



**Non-Ferrous Founders' Society  
Safety & Health Training Program**

**Hazard Communication/GHS  
Training Program**

Train-The-Trainer Guidance Document

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**A helpful guide to assist trainers in non-ferrous foundries with  
employee training in the Globally Harmonized System of  
Classification and Labelling of Chemicals (GHS)**

A publication of



**Non-Ferrous Founders' Society  
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# **Directory of the Training Modules available from NFFS**

Each of the following training modules and support documents are available for free download from NFFS at the following website: [www.nffs.org/NFFStar/GHS](http://www.nffs.org/NFFStar/GHS)

## **Module 1: Worker's Rights** *Training Time: Approximately 15 minutes*

A module designed to train employees in their rights under OSHA regulations. This section is a required part of the GHS/HazCom training.

## **Module 2: GHS/HazCom and the Non-Ferrous Foundry** *Training Time: Approximately 15 minutes*

An introduction to hazard communication and GHS, and their role in the non-ferrous foundry hazard communication program

## **Module 3: Safety Data Sheets** *Training Time: Approximately 15 minutes*

A review of the Safety Data Sheet and the information they provide to affected workers

## **Module 4: Labels** *Training Time: Approximately 15 minutes*

A review of the Safety Data Label required on product in the workplace

## **Module 5: Air contaminants in the non-ferrous foundry** *Training Time: Approximately 30 minutes*

A review of the different types of airborne contaminants and hazards that may be present in the non-ferrous foundry

## **Module 6: Aluminum Foundries** *Training Time: Approximately 30 minutes*

A section addressing the hazards specific to foundries that melt and pour ALUMINUM ALLOYS

## **Module 7: Brass and Bronze Foundries** *Training Time: Approximately 30 minutes*

A section addressing the hazards specific to foundries that melt and pour COPPER ALLOYS

## **Train-The-Trainer Webinar** *Training Time: Approximately 60 minutes*

A brief recorded webinar that discusses how to access the free GHS training program available from NFFS, a review of each of the 7 available training modules, a discussion of the available trainer guidance document, help you to ensure your worker's not only receive the OSHA required training, but ensure that they UNDERSTAND the content being presented, and a discussion of GHS regulations, including deadlines for Safety Data Sheet/Labels implementation, employee training and development of written Hazard Communication programs aligned with GHS

## **Train-The-Trainer Guidance Document**

This is a helpful guide to assist trainers in non-ferrous foundries with employee training in the Globally Harmonized System of Classification and Labelling of Chemicals (GHS). This document is intended to be used in conjunction with the 7 available training modules described above.

## Introduction to the Train-The-Trainer Program

Congratulations on taking your first steps in providing effective and updated Hazard Communication Training that is aligned with the Globally Harmonized System (GHS) to your foundry employees!

It is important to note that the training modules in this program were developed for non-ferrous foundries. However, these materials may be adapted for use by ingot makers and ferrous foundries with the addition of materials that apply to these industries.

The modules can be presented to workers individually or in groups. Five of the modules are applicable to both Aluminum and Copper alloy foundries. There is also a module developed specifically for Aluminum foundries and a different module for Copper alloy foundries.

Each of these modules contains material that applies to all foundries, but information that is specific to YOUR foundry is needed as well to complete the training program.

Employees need to know what types of hazards are in YOUR foundry, how to recognize them and what is necessary to protect against these hazards. Employees also need to know what programs are in place at your foundry and how to get access to any information or equipment needed.

We have outlined guidance for each of the modules to assist you in:

- 1) Determining what programs are required at your foundry
- 2) Gathering data on materials and information that applies to the module and your foundry
- 3) Locating and obtaining training materials available from OSHA or other sources to assist you in developing and presenting the programs and materials
- 4) Presenting questions (and answers) that may be used to determine if employees have understood the materials presented.

**Note: You can modify this material, or add to it, to reflect the conditions and operations in your foundry. Be sure to update and use the available PowerPoint slides with the written content as the base of your training program. Copies of the slides and written narrative are designed as a 'take-away' for employees to use as an information resource and for future referral.**

## The Training Process – Step by Step

**Step 1** – Log in to the website and view the Hazard Communication Training Program Train The Trainer webinar at [www.nffs.org/NFFStar/GHS](http://www.nffs.org/NFFStar/GHS);

**Step 2** – Download and read the Train the Trainer Guidance Document to prepare in advance of the training of your foundry employees in GHS/HazCom requirements;

**Step 3** – Download the relevant training modules for your foundry from the site [www.nffs.org/NFFStar/GHS](http://www.nffs.org/NFFStar/GHS)

**Please Note: Section 1 OSHA Worker’s Rights is a required part of the GHS/HazCom training. In addition, foundries that pour only Aluminum will not need Module 7 Brass and Bronze Foundries, while foundries that pour only Brass/Bronze will not require Module 6 Aluminum Foundries. Foundries that pour both materials will need to download both module 6 and module 7.**

**Step 4** – Print copies of the employee handouts for each training module to be presented for each employee to be trained

**Step 5** – Print copies of the pre- and post- training exam for each employee to be trained, as well as an attendance roster with each employee’s name and a space for each employee’s signature

**Step 6** – It is important for the foundry trainer to read the written content for each slide of each training module to be presented. You must understand the content to be presented PRIOR to presenting the content to your employees. Time spent preparing for the training session is critical for the effectiveness of the training program.

