropriate personal protective gear and enforce its use.*

6.3 Employees within each work area

Employees must:

- A. Understand the applicable components in the Hazard Communication Program.
- B. Understand the hazards of the chemicals and equipment with which you work. If not certain of the potential hazards, employees must consult with their supervisor, refer to SDS, and/or EHS. If the employee has additional questions, he/she should be referred to EHS at extension 3974.
- C. Utilize the engineering controls, safe work practices, and personal protective equipment made available to them and as required for the specific task (e.g., eye protection, gloves, coveralls, respirators, and any other protective equipment). You may refer to the available SDS and/or your department safety procedure for the appropriate safety measure.
- D. Post warning signs when hazards, such as flammable materials, radiation, lasers, biological, mechanical hazards, or when other special hazards exist.
- E. Report any exposure, accident, injury or illness to their supervisor immediately. The supervisor and/or manager must report the incident to Human Resources and EHS.
- F. If a chemical spill occurs, immediately contact campus Police dispatch at extension 8444 or dial 911. Do not attempt to clean up a hazardous material spill unless you have been appropriately trained and authorized.

6.4 Environment Health and Safety (EHS)

- Will develop the written program, assist with training and implementation as requested, and perform periodic assessments of program effectiveness
- Conduct department audits for regulatory compliance.
- Provides information, consultation, and assistance on hazardous materials issues as needed.
- May address multi-employer workplace issues in conjunction with the relevant department and Risk Management.

6.5 Safety Data Sheet (SDS) Management

Individuals ordering hazardous materials must ask that a Safety Data Sheet (SDS) be sent with the order. Supervisors of work areas are responsible for ensuring that a SDS is available for every hazardous material in their area. In the event that a SDS is missing, supervisors of individuals using the material are responsible for obtaining a SDS.

Manufacturers of hazardous materials are required to send a SDS with the initial order of the material. If a SDS is missing it can be obtained from the manufacturer. Manufacturers often have a web site that provides a SDS for every product they make.

7.0 DEFINITIONS:

- **ACUTE:**

Acute effects usually occur rapidly as a result of short-term exposures, and are of short duration.

- **CARCINOGEN:**

A substance is considered to be a carcinogen if:

1. It has been evaluated by the International Agency for Research on Cancer (IARC) and found to be a carcinogen or potential carcinogen; or
2. It is listed as a carcinogen or potential carcinogen in the Sixth Annual Report on Carcinogens published by the National Toxicology Program (NTP); or
3. It is regulated by OSHA as a carcinogen.

- **CHRONIC:**

Effects generally occur as a result of long-term exposure, and are of long duration.

- **CORROSIVE:**

A substance that causes visible destruction of, or irreversible alterations in, living tissue by chemical action at the site of contact.

- **EXPOSURE OR EXPOSED:**

Any situation arising from work operation where an employee may ingest, inhale, absorb through the skin or eyes, or otherwise come into contact with a hazardous substance.

- **FLAMMABLE:**

A substance that falls into one of the following categories:

- **FLAMMABLE AEROSOL:**

An aerosol that, when tested, yields a flame or a flashback.

- **FLAMMABLE GAS:**

A gas that forms a flammable mixture with air.

- **FLAMMABLE LIQUID:**

Any liquid having a flashpoint below 100 degrees F (37.8 degrees C) or higher.

- **FLAMMABLE SOLID:**

Any solid liable to cause fire through friction, absorption of moisture, spontaneous chemical change, or which can be ignited readily and when ignited burns so vigorously and persistently as to create a serious hazard.

- **FLASHPOINT:**

The minimum temperature at which a liquid gives off a vapor in sufficient concentration to ignite when tested using approved methods.

- **HAZARD WARNING:**

Any words, pictures, symbols, or combination thereof appearing on a label or other appropriate form of warning which convey the health hazards and physical hazards of the substance(s) in the container(s).

- **HAZARDOUS SUBSTANCE:**

Any substance, which is a physical hazard or a health hazard or is included in the List of Hazardous Substances prepared by the Director pursuant to Labor Code section 6382.

- **HEALTH HAZARD:**

A substance for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees. The term "health hazard" includes substances which are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, neurotoxins, agents which act on the hematopoietic system, and agents which damage the lungs, skin, eyes, or mucous membranes.

