

# SAFE WORK PRACTICES AWARENESS FOR SARS-COV-2 (COVID 19)

U.S. ENVIRONMENTAL PROTECTION AGENCY  
NEW YORK STATE DEPARTMENT OF HEALTH  
NEW YORK STATE DEPARTMENT OF LABOR  
ACCREDITED ASBESTOS, LEAD & MOLD TRAINING  
PROVIDER

STUDENT MANUAL



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## **SAFE WORK PRACTICES AWARENESS FOR SARS-COV-2 (COVID 19)**

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	OSHA Hazard Communication Guide
	Anabec Anashpere Plus Safety Data Sheet



# Safe Work Practices Awareness for SARS-CoV-2 (COVID 19) Decontamination

This four (4) hour awareness course is presented consistent with World Health Organization (WHO), CDC & OSHA regulatory requirements under the General Duty Clause, 29 CFR 1910.132-134, 29 CFR 1910.138, 29 CFR 1910.1030 & 29 CFR 1910.1200 as well as best practices principles for infection prevention, industrial hygiene and environmental certification vocational training. Training includes presentation on and exposure prevention, safe work practices and disinfection procedures to ensure that those decontaminating facilities are not exposed and that treated spaces are free of SAR-CoV-2 (COVID 19). This course is designed for attendees that have an environmental certification or license (i.e. EPA/NYS Asbestos, EPA Lead-based Paint, NYS Mold and/or OSHA HazMat).

## Course Agenda

15 minutes	<a href="#">Introduction to COVID 19</a>
15 minutes	Viral Infections & Sources of Exposures
15 minutes	Hazards, Health Effects & Symptoms
30 minutes	Regulations & Guidance
30 minutes	Personal Protective Equipment
30 minutes	Engineering Controls & Decontamination Procedures
60 minutes	Disinfection Treatments & Practices
30 minutes	Safe Work Practices & Hazard Communication
15 minutes	Questions & Discussion
15 minutes	Quiz

**All attendees subject to thermometer testing. Individuals experiencing cold or flu-like symptoms should not attend.**

## OSHA Worker Training Requirements for Health Care Workers

Train all workers with reasonably anticipated occupational exposure to COVID-19 (as described in this document) about the sources of exposure to the virus, the hazards associated with that exposure, and appropriate workplace protocols in place to prevent or reduce the likelihood of exposure. Training should include information about how to isolate individuals with suspected or confirmed COVID-19 or other infectious diseases, and how to report possible cases. Training must be offered during scheduled work times and at no cost to the employee.

Workers required to use PPE must be trained. This training includes when to use PPE; what PPE is necessary; how to properly don (put on), use, and doff (take off) PPE; how to properly dispose of or disinfect, inspect for damage, and maintain PPE; and the limitations of PPE. Applicable standards include the PPE ([29 CFR 1910.132](#)), Eye and Face Protection ([29 CFR 1910.133](#)), Hand Protection ([29 CFR 1910.138](#)), and Respiratory Protection ([29 CFR 1910.134](#)) standards. The OSHA website offers a variety of [training videos](#) on respiratory protection.

When the potential exists for exposure to [human blood, certain body fluids, or other potentially infectious materials](#), workers must receive training required by the Bloodborne Pathogens (BBP) standard ([29 CFR 1910.1030](#)), including information about how to recognize tasks that may involve exposure and the methods, such as engineering controls, work practices, and PPE, to reduce exposure. Further information on OSHA's BBP training regulations and policies is available for employers and workers on the OSHA [Bloodborne Pathogens and Needlestick Prevention Safety and Health Topics](#) page.

OSHA's [Training and Reference Materials Library](#) contains training and reference materials developed by the OSHA Directorate of Training and Education as well as links to other related sites. The materials listed for Bloodborne Pathogens, PPE, Respiratory Protection, and SARS may provide additional material for employers to use in preparing training for their workers.

OSHA's [Personal Protective Equipment Safety and Health Topics](#) page also provides information on training in the use of PPE.

## Interim guidance for specific worker groups and their employers

This section provides information for specific worker groups and their employers who may have potential exposures to COVID-19. Guidance for each worker group generally follows the hierarchy of controls, including engineering controls, administrative controls, safe work practices, and PPE. However, not all types of controls are provided in each section; in those cases, employers and workers should consult the interim general guidance for U.S. workers and employers of workers with potential occupational exposures to COVID-19, above.





## Power Point Presentation Handouts



## SARS-CoV-2 (COVID 19) Awareness Training



1

## Introduction

Safe Work Practices Training for SARS-CoV-2 (COVID 19) Decontamination Workers

- Presented by EEA consistent with WHO, CDC & OSHA regulatory guidelines & requirements
- Based on best practices principles for infection control, industrial hygiene and environmental certification training



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## Introduction

- Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) causes COVID 19
- SARS-CoV-2 is a new virus.
- The first cases were identified in people with **pneumonia** in Wuhan, China, in late December 2019.
- It probably started in animals but is now spreading between people.
- As this virus is new, we are learning more all the time, and what we know now may change.



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## Introduction

- Spreads the same way as colds and flu – through droplets which are created when we talk, cough and sneeze.
- People can get infected when these droplets enter the nose, eyes or mouth.
- Touching contaminated objects puts the droplets onto your hands. If you touch your face the droplets can enter your nose / eyes / mouth.



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## Introduction

**There is no specific treatment.**

Mild symptoms can be treated with medicine to lower the fever, or relieve pain.

If symptoms are more severe, treatment in hospital is required.

- Because symptoms are similar to many other illnesses, tests are needed to make the diagnosis (throat swab, blood test).



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## SARS-CoV-2 Incubation Period

Time between exposure and symptoms

- |           | Days |
|-----------|------|
| • Typical | 5    |
| • Range   | 2-14 |



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## Latest Update



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## SARS-CoV-2 (COVID 19) Awareness Training

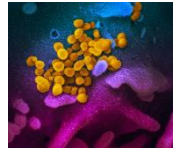
### Viral Infections & Sources of Exposure



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## Introduction



This scanning electron microscope image shows SARS-CoV-2 (yellow)—also known as 2019-nCoV, the virus that causes COVID-19—isolated from a patient in the U.S., emerging from the surface of cells (blue/pink) cultured in the lab.

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## Biologically Derived Contaminants

- American Conference of Government Industrial Hygienists (ACGIH) uses the term Biologically Derived Contaminants (BOD) to describe bio-aerosols, gases and vapors that living organisms produce.

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## Airborne Contaminants

- Bio-aerosols transported by wind, ventilation and host.
- Settle on host surfaces
- Exposure caused by inhalation & ingestion

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## Airborne Particulates

- Bio-aerosols make up a portion of total airborne particles.
- Smallest particles <1 microbe (um)
  - 99% of the number of particles
  - 3% of total mass of the particles

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## Microbe

- A group of extremely small life forms that are usually visible only with the aid of a microscope
  - A micron is a measurement equal to one millionth of a meter or 0.00003937
  - Human Hair = 75u
  - Human eye sees 50u

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## Microbial Organisms

- Viruses
- Bacteria
- Fungi



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## Viruses

- Viruses are ultra small microbes (.03 to .25 microns).
- A unique characteristic of a virus is that it can only reproduce in a host organism.
  - They can remain dormant or they can invade a cell, using it to reproduce additional virus.
  - They can be extremely durable.

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## Bacteria

- Extremely small microbes (.4 to 10 microns).
- Bacteria are everywhere and are necessary to life.
  - Some bacteria are saprophytic (feeding on non-living organisms) and others are parasitic (feeding on living organisms).
  - In addition they can be aerobic or anaerobic (needing or not needing oxygen to survive).
  - Many bacteria found in sewage can grow in low oxygen environments.

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## Fungi

- Simple, aerobic organisms
- unlike bacteria can grow in low moisture and low pH environments, and have their genetic material bound in a membrane
  - unlike plants do not have roots or leaves, do not contain chlorophyll, and do not produce their own food, but obtain nourishment from dead organic matter.

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## Pathogens

- Biological organisms capable of causing disease
  - via infection
  - via transmission
  - Bacteria, viruses, fungi, protozoa, chlamydia

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## Pathogens

- Contagious (person-to-person), airborne, waterborne, foodborne
  - Generally, microbes (in the vegetative state) do not survive the atmosphere
  - Coronavirus has been known to survive a couple days on surfaces
  - Viruses typically don't last more than a couple hours

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## Pathogens

### • Bloodborne Diseases

- Addressed by OSHA 29 CFR 1910.1030, requiring the employer to establish a written Exposure Control Program
  - "Universal Precautions," meaning that all human blood and certain human body fluids are treated as if known to be infectious
  - "Work Practice Controls" (including PPE) that minimize or eliminate employee exposure



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## Pathogens

### • Bloodborne Diseases

- Engineering Controls," as "sharps" disposal containers and self-sheathing needles
- "Handwashing Facilities," to ensure good sanitation
- "Other measures: Hepatitis B vaccinations for employees at risk; exposure evaluation and follow-up; hazardous material communication, such as biohazard labels; employee training; and confidential employee medical record-keeping"



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## Specific Pathogens

### ▪ Hepatitis B Virus (HBV)

- Infects the liver
- May cause cirrhosis, liver cancer, or chronic liver disease
  - Some people may become carriers, not showing symptoms
  - May exist on surfaces outside body for up to 1 month

### ▪ Human Immunodeficiency Virus (HIV)

- Etiological agent of AIDS
- Breaks down body's immune system, reducing its ability to fight disease
  - Early symptoms are fever, loss of appetite, weight loss, chronic fatigue, and skin rashes. Later, cancer or infections, such as pneumonia.



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## Pathogens

### ▪ Common Sense Rules

- Do not clean up blood or body fluids without proper training.
- Know what to do BEFORE an emergency occurs.
- Be sure to wash hands and remove any PPE before eating, drinking, etc.
- Report any suspected exposure to health and safety officer.



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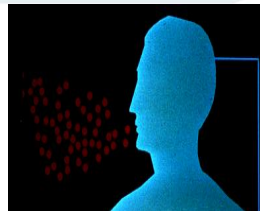
## Viral Routes of Entry

- Inhalation (breathing)
- Ingestion
- Absorption
- Injection



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## Inhale or Ingest Viral Droplets



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## Viral Infections & Sources of Exposure

- [Where Do New Viruses Come From?](#)



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## Viral Replication

- Viral replication involves six steps;
  - Attachment
  - Penetration
  - Uncoating
  - Replication
  - Assembly
  - Release
- During attachment & penetration, the virus attaches itself to a host cell and injects its genetic material into it

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## Golden Rule for Virus Exposure Safety

Minimizing exposures will reduce the possibility of health impacts on occupants and workers.

- As the potential for exposure increases, the need for protective measures increases.
- Workers can reduce exposure potential by proper use of personal protective equipment (PPE).
  - Respirators
  - Gloves
  - Protective clothing
  - Goggles

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## Dealing with the Public

- Do not give medical advice to residents.
- Tell them to consult a health care provider regarding any health effects they might be experiencing.

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## How Do You Get COVID-19?

- Person-to-person
- Close contact – within 6 feet
- Coughs and sneezes
- Contaminated surface contact
- Outbreaks where lots of people gather

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## What happens then?

- Covid-19 is a mild infection for eight out of 10 people who get it and the core symptoms are a fever and a cough.
- Body aches, sore throat and a headache are all possible, but not guaranteed.
- The fever is a result of your immune system responding to the infection.
- The coronavirus cough is initially a dry one (you're not bringing stuff up) and this is probably down to irritation of cells as they become infected by the virus.

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## What happens then?

- Some people will eventually start coughing up sputum - a thick mucus containing dead lung cells killed by the virus.
- These symptoms are treated with bed rest, plenty of fluids and paracetamol. You won't need specialist hospital care.
- This stage lasts about a week - at which point most recover because their immune system has fought off the virus.

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## Severe Disease

- If the disease progresses it will be due to the immune system overreacting to the virus
- Those chemical signals to the rest of the body cause inflammation, but this needs to be delicately balanced. Too much inflammation can cause collateral damage throughout the body.
- Inflammation of the lungs is called pneumonia.

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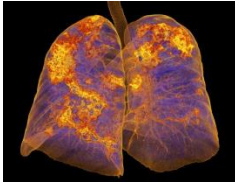
## Severe Disease

- With pneumonia the tiny sacs (alveoli) start to fill with water and can eventually cause shortness of breath and difficulty breathing.
- Some people will need a ventilator to help them breathe.
- This stage is thought to affect around 14% of people,

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## Severe Disease



Scans of lungs infected with coronavirus showing areas of pneumonia

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## Critical Disease

- Acute respiratory distress syndrome caused by widespread inflammation in the lungs stops the body getting enough oxygen it needs to survive. It can stop the kidneys from cleaning the blood and damage the lining of your intestines.
- If the immune system cannot get on top of the virus, then it will eventually spread to every corner of the body where it can cause even more damage.

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## Critical Disease



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## Critical Disease

- It is estimated around 6% of cases become critically ill
- Immune system is now spiralling out of control and causing damage throughout the body.
- It can lead to septic shock when the blood pressure drops to dangerously low levels and organs stop working properly or fail completely.
- Acute respiratory distress syndrome caused by widespread inflammation in the lungs stops the body getting enough oxygen it needs to survive. It can stop the kidneys from cleaning the blood and damage the lining of your intestines.

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## Death

- The damage can reach fatal levels at which organs can no longer keep the body alive
- Lungs fail and heart stops beating.
- Severe pneumonia and septic shock when blood pressure collapses.



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## Symptoms & Severity

Illness can be severe and require hospitalization, but most individuals recover by resting, drinking plenty of liquids, and taking pain and fever-reducing medications. These symptoms may appear 2–14 days after exposure and can include:

- Fever
- Cough
- Shortness of Breath

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## Emergency Warning Signs

- Difficulty getting enough air
- Chest pain
- Change in alertness or responsiveness
- Bluish lips or face
- Rapid breathing



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## Symptoms & Severity

**If you have tested positive for COVID-19 OR if you develop symptoms of COVID-19**, including early or mild symptoms, you should be in isolation and stay away from others until:

- You have had no fever for at least 72 hours (that is three full days of no fever without the use of medicine that reduces fevers) AND
- Other symptoms have improved (for example, when your cough or shortness of breath have improved) AND
- At least 7 days have passed since your symptoms first appeared



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## How is COVID-19 Treated?

- No specific anti-viral
- Mostly to relieve symptoms
- As with a cold or the flu, drink fluids and get plenty of rest. If you are having trouble breathing, seek immediate medical care.
- If you have COVID-19 symptoms, wear a facemask to prevent spreading the virus to others.



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## Preventing Spread

- Avoid people who are sick or meeting in large groups.
- Stay home if you are sick.
- Cover your cough with a tissue or cough into your upper sleeve or elbow. Do not cough into your hands.
- Keep six feet (two meters) between you and another person – social distancing.



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## Preventing Spread

- Wash your hands often with soap and water for at least 20 seconds, especially after going to the bathroom, before eating, and after blowing your nose, coughing, or sneezing
- Avoid touching doorknobs, toilet flush handles, and faucets after washing your hands. Try using a paper towel, the sleeve of your clothing, a scarf, or gloves to protect your hands and fingers against germs.



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## But not this way...


- [Man Dies After Taking Chloroquine Phosphate To Prevent Coronavirus](#)



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## NYCHA MOLD TRAINING

### Guidelines & Requirements



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## Regulations & Guidelines

- Occupational Safety & Health (OSHA)
  - General Duty Clause
  - Worker Protection Standards
  - Guidance on Preparing Workplaces for COVID-19
- National Institute for Occupational Safety & Health (NIOSH)
  - Respiratory Protection Standards
- Center for Disease Control (CDC)
  - Recommendations for health care workers and employees in high risk settings
  - Interim Guidance for businesses & employers
- World Health Organization (WHO)
  - Advice for health care workers

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## OSHA

- General Duty Clause
  - Each employer --
  - (1) shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees;
  - (2) shall comply with occupational safety and health standards promulgated under this Act.

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## OSHA

- Blood-borne Pathogens – 29 CFR 1910.1030  
Workers who conduct cleaning tasks must be protected from exposure to blood, certain body fluids, and other potentially infectious materials

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## OSHA Blood-borne Pathogens

- Universal precautions
- Engineering and work practice controls
- Personal protective equipment
- Housekeeping, decontamination and disposal
- Medical evaluations and vaccinations
- Biohazard communication (signs and labels)
- Information and training
- Recordkeeping

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## OSHA PPE

- Applicable standards include
  - PPE ([29 CFR 1910.132](#)),
  - Eye and Face Protection ([29 CFR 1910.133](#)),
  - Hand Protection ([29 CFR 1910.138](#)),
  - Respiratory Protection ([29 CFR 1910.134](#)) standards

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### OSHA PPE – 29 CFR 1910.132

- Workers required to use personal protective equipment (PPE) must be trained. This training includes
  - when to use PPE;
  - what PPE is necessary;
  - how to properly don (put on), use, and doff (take off) PPE;
  - how to properly dispose of or disinfect, inspect for damage, and maintain PPE;
  - and the limitations of PPE..



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### OSHA Eye & Face Protection (29 CFR 1910.133)

- Personal protective equipment (PPE) for the eyes and face is designed to prevent or lessen the severity of injuries to workers. The employer must assess the workplace and determine if hazards that necessitate the use of eye and face protection are present or are likely to be present before assigning PPE to workers.



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### OSHA Hand Protection (29 CFR 1910.138)

- Employers shall select and require employees to use appropriate hand protection when employees' hands are exposed to hazards such as those from skin absorption of harmful substances; severe cuts or lacerations; severe abrasions; punctures; chemical burns; thermal burns; and harmful temperature extremes.



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### OSHA Respiratory Protection (29 CFR 1910.134)

- A respirator shall be provided to each employee when such equipment is necessary to protect the health of such employee.
- The employer shall provide the respirators which are applicable and suitable for the purpose intended. The employer shall be responsible for the establishment and maintenance of a respiratory protection program



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### Guidance on Preparing Workplaces for COVID-19

- Steps all employers can take to reduce worker exposure
- Develop an Infectious Disease Preparedness Program
  - Prepare to Implement Basic Infection Prevention Measures
  - Develop Policies & Procedures for Prompt Identification & Isolation of Sick People
  - Develop, Implement & Communicate about Workplace Flexibilities & Protections
  - Implement Workplace Controls



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### Guidance on Preparing Workplaces for COVID-19

- Implement Workplace Controls
- Engineering Controls & Air Filtration
  - Administrative Controls & Training
  - Safe Work Practices & Personal Hygiene
  - Personal Protective Equipment (PPE)



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## Guidance on Preparing Workplaces for COVID-19

### Classifying Worker Exposure to SARS-CoV-2



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## Classifying Worker Exposure to SARS-CoV-2

**Very High Exposure Risk** jobs are those with high potential for exposure to known or suspected sources of COVID-19 during specific medical, postmortem, or laboratory procedures where contact is likely.

**High Exposure Risk** jobs are those with high potential for exposure to known or suspected sources of COVID-19.

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## Classifying Worker Exposure to SARS-CoV-2

**Medium Exposure Risk** jobs include those that require frequent and/or close contact with (i.e., within 6 feet of) people who may be infected with SARS-CoV-2, but who are not known or suspected COVID-19 patients.

- In areas without ongoing community transmission, workers in this risk group may have frequent contact with travelers who may return from international locations with widespread COVID-19 transmission.
- In areas where there is ongoing community transmission, workers in this category may have contact with the general public (e.g., in schools, high-population-density work environments, and some high-volume retail settings).

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## Classifying Worker Exposure to SARS-CoV-2

**Lower Exposure Risk (caution)** jobs are those that do not require contact with people known to be, or suspected of being, infected with SARS-CoV-2 nor frequent close contact with (i.e., within 6 feet of) the general public. Workers in this category have minimal occupational contact with the public and other coworkers

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## NIOSH

National Institute for Occupational Safety and Health (NIOSH)-approved, N95 filtering facepiece respirators or better must be used in the context of a comprehensive, written respiratory protection program that includes fit-testing, training, and medical exams.

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## NIOSH

When disposable N95 filtering facepiece respirators are not available, consider using other respirators that provide greater protection and improve worker comfort. Other types of acceptable respirators include: a R/P95, N/R/P99, or N/R/P100 filtering facepiece respirator; an air-purifying elastomeric (e.g., half-face or full-face) respirator with appropriate filters or cartridges; powered air purifying respirator (PAPR) with high-efficiency particulate arrestance (HEPA) filter; or supplied air respirator (SAR).