**Step 7** – Conduct the training program.

- Welcome the training program participants
- Introduce the training topic(s), and make general introductory comments
- Explain that you will request a pre- and post- exam from each attendee to ensure that the training has been effective for all employees
- **Distribute the pre-exam to all training attendees.** It is important to specifically mention that the quiz is to measure the effectiveness of the training materials, and will not be used to make judgements about the effectiveness of a particular employee;
- Collect the pre-examination when attendees are finished
- Present the selected training modules, using the written comments presented with each slide, to help guide your conversation

- Ensure that you provide opportunity for attendees to ask questions, and provide a meaningful answer in response
- Complete each training module to be presented
- Upon successful presentation of the training modules, **distribute the post-exam to all training attendees.** It is important to specifically mention that the quiz is to measure the effectiveness of the training materials, and will not be used to make judgements about the effectiveness of a particular employee;
- Collect the post-exam from each attendee when finished

#### **Step 8 – Analyze the training program effectiveness**

- Grade the pre-exam and post-exam for each training program attendee
- Calculate the average PRE-EXAM score for the group by taking the total number of correct responses and divide by the total number of possible responses
- Calculate the average POST-EXAM score for the group by taking the total number of correct responses and divide by the total number of possible responses

#### **Step 9 – Provide Training Data Back to NFFS**

- Visiting the NFFS website data collection point ([www.nffs.org/NFFStar/GHS/report](http://www.nffs.org/NFFStar/GHS/report)) and enter the following information
  - Company name
  - Number of employees trained
  - Which training modules were presented
  - Pre-Exam and Post-Exam AVERAGE scores for each module
- This data will be used by NFFS ONLY to demonstrate the effectiveness of the training materials, and to provide a measure on the total number of industry employees trained using these materials.
- **PLEASE NOTE: NFFS will not provide the name of your facility to OSHA!** NFFS will only report the number of employees trained, and the pre- and post-examination scoring. This data is important to help NFFS secure future OSHA funding for training programs to assist foundries with other Occupational Safety and Health Topics.

**HAVE QUESTIONS? Contact the Non-Ferrous Founders' Society with any questions you may have while preparing and conducting the training in this program at (847) 299-0950 or via email at [nffstaff@nffs.org](mailto:nffstaff@nffs.org).**

## Module #1 Workers Rights

**Trainers should review the module before presentation and be certain to understand the terms and concepts that are covered.**

It is important for employees to know their rights under the OSHA regulations, and an effective foundry safety and health program will provide the means for workers to convey their concerns to management.

Trainers should review the module before presentation and have on hand:

- A Copy of the OSHA Poster. A copy can be downloaded from the internet at <https://www.osha.gov/Publications/osh3165.pdf>
- A PRINTED copy of the OSHA Poster can be purchased on line at <https://www.osha.gov/pls/publications/publication.athruz?pType=Types&pID=6>
- The OSHA web page on Workers' Rights is found at <https://www.osha.gov/workers/index.html>
- An OSHA booklet on workers' rights can be downloaded at <https://www.osha.gov/Publications/osh3021.pdf>

## Module # 2: HazCom and the Non Ferrous Foundry

**Trainers should review the module before presentation and be certain to understand the terms and concepts that are covered.**

This module applies to all types of foundries and can be used to introduce new employees to the Hazard Communication Program. It can also be effective in retraining existing employees in the types of hazards they work with and how to recognize and protect against these hazards.

Trainers should review the module before presentation and have on hand:

- A copy of the OSHA Hazard Communication Standard. A copy can be downloaded from the internet at [https://www.osha.gov/FedReg\\_oseha\\_pdf/FED20120326.pdf](https://www.osha.gov/FedReg_oseha_pdf/FED20120326.pdf)
- A copy of the company written Hazard Communication Program

In addition, trainers should be certain to provide the following information that is specific to YOUR foundry:

- Where the written Hazard Communication Program is located, and how an employee can gain access to it;
- Where the Safety Data Sheets for affected workers are located and how an employee can gain access to them;
- Person or persons responsible for maintaining the program;
- How to get answers to any questions concerning chemicals used at the foundry or safe work practices;
- Trainers will also find it useful to have sample Safety Data Sheets and Labels available as examples of the resources available at the foundry.