- **HIGHLY TOXIC:**

A substance falling within any of the following categories:

1. A substance that has a median lethal dose (LD50) of 50 milligrams or less per kilogram of body weight.
2. A substance that has a median lethal dose (LD50) of 200 Milligrams or less per kilogram of body weight.
3. A substance has a median lethal concentration (LC50) in air of 200 parts per million by volume or less of gas or vapor, or 2 milligrams per liter or less of mist, fume, or dust, when administered by continuous inhalation for one hour.

- **IMMEDIATE USE:**

The hazardous substance will be under the control of and used only by the person who transfers it from a labeled container and only within the work shift in which it is transferred.

- **IRRITANT:**

A substance, which is not corrosive, but which causes a reversible inflammatory effect on living tissue by chemical action at the site of contact.

- **LABEL:**
Any written, printed, or graphic material displayed on or affixed to containers of hazardous substances.
- **SAFETY DATA SHEETS (SDS):**
also referred to as Material Safety Data Sheets (MSDS)
Written or printed material concerning a hazardous substance, which is prepared in accordance with section 5194(g).
- **ORGANIC PEROXIDE:**
An organic compound that contains the bivalent-O-O- structure and which may be considered to be a structural derivative of hydrogen peroxide where one or both of the hydrogen atoms has been replaced by an organic radical.
- **OXIDIZER:**
A substance other than a blasting agent or explosive as defined in section 5237(a), that initiates or promotes combustion in other materials, thereby causing fire either of itself or through the release of oxygen or other gases.
- **PHYSICAL HAZARD:**
A substance for which there is scientifically valid evidence that it is a combustible liquid, a compressed gas, explosive, flammable, an organic peroxide, an oxidizer, pyrophoric, unstable (reactive) or water-reactive.
- **PYROPHORIC:**
A substance that will ignite spontaneously in air at a temperature of 130 degrees F (54.4 degrees C) or below.
- **SENSITIZER:**
A substance that causes a substantial proportion of exposed people or animals to develop an allergic reaction in normal tissue after repeated exposure to the substance.
- **"TARGET ORGAN EFFECTS":**
Indicate which bodily organs are most likely to be affected by exposure to a substance.

The following table categorizes target organ effects which may occur:

Class and Definition	Signs & Symptoms	Substance
Hepatotoxins (substances which produce liver damage)	Jaundice; liver enlargement	Carbon tetrachloride; nitromines.
Nephrotoxins (substances which produce kidney damage)	Edema; poteinuria	Halogenated hydrocarbons; uranium.
Neurotoxins (substances which produce primary toxic effects on the nervous system)	Narcosis; behavioral changes; decrease in motor functions.	Mercury; carbon disulfide

Agents which act on the Blood or Hemotopoietic System: (decrease hemoglobin function; deprive the body tissue of oxygen)	Cyanosis; loss of consciousness.	Carbon monoxide; cyanides
Agents which damage the lung: (substances which irritate or damage the pulmonary tissue)	Cough; tightness in chest; shortness of breath.	Silica; asbestos
Cutaneous Hazards: (substances which affect the dermal layer of the body)	Defatting of the skin; rashes; irritation	Ketones; Chlorinated compounds
Reproductive Toxins: (substances which affect the reproductive capabilities including chromosomal damage [mutations] and effects the fetuses [teratogens])	Birth defects; sterility.	Lead; DBCP
Eye Hazards: (substances which affect the eye or visual capability)	Conjunctivitis; corneal damage.	Organic solvents; acids.

• **TOXIC:**

A substance falling within any of the following categories:

1. A substance that has a median lethal dose (LD50) of more than 50 milligrams per kilogram but not more than 500 milligrams per kilogram.
2. A substance that has a median lethal dose (LD50) of more than 200 milligrams per kilogram but not more than 1,000 milligrams per kilogram.
3. A substance that has a median lethal concentration (LC50) in air of more than 200 parts per million but not more than 2,000 parts per million by volume of gas or vapor, or more than 2 milligrams per liter but not more than 20 milligrams per liter of mist, fume, or dust, when administered by continuous inhalation for one hour.

• **TRADE SECRET:**

Any confidential formula, pattern, process, device, information, or compilation of information which gives its user an opportunity to obtain a business advantage over competitors who do not know or use it. A trade secret shall not include chemical identity information, which is readily discoverable through qualitative analysis. Information on the specific chemical identity of a trade secret substance may be requested in medical emergencies as well as in non-emergency situations.