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## CDC

- Center for Disease Control (CDC)
  - [Guidelines for Disinfection and Sterilization in Healthcare Facilities, 2019](#)
  - [Interim Guidance for businesses & employers](#)



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## WHO

- World Health Organization (WHO) Publication
  - “[Coronavirus Disease \(COVID-19\) Outbreak: Rights, Roles and Responsibilities of Health Workers, including Key Considerations for Occupational Safety and Health](#)”
  - March 2020



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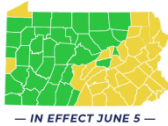
## Pennsylvania

- [Penn. Guidance for Businesses Permitted to Operate During the COVID-19 Disaster Emergency to Ensure the Safety and Health of Employees and the Public](#) - Issued May 4, 2020, last updated June 1, 2020

**RED**  
Stay at Home Order

**YELLOW**  
Aggressive Mitigation

**GREEN**  
CDC & PA Dept. of Health Guidelines



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## Lunch/Coffee

How to properly wash your hands:

- Wet hands with running water
- Apply enough soap to cover wet hands
- Scrub all surfaces of the hands – including back of hands, between fingers and under nails – for at least 20 seconds.
- Rinse thoroughly with running water
- Dry hands with a blow dryer or single-use towel



Or just stay here and [watch John Oliver](#)



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## SARS-CoV-2 (COVID 19) Awareness Training



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## OSHA Exposure Assessment

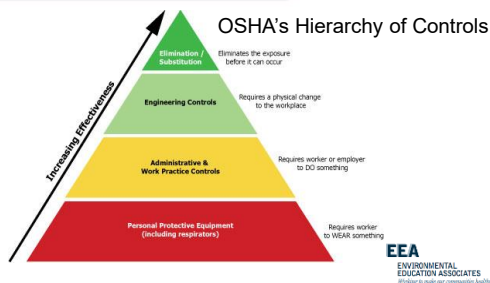
Employers of workers with potential occupational exposures to coronavirus should follow these practices:

- Assess the hazards to which workers may be exposed.
- Evaluate the risk of exposure.
- Select implement and ensure workers use controls to prevent exposure, including physical barriers and social distancing to control the spread of the virus; social distancing; Provide
- Personal protective equipment, hygiene, and cleaning supplies.



2

## Work Place Hazards



3

## Personal Protective Equipment

Employees must wear the following:

- Respirators in accordance with the OSHA respiratory protection standard (29 CFR 1910.134)
- Disposable protective clothing covering both head and shoes
- Gloves
- Face shields



4

## Personal Protective Equipment

- 29 CFR 1910.132
- "Protective equipment, including personal protective equipment for eyes, face, head, and extremities, protective clothing, respiratory devices... shall be provided, used and maintained whenever it is necessary by reason of hazards of processes or environment... capable of causing injury or impairment in the function of any part of the body through absorption, inhalation or physical contact.



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## Viral Exposures

- Between people who are in close contact with one another (within about 6 feet).
- Through respiratory droplets produced when an infected person coughs or sneezes. These droplets can land in the mouths or noses of people who are nearby or possibly be inhaled into the lungs.
- Touching a surface or object that has SARS-CoV-2 on it and then touching their own mouth, nose, or possibly their eyes, but this is not thought to be the primary way the virus spreads.



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## Personal Protective Equipment (PPE)

- The purpose of PPE is to shield or isolate individuals from the chemical, physical and biological hazards that may be encountered on a hazardous waste site
- No single combination of protective equipment and clothing is capable of protecting against all hazards
- The use of PPE can itself create worker hazards (eg, heat stress, physical and psychological stress, impaired vision, mobility and communication)



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## Developing a PPE Program

- A written PPE program must be developed for work at all hazardous waste sites
- The Program objectives include:
  - Protecting the wearer from safety and health hazards
  - Preventing injury to the wearer from incorrect use and/or malfunction of the PPE



8

## Chemical Work Site Safety Hazards

- Cleaners
- Disinfectants
- Sealers



9

## Chemical Protective Clothing (CPC)

- Chemical Protective Clothing (CPC)
  - CPC is available in a variety of materials that offer a range of protection against different chemicals
  - Selection is made on a case-by-case basis
  - No one type or combination of protective equipment (PPE) can provide a sufficient barrier against all hazards
  - Many wastes are mixtures of chemicals



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## Chemical Protective Clothing (CPC)

- Chemical Protective Clothing (CPC)
  - Ideally CPC resists permeation, degradation and penetration
  - **Permeation:** the process by which a chemical dissolves in and/or moves through protective clothing at a molecular level
  - **Degradation:** the loss of or change in the fabric's chemical resistance or physical properties due to chemical exposure, use or ambient conditions
  - **Penetration:** the movement of chemicals through stitched seams, zippers, etc. in protective clothing



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## Selection of Ensembles

- Individual components of clothing and equipment must be assembled into a full protective ensemble that both protects the worker and minimizes the hazards and drawbacks from the ensemble itself
- The equipment used and protection worn must be reevaluated and upgraded (or downgraded) as new information is revealed



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## Levels of Protection

- How many levels of protection are there?
  - Level A
  - Level B
  - Level C
  - Level D
- Which level of PPE provides the most protection?



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## Level “D” Protection

- Recommended protective clothing:
  - Coveralls (optional)
  - Boots/shoes, leather or chemical resistant with steel toe and shank
  - Safety glasses or chemical splash goggles
  - Hard hat
  - Gloves (optional)
  - Disposable outer boots (optional)



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## Level “C” Protection

- Chemical resistant clothing
  - Overalls and long sleeved jacket
  - Hooded 1 or 2-piece chemical splash suit
  - Disposable chemical resistant 1-piece suit



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## Level “B” Protection

- Minimum level of protection recommended for initially entering an open site where the type, concentration and presence of airborne vapors are unknown
- Level “B” protection includes elements of Level “C” PLUS:



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## Level “A” Protection

- Disposable protective suit, worn under fully encapsulating suit



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## PPE - Gloves

Sometimes even the obvious needs stating!

- Gloves will not provide protection against chemical exposure if they have holes caused by punctures, cuts or abrasions
- Gloves will not provide suitable protection against a chemical exposure if the gloves are degraded or if they have been permeated by the chemical in a significant amount.
- Consider double gloving if necessary



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## PPE – Face Coverage

OSHA requires ANSI approved eye and face protection when workers are exposed to eye or **face** hazards such as flying objects, molten metal, liquid chemicals, acids or caustic liquids, chemical gases or vapors.

- **Face Shields** – better coverage
- **Safety Glasses** – side shields & protective lense compatible



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## Respiratory Protection

- Respirators are the last option after:
  - engineering controls
  - administrative controls
  - work practices
  - alternative materials
  - other methods

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## Personal Protective Equipment – Note!

*Employers must follow OSHA 29 CFR 1910.134 in any workplace where respirators are necessary to protect the health of the employee or whenever respirators are required by the employer, the employer shall establish a written respiratory protection program with worksite-specific procedures*

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## Selection of Respiratory Equipment

- Respirators must be certified by NIOSH
- Respirators must be selected from a sufficient number of models and sizes, and must be comfortable to the user and adequate to protect the health of the worker and ensure compliance under routine and foreseeable emergencies
- Respirators are provided at no cost to the employee

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## Requirements to Wear a Tight Fitting Respirator

- Individuals must be medically cleared to do so
- Medical status must be reviewed annually
- Must have pulmonary function test
- Persons must be qualitatively or quantitatively fit tested each year
- Persons must be trained in the use and inspection of respiratory equipment

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## Selection of Respiratory Equipment

- Types of facepieces
  - **Half-face** cover the face from below the chin to over the nose and do not provide eye protection
  - **Full-face** masks cover the face from the hairline to below the chin
    - They provide eye protection



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## Types of Air Purifying Respirators

- Half Face Negative Pressure
- N100 Fitted Facepiece
- N95 Fitted Facepiece (i.e. dust mask)



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## Selection of Respiratory Equipment

- Two types of respirators based on fit

### Tight-fitting



### Loose-fitting



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## Selection of Respiratory Equipment

- Two types of respirators based on air supply
  - Air-Purifying Respirators (APR)
  - Air Supplied Respirator (ASR)



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## Types of Respirators

- **Filter Efficiency** - selection of filter efficiency (i.e., 95%, 99%, or 99.97%) depends on how much filter leakage can be accepted. Higher filter efficiency means lower filter leakage.
- **Oil Resistance** - selection of N-, R-, and P-series filters depends on the presence or absence of oil particles, as follows: If no oil particles are present in the work environment, use a filter of any series (i.e., N-, R-, or P-series).
  - If oil particles (e.g., lubricants, cutting fluids, glycerine, etc.) are present, use an R- or P-series filter.
  - Note:** N-series filters cannot be used if oil particles are present.
  - If oil particles are present and the filter is to be used for more than one work shift, use only a P-series filter.

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## Types of Filters

	48W-34624	GME Super Cartridge**	Organic vapors, sulfur dioxide, chlorine, hydrogen chloride, chlorine dioxide, hydrogen fluoride, ammonia, methyamine, formaldehyde, pesticides, acids, lacquers and aromatics (when used with an N95 P100 filter) or sulfur dioxide for escape only.**
	48W-34623	Organic Vapors Cartridge	Organic vapors**
	48W-34623	Organic Vapors/Acid Gases Cartridge	Organic vapors, chlorine, chlorine dioxide, hydrogen chloride, sulfur dioxide, hydrogen sulfide for escape only.**
	48W-34620	P100 Filter Cartridge	P100 Particulate Filter (99.97% filter efficiency level) is effective against all aerosols.
	48W-67980	P100 Fleck Filter	P100 Particulate Filter (99.97% filter efficiency level) is effective against all aerosols.
	48W-67981	P100 Organic Vapors Fleck Filter	P100 Particulate Filter (99.97% filter efficiency level) is effective against all aerosols and nuisance levels of organic vapors.
	48W-67982	P95 Fleck Filter	Solid and liquid particulates including those containing oil. Time-use restrictions may apply.
	48W-67983	N95 Fleck Filter	Solid and liquid particulates excluding those containing oil. Time-use restrictions may apply.
	48W-131161	GME Super Cartridge/P100	Organic vapors, sulfur dioxide, chlorine, hydrogen chloride, chlorine dioxide, hydrogen sulfide, for escape only, hydrogen fluoride, ammonia, methyamine, formaldehyde, aldehydes, pesticides, acids, lacquers and aromatics. Effective against all particulate aerosols (99.97% filter efficiency level)**
	48W-34626	Organic Vapors/P100 Cartridge	Organic vapors, pesticides and mists of paints, lacquers and enamels. P100 Particulate Filter (99.97% filter efficiency level) is effective against all aerosols.

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## Other Important Issues

- Medical fitness to wear a respirator
- Facial hair & respiratory protection
- Care & cleaning of respirators
- Inspection of respirators
- Cleaning & disinfection
- Repairs
- Storage

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## Safe Work Practices

Safe work practices are types of administrative controls that include procedures for safe and proper work used to reduce the duration, frequency, or intensity of exposure to a hazard.



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## Follow Required Work Practices

- Wash your skin immediately after accidental contact and report the incident
- Use an approved disinfectant solution to decontaminate surfaces and equipment
- Dispose of contaminated clothing and waste properly



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## PPE

Protect yourself & everyone else

- Disposable suit
- Gloves
- Face shields
- Respirator



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## SARS-CoV-2 (COVID 19) Awareness Training



1

## Remediation Basics

- Restrict access to work area
- Construct containment & install engineering controls
- Clean & decontaminate non-porous materials
- Clean & seal exposed surfaces
- Evaluate for completeness of work



2

## Containment

- Defines what is contaminated or cleaned
- Ensures that the area designated for decontamination is properly sized for disinfectant application
- Controls release of contaminants to other clean spaces



3

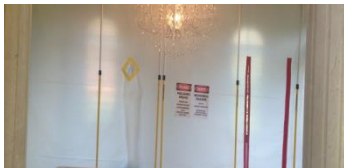
## Containment

- Containment
  - plastic sheeting, duct tape
  - allow for decontamination & staging areas
- Control of Exposure
  - vacate adjacent areas as appropriate



4

## Containment



5

## HEPA FILTRATION

**High Efficiency Particulate Air**

- 99.97% Efficient down to particle sizes  $.3\mu\text{m}$  in size



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## Engineering Controls

- HEPA Equipped Vacuums for cleaning porous materials and surfaces
- HEPA Equipped Exhaust Filtration to establish negative air pressure
- HEPA Air Scrubbers for ongoing air filtration



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## Engineering Controls

- Establishing conditions in which air from the sealed zone is being pulled toward the negative pressure fans & HEPA filters.
- Negative air pressure ventilation equipment provides increased air changes
- Containment if air tight barriers are compromised
- The intake side of the machine must remain inside the area, with the opening air-tight, in order to minimize the amount of contamination on the equipment



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## Work Area Preparation



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## Containment

- A single layer of 6-mil fire-retardant polyethylene sheeting enclosing the work area.
- Access to the contained area is through a personal decontamination unit on the outside of the containment area.



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## Work Area Prep

- Pre-clean and install critical barriers
- Barriers are constructed to seal off all openings and penetrations to the work area
- Barriers to be constructed of 6 ml fire-retardant poly sealed with duct tape

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## Signs

- Shall be displayed at all accessible entrances to remediation areas
- Should be in the language of the local population
- Should only be removed after final clean



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## Preparing the Work Area



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## Site Prep

- Close and cover all forced air systems (HVAC) in the work area with one layer of disposable polyethylene sheeting, including bathroom vents, common area vents, exhaust vents, and hall vents.

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## Containment

- All supply and air vents, doors, and pipe chases in the containment area must be sealed with polyethylene



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## Decontamination

The process of removing potentially harmful contaminants from exposed individuals and equipment.

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## Decontamination

- Ensures that workers leaving work area are not bringing contamination out
- Provides workers with facilities to clean themselves up and leave safe
- Controls access to the work area

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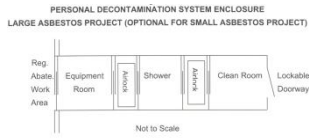
## Personal Decon Enclosure

- Personal Decon must be constructed and functional prior to the start of work
- Should be outside the work area and attached to all locations where people enter and exit the work area
- 1 layer of 6 mil fire-retardant poly on walls and ceilings
- Clean Room, Shower Room and Equipment Room with airlocks separating each room
- Curtain doorway between work area and Equipment Room
- Minimum dimensions is 3 feet wide by 6 feet high for airlocks and each room

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## Personal Decon Enclosure



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## Containment & Decontamination

- Critical for safe work practices
- Necessary to determine what's been decontaminated
- Must be adapted to the circumstances

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## SARS-CoV-2 (COVID 19) Awareness Training



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## Cleaners & Disinfectants

- Specialized chemicals for remediation
- Anti-microbial cleaners used first
- Disinfectants used AFTER cleaning is complete



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## Cleaners & Disinfectants

- **Cleaning** refers to the removal of germs, dirt, and impurities from surfaces. Cleaning does not kill germs, but by removing them, it lowers their numbers and the risk of spreading infection.
- **Disinfecting** refers to using chemicals to kill germs on surfaces. This process does not necessarily clean dirty surfaces or remove germs, but by killing germs on a surface *after* cleaning, it can further lower the risk of spreading infection.



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## Sodium Hypochlorite (Bleach)



- Advantages
  - Cheap
  - Effective
  - Removes discoloration from white surfaces
- Disadvantages
  - Not compatible with all surfaces
  - Safety issues
  - Not a cleaner
  - Inactivated by heavy organic soil
  - Unstable

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## EPA Approved Products



- When purchasing a product, check if its **EPA registration number** is included on this list. If it is, you have a match and the product can be used against SARS-CoV-2. You can find this number on the product label – just look for the EPA Reg. No.
- Products may be marketed and sold under different brand names, but if they have the same EPA registration number, they are the same product.

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## Active Chemical Ingredients

- Hydrogen peroxide
- Phenolic
- Quaternary ammonium
- Sodium chlorite
- Hypochlorous acid
- Thymol
- Peroxyoctanoic acid
- Sodium hypochlorite
- Iodine
- Lactic acid
- Isopropanol

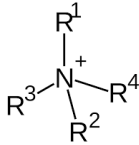


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## Quaternary Ammonium Compounds



- Most Common
- Advantages
  - Excellent Cleaner & Disinfectant
  - Effective in organic soil
  - Safe

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## Anabac Anashere +



- **FEATURES**
  - EPA Registered Disinfectant
  - Average dilution rate: 2 oz to 1 gallon
  - meets the EPA criteria for use against SARS-Co V-2
- **WAYS TO APPLY**
  - Fogger
  - Pump Sprayer
  - Airless Sprayer
  - Spray Bottle/Rag
  - Mop/Bucket

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## Fosters 40-80



- Use as a disinfectant, sanitizer, cleaner, fungicide, deodorizer, virucide and germicide.
- Kills a large variety of microbes within minutes.
- Contains surfactants to help clean and remove residue.
- Designed for use in water damage restoration situations.

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## Follow Manufacturer's Directions

- Use the right dilution
- Use the right application
- Change solution when recommended
- Avoid cross-contamination

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## Surface Cleaning & Wiping



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## Foggers

- Used for large spaces and hard-to-reach areas such as basements, cellars, attics, crawlspaces and wall cavities
- Atomizes liquid into a fine mist for even surface application



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## Misting & Fogging



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## Disposal

- Removal of Containment Materials
  - 6 mil Contractor bags
  - Goose-neck sealed
  - Decontaminated
  - Taken directly to secure container



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## SARS-CoV-2 (COVID 19) Awareness Training



1

## Personal Hygiene

- Personal Hygiene – The practice of proper decontamination, personal cleanliness and good work practices
  - Helps to prevent the contraction of an illness or disease



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## Personal Hygiene

- Work area entry and exit practices and procedures have been established to prevent the transmission of contamination
  - No personal clothing, jewelry, etc.
  - Personal protective clothing must be properly worn and disposed of during the decon process
  - No contaminated articles may be brought out of the work area
  - Shower thoroughly! Shampoo and rinse hair thoroughly
  - Wash and rinse respirators thoroughly
  - Never leave the work area without proper decontamination

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## Personal Hygiene

- Work practices (contd.)
  - Wear proper PPE for the job tasks being done
  - Report to work clean shaven
  - Never remove your respirator while in the work area
  - Keep all floor surfaces clean, including Decon
  - Provide and use proper toilet, wash and waste disposal facilities
  - Do not breach containment barriers

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## Personal Hygiene

- Protecting against communicable diseases
  - Each employee shall be assigned a personal respirator
  - Do not work if you are sick or taking medications that could interfere with doing your job and doing it safely
  - Seek first aid for any open cuts or wounds

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## Hazard Communication

The basic goal of a Hazard Communication Program is to be sure employers and employees know about work hazards and how to protect themselves; this should help to reduce the incidence of chemical source illness and injuries.

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## What Does This Standard Do?

The HCS provides workers the right-to-know concerning the hazards and the identities of the chemicals they are, or may have the potential to be, exposed to in the workplace.\*



7

## Steps to an Effective HAZ-COM program

- Hazard Assessment
- Develop a written HAZCOM Plan
- Appointment of a HAZCOM Coordinator
- Conduct the chemical inventory
- Initiate labeling requirements
- Maintain the SDS library
- Establish employee training



8

## Hazard Determination

- The standard requires that employers inventory all hazardous chemicals in the workplace and include that inventory as a part of the written hazard communication program.
- This inventory will eventually serve as a master list for which a SDS must be obtained and maintained.



9

## SDS (Safety Data Sheet)

- Chemical manufacturers and importers are required to obtain or develop a safety data sheet for each hazardous chemical they produce or import. Distributors are responsible for ensuring that their customers are provided a copy of these SDSs. Employers must have an SDS for each hazardous chemical which they use.



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SDS Date: April 2019

### Safety Data Sheet

Per GHS Standard Format

---

**SECTION 1: CHEMICAL PRODUCT AND COMPANY IDENTIFICATION**

**Product Identifier:**

**Product Name:** (Stock/Trade Name) No. E112, No. E111 (Other letters) & No. E135CA  
 (Stock/Trade Name)  
**Signal Word:** Corrosive, Very Irritant, Flammable  
**Product Description:** Clear liquid and crystals  
**Chemical Family:** Quaternary ammonium chloride salt  
**DOT Regulatory Number:** E112, E111, E135CA

**Information on the Supplier of the Safety Data Sheet**

**Manufacturer For:** (Name)  
 (Address)  
 (City, State, ZIP)  
 (Country)  
 (Phone)  
 (Fax)

**Emergency Telephone Numbers:**  
 (Country Code) (Area Code) (Local Number)  
 (Outside the U.S.) (International Number) (Local Number)  
 (Phone Company Code) (Area Code) (Local Number)

---

**SECTION 2: HAZARD IDENTIFICATION**

**Signal Word:** DANGER

**Hazard Statements:**  
 Causes severe skin burns and eye damage.  
 Irritates/irritation.  
 Toxic to aquatic life.

**GHS Classifications:**  
 Health:  
 Acute Toxicity (Dust), Category 5  
 Skin Corrosion, Category 1C  
 Environmental: Category 1  
 Aquatic Hazards to the Aquatic Environment, Category 1

Page 2 of 7

11

## Establish Employee Training

Each employee who may be "exposed" to hazardous chemicals when working must be provided information and trained prior to initial assignment to work with a hazardous chemical, and whenever the hazard changes.