**PLEASE NOTE: The purpose of this module is to explain the OSHA Hazard Communication Program and how it applies to the foundry. Questions concerning specific chemicals and metals used at the foundry may be answered in other modules on Air Contaminants and Aluminum and Copper Alloy foundries.**

**Materials available to supplement this module include:**

### **For the Trainer**

- OSHA Hazard Communication Standard (1910.1200)

- OSHA Briefs on Hazard Communication, SDS and Labels (two briefs that outline the standard, Safety Data Sheets and how they affect companies and employees)
- Guide to *The Globally Harmonized System of Classification and Labelling of Chemicals* (GHS) - a valuable tool in determining how the GHS is used to develop Safety Data Sheets and Labels and how to interpret the meanings of warning and statements used in the Global Harmonization System. This can be found on the internet at <https://www.osha.gov/dsg/hazcom/ghs.html>.
- Pictograms that can be downloaded from the internet for each of the nine hazard classifications. These pictograms can be downloaded at no cost in the EPS, JPG and PNG formats at <https://www.osha.gov/dsg/hazcom/pictograms/index.html>

### **For employees**

- The OSHA Quick Cards (which are shown in the training module) are easy to read outlines of the essential parts of the Hazard Communication Program.
- The OSHA Hazard Communication Program Quick Cards can be downloaded from the internet at <https://www.osha.gov/pls/publications/publication.athruz?pType=Types&pID=6>
  - These cards are available in both English and Spanish
- You can also POST a copy of these cards (English and Spanish if applicable) in locations where they can be seen and read by affected employees.

## Module # 3 Safety Data Sheets

**Trainers should review the module before presentation and be certain to understand the terms and concepts that are covered.**

This module applies to all types of foundries and can be used to introduce new employees how to read and understand a Safety Data Sheet (SDS). It can also be effective in retraining existing employees in the Safety Data Sheet and how it may differ in format and terms from the older Material Safety Data Sheet (MSDS).

**It is very important that trainers explain that the Safety Data Sheet is a vital part of the Hazard Communication Program. The Safety Data Sheet is present in the foundry to provide necessary information, alerts and/or warnings to prepare employers and employees to safely work with materials/processes at the foundry.**

Trainers should review the module before presentation and have on hand:

- A copy of the OSHA Hazard Communication Standard. A copy can be downloaded from the internet at [https://www.osha.gov/FedReg\\_osha\\_pdf/FED20120326.pdf](https://www.osha.gov/FedReg_osha_pdf/FED20120326.pdf)
- A copy of the company written Hazard Communication Program
- Copies of the Safety Data Sheets for the foundry or, if there are too many, samples of the SDS

In addition, trainers should be certain to provide the following information that is specific to YOUR foundry:

- Where the Safety Data Sheets for affected workers are located and how an employee can gain access to them;
- Person or persons responsible for maintaining the Safety Data Sheets;
- How to get immediate access to the Safety Data Sheets that affect workers and how to get answers to any questions concerning chemicals used at the foundry or safe work practices;
- Copies of the OSHA Quickcard on SDS and/or materials that illustrate the Pictograms that may be used on SDS;

**PLEASE NOTE: The purpose of this module is to explain the OSHA Safety Data Sheet and how it applies to the foundry.**

**PLEASE NOTE: Trainers MUST be able to explain the significance of the signal words WARNING and DANGER as well as the purpose and meaning of Hazard Statements and Precautionary Statements.**

## **Materials available to supplement this module include:**

### **For the Trainer**

- OSHA Hazard Communication Standard (1910.1200)
- OSHA Briefs on Hazard Communication, SDS and Labels (two briefs that outline the standard, Safety Data Sheets and how they affect companies and employees)
- Guide to The Globally Harmonized System of Classification and Labelling of Chemicals (GHS) - a valuable tool in determining how the GHS is used to develop Safety Data Sheets and Labels and how to interpret the meanings of warning and statements used in the Global Harmonization System. This can be found on the internet at <https://www.osha.gov/dsg/hazcom/ghs.html>.
- Pictograms that can be downloaded from the internet for each of the nine hazard classifications. These pictograms can be downloaded at no cost in the EPS, JPG and PNG formats at:  
<https://www.osha.gov/dsg/hazcom/pictograms/index.html>

### **For employees**

- The OSHA Quick Cards (which are shown in the training module) are easy to read outlines of the essential parts of the Safety Data Sheet.
- The OSHA Safety Data Sheets Quick Cards can be downloaded from the internet at:  
[https://www.osha.gov/Publications/HazComm\\_QuickCard\\_SafetyData.html](https://www.osha.gov/Publications/HazComm_QuickCard_SafetyData.html)
  - These cards are available in both English and Spanish
- The OSHA Pictogram Quick Cards can be downloaded from the internet at  
[https://www.osha.gov/Publications/HazComm\\_QuickCard\\_Pictogram.html](https://www.osha.gov/Publications/HazComm_QuickCard_Pictogram.html)
  - These cards are available in both English and Spanish
- You can also POST a copy of these cards (English and Spanish if applicable) in locations where they can be seen and read by affected employees.

