

## Hazard Communication in the Maritime Industry

This fact sheet describes the hazard communication requirements for work performed in the maritime industry (see 29 CFR Parts 1915, 1917, and 1918), as specified in the Hazard Communication Final Rule.

### Hazard Communication

OSHA revised its Hazard Communication Standard (HCS 2012), 29 CFR 1910.1200, on March 26, 2012, to align it with the United Nations' Globally Harmonized System of Classification and Labeling of Chemicals (GHS). HCS 2012 provides a standardized, coherent approach to both classifying chemicals and communicating the hazards of those chemicals on labels and safety data sheets (SDSs). The changes to the HCS include revised criteria for classification of chemical hazards; revised labeling provisions to require the use of standardized signal words, pictograms, hazard statements, and precautionary statements; a specified format for SDSs; and requirements for employee training on labels and SDSs. The hazard communication requirements under HCS 2012 are applicable to maritime employment. See §1915.1200 (shipyard employment), §1917.1(a)(2)(vi) (marine terminals), §1918.1(b)(4) (longshoring).

While several changes were made as part of the standard's revision, employers' obligations remain largely the same. Employers are still responsible for maintaining a written hazard communication program at each workplace, maintaining labels on shipped containers of chemicals, labeling secondary (in-house) containers of chemicals, using SDSs, providing workers information and training, and ensuring the effective communication of potential exposure to hazardous chemicals. Where multi-employer worksites exist, the hazard communication program must also include steps for the communication of hazards to the workers of the other employers.

### Hazardous Chemicals

Under HCS 2012, a *hazardous chemical* means any chemical which is classified as a physical hazard or a health hazard, a simple asphyxiant, combustible dust, pyrophoric gas, or hazard not otherwise classified (§1910.1200(c)). This definition mirrors the meaning of a *hazardous substance* in shipyard employment, which is defined as any substance that may cause injury, illness, or disease, or otherwise harm an employee by reason of being explosive, flammable, poisonous, corrosive, oxidizing, irritating, or otherwise harmful (§1915.80(b)(9)). Therefore, OSHA considers a substance to be hazardous if it poses a physical or health hazard, or if it is classified as a simple asphyxiant, a combustible dust, a pyrophoric gas, or a hazard not otherwise classified.

### The Effect of Revisions to the HCS on Standards Applicable to the Maritime Industry

The revisions made to the HCS in order to conform to the GHS necessitated modification of several other OSHA standards that reference HCS definitions. For example, OSHA modified the definition of flammable liquids in §1910.106 in order to align with the HCS 2012's hazard categories for flammable liquids based on flashpoint criteria. Additionally, modifications were made to most substance-specific health standards to ensure that requirements for signs, labels, and SDSs are consistent with the HCS 2012.

The three tables below outline the requirements in 29 CFR Part 1910 affected by the HCS 2012 that apply to the maritime industry.