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## Employee Responsibilities

- Know where to get information about hazardous substances used, stored, or handled at your inspection sites.
- Learn to read labels and understand SDSs.
- Identify hazards before you begin a task.
- Do not be afraid to ask questions.
- Use personal protective equipment.



13

## THE END!



Be Careful...  
Be Safe...  
Be Well!



14



## Guidance Documents

# OSHA<sup>®</sup> FactSheet

## Protecting Workers during a Pandemic

A pandemic is a global disease outbreak and can be caused by a variety of agents, including influenza and coronaviruses. During a pandemic, transmission can be anticipated in the workplace not only from patients to workers in healthcare settings, but also among co-workers and between members of the general public and workers in other types of workplaces.

**Workers who believe that their employer provides a safe and healthy workplace are more likely to report for work during a pandemic.**

Clear communication promotes confidence in the employer's ability to protect workers and reduces absenteeism.

### Employers should ensure that their workers understand:

- Differences between seasonal epidemics and worldwide pandemic disease outbreaks;
- Which job activities may put them at risk for exposure to sources of infection;
- What options may be available for working remotely, or utilizing an employer's flexible leave policy when they are sick;
- Social distancing strategies, including avoiding close physical contact (e.g., shaking hands) and large gatherings of people;
- Good hygiene and appropriate disinfection procedures;
- What personal protective equipment (PPE) is available, and how to wear, use, clean and store it properly;
- What medical services (e.g., vaccination, post-exposure medication) may be available to them; and
- How supervisors will provide updated pandemic-related communications, and where to direct their questions.

### Sick Leave

Employers may consider providing sick leave so that workers may stay home if they are sick. Flexible leave policies help stop the spread of disease, including to healthy workers.

### Principles of worker protection:

- ✓ Consistently practice social distancing.
- ✓ Cover coughs and sneezes.
- ✓ Maintain hand hygiene.
- ✓ Clean surfaces frequently.

### Training

Following the Centers for Disease Control and Prevention (CDC) recommendations, employers should provide worker training on infection controls, including the importance of avoiding close contact (within 6 feet) with others. Employers should provide adequate supplies and ready access to soap and running water, tissues, alcohol-based hand sanitizers and cleaning agents. Some worksites may need PPE (e.g., gloves, face shields, and respirators). Frequent visual and verbal reminders to workers can improve compliance with hand hygiene practices and thus reduce rates of infection. Handwashing posters are available from the CDC: [www.cdc.gov/features/handwashing](http://www.cdc.gov/features/handwashing).

### Control Measures

Employers may modify the work environment and/or change work practices to provide additional protection to workers and clients. For example, employers may install physical barriers (e.g., clear plastic sneeze guards), conduct business in a different manner (e.g., use drive-through service windows, implement telework arrangements), improve ventilation (e.g., install high-efficiency air filters, increase ventilation rates), install additional hand



## Comparison of Surgical Masks and Respirators

### *Surgical Masks*

- Used by workers to protect themselves against splashes and sprays containing infectious agents.
- Placed on sick individuals to prevent respiratory infections that spread by large droplets; worn by surgeons to avoid contaminating surgical sites.
- May not protect against airborne-transmissible infectious agents due to loose fit and lack of seal.
- Can be used by almost anyone, regardless of training.
- Should be properly disposed of after use.

### *Respirators (e.g., filtering facepiece)*

- Used by workers to prevent inhalation of small particles, including airborne-transmissible infectious agents.
- To be effective, should have the proper filter material (e.g., N95 or better), be NIOSH-certified, and must fit tightly to prevent air leaks.
- For use, require proper training, fit testing, availability of appropriate medical evaluations and monitoring, cleaning and oversight by a knowledgeable staff member.
- Employer must establish a respiratory protection program that is compliant with OSHA's Respiratory Protection standard, [29 CFR 1910.134](#). OSHA consultation staff can assist with understanding respiratory protection requirements.

sanitizer dispensers, provide facial tissues, and have workers use PPE. Employers should select equipment, such as surgical masks and respirators as described below, that will protect workers against infectious diseases to which they may be exposed.

For additional information, see OSHA's Fact Sheet "Respiratory Infection Control: Respirators versus Surgical Masks" at [www.osha.gov/Publications/respirators-vs-surgicalmasks-factsheet.pdf](http://www.osha.gov/Publications/respirators-vs-surgicalmasks-factsheet.pdf).

Depending on the pandemic, a vaccine may or may not be available to protect people from illness. If available, employers may offer appropriate vaccines to workers to reduce the number of those at risk for infection in their workplace.

### **Risk Communication**

Workers should be aware of the exposure risk level associated with their job duties. In addition, a pandemic may disproportionately affect people in certain age groups or with specific

health histories. Workers with job-related exposure to infections who voluntarily disclose personal health risks should be considered for job accommodations and/or additional protective measures, e.g., use of PPE.

**Higher risk work settings** include those healthcare workplaces where: infected patients may congregate; clinical specimens are handled or transported; or materials contaminated with blood or infectious wastes are handled. These settings warrant: use of physical barriers to control the spread of infectious disease; worker and client management to promote social distancing; and adequate and appropriate PPE, hygiene and cleaning supplies. Additional information, including an OSHA Fact Sheet on exposure risks in healthcare workplaces, can be found on OSHA's Publications page: [www.osha.gov/publications](http://www.osha.gov/publications). Employers and workers can also learn about preparedness for pandemics and other events at OSHA's Emergency Preparedness and Response page: [www.osha.gov/SLTC/emergencypreparedness](http://www.osha.gov/SLTC/emergencypreparedness).

Very High & High Exposure Risk	Medium Exposure Risk	Lower Exposure Risk (Caution)
Healthcare workers, particularly those working with known or suspected pandemic patients.	Workers with high-frequency interaction with the general public (e.g., those working in schools, restaurants and retail establishments, travel and mass transit, or other crowded environments).	Workers who have minimal contact with the general public and other coworkers (e.g., office workers).

### Assistance for Employers

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-OSHA (6742) or visit [www.osha.gov/consultation](http://www.osha.gov/consultation).

**Note:** This document provides guidance for employers during a pandemic, but is not intended to cover all OSHA standards that may apply. State Plans adopt and enforce their own occupational safety and health standards at [www.osha.gov/dcsp/osp](http://www.osha.gov/dcsp/osp).

**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.**

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



**[www.osha.gov](http://www.osha.gov) (800) 321-OSHA (6742)**



U.S. Department of Labor

DTSEM FS-3747 08/2014





# Guidance on Preparing Workplaces for COVID-19

OSHA 3990-03 2020



## **Occupational Safety and Health Act of 1970**

“To assure safe and healthful working conditions for working men and women; by authorizing enforcement of the standards developed under the Act; by assisting and encouraging the States in their efforts to assure safe and healthful working conditions; by providing for research, information, education, and training in the field of occupational safety and health.”

This guidance is not a standard or regulation, and it creates no new legal obligations. It contains recommendations as well as descriptions of mandatory safety and health standards. The recommendations are advisory in nature, informational in content, and are intended to assist employers in providing a safe and healthful workplace. The Occupational Safety and Health Act requires employers to comply with safety and health standards and regulations promulgated by OSHA or by a state with an OSHA-approved state plan. In addition, the Act’s General Duty Clause, Section 5(a)(1), requires employers to provide their employees with a workplace free from recognized hazards likely to cause death or serious physical harm.

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This information will be made available to sensory-impaired individuals upon request. Voice phone: (202) 693-1999; teletypewriter (TTY) number: 1-877-889-5627.

# Guidance on Preparing Workplaces for COVID-19

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U.S. Department of Labor  
Occupational Safety and Health Administration

OSHA 3990-03 2020



U.S. Department of Labor

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## Introduction

Coronavirus Disease 2019 (COVID-19) is a respiratory disease caused by the SARS-CoV-2 virus. It has spread from China to many other countries around the world, including the United States. Depending on the severity of COVID-19's international impacts, outbreak conditions—including those rising to the level of a pandemic—can affect all aspects of daily life, including travel, trade, tourism, food supplies, and financial markets.

To reduce the impact of COVID-19 outbreak conditions on businesses, workers, customers, and the public, it is important for all employers to plan now for COVID-19. For employers who have already planned for influenza pandemics, planning for COVID-19 may involve updating plans to address the specific exposure risks, sources of exposure, routes of transmission, and other unique characteristics of SARS-CoV-2 (i.e., compared to pandemic influenza viruses). Employers who have not prepared for pandemic events should prepare themselves and their workers as far in advance as possible of potentially worsening outbreak conditions. Lack of continuity planning can result in a cascade of failures as employers attempt to address challenges of COVID-19 with insufficient resources and workers who might not be adequately trained for jobs they may have to perform under pandemic conditions.

The Occupational Safety and Health Administration (OSHA) developed this COVID-19 planning guidance based on traditional infection prevention and industrial hygiene practices. It focuses on the need for employers to implement engineering, administrative, and work practice controls and personal protective equipment (PPE), as well as considerations for doing so.

This guidance is intended for planning purposes. Employers and workers should use this planning guidance to help identify risk levels in workplace settings and to determine any appropriate control measures to implement. Additional guidance may be needed as COVID-19 outbreak conditions change, including as new information about the virus, its transmission, and impacts, becomes available.



The U.S. Department of Health and Human Services' Centers for Disease Control and Prevention (CDC) provides the latest information about COVID-19 and the global outbreak: [www.cdc.gov/coronavirus/2019-ncov](http://www.cdc.gov/coronavirus/2019-ncov).

The OSHA COVID-19 webpage offers information specifically for workers and employers: [www.osha.gov/covid-19](http://www.osha.gov/covid-19).

This guidance is advisory in nature and informational in content. It is not a standard or a regulation, and it neither creates new legal obligations nor alters existing obligations created by OSHA standards or the *Occupational Safety and Health Act* (OSH Act). Pursuant to the OSH Act, employers must comply with safety and health standards and regulations issued and enforced either by OSHA or by an OSHA-approved State Plan. In addition, the OSH Act's General Duty Clause, [Section 5\(a\)\(1\)](#), requires employers to provide their employees with a workplace free from recognized hazards likely to cause death or serious physical harm. OSHA-approved State Plans may have standards, regulations and enforcement policies that are different from, but at least as effective as, OSHA's. Check with your [State Plan](#), as applicable, for more information.

## About COVID-19

### Symptoms of COVID-19

Infection with SARS-CoV-2, the virus that causes COVID-19, can cause illness ranging from mild to severe and, in some cases, can be fatal. Symptoms typically include fever, cough, and shortness of breath. Some people infected with the virus have reported experiencing other non-respiratory symptoms. Other people, referred to as *asymptomatic cases*, have experienced no symptoms at all.

According to the CDC, symptoms of COVID-19 may appear in as few as 2 days or as long as 14 days after exposure.

## How COVID-19 Spreads

Although the first human cases of COVID-19 likely resulted from exposure to infected animals, infected people can spread SARS-CoV-2 to other people.

The virus is thought to spread mainly from person-to-person, including:

- Between people who are in close contact with one another (within about 6 feet).
- Through respiratory droplets produced when an infected person coughs or sneezes. These droplets can land in the mouths or noses of people who are nearby or possibly be inhaled into the lungs.

*Medium exposure risk jobs include those that require frequent and/or close contact with (i.e., within 6 feet of) other people who may be infected with SARS-CoV-2.*

It may be possible that a person can get COVID-19 by touching a surface or object that has SARS-CoV-2 on it and then touching their own mouth, nose, or possibly their eyes, but this is not thought to be the primary way the virus spreads.

People are thought to be most contagious when they are most symptomatic (i.e., experiencing fever, cough, and/or shortness of breath). Some spread might be possible before people show symptoms; there have been reports of this type of asymptomatic transmission with this new coronavirus, but this is also not thought to be the main way the virus spreads.

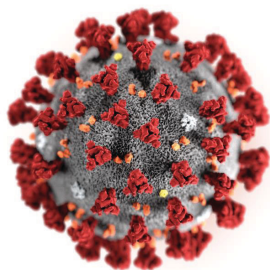
Although the United States has implemented public health measures to limit the spread of the virus, it is likely that some person-to-person transmission will continue to occur.

The CDC website provides the latest information about COVID-19 transmission: [www.cdc.gov/coronavirus/2019-ncov/about/transmission.html](https://www.cdc.gov/coronavirus/2019-ncov/about/transmission.html).

## How a COVID-19 Outbreak Could Affect Workplaces

Similar to influenza viruses, SARS-CoV-2, the virus that causes COVID-19, has the potential to cause extensive outbreaks. Under conditions associated with widespread person-to-person spread, multiple areas of the United States and other countries may see impacts at the same time. In the absence of a vaccine, an outbreak may also be an extended event. As a result, workplaces may experience:

- **Absenteeism.** Workers could be absent because they are sick; are caregivers for sick family members; are caregivers for children if schools or day care centers are closed; have at-risk people at home, such as immunocompromised family members; or are afraid to come to work because of fear of possible exposure.
- **Change in patterns of commerce.** Consumer demand for items related to infection prevention (e.g., respirators) is likely to increase significantly, while consumer interest in other goods may decline. Consumers may also change shopping patterns because of a COVID-19 outbreak. Consumers may try to shop at off-peak hours to reduce contact with other people, show increased interest in home delivery services, or prefer other options, such as drive-through service, to reduce person-to-person contact.
- **Interrupted supply/delivery.** Shipments of items from geographic areas severely affected by COVID-19 may be delayed or cancelled with or without notification.



This illustration, created at the Centers for Disease Control and Prevention (CDC), reveals ultrastructural morphology exhibited by the 2019 Novel Coronavirus (2019-nCoV). Note the spikes that adorn the outer surface of the virus, which impart the look of a corona surrounding the virion, when viewed electron microscopically. This virus was identified as the cause of an outbreak of respiratory illness first detected in Wuhan, China.

*Photo: CDC / Alissa Eckert & Dan Higgins*

OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

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## **Steps All Employers Can Take to Reduce Workers' Risk of Exposure to SARS-CoV-2**

This section describes basic steps that every employer can take to reduce the risk of worker exposure to SARS-CoV-2, the virus that causes COVID-19, in their workplace. Later sections of this guidance—including those focusing on jobs classified as having low, medium, high, and very high exposure risks—provide specific recommendations for employers and workers within specific risk categories.

### **Develop an Infectious Disease Preparedness and Response Plan**

If one does not already exist, develop an infectious disease preparedness and response plan that can help guide protective actions against COVID-19.

Stay abreast of guidance from federal, state, local, tribal, and/or territorial health agencies, and consider how to incorporate those recommendations and resources into workplace-specific plans.

Plans should consider and address the level(s) of risk associated with various worksites and job tasks workers perform at those sites. Such considerations may include:

- Where, how, and to what sources of SARS-CoV-2 might workers be exposed, including:
  - The general public, customers, and coworkers; and
  - Sick individuals or those at particularly high risk of infection (e.g., international travelers who have visited locations with widespread sustained (ongoing) COVID-19 transmission, healthcare workers who have had unprotected exposures to people known to have, or suspected of having, COVID-19).
- Non-occupational risk factors at home and in community settings.

- Workers' individual risk factors (e.g., older age; presence of chronic medical conditions, including immunocompromising conditions; pregnancy).
- Controls necessary to address those risks.

Follow federal and state, local, tribal, and/or territorial (SLTT) recommendations regarding development of contingency plans for situations that may arise as a result of outbreaks, such as:

- Increased rates of worker absenteeism.
- The need for social distancing, staggered work shifts, downsizing operations, delivering services remotely, and other exposure-reducing measures.
- Options for conducting essential operations with a reduced workforce, including cross-training workers across different jobs in order to continue operations or deliver surge services.
- Interrupted supply chains or delayed deliveries.

Plans should also consider and address the other steps that employers can take to reduce the risk of worker exposure to SARS-CoV-2 in their workplace, described in the sections below.

## **Prepare to Implement Basic Infection Prevention Measures**

For most employers, protecting workers will depend on emphasizing basic infection prevention measures. As appropriate, all employers should implement good hygiene and infection control practices, including:

- Promote frequent and thorough **hand washing**, including by providing workers, customers, and worksite visitors with a place to wash their hands. If soap and running water are not immediately available, provide alcohol-based hand rubs containing at least 60% alcohol.
- Encourage workers to **stay home if they are sick**.
- Encourage **respiratory etiquette**, including covering coughs and sneezes.

- Provide customers and the public with tissues and trash receptacles.
- Employers should explore whether they can establish **policies and practices**, such as flexible worksites (e.g., telecommuting) and flexible work hours (e.g., staggered shifts), to increase the physical distance among employees and between employees and others if state and local health authorities recommend the use of social distancing strategies.
- Discourage workers from using other workers' phones, desks, offices, or other work tools and equipment, when possible.
- Maintain regular housekeeping practices, including routine cleaning and disinfecting of surfaces, equipment, and other elements of the work environment. When choosing cleaning chemicals, employers should consult information on Environmental Protection Agency (EPA)-approved disinfectant labels with claims against emerging viral pathogens. Products with EPA-approved emerging viral pathogens claims are expected to be effective against SARS-CoV-2 based on data for harder to kill viruses. Follow the manufacturer's instructions for use of all cleaning and disinfection products (e.g., concentration, application method and contact time, PPE).

### **Develop Policies and Procedures for Prompt Identification and Isolation of Sick People, if Appropriate**

- Prompt identification and isolation of potentially infectious individuals is a critical step in protecting workers, customers, visitors, and others at a worksite.
- Employers should inform and encourage employees to self-monitor for signs and symptoms of COVID-19 if they suspect possible exposure.
- Employers should develop policies and procedures for employees to report when they are sick or experiencing symptoms of COVID-19.

- Where appropriate, employers should develop policies and procedures for immediately isolating people who have **signs and/or symptoms** of COVID-19, and train workers to implement them. Move potentially infectious people to a location away from workers, customers, and other visitors. Although most worksites do not have specific isolation rooms, designated areas with closable doors may serve as isolation rooms until potentially sick people can be removed from the worksite.
- Take steps to limit spread of the respiratory secretions of a person who may have COVID-19. Provide a face mask, if feasible and available, and ask the person to wear it, if tolerated. Note: A face mask (also called a surgical mask, procedure mask, or other similar terms) on a patient or other sick person should not be confused with PPE for a worker; the mask acts to contain potentially infectious respiratory secretions at the source (i.e., the person’s nose and mouth).
- If possible, isolate people suspected of having COVID-19 separately from those with confirmed cases of the virus to prevent further transmission—particularly in worksites where medical screening, triage, or healthcare activities occur, using either permanent (e.g., wall/different room) or temporary barrier (e.g., plastic sheeting).
- Restrict the number of personnel entering isolation areas.
- Protect workers in close contact with (i.e., within 6 feet of) a sick person or who have prolonged/repeated contact with such persons by using additional engineering and administrative controls, safe work practices, and PPE. Workers whose activities involve close or prolonged/repeated contact with sick people are addressed further in later sections covering workplaces classified at medium and very high or high exposure risk.

## **Develop, Implement, and Communicate about Workplace Flexibilities and Protections**

- Actively encourage sick employees to stay home.
- Ensure that sick leave policies are flexible and consistent with public health guidance and that employees are aware of these policies.
- Talk with companies that provide your business with contract or temporary employees about the importance of sick employees staying home and encourage them to develop non-punitive leave policies.
- Do not require a healthcare provider’s note for employees who are sick with acute respiratory illness to validate their illness or to return to work, as healthcare provider offices and medical facilities may be extremely busy and not able to provide such documentation in a timely way.
- Maintain flexible policies that permit employees to stay home to care for a sick family member. Employers should be aware that more employees may need to stay at home to care for sick children or other sick family members than is usual.
- Recognize that workers with ill family members may need to stay home to care for them. See CDC’s Interim Guidance for Preventing the Spread of COVID-19 in Homes and Residential Communities: [www.cdc.gov/coronavirus/2019-ncov/hcp/guidance-prevent-spread.html](http://www.cdc.gov/coronavirus/2019-ncov/hcp/guidance-prevent-spread.html).
- Be aware of workers’ concerns about pay, leave, safety, health, and other issues that may arise during infectious disease outbreaks. Provide adequate, usable, and appropriate training, education, and informational material about business-essential job functions and worker health and safety, including proper hygiene practices and the use of any workplace controls (including PPE). Informed workers who feel safe at work are less likely to be unnecessarily absent.