## Module # 4: Labels

**Trainers should review the module before presentation and be certain to understand the terms and concepts that are covered.**

This module applies to all types of foundries and can be used to introduce new employees how to read and understand a Label. It can also be effective in retraining existing employees in Labels and how they may differ in format and terms from the older format for Labels

**It is very important that trainers explain that the label is a vital part of the Hazard Communication Program. The Label is present on the materials in the foundry and should provide necessary alerts or warnings to prepare employers and employees to safely work with materials and processes at the foundry.**

Trainers should review the module before presentation and have on hand:

- A copy of the Company written Hazard Communication Program
- Samples of Labels used on materials from the foundry

In addition, trainers should be certain to provide the following information that is specific to YOUR foundry:

- Person or persons responsible for insuring all materials are labelled.
- How to get answers to any questions concerning labels on chemicals used at the foundry
- Copies of the OSHA Quickcard on Labels and Pictograms that may be used on Labels.

**PLEASE NOTE: The purpose of this module is to explain the OSHA Safety Data Label and how it applies to the foundry.**

**PLEASE NOTE: Trainers MUST be able to explain the significance of the Signal words WARNING and DANGER and the Pictograms as well as the purpose and meaning of Hazard Statements and Precautionary Statements.**

**Materials available to supplement this module include:**

### **For the Trainer**

- OSHA Hazard Communication Standard (1910.1200)

- OSHA Briefs on Hazard Communication, SDS and Labels (two briefs that outline the standard, Safety Data Sheets and how they affect companies and employees)
- Guide to The Globally Harmonized System of Classification and Labelling of Chemicals (GHS) - a valuable tool in determining how the GHS is used to develop Safety Data Sheets and Labels and how to interpret the meanings of warning and statements used in the Global Harmonization System. This can be found on the internet at <https://www.osha.gov/dsg/hazcom/ghs.html>.
- Pictograms that can be downloaded from the internet for each of the nine hazard classifications. These pictograms can be downloaded at no cost in the EPS, JPG and PNG formats at:  
<https://www.osha.gov/dsg/hazcom/pictograms/index.html>

### **For employees**

- The OSHA Quick Cards (which are shown in the training module) are easy to read outlines of the essential parts of the Safety Data Sheet.
- The OSHA Labels Quick Cards can be downloaded from the internet at [https://www.osha.gov/Publications/HazComm\\_QuickCard\\_Labels.html](https://www.osha.gov/Publications/HazComm_QuickCard_Labels.html)
- The OSHA Pictogram Quick Cards can be downloaded from the internet at [https://www.osha.gov/Publications/HazComm\\_QuickCard\\_Pictogram.html](https://www.osha.gov/Publications/HazComm_QuickCard_Pictogram.html)
  - These cards are available in both English and Spanish
- You can also POST a copy of these cards (English and Spanish if applicable) in locations where they can be seen and read by affected employees.

## Module # 5: Air Contaminants and the Non Ferrous Foundry

**Trainers should review the module before presentation and be certain to understand the terms and concepts that are covered.**

This module includes materials on the air contaminants that are commonly found in the foundry industry. This module introduces the types and forms of air contaminants (dusts, fumes, gases and vapors) and can be used to introduce new employees to the topic as well as to retrain existing employees in the types of hazards that may be present in their place of work.

**PLEASE NOTE: This module is meant to INTRODUCE to employees the terms used to describe air contaminants and how these terms apply to the foundry industry. Not all foundries will have all of the air contaminants described in this module. Trainers should be prepared to identify the air contaminants and processes that are found in the worker's environment.**

More detailed information that applies to Aluminum or Copper Alloy Foundries are found in the Modules that are developed for these foundries.

### **Trainers should have on hand:**

- An outline of areas in the foundry where air sampling has shown overexposures
- A copy of the Company Personal Protective Equipment Program including Respiratory Protection (if applicable)
- Person or persons responsible for Air Sampling and the Personal Protective Equipment Program
- How to get answers to any questions concerning chemicals used at the foundry, air sampling, or safe work practices
- Trainers will also find it useful to have current air sampling test results available

Questions concerning specific chemicals and metals used at the foundry may be answered in other modules on Air Contaminants and Aluminum and Copper Alloy foundries,

### **Materials available to supplement this module include:**

#### **For the Trainer**

- OSHA regulations on Air Contaminants- including standards for specific chemicals (cadmium, hexavalent chromium, formaldehyde, lead)
- OSHA Chemical Sampling Information guidance

## Module 6: Aluminum Foundry

**Trainers should review the module before presentation and be certain to understand the terms and concepts that are covered.**

This module addresses the air contaminants commonly found in the Aluminum Foundry and the potential hazard from the presence of Combustible Dust. Although the information has been developed specifically for Aluminum foundries, not all Aluminum Foundries will have all of the air toxic substances present and not all foundries will use all of the processes described in this module. A major difference can be the presence of silica sand in some foundries compared with those foundries that do not use silica sand.