**TABLE 1: 29 CFR Part 1915 – Shipyard Employment**

General Industry Standards	Maritime Industry Applicability of General Industry Standards
<p><b>1910.106 Flammable liquids</b></p>	<p>Applies on vessels and on shore for covered flammable and combustible liquids operations; not applicable for fuel tanks and bulk cargo tanks that are part of the vessel.</p> <p>The maritime industry generally does not use flashpoint criteria to distinguish between flammable and combustible liquids. Section 1910.106 applies to shipyard employment when the definitions of flammable and combustible liquids are not specified in Part 1915 shipyard standards; however, where a specific Part 1915 shipyard requirement provides flashpoint criteria, those requirements take precedence over the definitions in §1910.106.</p>
<p><b>1910.107 Spray finishing using flammable and combustible materials</b></p>	<p>Applies on vessels and on shore for spray booths; however, spray booths are usually located on shore in shipyards.</p> <p><b>Specific applicable sections include:</b></p> <p>§1910.107(c) on vessels and on shore for electrical and other sources of ignition.</p> <p>§1910.107(d) on shore; however, §§1915.35 and 1915.36 apply to vessels for ventilation and exhaust systems.</p> <p>§1910.107(e) on vessels and on shore (§1915.36 also applies)</p> <p>§1910.107(f) on shore for the protection of sprinklered buildings</p> <p>§1910.107(g) on vessels and on shore, excluding §§1910.107(g)(2) and (g)(5), which are preempted by §§1915.35(b)(6), 1915.32, and 1915.33</p> <p>§1910.107(h) on vessels and on shore</p> <p>§1910.107(i) on vessels and on shore</p> <p>§1910.107(j) on vessels and on shore</p> <p>§1910.107(k) on shore</p> <p>§1910.107(l) on vessels and on shore</p> <p>§1910.107(m) on vessels and on shore</p>
<p><b>1910.119 Process safety management of highly hazardous chemicals</b></p>	<p>Applies on vessels and on shore for process safety management of highly hazardous chemicals.</p>
<p><b>1910.120 Hazardous waste operations and emergency response</b></p>	<p>Applies on vessels and on shore for hazardous waste operations.</p>
<p><b>1910.123–1910.126 Dipping and coating operations</b></p>	<p>Applies on vessels and on shore for hazards associated with dip tanks; these standards are not preempted by §§1915.32 and 1915.33.</p> <p>Dip tanks located in confined or enclosed spaces must meet the requirements of 29 CFR Part 1915, Subpart B.</p>

General Industry Standards	Maritime Industry Applicability of General Industry Standards
<p><b>1910.252 General requirements (Welding, Cutting, and Brazing)</b></p> <p><b><i>On Vessels &amp; On Shore</i></b>            1910.252(a)(3)            1910.252(a)(4)(i)            1910.252(b)(1)            1910.252(b)(2)(ii)            1910.252(b)(2)(iii)            1910.252(c)(1)(i)–(ii)            1910.252(c)(1)(iv)            1910.252(c)(2)(ii)            1910.252(c)(3)(i)            1910.252(c)(3)(ii)            1910.252(c)(4)(iii)            1910.252(c)(4)(iv)            1910.252(c)(5)            1910.252(c)(11)–(13)            1910.252(d)</p> <p><b><i>On Shore Only</i></b>            1910.252(c)(6)–(10)</p>	<p>Applies on vessels and on shore for welding, cutting and brazing general requirements.</p> <p>Note:</p> <ul style="list-style-type: none"> <li>• 29 CFR Part 1915 Subpart P (§§1915.501 through 1915.509) applies for all shipyard employment fire protection.</li> <li>• §1915.51 – Ventilation and protection in welding, cutting and heating take precedence over General Industry standards.</li> </ul>
<p><b>1910.1003 13 Carcinogens</b></p>	<p>Applies on vessels and on shore for 13 carcinogens; incorporated by reference — §1915.1003: 4-Nitrobiphenyl; §1915.1004: alpha-Naphthylamine; §1915.1006: Methyl chloromethyl ether; §1915.1007: 3,3'-Dichlorobenzidine; §1915.1008: bis-Chloromethyl ether; §1915.1009: beta-Naphthylamine; §1915.1010: Benzidine; §1915.1011: 4-Aminodiphenyl; §1915.1012: Ethyleneimine; §1915.1013: beta-Propiolactone; §1915.1014: 2-Acetylaminofluorene; §1915.1015: 4-Dimethylaminoazobenzene; and §1915.1016: N-Nitrosodimethylamine</p>
<p><b>1910.1017 Vinyl chloride</b></p>	<p>Applies on vessels and on shore for vinyl chloride; incorporated by reference — §1915.1017</p>
<p><b>1910.1018 Inorganic arsenic</b></p>	<p>Applies on vessels and on shore for inorganic arsenic; incorporated by reference — §1915.1018</p>
<p><b>1910.1025 Lead</b></p>	<p>Applies on vessels and on shore for lead; incorporated by reference — §1915.1025</p>
<p><b>1910.1027 Cadmium</b></p>	<p>Applies on vessels and on shore for cadmium; incorporated by reference — §1915.1027</p>
<p><b>1910.1028 Benzene</b></p>	<p>Applies on vessels and on shore for benzene; incorporated by reference — §1915.1028</p>
<p><b>1910.1029 Coke oven emissions</b></p>	<p>Applies on vessels and on shore for coke oven emissions</p>
<p><b>1910.1044 1,2-dibromo-3-chloropropane</b></p>	<p>Applies on vessels and on shore for 1, 2-dibromo-3-chloropropane; incorporated by reference — §1915.1044</p>
<p><b>1910.1045 Acrylonitrile</b></p>	<p>Applies on vessels and on shore for acrylonitrile; incorporated by reference — §1915.1045</p>
<p><b>1910.1047 Ethylene oxide</b></p>	<p>Applies on vessels and on shore for ethylene oxide; incorporated by reference — §1915.1047</p>
<p><b>1910.1048 Formaldehyde</b></p>	<p>Applies on vessels and on shore for formaldehyde; incorporated by reference — §1915.1048</p>