- Work with insurance companies (e.g., those providing employee health benefits) and state and local health agencies to provide information to workers and customers about medical care in the event of a COVID-19 outbreak.

## **Implement Workplace Controls**

Occupational safety and health professionals use a framework called the “hierarchy of controls” to select ways of controlling workplace hazards. In other words, the best way to control a hazard is to systematically remove it from the workplace, rather than relying on workers to reduce their exposure. During a COVID-19 outbreak, when it may not be possible to eliminate the hazard, the most effective protection measures are (listed from most effective to least effective): engineering controls, administrative controls, safe work practices (a type of administrative control), and PPE. There are advantages and disadvantages to each type of control measure when considering the ease of implementation, effectiveness, and cost. In most cases, a combination of control measures will be necessary to protect workers from exposure to SARS-CoV-2.

In addition to the types of workplace controls discussed below, CDC guidance for businesses provides employers and workers with recommended SARS-CoV-2 infection prevention strategies to implement in workplaces: [www.cdc.gov/coronavirus/2019-ncov/specific-groups/guidance-business-response.html](http://www.cdc.gov/coronavirus/2019-ncov/specific-groups/guidance-business-response.html).

### ***Engineering Controls***

Engineering controls involve isolating employees from work-related hazards. In workplaces where they are appropriate, these types of controls reduce exposure to hazards without relying on worker behavior and can be the most cost-effective solution to implement. Engineering controls for SARS-CoV-2 include:

- Installing high-efficiency air filters.
- Increasing ventilation rates in the work environment.
- Installing physical barriers, such as clear plastic sneeze guards.

- Installing a drive-through window for customer service.
- Specialized negative pressure ventilation in some settings, such as for aerosol generating procedures (e.g., airborne infection isolation rooms in healthcare settings and specialized autopsy suites in mortuary settings).

### ***Administrative Controls***

Administrative controls require action by the worker or employer. Typically, administrative controls are changes in work policy or procedures to reduce or minimize exposure to a hazard. Examples of administrative controls for SARS-CoV-2 include:

- Encouraging sick workers to stay at home.
- Minimizing contact among workers, clients, and customers by replacing face-to-face meetings with virtual communications and implementing telework if feasible.
- Establishing alternating days or extra shifts that reduce the total number of employees in a facility at a given time, allowing them to maintain distance from one another while maintaining a full onsite work week.
- Discontinuing nonessential travel to locations with ongoing COVID-19 outbreaks. Regularly check CDC travel warning levels at: [www.cdc.gov/coronavirus/2019-ncov/travelers](https://www.cdc.gov/coronavirus/2019-ncov/travelers).
- Developing emergency communications plans, including a forum for answering workers' concerns and internet-based communications, if feasible.
- Providing workers with up-to-date education and training on COVID-19 risk factors and protective behaviors (e.g., cough etiquette and care of PPE).
- Training workers who need to use protecting clothing and equipment how to put it on, use/wear it, and take it off correctly, including in the context of their current and potential duties. Training material should be easy to understand and available in the appropriate language and literacy level for all workers.

## ***Safe Work Practices***

Safe work practices are types of administrative controls that include procedures for safe and proper work used to reduce the duration, frequency, or intensity of exposure to a hazard. Examples of safe work practices for SARS-CoV-2 include:

- Providing resources and a work environment that promotes personal hygiene. For example, provide tissues, no-touch trash cans, hand soap, alcohol-based hand rubs containing at least 60 percent alcohol, disinfectants, and disposable towels for workers to clean their work surfaces.
- Requiring regular hand washing or using of alcohol-based hand rubs. Workers should always wash hands when they are visibly soiled and after removing any PPE.
- Post handwashing signs in restrooms.

## ***Personal Protective Equipment (PPE)***

While engineering and administrative controls are considered more effective in minimizing exposure to SARS-CoV-2, PPE may also be needed to prevent certain exposures. While correctly using PPE can help prevent some exposures, it should not take the place of other prevention strategies.

Examples of PPE include: gloves, goggles, face shields, face masks, and respiratory protection, when appropriate. During an outbreak of an infectious disease, such as COVID-19, recommendations for PPE specific to occupations or job tasks may change depending on geographic location, updated risk assessments for workers, and information on PPE effectiveness in preventing the spread of COVID-19. Employers should check the [OSHA](#) and [CDC](#) websites regularly for updates about recommended PPE.

All types of PPE must be:

- Selected based upon the hazard to the worker.
- Properly fitted and periodically refitted, as applicable (e.g., respirators).

- Consistently and properly worn when required.
- Regularly inspected, maintained, and replaced, as necessary.
- Properly removed, cleaned, and stored or disposed of, as applicable, to avoid contamination of self, others, or the environment.

Employers are obligated to provide their workers with PPE needed to keep them safe while performing their jobs. The types of PPE required during a COVID-19 outbreak will be based on the risk of being infected with SARS-CoV-2 while working and job tasks that may lead to exposure.

Workers, including those who work within 6 feet of patients known to be, or suspected of being, infected with SARS-CoV-2 and those performing aerosol-generating procedures, need to use respirators:

- National Institute for Occupational Safety and Health (NIOSH)-approved, N95 filtering facepiece respirators or better must be used in the context of a comprehensive, written respiratory protection program that includes fit-testing, training, and medical exams. See OSHA's Respiratory Protection standard, 29 CFR 1910.134 at [www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.134](http://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.134).
- When disposable N95 filtering facepiece respirators are not available, consider using other respirators that provide greater protection and improve worker comfort. Other types of acceptable respirators include: a R/P95, N/R/P99, or N/R/P100 filtering facepiece respirator; an air-purifying elastomeric (e.g., half-face or full-face) respirator with appropriate filters or cartridges; powered air purifying respirator (PAPR) with high-efficiency particulate arrestance (HEPA) filter; or supplied air respirator (SAR). See CDC/NIOSH guidance for optimizing respirator supplies at: [www.cdc.gov/coronavirus/2019-ncov/hcp/respirators-strategy](http://www.cdc.gov/coronavirus/2019-ncov/hcp/respirators-strategy).

- Consider using PAPRs or SARs, which are more protective than filtering facepiece respirators, for any work operations or procedures likely to generate aerosols (e.g., cough induction procedures, some dental procedures, invasive specimen collection, blowing out pipettes, shaking or vortexing tubes, filling a syringe, centrifugation).
- Use a surgical N95 respirator when both respiratory protection and resistance to blood and body fluids is needed.
- Face shields may also be worn on top of a respirator to prevent bulk contamination of the respirator. Certain respirator designs with forward protrusions (duckbill style) may be difficult to properly wear under a face shield. Ensure that the face shield does not prevent airflow through the respirator.
- Consider factors such as function, fit, ability to decontaminate, disposal, and cost. OSHA's Respiratory Protection eTool provides basic information on respirators such as medical requirements, maintenance and care, fit testing, written respiratory protection programs, and voluntary use of respirators, which employers may also find beneficial in training workers at: [www.osha.gov/SLTC/etools/respiratory](http://www.osha.gov/SLTC/etools/respiratory). Also see NIOSH respirator guidance at: [www.cdc.gov/niosh/topics/respirators](http://www.cdc.gov/niosh/topics/respirators).
- Respirator training should address selection, use (including donning and doffing), proper disposal or disinfection, inspection for damage, maintenance, and the limitations of respiratory protection equipment. Learn more at: [www.osha.gov/SLTC/respiratoryprotection](http://www.osha.gov/SLTC/respiratoryprotection).
- The appropriate form of respirator will depend on the type of exposure and on the transmission pattern of COVID-19. See the NIOSH "Respirator Selection Logic" at: [www.cdc.gov/niosh/docs/2005-100/default.html](http://www.cdc.gov/niosh/docs/2005-100/default.html) or the OSHA "Respiratory Protection eTool" at [www.osha.gov/SLTC/etools/respiratory](http://www.osha.gov/SLTC/etools/respiratory).

## Follow Existing OSHA Standards

Existing OSHA standards may apply to protecting workers from exposure to and infection with SARS-CoV-2.

While there is no specific OSHA standard covering SARS-CoV-2 exposure, some OSHA requirements may apply to preventing occupational exposure to SARS-CoV-2. Among the most relevant are:

- OSHA's Personal Protective Equipment (PPE) standards (in general industry, 29 CFR 1910 Subpart I), which require using gloves, eye and face protection, and respiratory protection. See: [www.osha.gov/laws-regs/regulations/standardnumber/1910#1910\\_Subpart\\_I](http://www.osha.gov/laws-regs/regulations/standardnumber/1910#1910_Subpart_I).
  - When respirators are necessary to protect workers or where employers require respirator use, employers must implement a comprehensive respiratory protection program in accordance with the Respiratory Protection standard (29 CFR 1910.134). See: [www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.134](http://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.134).
- The General Duty Clause, Section 5(a)(1) of the Occupational Safety and Health (OSH) Act of 1970, 29 USC 654(a)(1), which requires employers to furnish to each worker "employment and a place of employment, which are free from recognized hazards that are causing or are likely to cause death or serious physical harm." See: [www.osha.gov/laws-regs/oshact/completeoshact](http://www.osha.gov/laws-regs/oshact/completeoshact).

OSHA's Bloodborne Pathogens standard (29 CFR 1910.1030) applies to occupational exposure to human blood and other potentially infectious materials that typically do not include respiratory secretions that may transmit SARS-CoV-2.

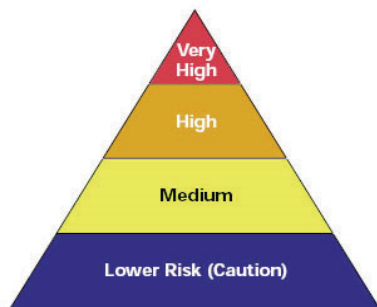
However, the provisions of the standard offer a framework that may help control some sources of the virus, including exposures to body fluids (e.g., respiratory secretions) not covered by the standard. See: [www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1030](http://www.osha.gov/laws-regs/regulations/standardnumber/1910/1910.1030).

The OSHA COVID-19 webpage provides additional information about OSHA standards and requirements, including requirements in states that operate their own OSHA-approved State Plans, recordkeeping requirements and injury/illness recording criteria, and applications of standards related to sanitation and communication of risks related to hazardous chemicals that may be in common sanitizers and sterilizers. See: [www.osha.gov/SLTC/covid-19/standards.html](http://www.osha.gov/SLTC/covid-19/standards.html).

## Classifying Worker Exposure to SARS-CoV-2

Worker risk of occupational exposure to SARS-CoV-2, the virus that causes COVID-19, during an outbreak may vary from very high to high, medium, or lower (caution) risk. The level of risk depends in part on the industry type, need for contact within 6 feet of people known to be, or suspected of being, infected with SARS-CoV-2, or requirement for repeated or extended contact with persons known to be, or suspected of being, infected with SARS-CoV-2. To help employers determine appropriate precautions, OSHA has divided job tasks into four risk exposure levels: very high, high, medium, and lower risk. The Occupational Risk Pyramid shows the four exposure risk levels in the shape of a pyramid to represent probable distribution of risk. Most American workers will likely fall in the lower exposure risk (caution) or medium exposure risk levels.

**Occupational Risk Pyramid  
for COVID-19**



OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

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## Very High Exposure Risk

*Very high exposure risk* jobs are those with high potential for exposure to known or suspected sources of COVID-19 during specific medical, postmortem, or laboratory procedures.

Workers in this category include:

- Healthcare workers (e.g., doctors, nurses, dentists, paramedics, emergency medical technicians) performing aerosol-generating procedures (e.g., intubation, cough induction procedures, bronchoscopies, some dental procedures and exams, or invasive specimen collection) on known or suspected COVID-19 patients.
- Healthcare or laboratory personnel collecting or handling specimens from known or suspected COVID-19 patients (e.g., manipulating cultures from known or suspected COVID-19 patients).
- Morgue workers performing autopsies, which generally involve aerosol-generating procedures, on the bodies of people who are known to have, or suspected of having, COVID-19 at the time of their death.

## High Exposure Risk

*High exposure risk* jobs are those with high potential for exposure to known or suspected sources of COVID-19. Workers in this category include:

- Healthcare delivery and support staff (e.g., doctors, nurses, and other hospital staff who must enter patients' rooms) exposed to known or suspected COVID-19 patients. (Note: when such workers perform aerosol-generating procedures, their exposure risk level becomes *very high*.)
- Medical transport workers (e.g., ambulance vehicle operators) moving known or suspected COVID-19 patients in enclosed vehicles.
- Mortuary workers involved in preparing (e.g., for burial or cremation) the bodies of people who are known to have, or suspected of having, COVID-19 at the time of their death.



## **Medium Exposure Risk**

*Medium exposure risk* jobs include those that require frequent and/or close contact with (i.e., within 6 feet of) people who may be infected with SARS-CoV-2, but who are not known or suspected COVID-19 patients. In areas without ongoing community transmission, workers in this risk group may have frequent contact with travelers who may return from international locations with widespread COVID-19 transmission. In areas where there *is* ongoing community transmission, workers in this category may have contact be with the general public (e.g., in schools, high-population-density work environments, and some high-volume retail settings).

## **Lower Exposure Risk (Caution)**

*Lower exposure risk (caution)* jobs are those that do not require contact with people known to be, or suspected of being, infected with SARS-CoV-2 nor frequent close contact with (i.e., within 6 feet of) the general public. Workers in this category have minimal occupational contact with the public and other coworkers.

## **Jobs Classified at Lower Exposure Risk (Caution): What to Do to Protect Workers**

For workers who do not have frequent contact with the general public, employers should follow the guidance for “[Steps All Employers Can Take to Reduce Workers’ Risk of Exposure to SARS-CoV-2,](#)” on page 7 of this booklet and implement control measures described in this section.

## **Engineering Controls**

Additional engineering controls are not recommended for workers in the lower exposure risk group. Employers should ensure that engineering controls, if any, used to protect workers from other job hazards continue to function as intended.

## Administrative Controls

- Monitor public health communications about COVID-19 recommendations and ensure that workers have access to that information. Frequently check the CDC COVID-19 website: [www.cdc.gov/coronavirus/2019-ncov](http://www.cdc.gov/coronavirus/2019-ncov).
- Collaborate with workers to designate effective means of communicating important COVID-19 information.

## Personal Protective Equipment

Additional PPE is not recommended for workers in the lower exposure risk group. Workers should continue to use the PPE, if any, that they would ordinarily use for other job tasks.

## Jobs Classified at Medium Exposure Risk: What to Do to Protect Workers

In workplaces where workers have medium exposure risk, employers should follow the guidance for “[Steps All Employers Can Take to Reduce Workers’ Risk of Exposure to SARS-CoV-2](#),” on page 7 of this booklet and implement control measures described in this section.

### Engineering Controls

- Install physical barriers, such as clear plastic sneeze guards, where feasible.

### Administrative Controls

- Consider offering face masks to ill employees and customers to contain respiratory secretions until they are able leave the workplace (i.e., for medical evaluation/care or to return home). In the event of a shortage of masks, a reusable face shield that can be decontaminated may be an acceptable method of protecting against droplet transmission. See CDC/NIOSH guidance for optimizing respirator supplies, which discusses the use of surgical masks, at: [www.cdc.gov/coronavirus/2019-ncov/hcp/respirators-strategy](http://www.cdc.gov/coronavirus/2019-ncov/hcp/respirators-strategy).

- Keep customers informed about symptoms of COVID-19 and ask sick customers to minimize contact with workers until healthy again, such as by posting signs about COVID-19 in stores where sick customers may visit (e.g., pharmacies) or including COVID-19 information in automated messages sent when prescriptions are ready for pick up.
- Where appropriate, limit customers' and the public's access to the worksite, or restrict access to only certain workplace areas.
- Consider strategies to minimize face-to-face contact (e.g., drive-through windows, phone-based communication, telework).
- Communicate the availability of medical screening or other worker health resources (e.g., on-site nurse; telemedicine services).

## Personal Protective Equipment (PPE)

When selecting PPE, consider factors such as function, fit, decontamination ability, disposal, and cost. Sometimes, when PPE will have to be used repeatedly for a long period of time, a more expensive and durable type of PPE may be less expensive overall than disposable PPE.

Each employer should select the combination of PPE that protects workers specific to their workplace.

Workers with medium exposure risk may need to wear some combination of gloves, a gown, a face mask, and/or a face shield or goggles. PPE ensembles for workers in the medium exposure risk category will vary by work task, the results of the employer's hazard assessment, and the types of exposures workers have on the job.

**High exposure risk** jobs are those with high potential for exposure to known or suspected sources of COVID-19.

**Very high exposure risk** jobs are those with high potential for exposure to known or suspected sources of COVID-19 during specific medical, postmortem, or laboratory procedures that involve aerosol generation or specimen collection/handling.

In rare situations that would require workers in this risk category to use respirators, see the PPE section beginning on [page 14](#) of this booklet, which provides more details about respirators. For the most up-to-date information, visit OSHA's COVID-19 webpage: [www.osha.gov/covid-19](http://www.osha.gov/covid-19).

## **Jobs Classified at High or Very High Exposure Risk: What to Do to Protect Workers**

In workplaces where workers have high or very high exposure risk, employers should follow the guidance for “[Steps All Employers Can Take to Reduce Workers’ Risk of Exposure to SARS-CoV-2,](#)” on page 7 of this booklet and implement control measures described in this section.

### **Engineering Controls**

- Ensure appropriate air-handling systems are installed and maintained in healthcare facilities. See “Guidelines for Environmental Infection Control in Healthcare Facilities” for more recommendations on air handling systems at: [www.cdc.gov/mmwr/preview/mmwrhtml/rr5210a1.htm](http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5210a1.htm).
- CDC recommends that patients with known or suspected COVID-19 (i.e., person under investigation) should be placed in an airborne infection isolation room (AIIR), if available.
- Use isolation rooms when available for performing aerosol-generating procedures on patients with known or suspected COVID-19. For postmortem activities, use autopsy suites or other similar isolation facilities when performing aerosol-generating procedures on the bodies of people who are known to have, or suspected of having, COVID-19 at the time of their death. See the CDC postmortem guidance at: [www.cdc.gov/coronavirus/2019-ncov/hcp/guidance-postmortem-specimens.html](http://www.cdc.gov/coronavirus/2019-ncov/hcp/guidance-postmortem-specimens.html). OSHA also provides guidance for postmortem activities on its COVID-19 webpage: [www.osha.gov/covid-19](http://www.osha.gov/covid-19).

- Use special precautions associated with Biosafety Level 3 when handling specimens from known or suspected COVID-19 patients. For more information about biosafety levels, consult the U.S. Department of Health and Human Services (HHS) “Biosafety in Microbiological and Biomedical Laboratories” at [www.cdc.gov/biosafety/publications/bmbI5](http://www.cdc.gov/biosafety/publications/bmbI5).

## **Administrative Controls**

If working in a healthcare facility, follow existing guidelines and facility standards of practice for identifying and isolating infected individuals and for protecting workers.

- Develop and implement policies that reduce exposure, such as cohorting (i.e., grouping) COVID-19 patients when single rooms are not available.
- Post signs requesting patients and family members to immediately report symptoms of respiratory illness on arrival at the healthcare facility and use disposable face masks.
- Consider offering enhanced medical monitoring of workers during COVID-19 outbreaks.
- Provide all workers with job-specific education and training on preventing transmission of COVID-19, including initial and routine/refresher training.
- Ensure that psychological and behavioral support is available to address employee stress.

## **Safe Work Practices**

- Provide emergency responders and other essential personnel who may be exposed while working away from fixed facilities with alcohol-based hand rubs containing at least 60% alcohol for decontamination in the field.

## Personal Protective Equipment (PPE)

Most workers at high or very high exposure risk likely need to wear gloves, a gown, a face shield or goggles, and either a face mask or a respirator, depending on their job tasks and exposure risks.

Those who work closely with (either in contact with or within 6 feet of) patients known to be, or suspected of being, infected with SARS-CoV-2, the virus that causes COVID-19, should wear respirators. In these instances, see the PPE section beginning on [page 14](#) of this booklet, which provides more details about respirators. For the most up-to-date information, also visit OSHA's COVID-19 webpage: [www.osha.gov/covid-19](http://www.osha.gov/covid-19).