• **UNSTABLE (Reactive):**

A substance which in the pure state, or as produced or transported, will vigorously polymerize, decompose, condense, or will become self-reactive under conditions of shocks, pressure, or temperature.

8.0 Hazard Determination:

The quality of a hazard communication program is largely dependent upon the adequacy and accuracy of the hazard determination. The hazard determination requirement of this standard is performance-oriented.

The Chemical Manufacturer and/or Environmental Health and Safety uses the following criteria to make hazard determinations:

1. **Carcinogenicity:** As described in subsection 8 CCR §5194(d)(4) and Appendix B , a determination by the NTP, IARC, or OSHA that a substance is a carcinogen or potential carcinogen will be considered conclusive evidence.
2. **Human data:** Where available, epidemiological studies and case reports of adverse health effects shall be considered in the evaluation.
3. **Animal data:** Results of toxicological testing in animal populations shall be used to predict the health effects that may be experienced by exposed workers.
4. **Adequacy and reporting of data:** The results of any studies which are designed and conducted according to established scientific principals, and which report statistically significant conclusions regarding the health effects of a substance, shall be a sufficient basis for a hazard determination and reported on any material safety data sheet.

APPENDIX A

HAZARD SYMBOLS AND LABELING

Appropriate hazard warnings in picture, symbols, and/or words and may include formats of the *Global Harmonized System (GHS)*, *Hazardous Material Identification System (HMIS)*, and/or *National Fire Protection Association (NFPA)* diamond.

HAZARD SYMBOLS which may be in use at the CSU Channel Islands:

Generic Symbol		GHS Symbol
	Irritant	 <ul style="list-style-type: none"> • Dermal Sensitizer • Acute Toxicity (Harmful) • Narcotic Effects • Respiratory Tract • Irritation
	Corrosive	
	Flammable	
	Toxic	
	Oxidizer	
	Biohazardous	NONE
	Radioactive	NONE
NONE	Health Hazard	 <ul style="list-style-type: none"> • Carcinogen • Respiratory Sensitizer • Reproductive Toxicity • Target Organ Toxicity • Mutagenicity • Aspiration Toxicity
NONE	Environmental Impact	

(Continued)

Generic Symbol		GHS Symbol
	Gas Cylinder	
	Explosive	

LABELS may include:

Hazardous Material Identification System (HMIS):



HMIS II labeling systems use the following numbering system to rate the hazard.

BLUE= HEALTH HAZARD, Ranges from 0 (normal material) to 4 (deadly)

RED= FLAMMABILITY, Ranges from 0 (will not burn) to 4 (flash point 73°)

YELLOW= REACTIVITY, Ranges from 0 (stable) to 4 (may detonate)

WHITE= PERSONAL PROTECTION index, with appropriate precaution

PERSONAL PROTECTION INDEX	
A 	G 
B 	H 
C 	I 
D 	J 
E 	K 
F 	X Ask your supervisor for special handling instructions.

National Fire Protection Association Diamond (NFPA):



NFPA labeling systems use the following numbering system to rate the hazard.

BLUE= HEALTH HAZARD, Ranges from 0 (normal material) to 4 (deadly)

RED= FLAMMABILITY, Ranges from 0 (will not burn) to 4 (flash point 73°)

YELLOW= REACTIVITY, Ranges from 0 (stable) to 4 (may detonate)

WHITE= SPECIAL HAZARD, may include the following:



OX = OXIDIZER



ACID = ACID

ALK **ALK** = ALKALI



CORR = CORROSIVE



USE NO WATER

“Word hazard warnings” may include, as an example, **Flammable**, **Poison**, **Fatal If Swallowed**, or:

DANGER = Highest degree of hazard (*red text*)

WARNING = Intermediate degree of hazard (*orange text*)

CAUTION = Lowest degree of hazard (*yellow text*).

Other (new) labeling may be encountered:
Global Harmonized System (GHS)*

1. Signal Word:
Indicates relative level of hazard. "Danger" is used for most severe instances, while "Warning" is less severe.

2. Symbols (Hazard Pictograms):
Convey health, physical and environmental hazard information with red diamond pictograms. May use a combination of one to five symbols.

3. Product Name or Identifiers*

4. Hazard Statements:
Phrases that describe the nature of hazardous products and oftentimes the degree of hazard.

5. Precautionary Statements:
Phrases associated with each hazard statement, that describe general preventative, response, storage or disposal precautions.