It is therefore very important that trainers review the module prior to presentation and what hazards may be present at the trainer's work place. The Air Contaminants present in your foundry are determined by the materials and processes used. Trainers should demonstrate to employees how the Safety Data Sheets that are provided by suppliers to your foundry are used to identify air contaminants.

**Materials available to supplement this module include:**

### **For the Trainer**

- OSHA regulations on Air Contaminants- including standards for specific chemicals (cadmium, hexavalent chromium, formaldehyde, lead)
- OSHA Chemical Sampling Information guidance
  
- **ALUMINUM**  
Background and training materials:
  - OSHA Safety and Health Topics page on Aluminum  
<https://www.osha.gov/SLTC/metalsheavy/aluminum.html>
  
- **COMBUSTIBLE DUST**  
Background materials and Guidance:
  - An OSHA Quickcard on Combustible Dust is available on the internet at:  
[https://www.osha.gov/Publications/OSHA\\_3674.pdf](https://www.osha.gov/Publications/OSHA_3674.pdf)
  - The OSHA Hazard Communication Guidance for Combustible Dust can be found at: <https://www.osha.gov/Publications/3371combustible-dust.html>
  - OSHA's Safety and Health Information Bulletin :Combustible Dust in Industry: Preventing and Mitigating the Effects of Fire and Explosions can be found at:  
<https://www.osha.gov/dts/shib/shib073105.html>
  
- **FORMALDEHYDE STANDARD**

- OSHA regulations can be found at:  
[https://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=STAN DARDS&p\\_id=10030](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STAN DARDS&p_id=10030)
- **Formaldehyde**  
Background and training materials:
  - OSHA Safety and Health Topics page on Formaldehyde  
<https://www.osha.gov/SLTC/formaldehyde/index.html>
  - OSHA Fact sheet on Formaldehyde may be found at:  
[https://www.osha.gov/OshDoc/data\\_General\\_Facts/formaldehyde-factsheet.pdf](https://www.osha.gov/OshDoc/data_General_Facts/formaldehyde-factsheet.pdf)
- **Isocyanates**  
Background and training materials:
  - OSHA Safety and Health Topics page on Isocyanates  
<https://www.osha.gov/SLTC/isocyanates/index.html>
- **Silica**  
Background and training materials:
  - OSHA Silica Website: [https://www.osha.gov/dte/library/silicosis/si\\_gi.html](https://www.osha.gov/dte/library/silicosis/si_gi.html)
  - OSHA .pdf brochure: [https://www.osha.gov/dte/library/silicosis/si\\_gi.pdf](https://www.osha.gov/dte/library/silicosis/si_gi.pdf)
  - OSHA Safety and Health Topics page:  
<https://www.osha.gov/dsg/topics/silicacrystalline/index.html>

## Module 7: Copper Alloy Foundry

**Trainers should review the module before presentation and be certain to understand the terms and concepts that are covered.**

This module addresses the air contaminants commonly found in the Copper Alloy Foundry. Although the information has been developed specifically for Copper (Brass and Bronze) foundries, not all Copper Alloy Foundries will have all of the air toxic substances present and not all foundries will use all of the processes described in this module. Major differences in foundries include those foundries that pour alloys that contain LEAD and foundries that use SILICA SAND compared with those foundries that do not use these materials.

It is therefore very important that trainers review the module prior to presentation and what hazards may be present at the trainer's work place. The Air Contaminants present in your foundry are determined by the materials and processes used. Trainers should demonstrate to employees how the Safety Data Sheets that are provided by suppliers to are used to identify air contaminants.

**Materials available to supplement this module include:**

### **For the trainer**

- OSHA regulations on Air Contaminants - including standards for specific chemicals (cadmium, hexavalent chromium, formaldehyde, lead)
- OSHA Chemical Sampling Information guidance
- **Copper**  
Background and training materials:
  - OSHA Safety and Health Topics page on COPPER  
<https://www.osha.gov/SLTC/metalsheavy/copper.html>
- **Formaldehyde Standard**
  - OSHA regulations can be found at:  
[https://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=STANDARDS&p\\_id=10030](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10030)
- **Formaldehyde**  
Background and training materials
  - OSHA Safety and Health Topics page on Formaldehyde:  
<https://www.osha.gov/SLTC/formaldehyde/index.html>