PPE ensembles may vary, especially for workers in laboratories or morgue/mortuary facilities who may need additional protection against blood, body fluids, chemicals, and other materials to which they may be exposed. Additional PPE may include medical/surgical gowns, fluid-resistant coveralls, aprons, or other disposable or reusable protective clothing. Gowns should be large enough to cover the areas requiring protection. OSHA may also provide updated guidance for PPE use on its website: [www.osha.gov/covid-19](http://www.osha.gov/covid-19).

**NOTE:** Workers who dispose of PPE and other infectious waste must also be trained and provided with appropriate PPE.

The CDC webpage “Healthcare-associated Infections” ([www.cdc.gov/hai](http://www.cdc.gov/hai)) provides additional information on infection control in healthcare facilities.

## Workers Living Abroad or Travelling Internationally

Employers with workers living abroad or traveling on international business should consult the “Business Travelers” section of the OSHA COVID-19 webpage ([www.osha.gov/covid-19](http://www.osha.gov/covid-19)), which also provides links to the latest:

- CDC travel warnings: [www.cdc.gov/coronavirus/2019-ncov/travelers](http://www.cdc.gov/coronavirus/2019-ncov/travelers)
- U.S. Department of State (DOS) travel advisories: [travel.state.gov](http://travel.state.gov)

Employers should communicate to workers that the DOS cannot provide Americans traveling or living abroad with medications or supplies, even in the event of a COVID-19 outbreak.

As COVID-19 outbreak conditions change, travel into or out of a country may not be possible, safe, or medically advisable. It is also likely that governments will respond to a COVID-19 outbreak by imposing public health measures that restrict domestic and international movement, further limiting the U.S. government's ability to assist Americans in these countries. It is important that employers and workers plan appropriately, as it is possible that these measures will be implemented very quickly in the event of worsening outbreak conditions in certain areas.

More information on COVID-19 planning for workers living and traveling abroad can be found at: [www.cdc.gov/travel](http://www.cdc.gov/travel).

## For More Information

Federal, state, and local government agencies are the best source of information in the event of an infectious disease outbreak, such as COVID-19. Staying informed about the latest developments and recommendations is critical, since specific guidance may change based upon evolving outbreak situations.

Below are several recommended websites to access the most current and accurate information:

- Occupational Safety and Health Administration website: [www.osha.gov](http://www.osha.gov)
- Centers for Disease Control and Prevention website: [www.cdc.gov](http://www.cdc.gov)
- National Institute for Occupational Safety and Health website: [www.cdc.gov/niosh](http://www.cdc.gov/niosh)

## **OSHA Assistance, Services, and Programs**

OSHA has a great deal of information to assist employers in complying with their responsibilities under OSHA law. Several OSHA programs and services can help employers identify and correct job hazards, as well as improve their safety and health program.

### **Establishing a Safety and Health Program**

Safety and health programs are systems that can substantially reduce the number and severity of workplace injuries and illnesses, while reducing costs to employers.

Visit [www.osha.gov/safetymanagement](http://www.osha.gov/safetymanagement) for more information.

### ***Compliance Assistance Specialists***

OSHA compliance assistance specialists can provide information to employers and workers about OSHA standards, short educational programs on specific hazards or OSHA rights and responsibilities, and information on additional compliance assistance resources.

Visit [www.osha.gov/complianceassistance/cas](http://www.osha.gov/complianceassistance/cas) or call 1-800-321-OSHA (6742) to contact your local OSHA office.

### ***No-Cost On-Site Safety and Health Consultation Services for Small Business***

OSHA's On-Site Consultation Program offers no-cost and confidential advice to small and medium-sized businesses in all states, with priority given to high-hazard worksites. On-Site consultation services are separate from enforcement and do not result in penalties or citations.

For more information or to find the local On-Site Consultation office in your state, visit [www.osha.gov/consultation](http://www.osha.gov/consultation), or call 1-800-321-OSHA (6742).



Under the consultation program, certain exemplary employers may request participation in OSHA's **Safety and Health Achievement Recognition Program (SHARP)**. Worksites that receive SHARP recognition are exempt from programmed inspections during the period that the SHARP certification is valid.

### ***Cooperative Programs***

OSHA offers cooperative programs under which businesses, labor groups and other organizations can work cooperatively with OSHA. To find out more about any of the following programs, visit [www.osha.gov/cooperativeprograms](http://www.osha.gov/cooperativeprograms).

### ***Strategic Partnerships and Alliances***

The OSHA Strategic Partnerships (OSP) provide the opportunity for OSHA to partner with employers, workers, professional or trade associations, labor organizations, and/or other interested stakeholders. Through the Alliance Program, OSHA works with groups to develop compliance assistance tools and resources to share with workers and employers, and educate workers and employers about their rights and responsibilities.

### ***Voluntary Protection Programs (VPP)***

The VPP recognize employers and workers in the private sector and federal agencies who have implemented effective safety and health programs and maintain injury and illness rates below the national average for their respective industries.

## **Occupational Safety and Health Training**

OSHA partners with 26 OSHA Training Institute Education Centers at 37 locations throughout the United States to deliver courses on OSHA standards and occupational safety and health topics to thousands of students a year. For more information on training courses, visit [www.osha.gov/otiec](http://www.osha.gov/otiec).

## OSHA Educational Materials

OSHA has many types of educational materials to assist employers and workers in finding and preventing workplace hazards.

All OSHA publications are free at [www.osha.gov/publications](http://www.osha.gov/publications) and [www.osha.gov/ebooks](http://www.osha.gov/ebooks). You can also call 1-800-321-OSHA (6742) to order publications.

Employers and safety and health professionals can sign-up for *QuickTakes*, OSHA's free, twice-monthly online newsletter with the latest news about OSHA initiatives and products to assist in finding and preventing workplace hazards. To sign up, visit [www.osha.gov/quicktakes](http://www.osha.gov/quicktakes).

## OSHA Regional Offices

### Region 1

Boston Regional Office  
(CT\*, ME\*, MA, NH, RI, VT\*)  
JFK Federal Building  
25 New Sudbury Street, Room E340  
Boston, MA 02203  
(617) 565-9860 (617) 565-9827 Fax

### Region 2

New York Regional Office  
(NJ\*, NY\*, PR\*, VI\*)  
Federal Building  
201 Varick Street, Room 670  
New York, NY 10014  
(212) 337-2378 (212) 337-2371 Fax

### Region 3

Philadelphia Regional Office  
(DE, DC, MD\*, PA, VA\*, WV)  
The Curtis Center  
170 S. Independence Mall West, Suite 740 West  
Philadelphia, PA 19106-3309  
(215) 861-4900 (215) 861-4904 Fax

#### **Region 4**

Atlanta Regional Office  
(AL, FL, GA, KY\*, MS, NC\*, SC\*, TN\*)  
Sam Nunn Atlanta Federal Center  
61 Forsyth Street, SW, Room 6T50  
Atlanta, GA 30303  
(678) 237-0400 (678) 237-0447 Fax

#### **Region 5**

Chicago Regional Office  
(IL\*, IN\*, MI\*, MN\*, OH, WI)  
John C. Kluczynski Federal Building  
230 South Dearborn Street, Room 3244  
Chicago, IL 60604  
(312) 353-2220 (312) 353-7774 Fax

#### **Region 6**

Dallas Regional Office  
(AR, LA, NM\*, OK, TX)  
A. Maceo Smith Federal Building  
525 Griffin Street, Room 602  
Dallas, TX 75202  
(972) 850-4145 (972) 850-4149 Fax

#### **Region 7**

Kansas City Regional Office  
(IA\*, KS, MO, NE)  
Two Pershing Square Building  
2300 Main Street, Suite 1010  
Kansas City, MO 64108-2416  
(816) 283-8745 (816) 283-0547 Fax

#### **Region 8**

Denver Regional Office  
(CO, MT, ND, SD, UT\*, WY\*)  
Cesar Chavez Memorial Building  
1244 Speer Boulevard, Suite 551  
Denver, CO 80204  
(720) 264-6550 (720) 264-6585 Fax

## **Region 9**

San Francisco Regional Office  
(AZ\*, CA\*, HI\*, NV\*, and American Samoa,  
Guam and the Northern Mariana Islands)  
San Francisco Federal Building  
90 7th Street, Suite 2650  
San Francisco, CA 94103  
(415) 625-2547 (415) 625-2534 Fax

## **Region 10**

Seattle Regional Office  
(AK\*, ID, OR\*, WA\*)  
Fifth & Yesler Tower  
300 Fifth Avenue, Suite 1280  
Seattle, WA 98104  
(206) 757-6700 (206) 757-6705 Fax

\*These states and territories operate their own OSHA-approved job safety and health plans and cover state and local government employees as well as private sector employees. The Connecticut, Illinois, Maine, New Jersey, New York and Virgin Islands programs cover public employees only. (Private sector workers in these states are covered by Federal OSHA). States with approved programs must have standards that are identical to, or at least as effective as, the Federal OSHA standards.

Note: To get contact information for OSHA area offices, OSHA-approved state plans and OSHA consultation projects, please visit us online at [www.osha.gov](http://www.osha.gov) or call us at 1-800-321-OSHA (6742).

## How to Contact OSHA

Under the Occupational Safety and Health Act of 1970, employers are responsible for providing safe and healthful workplaces for their employees. OSHA's role is to help ensure these conditions for America's working men and women by setting and enforcing standards, and providing training, education and assistance. For more information, visit [www.osha.gov](http://www.osha.gov) or call OSHA at 1-800-321-OSHA (6742), TTY 1-877-889-5627.

**For assistance, contact us.  
We are OSHA. We can help.**



OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

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U.S. Department of Labor

**For more information:**

**OSHA**<sup>®</sup> Occupational  
Safety and Health  
Administration

[www.osha.gov](http://www.osha.gov) (800) 321-OSHA (6742)



# OSHA<sup>®</sup> FactSheet

## Steps to an Effective Hazard Communication Program for Employers That Use Hazardous Chemicals

Employers that have hazardous chemicals in their workplaces are required by OSHA's Hazard Communication Standard (HCS), 29 CFR 1910.1200, to implement a hazard communication program. The program must include labels on containers of hazardous chemicals, safety data sheets (SDSs) for hazardous chemicals, and training for workers. Each employer must also describe in a written program how it will meet the requirements of the HCS in each of these areas.

Employers can implement an effective hazard communication program by following these six steps:

### Step 1. Learn the Standard/Identify Responsible Staff

- Obtain a copy of OSHA's Hazard Communication Standard.
- Become familiar with its provisions.
- Make sure that someone has primary responsibility for coordinating implementation.
- Identify staff for particular activities (e.g., training).

You may obtain a copy of the Hazard Communication Standard on OSHA's hazard communication webpage at [www.osha.gov/dsg/hazcom](http://www.osha.gov/dsg/hazcom). The provisions of the standard that apply to employers using chemicals in their workplaces are found primarily in paragraphs (e) written hazard communication program; (f) labels and other forms of warning; (g) safety data sheets; and (h) employee information and training. It is important that you become familiar with these provisions to determine what is needed for compliance in your workplace.

In order to ensure that you have an effective hazard communication program, and address all of the necessary components, responsibility for implementation of hazard communication should be assigned to someone to coordinate. The person designated for overall program

coordination should then identify staff to be responsible for particular activities, such as training.

### Step 2. Prepare and Implement a Written Hazard Communication Program

- Prepare a written plan to indicate how hazard communication will be addressed in your facility.
- Prepare a list or inventory of all hazardous chemicals in the workplace.

Paragraph (e) of the standard requires employers to prepare and implement a written hazard communication program. This requirement is to help ensure that compliance with the standard is done in a systematic way, and that all elements are coordinated. The written program must indicate how you will address the requirements of paragraphs (f) labels and other forms of warning; (g) safety data sheets; and (h) employee information and training, in your workplace.

The written program also requires employers to maintain a list of the hazardous chemicals known to be present in the workplace. Using the product identifier (e.g., product name, common name, or chemical name) to prepare the list will make it easier for you to track the status of SDSs and labels of a particular hazardous chemical. Remember, the product identifier must be the same name that appears on the label and SDS of the hazardous chemical.



### Step 3. Ensure Containers are Labeled

- Keep labels on shipped containers.
- Label workplace containers where required.

Chemical manufacturers and importers are required to provide labels on shipped containers with the following information: product identifier, signal word, pictograms, hazard statements, precautionary statements, and the name, address and phone number of the responsible party. Therefore, when an employer receives a hazardous chemical from a supplier, all of this information will be located together on the label; however, additional information may also appear.

As the employer, you are required to ensure that containers in the workplace are labeled. You may use the same label from the supplier or you may label workplace containers with alternatives, such as third party systems (e.g., National Fire Protection Association (NFPA) or Hazardous Materials Identification System (HMIS)) in addition to the other required information. Any container of hazardous chemicals in the workplace must at a minimum include the product identifier and general information concerning the hazards of the chemical. Whatever method you choose, your workers need to have access to the complete hazard information.

### Step 4. Maintain Safety Data Sheets (SDSs)

- Maintain safety data sheets for each hazardous chemical in the workplace.
- Ensure that safety data sheets are readily accessible to employees.

Safety data sheets are the source of detailed information on a particular hazardous chemical. Employers must maintain copies of SDSs for all hazardous chemicals present in their workplaces. If you do not receive an SDS from your supplier automatically, you must request one. You also must ensure that SDSs are readily accessible to workers when they are in their work areas during their work shifts.

This accessibility may be accomplished in many different ways. You must decide what is appropriate for your particular workplace. Some employers keep the SDSs in a binder in a central location (e.g., outside of the safety office, in the pick-up truck on a construction site). Others, particularly in workplaces with large numbers of chemicals, provide access electronically. However, if SDSs are supplied electronically, there must be an adequate back-up system in place in the event of a power outage, equipment failure, or other emergency involving the primary electronic system. In addition, the employer must ensure that workers are trained on how to use the system to access SDSs and are able to obtain hard copies of the SDSs. In the event of a medical emergency, hard copy SDSs must be immediately available to medical personnel.

### Step 5. Inform and Train Employees

- Train employees on the hazardous chemicals in their work area before initial assignment, and when new hazards are introduced.
- Include the requirements of the standard, hazards of chemicals, appropriate protective measures, and where and how to obtain additional information.

Paragraph (h) of the HCS requires that employers train employees on the hazardous chemicals in their work area before their initial assignment and when new hazards are introduced into the work area, and this training must be conducted in a manner and language that employees can understand. Workers must understand they are exposed to hazardous chemicals. They must know that labels and safety data sheets can provide them with information on the hazards of a chemical, and these items should be consulted when needed. In addition, workers must have a general understanding of what information is provided on labels and SDSs, and how to access them. They must also be aware of the protective measures available in their workplace, how to use or implement these measures, and whom they should contact if an issue arises.

## Step 6. Evaluate and Reassess Your Program

- Review your hazard communication program periodically to make sure that it is still working and meeting its objectives.
- Revise your program as appropriate to address changed conditions in the workplace (e.g., new chemicals, new hazards, etc.).

Although the HCS does not require you to evaluate and reassess your hazard communication program, it must remain current and relevant for you and your employees. The best way to achieve that is to review your hazard communication program periodically to make sure that it is still working and meeting

its objectives and to revise it as appropriate to address changed conditions in the workplace (e.g., new chemicals, new hazards, etc.).

### Additional Information

See *Hazard Communication: Small Entity Compliance Guide for Employers That Use Hazardous Chemicals* for more detailed information on how to implement an effective hazard communication program. Additional information on the Hazard Communication Standard can be found on OSHA's Hazard Communication webpage at [www.osha.gov/dsg/hazcom](http://www.osha.gov/dsg/hazcom).

**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.**

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



**[www.osha.gov](http://www.osha.gov) (800) 321-OSHA (6742)**



U.S. Department of Labor

DSG FS-3696 03/2014



# HAZARD COMMUNICATION

## Small Entity Compliance Guide for Employers That Use Hazardous Chemicals

OSHA 3695-03 2014



### ***Occupational Safety and Health Act of 1970***

*“To assure safe and healthful working conditions for working men and women; by authorizing enforcement of the standards developed under the Act; by assisting and encouraging the States in their efforts to assure safe and healthful working conditions; by providing for research, information, education, and training in the field of occupational safety and health.”*

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This information will be made available to sensory-impaired individuals upon request.

Voice phone: (202) 693-1999;

teletypewriter (TTY) number: 1-877-889-5627.

This publication provides a general overview of a particular standards-related topic. This publication does not alter or determine compliance responsibilities which are set forth in OSHA standards, and the *Occupational Safety and Health Act*. Moreover, because interpretations and enforcement policy may change over time, for additional guidance on OSHA compliance requirements, the reader should consult current administrative interpretations and decisions by the Occupational Safety and Health Review Commission and the courts.

*This guidance document is not a standard or regulation, and it creates no new legal obligations. It contains recommendations as well as descriptions of mandatory safety and health standards. The recommendations are advisory in nature, informational in content, and are intended to assist employers in providing a safe and healthful workplace. The Occupational Safety and Health Act requires employers to comply with safety and health standards and regulations promulgated by OSHA or by a state with an OSHA-approved state plan. In addition, the Act’s General Duty Clause, Section 5(a)(1), requires employers to provide their employees with a workplace free from recognized hazards likely to cause death or serious physical harm.*

Cover photo: Elizabeth Routh, Corpus Christi Area Office

# HAZARD COMMUNICATION

## **Small Entity Compliance Guide for Employers That Use Hazardous Chemicals**

**Occupational Safety and Health Administration  
U.S. Department of Labor**



**OSHA 3695-03 2014**



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## I. INTRODUCTION

Chemicals have become an important element of almost every aspect of modern life. All of these chemicals—from cleaning fluids to pharmaceuticals, pesticides, and paints—are produced in workplaces, and may be used in workplaces downstream. While these chemicals have utility and benefits in their applications, they also have the potential to cause adverse effects. These adverse effects include both health hazards (such as carcinogenicity and sensitization), and physical hazards (for example, flammability and reactivity properties). In order to protect workers from these effects—and to reduce the occurrence of chemical source illnesses and injuries—employers need information about the hazards of the chemicals they use, as well as recommended protective measures. Workers have both a right and a need to know this information too, especially so that they can take steps to protect themselves when necessary.

No one knows exactly how many chemicals may be present in American workplaces. The total number of chemical substances that have been developed and registered in the Chemical Abstracts Service Registry reached 60 million in 2011—the last 10 million of those were added in less than two years. Many of them involve innovations such as the application of nanotechnology.

While not all of these chemicals are produced commercially today, this vast number indicates the scope of the potential problems in workplaces with regard to the safe use of chemicals. In addition, most chemical substances are formulated into mixtures for use in the workplace. Therefore, the number of unique chemical mixtures is far greater than the number of substances, and most workers are exposed to mixtures.

According to the Bureau of Labor Statistics (BLS), acute illnesses and injuries due to chemical exposures in the workplace have decreased 42% since the Hazard Communication Standard was first promulgated.

The scope of workplaces in which chemical exposures occur is also very broad. While most people can readily associate working in a chemical manufacturing plant as being a job that involves chemical exposures, there are many other types of facilities where such usage is also commonplace. For example, construction workers may be exposed to paints, lacquers, thinners, asphalt fumes, or crystalline silica. Hair stylists are exposed to chemical dyes and other hair products that contain hazardous chemicals. All of these types of exposures are of concern in terms of protecting workers, and ensuring that chemicals are used safely.

### Audience for this Guide

This guide is intended to help small employers comply with the Occupational Safety and Health Administration's (OSHA) Hazard Communication Standard (HCS). The guide is advisory in nature and informational in content. It is not itself a standard or regulation, and it creates no new legal obligations. The employer must refer to the appropriate standard to ensure it is in compliance. In 25 states and two territories, OSHA standards are enforced by the state agency responsible for the OSHA-approved state plan. These states are: Alaska, Arizona, California, Hawaii, Indiana, Iowa, Kentucky, Maryland, Michigan, Minnesota, Nevada, New Mexico, North Carolina, Oregon, Puerto Rico, South Carolina, Tennessee, Utah, Vermont, Virginia, Washington, and Wyoming. Connecticut, Illinois, New Jersey, New York, and the Virgin Islands operate OSHA-approved State Plans that apply only to state and local government employees. State plans must adopt and enforce standards that are either identical to or at least as effective as the Federal OSHA standards.

### OSHA's Hazard Communication Standard

OSHA's HCS, [29 CFR 1910.1200](#), addresses the informational needs of employers and workers with regard to chemicals. The HCS was first promulgated in 1983, and covered the manufacturing sector. It was later expanded to cover all industries where workers are potentially exposed to hazardous chemicals.

The revised Hazard Communication Standard is expected to build on the success of the original Hazard Communication Standard and prevent an estimated additional 585 injuries and illnesses and 43 fatalities annually. It will reduce trade barriers and result in estimated annualized benefits in productivity improvements for American businesses that regularly handle, store and use hazardous chemicals, as well as cost savings for American businesses when revising safety data sheets and labels for chemicals covered under the standard.