General Industry Standards	Maritime Industry Applicability of General Industry Standards
<b>1910.1050 Methylenedianiline</b>	Applies on vessels and on shore for methylenedianiline; incorporated by reference — §1915.1050
<b>1910.1051 1,3-Butadiene</b>	Applies on vessels and on shore for 1,3-Butadiene
<b>1910.1052 Methylene Chloride</b>	Applies on vessels and on shore for methylene chloride; incorporated by reference — §1915.1052
<b>1910.1200 Hazard Communication</b>	Applies on vessels and on shore for hazard communication; incorporated by reference — §1915.1200
<b>1910.1450 Occupational exposure to hazardous chemicals in laboratories</b>	Applies on vessels and on shore for occupational exposure to hazardous chemicals in laboratories; incorporated by reference — §1915.1450

### Asbestos – §1915.1001

The revised Hazard Communication rule also included updates to §1915.1001, paragraphs (i)(3), (k)(7), and (k)(8). New requirements include the expectation that employers will ensure that contaminated clothing for transport are sealed and labeled appropriately (§1915.1001(i)(3)).

Further, in §1915.1001(k)(7), formerly §1915.1001(k)(8), the required warnings to be displayed on the labels of bags or containers that hold protective clothing, equipment, scrap, waste, and debris have been adjusted slightly. Previously labels were required to bear the warning “CANCER AND LUNG DISEASE HAZARD” as one of four necessary warning statements (see 1915.1001(k)(7)(iii)). Now labels have been revised and two parts of the required label are “MAY CAUSE CANCER” and “CAUSES DAMAGE TO LUNGS.” The new language takes effect June 1, 2015. Additionally, the same revision was made to warning signs that demarcate regulated areas under §1915.1001(k)(8)(ii), previously §1915.1001(k)(7)(ii)(A). However, employers are not required to make this change until June 1, 2016.

Also, in §1915.1001(k)(8)(iii), previously §1915.1001(k)(7)(ii)(B), where respirators must be worn, the signage must state “WEAR

RESPIRATORY PROTECTION AND PROTECTIVE CLOTHING IN THIS AREA.” Employers have until June 1, 2016, to implement this change.

### Chromium (VI) – §1915.1026

The revised Hazard Communication rule also made changes to §1915.1026, paragraphs (g)(2)(iv) and (j)(1). Where bags or containers of contaminated protective clothing or equipment are removed from change rooms for laundering, cleaning, maintenance, or disposal, they must be labeled in accord with the requirements of the Hazard Communication standard — §1910.1200 (§1915.1026(g)(2)(iv)). While this requirement has not changed, the new provision includes the expectation that ultimate responsibility lies with the employer.