- OSHA Fact sheet on Formaldehyde may be found at:  
[https://www.osha.gov/OshDoc/data\\_General\\_Facts/formaldehyde-factsheet.pdf](https://www.osha.gov/OshDoc/data_General_Facts/formaldehyde-factsheet.pdf)
  
- **Isocyanates**  
Background and training materials:
  - OSHA Safety and Health Topics page on Isocyanates  
<https://www.osha.gov/SLTC/isocyanates/index.html>
  
- **Lead Standard**
  - OSHA regulations can be found at:  
[https://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=STANDARDS&p\\_id=10030](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10030)
  
- **Lead**  
Background and training materials:
  - The OSHA Quickcard related to Lead may be found at:  
<https://www.osha.gov/Publications/OSHA3680.pdf>
  - OSHA Safety and Health Topics page on Lead:  
<https://www.osha.gov/SLTC/lead/>
  
- **Silica**  
Background and training materials:
  - OSHA Silica Website: [https://www.osha.gov/dte/library/silicosis/si\\_gi.html](https://www.osha.gov/dte/library/silicosis/si_gi.html)
  - OSHA .pdf brochure: [https://www.osha.gov/dte/library/silicosis/si\\_gi.pdf](https://www.osha.gov/dte/library/silicosis/si_gi.pdf)
  - OSHA Safety and Health Topics page:  
<https://www.osha.gov/dsg/topics/silicacrystalline/index.html>

# RESOURCES FOR TRAINERS AND EMPLOYEES

## A

**Air Contaminants Regulations** 1910.1000

[https://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=STANDARDS&p\\_id=9991](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=9991)

**Air Sampling/Chemical Sampling Information-** Guidance on methods of testing the Air for the presence of hazardous chemicals may be found at:

[https://www.osha.gov/dts/chemicalsampling/toc/toc\\_chemsamp.html](https://www.osha.gov/dts/chemicalsampling/toc/toc_chemsamp.html)

**Aluminum** Background and training materials: OSHA Safety and Health Topics page on Aluminum: <https://www.osha.gov/SLTC/metalsheavy/aluminum.html>

## B

**Beryllium** Background and training materials:

OSHA Safety and Health Topics page on Beryllium

<https://www.osha.gov/SLTC/beryllium/index.html>

OSHA Hazard Information Bulletins: Preventing Adverse Health Effects From Exposure to Beryllium on the Job

[https://www.osha.gov/dts/hib/hib\\_data/hib19990902.html](https://www.osha.gov/dts/hib/hib_data/hib19990902.html)

## C

**CADMIUM STANDARD** in OSHA regulations can be found at:

[https://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=STANDARDS&p\\_id=10035](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10035)

**Cadmium** Background and training materials:

OSHA Safety and Health Topics page on Cadmium

<https://www.osha.gov/SLTC/cadmium/index.html>

**CHROMIUM** (Hexavalent) Standard in OSHA Regulations can be found at:

[https://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=STANDARDS&p\\_id=13096](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=13096)

Hexavalent Chromium Safety and Health Topic can be found at:

<https://www.osha.gov/SLTC/hexavalentchromium/index.html>

**COMBUSTIBLE DUST** background materials and Guidance:

An OSHA Quickcard on Combustible Dust is available on the internet at:

[https://www.osha.gov/Publications/OSHA\\_3674.pdf](https://www.osha.gov/Publications/OSHA_3674.pdf)

The OSHA Hazard Communication Guidance for Combustible Dust can be found at:

<https://www.osha.gov/Publications/3371combustible-dust.html>

OSHA's Safety and Health Information Bulletin: Combustible Dust in Industry: Preventing and Mitigating the Effects of Fire and Explosions can be found at:

<https://www.osha.gov/dts/shib/shib073105.html>

**Copper** Background and training materials:

OSHA Safety and Health Topics page on COPPER

<https://www.osha.gov/SLTC/metalsheavy/copper.html>

## F

**FORMALDEHYDE STANDARD** in OSHA regulations can be found at:

[https://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=STANDARDS&p\\_id=10030](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10030)

**Formaldehyde** Background and training materials:

OSHA Safety and Health Topics page on Formaldehyde

<https://www.osha.gov/SLTC/formaldehyde/index.html>

OSHA Fact sheet on Formaldehyde may be found at:

[https://www.osha.gov/OshDoc/data\\_General\\_Facts/formaldehyde-factsheet.pdf](https://www.osha.gov/OshDoc/data_General_Facts/formaldehyde-factsheet.pdf)

## H

Hazard Communication Standard background and instructional material

**Hazard Communication: Steps to an Effective Hazard Communication Program for Employers That Use Hazardous Chemicals Fact Sheet**

<https://www.osha.gov/Publications/OSHA3696.pdf>

(OSHA FS-3696 – 2014) (English: [PDF\\*](#))