In 2012, the HCS was modified to align its provisions with the United Nations' Globally Harmonized System of Classification and Labelling of Chemicals (GHS). Many benefits will result from revising the HCS to be consistent with the GHS. In particular, the GHS helps to ensure that imported chemicals will be accompanied by consistent hazard and precautionary information to protect workers exposed in the U.S. In addition, the revised HCS can facilitate trade in chemicals since it reduces potential barriers posed by differing global requirements for classification and labeling of chemicals.

“Classification” means to identify the relevant data regarding the hazards of a chemical; review those data to ascertain the hazards associated with the chemical; and decide whether the chemical will be classified as hazardous according to the definition of hazardous chemical in this section. In addition, classification for health and physical hazards includes the determination of the degree of hazard, where appropriate, by comparing the data with the criteria for health and physical hazards.

“Label” means an appropriate group of written, printed or graphic information elements concerning a hazardous chemical that is affixed to, printed on, or attached to the immediate container of a hazardous chemical, or to the outside packaging.

“Safety data sheet (SDS)” means written or printed material concerning a hazardous chemical that is prepared in accordance with paragraph (g) of this section.

The HCS is a unique OSHA standard in a number of respects. It incorporates what is referred to as a *downstream flow of information* from chemical manufacturers, importers, and distributors, to employers using the products:

- The standard requires chemical manufacturers and importers to **classify** the hazards of the chemicals they produce or import, and to prepare appropriate **labels** and **safety data sheets** (SDSs) to convey the hazards, as well as recommended protective measures.
- Chemical manufacturers, importers, and distributors must ensure that the containers of these hazardous chemicals are labeled when shipped, and that SDSs are provided downstream with the first shipment and when the SDSs are updated.

Thus, those who know the most about the chemicals—the companies that produce, import, or distribute them—have the responsibility to assess available information, and convey what is needed to downstream employers where the hazardous chemicals are used. The scope of coverage with regard to employers is addressed in paragraph (b)(2) of the standard:

***(b)(2) This section applies to any chemical which is known to be present in the workplace in such a manner that employees may be exposed under normal conditions of use or in a foreseeable emergency.***

There are a number of definitions that impact the interpretation of this definition of coverage (see box to the left), but most workplaces will be subject to the rule.

As an employer who is a chemical user, you are required to receive labels and SDSs from your suppliers. Employers have responsibilities under the HCS to establish hazard communication programs, and provide workers with access to labels and SDSs, in addition to informing and training these workers. The responsibilities for hazard communication are illustrated in Figure 1.

“Employee” means a worker who may be exposed to hazardous chemicals under normal operating conditions or in foreseeable emergencies. Workers such as office workers or bank tellers who encounter hazardous chemicals only in non-routine, isolated instances are not covered.

“Exposure or exposed” means that an employee is subjected, in the course of employment, to a chemical that is a physical or health hazard, and includes potential (e.g., accidental or possible) exposure. “Subjected” in terms of health hazards includes any route of entry (e.g., inhalation, ingestion, skin contact or absorption.)

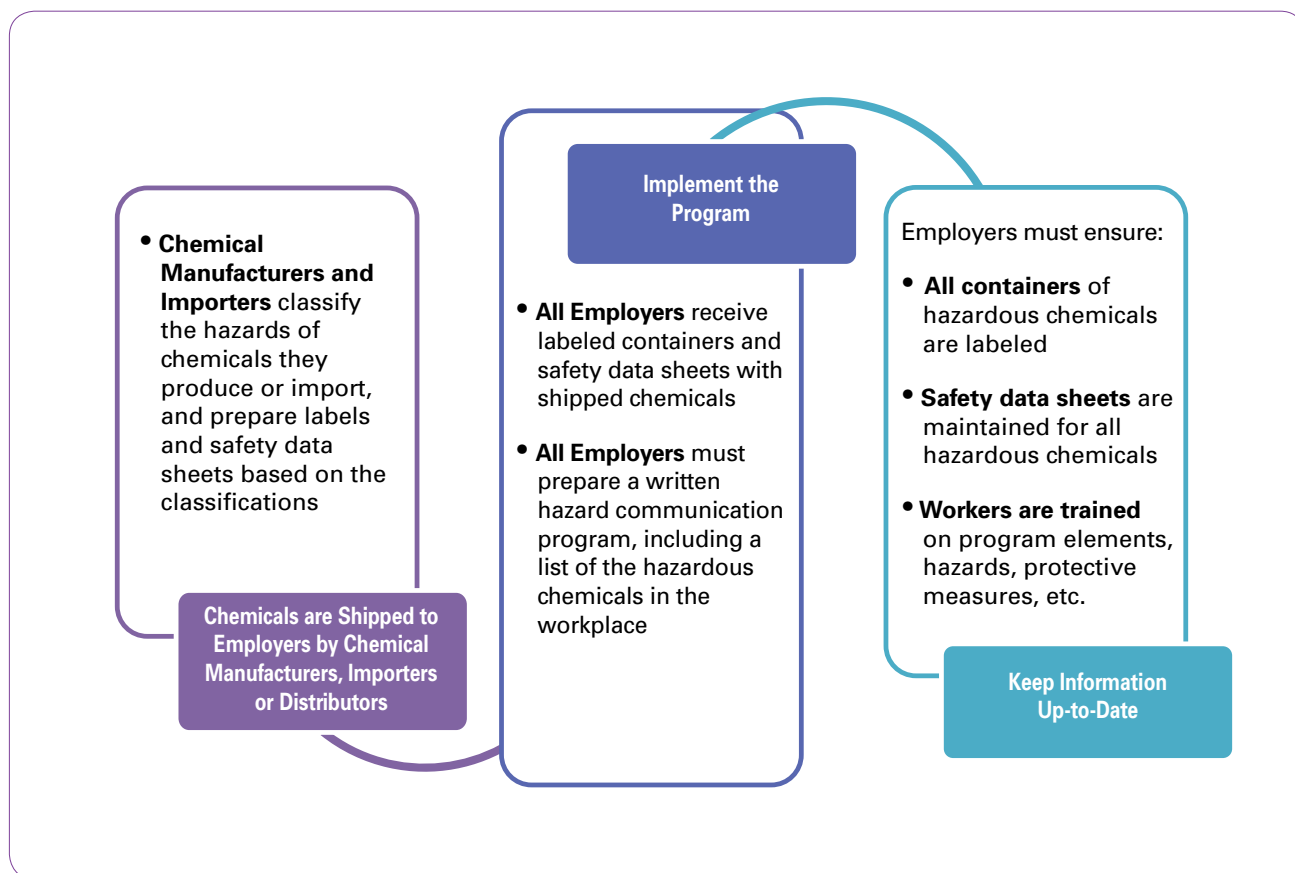
“Produce” means to manufacture, process, formulate, blend, extract, generate, emit, or repackage.

“Use” means to package, handle, react, emit, extract, generate as a by-product, or transfer.

This guide addresses employer responsibilities under the HCS. Many of the provisions of the standard apply only to chemical manufacturers, importers, or distributors. This guide will focus on assisting employers that only use but do not produce chemicals, in order to identify the parts of the rule that apply to their facilities, and help them to develop and implement an effective hazard communication program.

The 2012 revisions to the HCS, also referred to as “HazCom 2012” in this document, primarily address how chemical manufacturers and importers classify chemical hazards and prepare required labels and SDSs. If you are not a chemical manufacturer or importer, and you already have a hazard communication program that complies with the original HCS, you will have limited changes to make related to compliance with the revised standard.

**Figure 1: How Hazard Communication Works**



In order to understand the requirements of HazCom 2012 as applied to your workplace, it is useful to have a general familiarity with the organization of the standard. It is divided into regulatory paragraphs that describe requirements, which are further supplemented by appendices that contain specific details.

### Organization of the Regulatory Requirements for Hazard Communication

Paragraphs of the Standard	Appendices to the Standard
(a) Purpose	<b>Appendix A</b> , Health Hazard Criteria (Mandatory)
(b) Scope and Application	
(c) Definitions	<b>Appendix B</b> , Physical Hazard Criteria (Mandatory)
(d) Hazard Classification	
(e) Written Hazard Communication Program	<b>Appendix C</b> , Allocation of Label Elements (Mandatory)
(f) Labels and Other Forms of Warning	
(g) Safety Data Sheets	<b>Appendix D</b> , Safety Data Sheets (Mandatory)
(h) Employee Information and Training	
(i) Trade Secrets	<b>Appendix E</b> , Definition of "Trade Secret" (Mandatory)
(j) Effective Dates	
	<b>Appendix F</b> , Guidance for Hazard Classifications re: Carcinogenicity (Non-Mandatory)

Under the HCS, an employer must prepare and implement a hazard communication program for workers potentially exposed to hazardous chemicals. The requirements most relevant to this responsibility can be found in paragraphs (e), (f), (g), and (h) as listed above and indicated in purple. The other parts of the standard may provide some guidance on understanding the requirements (such as Paragraph (c) Definitions), but your responsibilities are to employees in your workplace, and those responsibilities are specified in the standard paragraphs highlighted in the table above.

As previously mentioned, your suppliers must provide hazard information in the form of labels on containers and SDSs when you receive a chemical. The focus of the information is to provide the identities and hazards of the chemicals, their characteristics and properties, and how potential adverse effects can be prevented. 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.

In addition to the health and physical hazards listed above, there may be some hazards that do not meet the specified criteria for the physical and health hazard classes provided in HazCom 2012. In these cases, the chemical manufacturer or importer will designate the hazards as "hazards not otherwise classified" (HNOC), and must provide information on the SDS to ensure that downstream employers are aware of these other effects and any appropriate protective measures.

### HCS Health and Physical Hazards

Health Hazards	Physical Hazards
<ul style="list-style-type: none"> <li>Acute toxicity</li> <li>Skin corrosion/irritation</li> <li>Serious eye damage/eye irritation</li> <li>Respiratory or skin sensitization</li> <li>Germ cell mutagenicity</li> <li>Carcinogenicity</li> <li>Reproductive toxicity</li> <li>Specific target organ toxicity – single and repeated exposure</li> <li>Aspiration hazard</li> <li>Simple asphyxiant</li> </ul>	<ul style="list-style-type: none"> <li>Explosives</li> <li>Flammable gases</li> <li>Flammable aerosols</li> <li>Oxidizing gases</li> <li>Gases under pressure</li> <li>Flammable liquids</li> <li>Flammable solids</li> <li>Self-reactive chemicals</li> <li>Pyrophoric liquids</li> <li>Pyrophoric solids</li> <li>Pyrophoric gas</li> <li>Self-heating chemicals</li> <li>Chemicals which in contact with water, emit flammable gases</li> <li>Oxidizing liquids</li> <li>Oxidizing solids</li> <li>Organic peroxides</li> <li>Corrosive to metals</li> <li>Combustible dust</li> </ul>

HazCom 2012 refers to each of the defined hazards as a **“hazard class.”** Most of these hazard classes are subsequently divided into one or more **“hazard category(ies).”** This classification is done by the chemical manufacturer or importer, and is based on the severity of the effect, and the type of data available to indicate each effect. This is important to employers because it leads directly to the information that is subsequently provided on labels and SDSs for the chemical. For example, there are four categories in the hazard class for flammable liquids. These categories are based primarily on flashpoints, so the lower the flashpoint, the more severe the effect. The warnings provided on labels will reflect this severity in different statements depending on which category the chemical falls into based on its flashpoint. The category itself does not appear on the label, but it is available on the SDS for the employer’s reference. As an example of hazard categories under HazCom 2012, the following is the criteria for categorizing chemicals classified as flammable liquids:

**Criteria for Flammable Liquids**

Category	Criteria
1	Flash point < 23°C (73.4°F) and initial boiling point ≤ 35°C (95°F)
2	Flash point < 23°C (73.4°F) and initial boiling point > 35°C (95°F)
3	Flash point ≥ 23°C (73.4°F) and ≤ 60°C (140°F)
4	Flash point > 60°C (140°F) and ≤ 93°C (199.4°F)

As an employer who uses but does not manufacture or import chemicals, you are not responsible for making classifications or evaluating the hazards of a chemical. You must receive a label and SDS from your supplier based on the classification the supplier has made given the available scientific data on the product. All of the criteria used by the chemical manufacturer or importer to perform the classification are provided in HazCom 2012 in Appendices A and B.

Employers are allowed to perform their own classifications if they choose not to rely on the information provided by the chemical manufacturer or importer. If you choose to perform your own classification you will need to comply with the requirements in Appendices A and B of the standard.

If you choose to rely on the classification performed by the manufacturer or importer, it is not necessary to be familiar with the criteria for classifying the chemicals, or the scientific data supporting classification. However, you must have a basic understanding of the hazardous effects caused by the chemicals in your workplace. You must also have such an understanding in order to use the information to select protective measures, and ensure proper management of the chemicals in your workplace. Additionally, you must include information on the different types of hazards of the chemicals used in your workplace and how workers can protect themselves in your information and training program.

**Compliance Dates**

The first compliance date of importance is **December 1, 2013**. By that date, you must train your employees about the format and presentation of the new labels and SDSs they will be seeing in the workplace. Over the course of several years, your suppliers will be updating labels and SDSs to comply with the new requirements. It is, therefore, important to ensure that you and your employees are able to access and use the information provided in the new approach. All new labels and SDSs must be finished by **June 1, 2015**; however, if you order from a distributor you may still receive labels compliant with HazCom 1994 (the hazard communication standard issued in 1994 and replaced in 2012 by the revised standard) until **December 1, 2015**. If an employer identifies new hazards after December 1, 2015 due to the reclassification of the hazardous chemicals, it has six months, until **June 1, 2016**, to ensure that those hazards are included in the hazard communication program, workplace labeling reflects those new hazards, and employees are trained on the new hazards. During the transition from current requirements to the new requirements, employers may comply with either HazCom 1994 or HazCom 2012, both of which require a hazard communication program.

## **HazCom 2012 – Complete Schedule of Effective Dates**

<b>Effective Completion Date</b>	<b>Requirement(s)</b>	<b>Who</b>
<b>December 1, 2013</b>	Train employees on the new label elements and SDS format.	Employers
<b>June 1, 2015</b>	Comply with all modified provisions of HazCom 2012, except:	Chemical manufacturers, importers, distributors and employers
<b>December 1, 2015</b>	Distributors may ship products labeled by the manufacturer or importer under the old system until December 1, 2015.	
<b>June 1, 2016</b>	Update alternative workplace labeling and hazard communication program as necessary, and provide additional employee training for newly-identified physical or health hazards.	Employers
<b>Transition Period</b>	Comply with either HazCom 2012, HazCom 1994, or both.	All chemical manufacturers, importers, distributors and employers



## II. STEPS TO AN EFFECTIVE HAZARD COMMUNICATION PROGRAM

All workplaces where workers are exposed to hazardous chemicals must have a written hazard communication program that describes how the HazCom standard is implemented in that facility. When hazard communication is implemented effectively, it has significant benefits for both the employer and the workers in a workplace. Employers need the information provided to them in order to assess the safety and health aspects of their workplace appropriately, and to select needed control measures for the chemicals that are present. The information provided on SDSs may also be used by employers to select the least hazardous chemical available to accomplish what is needed in the workplace. Substitution of a less hazardous chemical benefits workers because they will not be exposed to the greater hazards, and benefits employers because they may have less need for controls in some situations. The information employers receive on labels and SDSs will help them meet requirements for a safe and healthful workplace.

An effective hazard communication program benefits both workers and employers. The information provided by suppliers allows employers to design and implement a chemical safety and health management program.

Workers are entitled to the information about the identities and hazards of the chemicals they are potentially exposed to when working. When workers have such information, they are able to take steps to protect themselves, and to implement the controls their employer has selected for them. Knowing the health effects

is important so that any signs or symptoms of exposure can be evaluated. Furthermore, being aware of the chemicals and associated hazards can help the worker determine how the exposure may affect preexisting medical conditions.

In a survey conducted by the U.S. Government Accountability Office (GAO), approximately 30% of responding small businesses indicated they used information on SDSs to find less hazardous chemicals to use in their workplaces.

Some employers view hazard communication as merely a “paper exercise,” regarding compliance as just making sure that all the required labels and SDSs are available, but not using the information. Hazard communication is much more than a paper exercise when implemented properly. The proper use of the information by employers to control chemical exposure results in a decrease in illnesses and injuries caused by chemicals in the workplace—a clear benefit for exposed workers. Effective hazard communication also helps with effective management of chemicals in the workplace, resulting in increased productivity, decreased workers’ compensation costs, and other employer benefits.

The HCS includes a three-part approach to communicating information to downstream employers, as well as workers.

- Labeling containers of hazardous chemicals, which serves as an immediate warning of hazards
- SDSs, which are sources of detailed information on the hazardous chemical
- Training on the hazards

An effective hazard communication program can be accomplished in six steps (Figure 2).



**Figure 2: Six Steps to an Effective Hazard Communication Program**

<b>1. Learn the Standard/Identify Responsible Staff</b>	<ul style="list-style-type: none"><li>• Obtain a copy of OSHA’s Hazard Communication Standard.</li><li>• Become familiar with its provisions.</li><li>• Make sure that someone has primary responsibility for coordinating implementation.</li><li>• Identify staff for particular activities (e.g., training).</li></ul>
<b>2. Prepare and Implement a Written Hazard Communication Program</b>	<ul style="list-style-type: none"><li>• Prepare a written plan to indicate how hazard communication will be addressed in your facility.</li><li>• Prepare a list or inventory of all hazardous chemicals in the workplace.</li></ul>
<b>3. Ensure Containers are Labeled</b>	<ul style="list-style-type: none"><li>• Keep labels on shipped containers.</li><li>• Label workplace containers where required.</li></ul>
<b>4. Maintain Safety Data Sheets</b>	<ul style="list-style-type: none"><li>• Maintain safety data sheets for each hazardous chemical in the workplace.</li><li>• Ensure that safety data sheets are readily accessible to employees.</li></ul>
<b>5. Inform and Train Employees</b>	<ul style="list-style-type: none"><li>• Train employees on the hazardous chemicals in their work area before initial assignment, and when new hazards are introduced.</li><li>• Include the requirements of the standard, hazards of chemicals, appropriate protective measures, and where and how to obtain additional information.</li></ul>
<b>6. Evaluate and Reassess Your Program</b>	<ul style="list-style-type: none"><li>• Review your hazard communication program periodically to make sure that it is still working and meeting its objectives.</li><li>• Revise your program as appropriate to address changed conditions in the workplace (e.g., new chemicals, new hazards, etc.).</li></ul>

## 1. Learn the Standard/Identify Responsible Staff

- Obtain a copy of OSHA’s Hazard Communication Standard.
- Become familiar with its provisions.
- Make sure that someone has primary responsibility for coordinating implementation.
- Identify staff for particular activities (e.g., training).

You are already on your way to accomplishing Step 1 by reading this guide. It is always best to review the actual provisions of the standard to ensure you are in full compliance. OSHA provides online access to the standard, as well as guidance, interpretations, and other relevant materials on its hazard communication web page: [www.osha.gov/dsg/hazcom](http://www.osha.gov/dsg/hazcom). The full regulatory text can be found at: [www.osha.gov/dsg/hazcom/HCSFinalRegTxt.html](http://www.osha.gov/dsg/hazcom/HCSFinalRegTxt.html).

As noted above, the provisions that apply to employers simply using chemicals in the workplace, rather than those that produce or import chemicals, are found primarily in the following paragraphs:

- (e) Written Hazard Communication Program;*
- (f) Labels and Other Forms of Warning;*
- (g) Safety Data Sheets; and*
- (h) Employee Information and Training.*

You can focus on the requirements in these paragraphs to determine what is needed for compliance in your workplace. There may also be other provisions of the standard that help establish compliance requirements in some workplaces.

**Paragraph (b), Scope and Application**, specifies two types of work operations where the coverage of the rule is limited. These are laboratories and operations where chemicals are only handled in sealed containers (e.g., a warehouse). Employers with these types of work operations have reduced obligations under the HCS and basically only need to keep labels on containers as they are received; maintain SDSs that are received, and give employees access to them; and provide information and training to employees.

Laboratories and operations where chemicals are only handled in sealed containers do not have to have written hazard communication programs and lists of chemicals.

The limited coverage for laboratories and sealed container operations addresses your obligation to your own workers in the operations involved. However, when laboratory employers or employers where only sealed containers are involved act as chemical manufacturers, distributors or importers, they must fulfill their duties as suppliers. For example, in warehouse operations where the employees are only exposed to sealed containers, paragraph (b)(4) of the standard would apply. When these chemicals are distributed to downstream users, paragraph (b)(4) requires the company to provide HazCom 2012-compliant labels and SDSs to downstream customers at the time of the first shipment and when the SDS is updated.