6. Manufacturer Information:
Company name, address & telephone number.

**Additional Product Identifiers*

*The GHS labeling system differs from NFPA and HMIS by the hazard rating/category and the expanded GHS hazard classification. Training is required as implementation of the new regulation and labeling systems are "harmonized." Employees are likely to encounter the GHS label on products, and in Safety Data Sheets, provided by manufacturers and/or distributors.

GHS Summarized

To follow are diagrams which help provide a summarized explanation of rating/category and classifications for the Global Harmonized System (GHS).

GHS categories compared to NFPA / HMIS Rating Systems

 <u>HMIS/NFPA Hazard Ratings</u>	<u>GHS Hazard Categories</u> 
0 = Minimal Hazard	Cat. 1 ~ 'Severe Hazard'
1 = Slight Hazard	Cat. 2 ~ 'Serious Hazard'
2 = Moderate Hazard	Cat. 3 ~ 'Moderate Hazard'
3 = Serious Hazard	Cat. 4 ~ 'Slight Hazard'
4 = Severe Hazard	Cat. 5 ~ 'Minimal Hazard'

GHS Health Hazard Category

<u>Hazard Class</u>	<u>Hazard Category</u>				
Acute Toxicity, Oral	1	2	3	4	5
Acute Toxicity, Dermal	1	2	3	4	5
Acute Toxicity, Inhalation	1	2	3	4	5
Aspiration hazard	1	2			
Skin Corrosion/Irritation	1(Corrosion)			Irritation	
Eye Corrosion /Irritation	1A	1B	1C	2	3
Respiratory Sensitisation	1	2(A)	2(B)		
Skin Sensitisation	1	(1A)	(1B)		
Germ Cell Mutagenicity	1A	1B	2		
Carcinogenicity	1A	1B	2		
Reproductive Toxicity - Fertility	1A	1B	2	Lactation	
Reproductive Toxicity - Development	1A	1B	2		
SpecTargetOrganTox – Single Dose	1	2	3		
SpecTargetOrganTox – Repeat Dose	1	2			

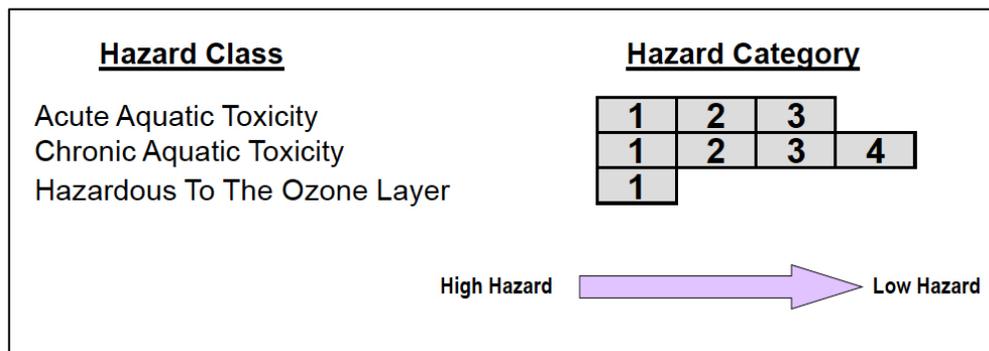
High Hazard Low Hazard

GHS Physical Hazard Category

<u>Hazard Class</u>	<u>Hazard Category</u>						
Explosives	Unstable Explosives	Div 1.1	Div 1.2	Div 1.3	Div 1.4	Div 1.5	Div 1.6
Flammable Gases	1	2					
Flammable Aerosols	1	2					
Oxidising Gases	1						
Pressurised Gases							
Compressed Gases	1						
Liquefied Gases	1						
Refrigerated Liquefied Gases	1						
Dissolved Gases	1						
Flammable Liquids	1	2	3	4			
Flammable Solids	1	2					
Self-reactive Substances	Type A	Type B	Type C	Type D	Type E	Type F	Type G
Pyrophoric Liquids	1						
Pyrophoric Solids	1						
Self-heating Substances	1	2					
Water Reactive → Flammable Gases	1	2	3				
Oxidising Liquids	1	2	3				
Oxidising Solids	1	2	3				
Organic Peroxides	Type A	Type B	Type C	Type D	Type E	Type F	Type G
Corrosive to Metals	1						

High Hazard Low Hazard

GHS Environmental Hazard Category



GHS diagrams available from National Oceanic and Atmospheric Administration (NOAA) and U.S. Department of Commerce publication.