New to paragraph (j)(1), employers must ensure each employee has the following:

1. Access to labels on containers of chromium (VI) and SDSs;
2. Training in accord with §1910.1200, as well as the requirements contained in paragraph (j)(2); and
3. Knowledge of the hazards associated with chromium (VI) that include at least cancer, skin sensitization, and eye irritation.

**Table 2: 29 CFR Part 1917 – Marine Terminals**

General Industry Standards	Maritime Industry Applicability of General Industry Standards
<p><b>1910 Subpart Z Toxic and Hazardous Substances</b></p>	<p>Applies to marine cargo handling activities <b>except</b> for:</p> <ul style="list-style-type: none"> <li>• When a substance or cargo is contained within a sealed, intact means of packaging or containment compliant with Department of Transportation or International Maritime Organization requirements;</li> <li>• Bloodborne pathogens;</li> <li>• Carbon monoxide (See §1917.24(a));</li> <li>• Hydrogen sulfide (See §1917.73(a)(2)); and</li> <li>• Hexavalent chromium (See §1915.1026).</li> </ul>
<p><b>1910.1200 Hazard Communication</b></p>	<p>Applies for hazard communication; incorporated by reference in §1917.28 (§1917.1(a)(2)(vi)). However, facilities used solely for bulk storage, handling and transfer of flammable, non-flammable and combustible liquids and gases are exempt from §1910.1200 requirements (§1917.1(a)(1)(i)).<sup>1</sup></p>

**Table 3: 29 CFR Part 1918 – Longshoring**

General Industry Standards	Maritime Industry Applicability of General Industry Standards
<p><b>1910 Subpart Z Toxic and Hazardous Substances</b></p>	<p>Applies to marine cargo handling activities <b>except</b> for:</p> <ul style="list-style-type: none"> <li>• When a substance or cargo is contained within a sealed, intact means of packaging or containment compliant with U.S. Department of Transportation or International Maritime Organization requirements;;</li> <li>• Bloodborne pathogens;</li> <li>• Carbon monoxide (See §1918.94(a));</li> <li>• Hydrogen sulfide (See §1918.94(f)); and</li> <li>• Hexavalent chromium (See §1915.1026).</li> </ul>
<p><b>1910.1200 Hazard Communication</b></p>	<p>Applies for hazard communication; incorporated by reference in §1918.90 (§1918.1(b)(4)).</p>

### Reporting and Recordkeeping

An accurate record of any measurements taken to monitor worker exposure and medical services (consultations, exams, tests, and written physician opinions) must be accurately recorded.

Further, such records must be preserved and maintained for at least the duration of the worker’s employment plus 30 years (29 CFR 1910.1020(d)(1)(i)).

<sup>1</sup>**Handling of Dangerous Cargo at Waterfront Facilities (Marine Terminals).** Under Section 4(b)(1) of the OSH Act, OSHA has no authority over a working condition if another federal agency has exercised statutory authority over that working condition. Pursuant to 33 U.S.C. Section 1231, a provision of the Ports and Waterways Safety Act, the Coast Guard has promulgated regulations (33 CFR Part 126) dealing with working conditions for the loading and discharging of vessels at “designated waterfront facilities” involving the handling and storage of “dangerous cargo,” “designated dangerous cargo,” or “cargo of a particular hazard.”

Further, pursuant to this same section, the Coast Guard has promulgated regulations (33 CFR Part 154) for working conditions involving facilities capable of transferring oil or other hazardous liquids or gases, in bulk, to or from a vessel (see 29 CFR Part 1917.1(a)(1)(i)). “In bulk” is defined by the U. S. Coast Guard as 250 barrels or more, where a barrel holds 42 U.S. gallons (i.e., 250 barrels = 10,500 U.S. gallons). If the cargo handled at the “designated waterfront facility” is of the type specified in these Coast Guard regulations (33 CFR Parts 126 and 154), then OSHA authority is preempted with respect to those hazards addressed by those regulations (e.g., fire, explosion and toxic hazards). All other working conditions at the facility are subject to OSHA regulation (such as activities related to production, manufacturing, construction, ship repair including tank cleaning operations, and the movement of general cargo).