**Paragraph (c), Definitions**, can be used to determine the meaning of some provisions in HazCom 2012 through the definitions provided for the terms used in them. This guide will highlight some of these definitions, but you may want to consult the definitions for other terms to help ensure you fully understand your compliance obligations in the workplace.

Hazard communication must be a continuing program in your facility. Compliance with the HCS is not a “one shot deal.” In order to have a successful program, it will be necessary to assign responsibility to staff for both the initial and ongoing activities needed to comply with the standard. In some cases, these activities may already be part of current job assignments. For example, site supervisors are frequently responsible

for on-the-job training sessions. Early identification of the responsible workers, and their involvement in the development of your plan of action, will result in a more effective program design.

In order to ensure you have an effective program and address all of the necessary components, responsibility for implementation of hazard communication should be assigned to someone to coordinate. While different people may be responsible for certain parts of implementation, there should nevertheless

be someone who has overall responsibility. Approaching compliance consistently, and comprehensively, is the key to success.

The person responsible for the overall coordination may not be the best person to accomplish all of the elements. For example, training workers may require different expertise than coordinating compliance. The standard allows employers the flexibility to do what is best in their own facilities as long as compliance with all elements is achieved.

## 2. Prepare and Implement a Written Hazard Communication Program

- Prepare a written plan to indicate how hazard communication will be addressed in your facility.
- Prepare a list or inventory of all hazardous chemicals in the workplace.

**Paragraph (e), Written Hazard Communication Program**, requires employers to prepare and implement a written hazard communication program. This does not need to be lengthy or complicated. The main intent of the requirement is to help ensure that compliance with the standard is done in a systematic way and that all elements are coordinated. Thus, the program must describe how the employer will address the requirements of paragraphs (f) Labels and Other Forms of Warning; (g) Safety Data Sheets; and (h) Employee Information and Training, in the workplace. A sample written program is provided in Appendix A of this guide.

In addition, the written program must include the following items:

- **Paragraph (e)(1): A list of the hazardous chemicals known to be present in the workplace.** The list may be kept using any **product identifier** from the SDS. Thus, the list may be kept by product name, common name, or chemical name. The important aspect of this requirement is that the term used on the list must also be available on both the SDS and the label so that these documents can be cross-referenced. The list can be compiled in whatever way the employer finds most useful and applicable to the workplace. A list of all hazardous chemicals in the entire workplace may be most suitable for very small facilities, where there are few work areas and all workers are potentially exposed to essentially the same products. For larger workplaces, it may be more convenient to compile lists of hazardous chemicals by work area and have them assembled together as the overall list for the workplace.

The list is an inventory of chemicals for which the employer must ensure that there is an SDS available. Compiling the list also helps employers keep track of the chemicals present, and to identify chemicals that are no longer being used, and thus could be removed from the workplace. Removing such chemicals may also reduce potential adverse effects that could occur in the workplace.

The best way to prepare a comprehensive list may be to survey the workplace. Purchasing records may also help and employers should establish procedures to ensure that purchasing procedures result in receiving SDSs before a material is used in the workplace. Prior to purchasing chemicals, review the hazards of the chemicals and evaluate if less hazardous chemicals can be used instead.

“Product identifier” means the name or number used for a hazardous chemical on a label or in the SDS. It provides a unique means by which the user can identify the chemical. The product identifier used shall permit cross-references to be made among the list of hazardous chemicals required in the written hazard communication program, the label and the SDS.

The broadest possible perspective should be taken when doing the survey. Sometimes people think of “chemicals” as being only liquids in containers. The HCS covers chemicals in all forms—liquids, solids, gases, vapors, fumes, and mists—whether they are “contained” or not. The hazardous nature of the chemical and the potential for exposure are

the factors that determine whether a chemical is covered. If the chemical is not hazardous, it is not covered by the standard. If there is no potential for exposure (e.g., the chemical is inextricably bound and cannot be released), the chemical is not covered by the standard.

Look around. Identify chemicals in containers, including pipes, but also think about chemicals that are generated during work operations. For example, welding fumes, dusts, and exhaust fumes are all sources of chemical exposures. Read the labels provided by suppliers for hazard information. Make a list of all chemicals in the workplace that are potentially hazardous. For your own information and planning, you may also want to note on the list the location(s) of the products within the workplace, and an indication of the hazards as found on the label. This will help as you prepare the rest of your program.

Paragraph (b) of the standard, scope and application, includes exemptions for various chemicals or workplace situations. After compiling the complete list of chemicals, you should review paragraph (b) to determine if any of the items can be eliminated from the list because they are exempted materials. For example, food, drugs, and cosmetics brought into the workplace for personal consumption by workers are exempt.

Once you have compiled a complete list of the potentially hazardous chemicals in the workplace, the next step is to determine if you have received SDSs for all of them. Check your files against the inventory you have just compiled. Employers are required to have SDSs for all hazardous chemicals that they use. If any are missing, contact your supplier and request one. It is a good idea to document these requests, either by keeping a copy of a letter or e-mail, or a note regarding telephone conversations. If you cannot show a good faith effort to receive the SDS, you can be cited for not having the SDS for a hazardous chemical. If you have SDSs for chemicals that are not on your list, figure out why. Maybe you do not use the chemical anymore. Or maybe you missed

it in your survey. Some suppliers provide SDSs for products that are not hazardous. These SDSs do not have to be maintained.

Do not allow workers to use any hazardous chemicals for which you have not received an SDS. The SDS provides information you need to ensure that proper protective measures are implemented prior to worker exposure.

■ **Paragraph (e)(1)(ii): Methods to inform employees of the hazards of non-routine tasks.**

The written program needs to include how an employer will inform workers of hazards that are outside of their normal work routine. While workers' initial training will address the types of exposures they will encounter in their usual work routines, there may be other tasks to be performed on occasion that will expose these workers to different hazards, as well as require novel control measures. For example, in a manufacturing facility, it may be necessary periodically to drain and clean out reactor vessels. For this task, workers may be exposed to cleaning chemicals that are not normally in the workplace, and the usual controls for the process may not protect them, so personal protective equipment may have to be worn. The written program needs to address how the employer will handle such situations and make sure that workers involved have the necessary information to stay protected.

■ **Paragraph (e)(2): Multi-Employer Workplaces.**

Where there is more than one employer operating on a site, and employees may be exposed to the chemicals used by each employer, the employer's written hazard communication program must address:

- How on-site access to SDSs will be provided to the other employer(s).
- How such employers will be informed of needed precautionary measures.
- How such employers will be informed of the on-site labeling system if it is different from the labels specified for shipped containers under the standard.

In summary, if you are not a new employer, you should already have a written hazard communication program for your workplace. Review your written program to ensure that it is consistent with the HazCom 2012 requirements. It may need to be updated; for example, you may have to add or delete chemicals from the list in the program, or change your description of the approach to workplace labeling.

If your workers' job assignment requires travel between various geographical locations, you may keep the written program at the primary work location.

Many trade associations and other professional groups have provided sample programs and other assistance materials to employers. These have been very helpful to many employers since they tend to be tailored to the particular industry involved. You may wish to investigate whether

your industry trade groups have developed such materials. Additionally, a sample written hazard communication program is included in Appendix A to this guide.

Although such general guidance may be helpful, you must remember that the written program has to reflect what you are doing in your workplace. Therefore, if you use a generic program it must be adapted to address the facility that it actually covers. For example, the written plan must list the chemicals present at the site, indicate who is to be responsible for the various aspects of the program in your facility, and indicate where written materials will be made available to workers.

If OSHA inspects your workplace, the OSHA Compliance Safety and Health Officer (CSHO) will ask to see your written plan.

### 3. Ensure Containers are Labeled

- Keep labels on shipped containers.
- Label workplace containers where required.

Labels are the first part (**paragraph (f) Labels and Other Forms of Warning**) of the three-part approach to communicating information downstream mentioned earlier. A label must be on the immediate container of every hazardous chemical. The label is an immediate type of warning since it is present in the work area, right on the actual container of a hazardous chemical. It is a snapshot of the hazards and protective information related to the chemical, and a summary of the more detailed information available on the SDS.

When you purchase a hazardous chemical from a supplier, you will receive a container that is labeled with the information required under the HCS. Employers can rely on the information provided by their suppliers. The label requirements in the HCS changed significantly with the publication of HazCom 2012. Under the prior standard, chemical manufacturers and importers were required to convey the hazards and identity of the products, but were not given specifications on how this was to be done. As a result, labels varied in terms of how the information was conveyed, the terminology used, and the design of the label. This made it more difficult for employers and workers to access and comprehend the information presented than if chemical manufacturers and importers follow the same approach.

The label requirements for the revised standard are more specific, which will lead to increased uniformity. This should benefit employers and workers by providing the information in standardized language and graphics, making it easier to understand, and helping to ensure that labels on containers of the same chemical from different suppliers have the same information.

HazCom 2012 provides chemical manufacturers and importers the information to be conveyed once they have determined the hazard of a chemical. The labels you receive on a shipped

container must have the following information, located together (other information may also appear on the label):

- Product identifier
- Signal word
- Hazard statement(s)
- Pictogram(s)
- Precautionary statement(s)
- Name, address, and phone number of the responsible party
- The **product identifier** is any chemical, common, or trade name or designation that the chemical manufacturer or importer chooses to use on the label. The term must also appear on the SDS. The signal word, hazard statement(s), pictogram(s), and precautionary statement(s) are the **label elements** that comprise the primary information about hazards and protective measures on the label.
- A **signal word** is a word used to indicate the relative level of severity of hazard and alert the reader to a potential hazard on the label. The signal words used in the standard are **“danger”** and **“warning.”** “Danger” is used for the more severe hazards, while “warning” is used for the less severe hazards. Signal words were not previously used in the HCS, although they do often appear on consumer labels. It is important to be aware of—and train workers on—the way signal words convey a difference in the severity of the hazard. While the product is hazardous wherever a signal word is indicated, the signal word chosen can give a preliminary idea of the relative significance of the effect.
- A **hazard statement** is a statement assigned to a hazard class and category that describes the nature of the hazard(s) of a chemical, including, where appropriate, the degree of hazard.  
**Example: Fatal if swallowed.**



- The hazard statement(s) for a hazardous chemical describe the hazard(s) in text, in a simple, direct manner. There is a hazard statement for each hazard category of a hazard class, and it will vary depending on the degree of hazard. The example presented above is a hazard statement for acute oral toxicity. The hazard statement conveys that the chemical is severely toxic, and ingestion of the chemical results in death. But for less toxic chemicals, the hazard statement may be “toxic if swallowed” or “harmful if swallowed.” As with the signal words, this information conveys the relative severity of the hazard, which impacts how it is handled and controlled.
- A **pictogram** is a composition that may include a symbol plus other graphic elements, such as a border, background pattern, or color, that is intended to convey specific information about the hazards of a chemical. Eight pictograms are designated under this standard for application to a hazard category. Under HazCom 2012, pictograms are black symbols, on a white background, with a red diamond border. For example, this is the pictogram for oxidizers:



Pictograms are an important addition to the hazard communication tools in the standard. A pictogram draws the attention of a label reader, and you and your workers should be aware that the appearance of a pictogram in a red diamond frame means that a hazard of concern is present in the product. Some of the pictograms in the standard have symbols that resemble the hazardous effect, and others are merely meant to attract attention. Pictograms may be used for several different hazardous effects as well (see Figure 3).










Pictograms have long been used internationally because they convey information without text. This allows users who are either literate in a different language than that used on the label or who are not literate at all to understand that the chemical is hazardous.

One of the systems that has long used pictograms is the international transport system. This system has been adopted by the U.S. Department of Transportation (DOT), and is familiar to those who handle shipping containers in the United States. The symbols have been harmonized as much as possible for the hazards covered both in transport and in the workplace. While both pictograms are diamond-shaped, the transport system’s pictograms have backgrounds of various colors. Where the shipping container is also the container used in the workplace, workers must be made aware of the DOT pictograms<sup>1</sup>, as they may appear on the label in addition to, or instead of, the HazCom 2012 pictograms used to represent the same hazard. See Figure 4 for examples of DOT pictograms. Note that the environment pictogram located in the center of the bottom row in Figure 3 is not required under the OSHA standard since OSHA does not regulate environmental hazards. However, you may see this pictogram used on labels and SDSs to convey environmental hazards, and that will provide useful information for you to use in managing your chemicals.















1. The U.S. Department of Transportation (DOT) uses the terms transport “placards” or “labels” to refer to the diamond-shaped (square on point) graphic elements that are used to identify shipments of hazardous materials. However, for the purpose of this document, these graphic elements are referred to as “pictograms.” More information on DOT placards or labels may be found at [www.dot.gov](http://www.dot.gov).



Figure 3: HazCom 2012 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>

**Figure 4: Examples of Transport Pictograms**

 <ul style="list-style-type: none"> <li>• Flammable Gas</li> <li>• Flammable Aerosol</li> </ul>	 <ul style="list-style-type: none"> <li>• Flammable solids</li> <li>• Self-Reactive substances and mixtures</li> </ul>	 <ul style="list-style-type: none"> <li>• Pyrophoric solids</li> <li>• Pyrophoric liquids</li> <li>• Self-heating Substances and mixtures</li> </ul>
 <ul style="list-style-type: none"> <li>• Substances and mixtures, which in contact with water, emit flammable gases</li> </ul>	 <ul style="list-style-type: none"> <li>• Oxidizing gases</li> <li>• Oxidizing liquids</li> <li>• Oxidizing solids</li> </ul>	 <ul style="list-style-type: none"> <li>• Self reactive substances and mixtures (type B)</li> <li>• Organic peroxides</li> </ul>
 <ul style="list-style-type: none"> <li>• Explosives (Division 1.4)</li> </ul>	 <ul style="list-style-type: none"> <li>• Explosives (Division 1.5)</li> </ul>	 <ul style="list-style-type: none"> <li>• Explosives (Division 1.6)</li> </ul>
 <ul style="list-style-type: none"> <li>• Gases under pressure</li> </ul>	 <ul style="list-style-type: none"> <li>• Acute toxicity: Oral</li> <li>• Acute toxicity: Skin</li> <li>• Acute toxicity: Inhalation</li> </ul>	 <ul style="list-style-type: none"> <li>• Corrosive to metals</li> <li>• Skin corrosion/irritation</li> </ul>
 <ul style="list-style-type: none"> <li>• Aquatic toxicity (Acute)</li> <li>• Aquatic toxicity (Chronic)</li> </ul>	 <ul style="list-style-type: none"> <li>• Organic Peroxides</li> </ul>	

- A **precautionary statement** is a phrase that describes recommended measures that should be taken to minimize or prevent adverse effects resulting from exposure to a hazardous chemical, or improper storage or handling. **Example: Do not eat, drink, or smoke when using this product.**

Precautionary statements are key to helping you decide what you need to do to protect workers and your workplace. There are four types of statements: *Prevention, Response, Storage, and Disposal*. These have been assigned to hazard classes and categories.

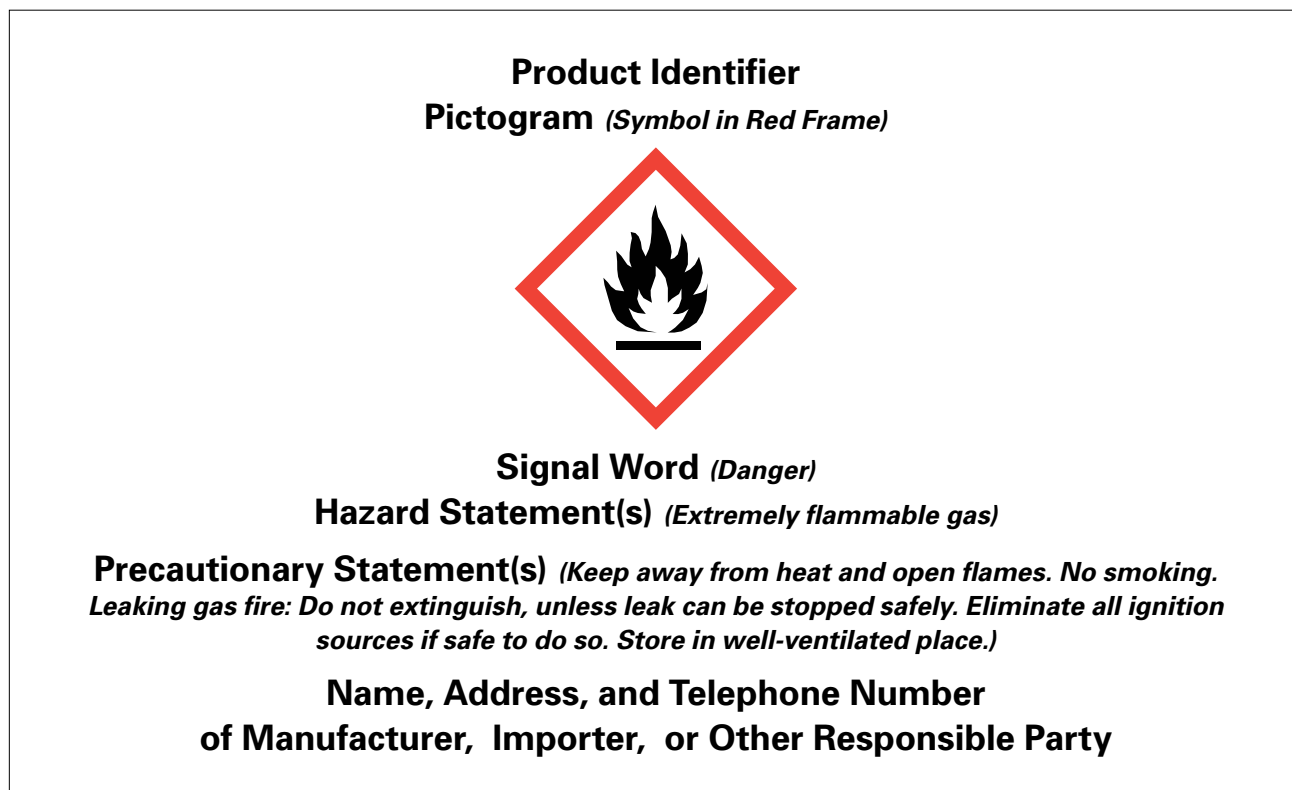
Therefore, a compliant HazCom 2012 label on a shipped container will have at least the following information as shown in Figure 5 (supplemental information is permitted as long as it does not conflict with the required information).

You are required by paragraph (f)(6) of the standard to ensure that containers of hazardous chemicals in your workplace are labeled. For those containers that are received already labeled from

the supplier, and are used in the workplace, simply maintaining the label received from the supplier is the best and easiest option. However, the standard is flexible, and employers may relabel these containers, or label other containers used in the workplace with various options as long as workers have immediate access to the specific information about the physical and health hazards of the chemical. This could be included in the workplace hazard communication program.

Under paragraph (f)(7), employers may use signs, placards, process sheets, batch tickets, operating procedures, or other written material instead of affixing labels to individual stationary process containers, as long as the alternative method identifies which containers it applies to and conveys at least general information regarding the hazards of the chemicals. Paragraph (f)(8) of the standard also addresses portable containers into which the hazardous chemicals are transferred from a labeled container, and which are for the immediate use of the employee who performs the transfer. These portable containers do not have to be labeled.

**Figure 5: Example of Required HCS Label Elements**



Some employers use third-party workplace label systems, such as those that have numerical ratings to indicate the hazards (e.g., National Fire Protection Association (NFPA) or Hazardous Materials Identification System (HMIS)). These may be used in conjunction with the supplemental information on the label to ensure that workers have complete information, as long as the ratings are consistent with the hazard definitions in HazCom 2012, i.e., the criteria used to assign the numerical ratings reflects the hazard categories in each hazard class in HazCom 2012. One note with regard to numerical ratings—these systems generally use the number 1 to indicate the lowest degree of hazard, and the number 4 as the highest degree. This is the opposite of the hazard category numbering in HazCom 2012. Therefore, if as an employer you are preparing such labels based on information on the SDS, you must ensure that the numbers are properly applied to reflect the accurate degree of hazard information. Category numbers do not appear on HazCom 2012 shipped container labels, and are not equivalent to the hazard rating systems.

HazCom 2012 hazard category numbers are not required to appear on shipped container labels, and are not equivalent to the NFPA and HMIS hazard rating systems.

The employer must make sure that labels in the workplace are legible and prominently displayed. While the label information must be in English, employers are free to add warnings in other languages if workers would find that helpful. OSHA has prepared QuickCards™ to describe the label elements (OSHA 3492), as well as illustrate the pictograms (OSHA 3491). These are available on the OSHA web page, or can be obtained from your local OSHA area office.