## **Hazard Communication Standard: Labels and Pictograms – Brief**

<https://www.osha.gov/Publications/OSHA3636.pdf>

(OSHA BR-3636 - 2013) (English: [PDF\\*](#))

## **Hazard Communication Standard: Safety Data Sheets - Brief**

<https://www.osha.gov/Publications/OSHA3514.pdf>

### **I**

#### **Isocyanates Background** and training materials:

OSHA Safety and Health Topics page on Isocyanates

<https://www.osha.gov/SLTC/isocyanates/index.html>

### **L**

**LEAD STANDARD** in OSHA regulations can be found at:

[https://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=STANDARDS&p\\_id=10030](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10030)

#### **Lead Background** and training materials:

The OSHA Quickcard related to Lead may be found at:

<https://www.osha.gov/Publications/OSHA3680.pdf>

OSHA Safety and Health Topics page on Lead

<https://www.osha.gov/ / SLTC lead/>

### **P**

**PERSONAL PROTECTIVE EQUIPMENT REGULATIONS** can be found at:

<https://www.osha.gov/law-regs.html> and includes the following sections:

- [1910 Subpart I - Personal Protective Equipment](#)
  - [1910.132 - General requirements.](#)
  - [1910.133 - Eye and face protection.](#)
  - [1910.134 - Respiratory Protection.](#)
    - [1910.134 App A - Fit Testing Procedures \(Mandatory\).](#)
    - [1910.134 App B-1 - User Seal Check Procedures \(Mandatory\).](#)
    - [1910.134 App B-2 - Respirator Cleaning Procedures \(Mandatory\).](#)

- [1910.134 App C - OSHA Respirator Medical Evaluation Questionnaire \(Mandatory\).](#)
- [1910.134 App D - \(Mandatory\) Information for Employees Using Respirators When not Required Under Standard.](#)
- [1910.135 - Head protection.](#)
- [1910.136 - Foot protection.](#)
- [1910.137 - Electrical protective devices.](#)
- [1910.138 - Hand Protection.](#)
- [1910 Subpart I App A - References for further information \(Non-mandatory\)](#)
- [1910 Subpart I App B - Non-mandatory Compliance Guidelines for Hazard Assessment and Personal Protective Equipment Selection.](#)

The OSHA Safety Topic on Personal Protective Equipment provides additional resources and training materials on this topic and can be found at:  
[https://www.osha.gov/SLTC/personalprotectiveequipment/hazards\\_solutions.html](https://www.osha.gov/SLTC/personalprotectiveequipment/hazards_solutions.html)

## PICTOGRAMS

GHS Pictograms can be downloaded for use at:  
<https://www.osha.gov/dsg/hazcom/pictograms/index.html>

These Pictograms are available in the EPS, JPG and PNG formats for you use without cost.

## OSHA POSTER

**The OSHA Poster is available on line at:**  
<https://www.osha.gov/Publications/osha3165.pdf>

A PRINTED copy of the OSHA Poster can be purchased on line at:  
<https://www.osha.gov/pls/publications/publication.athruz?pType=Types&pID=6>

## Q

## OSHA QUICKCARDS

Here is a listing of OSHA Quick Cards that may apply to your foundry. We have highlighted the Hazard Communications Quick Cards with bold print:

<https://www.osha.gov/pls/publications/publication.athruz?pType=Types&pID=6>

- **Carbon Monoxide Poisoning Quickcard™**  
 (OSHA 3282 - 2005) (English: [HTML](#) [PDF\\*](#))  
 (OSHA 3282 - 2005) (Spanish: [HTML](#) [PDF\\*](#))

- **Combustible Dust: Precautions for Firefighters to Prevent Dust Explosions**  
(OSHA 3674 - 2013) (English: [PDF\\*](#))
- **Confined Spaces: Permit-Required Confined Spaces Quickcard™**  
(OSHA 3214 - 2011) (English: [HTML](#) [PDF\\*](#))  
(OSHA 3214 - 2011) (Spanish: [HTML](#) [PDF\\*](#))
- **Hazard Communication Safety Data Sheets**  
(OSHA 3518 - 2012) (Spanish: [HTML](#) [PDF\\*](#))  
<https://www.osha.gov/pls/publications!/publication.process?pubID=3518>)
- **Hazard Communication Safety Data Sheets**  
(OSHA 3493 - 2012) (English: [HTML](#) [PDF\\*](#))  
<https://www.osha.gov/pls/publications!/publication.process?pubID=3493>)
- **Hazard Communication Standard Labels**  
(OSHA 3492 - 2012) (English: [PDF\\*](#))  
<https://www.osha.gov/pls/publications!/publication.process?pubID=3492>)  
(OSHA 3492 - 2012) (Spanish: [PDF\\*](#))  
<https://www.osha.gov/pls/publications!/publication.process?pubID=3492>)<sup>3</sup>
- **Hazard Communication Standard Pictogram Quickcard**  
(OSHA 3491 - 2012) (English: [PDF\\*](#))  
<https://www.osha.gov/pls/publications!/publication.process?pubID=3491>)  
(OSHA 3491 - 2012) (Spanish: [PDF\\*](#))  
<https://www.osha.gov/pls/publications!/publication.process?pubID=3491>)
- **Hazard Communication Standard: Comparison of NFPA 704 and HazCom 2012 Labels QuickCard**  
(OSHA 3678 - 2013) (English: [PDF\\*](#))
- **Heat Stress Quickcard™**  
Exposure to heat can cause illness and death. Learn of precautions your employer should take any time temperatures are high and the job involves physical work. 2 pages  
(OSHA 3154 - 2014) (English: [PDF\\*](#))  
<https://www.osha.gov/pls/publications!/publication.process?pubID=3154>)  
(OSHA 3417 - 2011) (Spanish: [PDF\\*](#))  
<https://www.osha.gov/pls/publications!/publication.process?pubID=3417>)