## Safety Data Sheets (SDSs)

Under the revised standard, chemical manufacturers, distributors, or importers are required to provide SDSs (formerly material safety data sheets), for all hazardous chemicals. SDSs must present information on these chemicals in a user-friendly, 16-section format, containing the following information:

- Section 1** - Identification;
- Section 2** - Hazard(s) identification;
- Section 3** - Composition/information on ingredients;
- Section 4** - First-aid measures;
- Section 5** - Firefighting measures;
- Section 6** - Accidental release measures;
- Section 7** - Handling and storage;
- Section 8** - Exposure controls/personal protection;
- Section 9** - Physical and chemical properties;
- Section 10** - Stability and reactivity;
- Section 11** - Toxicological information;
- Section 12** - Ecological information;
- Section 13** - Disposal considerations;
- Section 14** - Transport information;
- Section 15** - Regulatory information; and
- Section 16** - Other information, including date of preparation or last revision.

OSHA requires that Sections 12 through 15 be present on each SDS; however, the agency is not enforcing the content of these sections. Appendix D of §1910.1200 outlines the information that must be present in each section.

SDSs must be readily accessible to workers for all hazardous chemicals in their workplace. There are a number of ways this can be accomplished. For example, employers may keep SDSs in a binder or on a computer. Regardless of the method used, employees must have immediate access to the information when needed without leaving their work area and a back-up system must be available for immediate access in case of power outage or other emergency. Employers may want to designate a person or group as responsible for obtaining and maintaining SDSs. Where hazardous chemicals are received without an SDS, the employer or its representative must make a good-faith effort to obtain the SDS.

Whenever chemical manufacturers, importers, or employers responsible for preparing the SDS become aware of any significant information regarding the hazards of a chemical, or ways to










protect against the hazards, the new information must be added to the SDS within three months. Labels must be updated within six months of becoming aware of significant information regarding the hazards of a chemical.

## Labels

Starting on June 1, 2015, all labels on incoming containers of hazardous chemicals from manufacturers and importers must have pictogram(s), a signal word, hazard and precautionary statements, the product identifier, and supplier identification (see OSHA *QuickCard: Hazard Communication Standard Labels*). However, employers may receive containers with HCS 1994 compliant labels from distributors until December 1, 2015.

Pictograms are symbols used to communicate specific information about the hazards of a chemical. There are nine pictograms under the GHS used to convey the health, physical, and environmental hazards of a chemical; OSHA has adopted all of these pictograms except for the environmental pictogram. These pictograms are depicted below.

## Pictograms

<p><b>Health Hazard</b></p>  <ul style="list-style-type: none"><li>• Carcinogen</li><li>• Mutagenicity</li><li>• Reproductive Toxicity</li><li>• Respiratory Sensitizer</li><li>• Target Organ Toxicity</li><li>• Aspiration Toxicity</li></ul>	<p><b>Flame</b></p>  <ul style="list-style-type: none"><li>• Flammables</li><li>• Pyrophorics</li><li>• Self-Heating</li><li>• Emits Flammable Gas</li><li>• Self-Reactives</li><li>• Organic Peroxides</li></ul>	<p><b>Exclamation Mark</b></p>  <ul style="list-style-type: none"><li>• Irritant (skin and eye)</li><li>• Skin Sensitizer</li><li>• Acute Toxicity (harmful)</li><li>• Narcotic Effects</li><li>• Respiratory Tract Irritant</li><li>• Hazardous to Ozone Layer (Non-Mandatory)</li></ul>
<p><b>Gas Cylinder</b></p>  <ul style="list-style-type: none"><li>• Gases Under Pressure</li></ul>	<p><b>Corrosion</b></p>  <ul style="list-style-type: none"><li>• Skin Corrosion/ Burns</li><li>• Eye Damage</li><li>• Corrosive to Metals</li></ul>	<p><b>Exploding Bomb</b></p>  <ul style="list-style-type: none"><li>• Explosives</li><li>• Self-Reactives</li><li>• Organic Peroxides</li></ul>
<p><b>Flame Over Circle</b></p>  <ul style="list-style-type: none"><li>• Oxidizers</li></ul>	<p><b>Environment (Non-Mandatory)</b></p>  <ul style="list-style-type: none"><li>• Aquatic Toxicity</li></ul>	<p><b>Skull and Crossbones</b></p>  <ul style="list-style-type: none"><li>• Acute Toxicity (fatal or toxic)</li></ul>