(OSHA 3389 - 2011) (Vietnamese: [PDF\\*](#)  
<https://www.osha.gov/pls/publications!/publication.process?pubID=3389>)

- **Hydrogen Sulfide QuickCard™**  
(OSHA 3300 - 2005) (English: [HTML PDF\\*](#)  
<https://www.osha.gov/pls/publications!/publication.process?pubID=3300>)  
(OSHA 3300 - 2005) (Spanish: [HTML PDF\\*](#)  
<https://www.osha.gov/pls/publications!/publication.process?pubID=3300>)
- **Lead: If You Work Around Lead, Don't Take it Home! Quickcard**  
(OSHA 3736 - 2014) (Spanish: [PDF\\*](#)  
<https://www.osha.gov/pls/publications!/publication.process?pubID=3736>)
- **Lead: If You Work Around Lead, Don't Take it Home! Quickcard**  
(OSHA 3680 - 2014) (English: [PDF\\*](#)  
<https://www.osha.gov/pls/publications!/publication.process?pubID=3680>)  
(OSHA 3651 - 2013) (English: [PDF\\*](#))
- **Mercury: Avoiding Exposure from Fluorescent Bulbs Quickcard**  
(OSHA 3536 - 2012) (English: [PDF\\*](#)  
<https://www.osha.gov/pls/publications!/publication.process?pubID=3536>)
- **Respirators Quickcard™**  
(OSHA 3280 - 2005) (English: [HTML PDF\\*](#))  
(OSHA 3600 - 2012) (Portuguese: [PDF\\*](#))  
(OSHA 3280 - 2005) (Spanish: [HTML PDF\\*](#))

## R

### OSHA REGULATIONS

OSHA General Industry Standards can be accessed on the internet at:  
<https://www.osha.gov/law-regs.html> is the portal for OSHA Law & Regulations

To get a printed copy of OSHA Publications:

OSHA has various publications, standards, technical assistance, and compliance tools to help you, and offers extensive assistance through workplace consultation, voluntary protection programs, grants, strategic partnerships, state plans, training, and education. OSHA's Safety and Health Program Management Guidelines (Federal Register 54:3904-3916, January 26, 1989) detail elements critical to the development of a

successful safety and health management system. This and other information are available on OSHA's website.

- For one free copy of OSHA publications, send a self-addressed mailing label to OSHA Publications Office, P.O. Box 37535, Washington, DC 20013-7535; or send a request to our fax at (202) 693-2498, or call us at (202) 693-1888.
- To order OSHA publications online at [www.osha.gov](http://www.osha.gov), go to Publications and follow the instructions for ordering.

## S

**Silica** Background and training materials:

- OSHA Silica Website: [https://www.osha.gov/dte/library/silicosis/si\\_gi.html](https://www.osha.gov/dte/library/silicosis/si_gi.html)
- OSHA .pdf brochure: [https://www.osha.gov/dte/library/silicosis/si\\_gi.pdf](https://www.osha.gov/dte/library/silicosis/si_gi.pdf)
- OSHA Safety and Health Topics page:  
<https://www.osha.gov/dsg/topics/silicacrystalline/index.html>

## W

### **Workers' Rights**

The OSHA web page on Workers Rights is found at  
<https://www.osha.gov/workers/index.html>

An OSHA booklet on workers rights ([Employee Workplace Rights](#)) can be downloaded at <https://www.osha.gov/Publications/osha3021.pdf>

A copy of the OSHA regulation on workers' rights to access to medical and environmental testing records can be found at

[https://www.osha.gov/pls/oshaweb/owadisp.show\\_document?p\\_table=STANDARDS&p\\_id=10027](https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=STANDARDS&p_id=10027)