For secondary or in-house containers, the employer may either provide all of the required information that is on the label from the chemical manufacturer, or the product identifier and words, pictures, symbols or a combination thereof, which provide at least general information regarding the chemical hazards, and which, in combination with other information immediately available to workers, provide specific information regarding the hazards of the chemicals.

### Information and Training

Workers must be trained on hazardous chemicals that they may be exposed to during work in a manner and language that they can understand. At a minimum, training must be conducted at the time of initial assignment to the work area, and whenever a new hazard is introduced.

The topics of training to be covered must, at a minimum, include:

- Detection of hazardous chemicals (e.g., visual appearance, odor, monitoring devices);
- Effects of hazardous chemical exposure that cover physical, health, asphyxiation, combustible dust, pyrophoric gas, and hazards not otherwise classified;
- Worker protection measures (e.g., work practices, emergency procedures, personal protective equipment); and
- Detailed overview of the employer's written hazard communication program, including an explanation of the labels received on shipped containers and SDS sections. Employers must train workers on HCS 2012 label elements and SDS format by December 1, 2013.

*Disclaimer: This OSHA Fact Sheet provides a general overview of the requirements of the Hazard Communication standard applicable to the maritime industry. It does not alter or determine compliance responsibilities in the standard or the Occupational Safety and Health Act of 1970. Since interpretations and enforcement policy may change over time, the reader should consult current OSHA interpretations and decisions by the Occupational Safety and Health Review Commission and the courts for additional guidance on OSHA compliance requirements.*

**This is one in a series of informational fact sheets highlighting OSHA programs, policies or standards. It does not impose any new compliance requirements. For a comprehensive list of compliance requirements of OSHA standards or regulations, refer to Title 29 of the Code of Federal Regulations. This information will be made available to sensory-impaired individuals upon request. The voice phone is (202) 693-1999; teletypewriter (TTY) number: (877) 889-5627.**

Workers must also be informed of the requirements of the HCS, any operations in their work area where hazardous chemicals are present, and the location and availability of the written hazard communication program, including the required lists of hazardous chemicals and SDSs.

### Help for Employers

For more information on the HCS, as well as common and logical approaches to training and communicating hazard information on labels and SDSs, see the OSHA webpage at [www.osha.gov/dsg/hazcom](http://www.osha.gov/dsg/hazcom).

OSHA's On-site Consultation Program offers free and confidential advice to small and medium-sized businesses in all states across the country, with priority given to high-hazard worksites. On-site Consultation services are separate from enforcement and do not result in penalties or citations. Consultants from state agencies or universities work with employers to identify workplace hazards, provide advice on compliance with OSHA standards, and assist in establishing safety and health management systems. To locate the OSHA On-site Consultation Program nearest you, call 1-800-321-6742 (OSHA) or visit [www.osha.gov/dcsp/smallbusiness](http://www.osha.gov/dcsp/smallbusiness).

Note: States with OSHA-approved state plans may have additional requirements. For more information, please visit: [www.osha.gov/dcsp/osp/statestandards.html](http://www.osha.gov/dcsp/osp/statestandards.html).

**For assistance, contact us. We can help. It's confidential.**



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