If your workplace is inspected by OSHA, CSHOs will be looking for at least the following aspects of your labeling approach:

1. Designation of person(s) responsible for ensuring compliant labeling of shipped and in-plant containers;
2. Description of written alternatives to labeling of stationary process containers (if used);
3. Appropriate labels on all workplace containers, including those received from a supplier, secondary containers, and stationary process containers;
4. A description and explanation of labels on both shipped and workplace containers included in the employee training program; and,
5. Procedures to review and update workplace label information when necessary.

## 4. Maintain Safety Data Sheets

- Maintain safety data sheets for each hazardous chemical in the workplace.
- Ensure that safety data sheets are readily accessible to employees.

The second part in the approach to communicating information in HazCom 2012 is to maintain SDSs (**paragraph (g) Safety Data Sheets and Mandatory Appendix D**). The SDSs are the source of detailed information on hazardous chemicals. This includes information for many different audiences—employers, workers, safety and health professionals, emergency responders, government agencies, and consumers. It is difficult for one document to serve the needs of all of these different audiences since some require much more technical information than others. Therefore, the SDS sections have generally been organized so that the information of most use to exposed workers, emergency responders, and others who do not need extensive technical detail is in the beginning of the SDS, while the more technical information most commonly read by health and safety professionals is located in the later sections. For example, a description of a chemical's health effects appears in Section 2, hazard identification, but the toxicological data upon which the determination of these effects is based appears in Section 11, toxicological information. All of the sections are available to any reader, but there is a difference between what is necessary for a broader audience (workers and emergency responders, for example), and what might be needed by others designing protective measures or providing medical services.

The SDS requirements in HazCom 2012 are based on an internationally agreed upon 16-section SDS. This format is based on ANSI Z400.1<sup>2</sup>, so it

<sup>2</sup> The first American National Standard Institute (ANSI) standard developed to assist in the preparation of safety data sheets (*American National Standard for Hazardous Industrial Chemicals—Material Safety Data Sheets—Preparation*) was issued in 1993. This standard was updated in 1998 and 2004. In 2010, it was combined with ANSI Z129 and renamed, *American National Standard for Hazardous Workplace Chemicals—Hazard Evaluation and Safety Data Sheet and Precautionary Labeling Preparation*.

is most likely already familiar to your employees. HazCom 2012 establishes section headings for the SDS, as well as the order in which they are to be provided, and the minimum information required to be included in each section under Appendix D of the standard. However, the information in some of the sections are non-mandatory because they address information that involve the requirements of other government bodies, and thus are not under OSHA's jurisdiction. Even though these sections are not considered mandatory by OSHA, the headings are still required to be present on the SDS. They will provide useful information for you to address other requirements you may need to follow. The sixteen sections are as follows, with the non-mandatory sections indicated in italics:

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

Chemical manufacturers and importers are required to obtain or develop an SDS for each hazardous chemical they produce or import. Chemical manufacturers, importers, and

distributors are responsible for ensuring that their customers are provided a copy of these SDSs, at the time of the first shipment, and when an SDS is updated with new and significant information. Employers must have an SDS for each hazardous chemical which they use. Employers may rely on the information received from their suppliers unless they know the information is incorrect. If you do not receive an SDS automatically, you must request one as soon as possible. If you receive an SDS that is obviously inadequate, with, for example, blank spaces, you must request an appropriately completed one. If your request for an SDS or for a corrected SDS does not produce the information needed, you should contact your local OSHA area office for assistance in obtaining the SDS. Employers must maintain the current version of the SDS; if a new SDS is received with a shipment, they must maintain and make available the new SDS.

The SDSs must be in English. Many larger manufacturers also produce SDSs in other languages. If you have workers who speak language(s) other than English, you may be able to obtain SDSs in those languages to ensure effective hazard communication.

Employers must maintain copies of SDSs in their workplaces, and must ensure that SDSs are readily accessible to workers when they are in their work areas during their work shifts. This accessibility may be accomplished in many different ways. You must decide what is appropriate for your particular workplace. Some employers keep the SDSs in a binder in a central location (e.g., in a pick-up truck on a construction site). Others, particularly in workplaces with large numbers of chemicals, provide access electronically. However, if access to SDSs is provided electronically, there must be an adequate back-up system in place in the event of a power outage, equipment failure, or other emergency involving the primary electronic system. As long as workers can get the information when they need it, any approach may be used. When workers must travel between workplaces during a work shift, SDSs may be kept at the primary workplace facility. No matter what system

is used, employers must ensure that workers and medical personnel can immediately obtain the required information in an emergency.

In order to ensure that you have a current SDS for each chemical in the plant as required, and that worker access is provided, OSHA's CSHOs will be looking for the following items in your program:

1. Designation of person(s) responsible for obtaining and maintaining the SDSs;
2. How such sheets are maintained in the workplace (e.g., in notebooks in the work area(s) or electronically), and how workers obtain access to them when they are in their work area during the work shift;
3. Procedures to follow when the SDS is not received at the time of the first shipment;
4. An SDS for each hazardous chemical in the workplace, and training of workers that includes review of SDS format and use.

For employers using hazardous chemicals, an important aspect of the hazard communication program is to ensure that someone is responsible for obtaining and maintaining the SDSs for every hazardous chemical in the workplace. To ensure that your hazard communication program improves safety and health with regard to chemical use, you should review the SDSs, and use the information to choose the needed protective measures to prevent or reduce exposures in your workplace. SDSs should be used to evaluate your workplace, and establish a plan to ensure it is safe. The following is a section-by-section description of the information required for each part of the SDS from Appendix D of HazCom 2012. Become familiar with the information available in each section of an SDS so that you will be able to more quickly access this information in an emergency and make better use of the data available.

OSHA has developed a QuickCard™ on SDSs (OSHA 3493) that may be useful in your training program. It is available on the OSHA Hazard Communication web page at [www.osha.gov/dsg/hazcom](http://www.osha.gov/dsg/hazcom), or from your local OSHA area office.

## Minimum Information for an SDS

Heading	Subheading
<b>1. Identification</b>	<ul style="list-style-type: none"><li>(a) Product identifier used on the label;</li><li>(b) Other means of identification;</li><li>(c) Recommended use of the chemical and restrictions on use;</li><li>(d) Name, address, and telephone number of the chemical manufacturer, importer, or other responsible party;</li><li>(e) Emergency phone number.</li></ul>
<b>2. Hazard(s) identification</b>	<ul style="list-style-type: none"><li>(a) Classification of the chemical in accordance with paragraph (d) of §1910.1200;</li><li>(b) Signal word, hazard statement(s), symbol(s) and precautionary statement(s) in accord with paragraph (f) of §1910.1200. (Hazard symbols may be provided as graphical reproductions in black and white or the name of the symbol, e.g., flame, skull and crossbones);</li><li>(c) Describe any hazards not otherwise classified that have been identified during the classification process;</li><li>(d) Where an ingredient with unknown acute toxicity is used in a mixture at a concentration <math>\geq 1\%</math> and the mixture is not classified based on testing of the mixture as a whole, a statement that X% of the mixture consists of ingredient(s) of unknown acute toxicity is required.</li></ul>
<b>3. Composition/ information on ingredients</b>	<p>Except as provided for in paragraph (i) of §1910.1200 on trade secrets:</p> <p><b>For Substances</b></p> <ul style="list-style-type: none"><li>(a) Chemical name;</li><li>(b) Common name and synonyms;</li><li>(c) CAS number and other unique identifiers;</li><li>(d) Impurities and stabilizing additives which are themselves classified and which contribute to the classification of the substance.</li></ul> <p><b>For Mixtures</b></p> <p>In addition to the information required for substances:</p> <ul style="list-style-type: none"><li>(a) The chemical name and concentration (exact percentage) or concentration ranges of all ingredients which are classified as health hazards in accordance with paragraph (d) of §1910.1200 and<ul style="list-style-type: none"><li>(1) are present above their cut-off/concentration limits; or</li><li>(2) present a health risk below the cut-off/concentration limits.</li></ul></li><li>(b) The concentration (exact percentage) shall be specified unless a trade secret claim is made in accordance with paragraph (i) of §1910.1200, when there is batch-to-batch variability in the production of a mixture, or for a group of substantially similar mixtures (<i>See A.0.5.1.2</i>) with similar chemical composition. In these cases, concentration ranges may be used.</li></ul> <p><b>For All Chemicals Where a Trade Secret is Claimed</b></p> <p>Where a trade secret is claimed in accordance with paragraph (i) of §1910.1200, a statement that the specific chemical identity and/or exact percentage (concentration) of composition has been withheld as a trade secret is required.</p>



Heading	Subheading
<b>4. First-aid measures</b>	<ul style="list-style-type: none"> <li>(a) Description of necessary measures, subdivided according to the different routes of exposure, i.e., inhalation, skin and eye contact, and ingestion;</li> <li>(b) Most important symptoms/effects, acute and delayed;</li> <li>(c) Indication of immediate medical attention and special treatment needed, if necessary.</li> </ul>
<b>5. Firefighting measures</b>	<ul style="list-style-type: none"> <li>(a) Suitable (and unsuitable) extinguishing media;</li> <li>(b) Specific hazards arising from the chemical (e.g., nature of any hazardous combustion products);</li> <li>(c) Special protective equipment and precautions for firefighters.</li> </ul>
<b>6. Accidental release measures</b>	<ul style="list-style-type: none"> <li>(a) Personal precautions, protective equipment, and emergency procedures;</li> <li>(b) Methods and materials for containment and cleaning up.</li> </ul>
<b>7. Handling and storage</b>	<ul style="list-style-type: none"> <li>(a) Precautions for safe handling;</li> <li>(b) Conditions for safe storage, including any incompatibilities.</li> </ul>
<b>8. Exposure controls/ personal protection</b>	<ul style="list-style-type: none"> <li>(a) OSHA permissible exposure limit (PEL), American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Value (TLV), and any other exposure limit used or recommended by the chemical manufacturer, importer, or employer preparing the safety data sheet, where available;</li> <li>(b) Appropriate engineering controls;</li> <li>(c) Individual protection measures, such as personal protective equipment.</li> </ul>
<b>9. Physical and chemical properties</b>	<ul style="list-style-type: none"> <li>(a) Appearance (physical state, color, etc.);</li> <li>(b) Odor;</li> <li>(c) Odor threshold;</li> <li>(d) pH;</li> <li>(e) Melting point/freezing point;</li> <li>(f) Initial boiling point and boiling range;</li> <li>(g) Flash point;</li> <li>(h) Evaporation rate;</li> <li>(i) Flammability (solid, gas);</li> <li>(j) Upper/lower flammability or explosive limits;</li> <li>(k) Vapor pressure;</li> <li>(l) Vapor density;</li> <li>(m) Relative density;</li> <li>(n) Solubility(ies);</li> <li>(o) Partition coefficient: n-octanol/water;</li> <li>(p) Auto-ignition temperature;</li> <li>(q) Decomposition temperature;</li> <li>(r) Viscosity.</li> </ul>



Heading	Subheading
<b>10. Stability and reactivity</b>	<ul style="list-style-type: none"> <li>(a) Reactivity;</li> <li>(b) Chemical stability;</li> <li>(c) Possibility of hazardous reactions;</li> <li>(d) Conditions to avoid (e.g., static discharge, shock, or vibration);</li> <li>(e) Incompatible materials;</li> <li>(f) Hazardous decomposition products.</li> </ul>
<b>11. Toxicological information</b>	<p>Description of the various toxicological (health) effects and the available data used to identify those effects, including:</p> <ul style="list-style-type: none"> <li>(a) Information on the likely routes of exposure (inhalation, ingestion, skin and eye contact);</li> <li>(b) Symptoms related to the physical, chemical and toxicological characteristics;</li> <li>(c) Delayed and immediate effects and also chronic effects from short- and long-term exposure;</li> <li>(d) Numerical measures of toxicity (such as acute toxicity estimates);</li> <li>(e) Whether the hazardous chemical is listed in the National Toxicology Program (NTP) Report on Carcinogens (latest edition) or has been found to be a potential carcinogen in the International Agency for Research on Cancer (IARC) Monographs (latest edition), or by OSHA.</li> </ul>
<b>12. Ecological information (Non-mandatory)</b>	<ul style="list-style-type: none"> <li>(a) Ecotoxicity (aquatic and terrestrial, where available);</li> <li>(b) Persistence and degradability;</li> <li>(c) Bioaccumulative potential;</li> <li>(d) Mobility in soil;</li> <li>(e) Other adverse effects (such as hazardous to the ozone layer).</li> </ul>
<b>13. Disposal considerations (Non-mandatory)</b>	<p>Description of waste residues and information on their safe handling and methods of disposal, including the disposal of any contaminated packaging.</p>
<b>14. Transport information (Non-mandatory)</b>	<ul style="list-style-type: none"> <li>(a) UN number;</li> <li>(b) UN proper shipping name;</li> <li>(c) Transport hazard class(es);</li> <li>(d) Packing group, if applicable;</li> <li>(e) Environmental hazards (e.g., Marine pollutant (Yes/No));</li> <li>(f) Transport in bulk (according to Annex II of MARPOL 73/78 and the IBC Code);</li> <li>(g) Special precautions which a user needs to be aware of, or needs to comply with, in connection with transport or conveyance either within or outside their premises.</li> </ul>
<b>15. Regulatory information (Non-mandatory)</b>	<p>Safety, health and environmental regulations specific for the product in question.</p>
<b>16. Other information, including date of preparation or last revision</b>	<p>The date of preparation of the SDS or the last change to it.</p>

## 5. Inform and Train Employees

- Train employees on the hazardous chemicals in their work area before initial assignment, and when new hazards are introduced.
- Include the requirements of the standard, hazards of chemicals, appropriate protective measures, and where and how to obtain additional information.

The third part of the hazard communication approach in HazCom 2012 is employee information and training (**paragraph (h) Employee Information and Training**).

The key requirement is in paragraph (h)(1):

(h)(1) Employers shall provide employees with effective information and training on hazardous chemicals in their work area at the time of their initial assignment, and whenever a new chemical hazard the employees have not previously been trained about is introduced into their work area. Information and training may be designed to cover categories of hazards (e.g., flammability, carcinogenicity) or specific chemicals. Chemical-specific information must always be available through labels and safety data sheets.

For information and training to be effective, the workers in the training must comprehend the hazards in the workplace and ways to protect themselves. OSHA does not expect that workers will be able to recall and recite all data provided about each hazardous chemical in the workplace. What is most important is that workers understand that they are exposed to hazardous chemicals, know how to read labels and SDSs, and have a general understanding of what information is provided in these documents, and how to access these tools. Workers must also be aware of the protective measures available in their workplace, how to use or implement these measures, and who they should contact if an issue arises.

Information and training may be done either by individual chemical, or by hazard classes and categories (such as acute toxicity or flammable liquids). If there are only a few chemicals in the workplace, then you may want to discuss each one individually. Where there are large numbers of

chemicals, or the chemicals change frequently, you will probably want to train generally based on the hazard classes and categories. Workers must have access to the substance-specific information on the labels and SDSs.

HazCom 2012 requires employers to both provide certain information to employees and to train employees. The standard requires employees to be informed of:

- The general requirements of the Hazard Communication Standard;
- Where hazardous chemicals are located in their work areas (operations where exposure may occur); and,
- What the workplace hazard communication program includes, and where and how they can access the program.

Training, on the other hand, is a more active process. The training conducted to comply with HazCom 2012 must address the following:

- Methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area (such as monitoring conducted by the employer, continuous monitoring devices, visual appearance or odor of hazardous chemicals when being released, etc.);
- The physical, health, simple asphyxiation, combustible dust and pyrophoric gas hazards, as well as hazards not otherwise classified, of the chemicals in the work area;
- The measures employees can take to protect themselves from these hazards, including specific procedures the employer has implemented to protect employees from

exposure to hazardous chemicals, such as appropriate work practices, emergency procedures, and personal protective equipment to be used; and,

- The details of the hazard communication program developed by the employer, including an explanation of the labels received on shipped containers and the workplace labeling system used by their employer; the SDS, including the format of the SDS (where each type of information is located) and how employees can obtain and use the appropriate hazard information.

A properly conducted training program will ensure worker comprehension and understanding. It is not sufficient to either just read material to the workers, or simply hand them material to read. As explained in Dr. Michaels' *OSHA Training Standards Policy Statement (April 28, 2010)*, OSHA requires employers to present information in a manner and language that their employees can understand. If employers customarily need to communicate work instructions or other workplace information to employees in a language other than English, they will also need to provide safety and health training to employees in the same manner. Similarly, if the employee's vocabulary is limited, the training must account for that limitation. By the same token, if employees are not literate, telling them to read training materials will not satisfy the employer's training obligation.

In conducting a training program, you want to create a climate where workers feel free to ask questions. This will help you to ensure that the information is understood. You must always remember that the underlying purpose of the HCS is to reduce the incidence of chemical source illnesses and injuries. This will be accomplished by modifying behavior through the provision of hazard information and information about protective measures. If your program works, you and your workers will better understand the chemical hazards in the workplace, and how to protect workers from experiencing adverse effects. The procedures you establish regarding, for example, purchasing, storing, and handling of these chemicals will improve, and thereby reduce the risks posed to workers exposed to the chemical hazards involved.

Furthermore, your workers' comprehension will also be increased, and proper work practices will be more likely followed in your workplace.

If you are going to do the training yourself, you will have to understand the material and be prepared to motivate the workers to learn. This is not always an easy task, but the benefits are worth the effort. More information regarding appropriate training can be found in Appendix B of this guide, which provides steps to follow in setting up and conducting training.

In reviewing your hazard communication program with regard to information and training, the following items need to be considered:

1. Designation of person(s) responsible for conducting training;
2. Format of the program to be used (audiovisuals, classroom instruction, etc.);
3. Elements of the information and training program (should be consistent with the elements in paragraph (h) of the standard); and,
4. Procedure to train new workers at the time of their initial assignment to work with a hazardous chemical, and to train workers when a new chemical hazard is introduced into the workplace.

The written program should provide enough details about the employer's plans in this area to assess whether or not a good faith effort is being made to train workers. When assessing an employer's compliance with hazard communication training requirements, OSHA CSHOs will talk to workers to determine if they have received training, if they know they are exposed to hazardous chemicals, and if they know where to obtain substance-specific information on labels and SDSs. It should be noted that if workers do not speak English, the employer must convey the hazard communication information in the language they understand—just like other job requirements and instructions are provided. OSHA has bilingual CSHOs, and they will be speaking to workers who speak another language to determine compliance.

The standard does not require employers to maintain records of employee training, but many employers choose to do so. This may help you monitor your own program to ensure that all workers are appropriately trained. Keeping records that document who was trained, when the training was conducted, and what was covered is also helpful to document compliance with OSHA's training requirement in case of an inspection. The standard does not require retraining on a regular schedule, it simply requires retraining if there is a new chemical hazard introduced into the work area. If your initial training program includes all potential hazards covered by HazCom 2012, there is no retraining required. However, it is good business practice to repeat and reinforce what is learned in training to make sure that workers retain the hazard information.

If you already have a hazard communication training program, you may simply have to update it to comply with HazCom 2012. In particular, by December 1, 2013, you will need to train your employees about the new label and SDS formats they will be seeing in their work areas. Additional hazard training is not required if you have already trained under the existing hazard communication requirements. However, after you receive all of the new labels and SDSs, and have updated your hazard communication program, you may find that

there is a type of hazard on which employees have not yet received training. You will need to train employees on these new hazards at the time you become aware of the new hazard. If you become aware of new hazards after December 1, 2015, you will have until June 1, 2016 to ensure those hazards are included in the hazard communication program, the workplace labeling reflects these new hazards, and employees are trained on these new hazards.

An employer can provide employees information and training through whatever means are found appropriate. Although there will always have to be some training onsite (such as informing workers of the location and availability of the written program and SDSs), employee training may be satisfied in part by general training about the requirements of the HCS and about chemical hazards on the job which is provided by, for example, trade associations, unions, colleges, and professional schools. In addition, previous training, education and experience of a worker may relieve the employer of some of the burdens of informing and training that worker. Regardless of the method relied upon, however, the employer is always ultimately responsible for ensuring that workers are adequately trained. If the CSHO finds that the training is deficient, the employer will be cited for the deficiency regardless of who actually provided the training on behalf of the employer.

## 6. Evaluate and Reassess Your Program

- Review your hazard communication program periodically to make sure that it is still working and meeting its objectives.
- Revise your program as appropriate to address changed conditions in the workplace (e.g., new chemicals, new hazards, etc.).

Because your hazard communication program must remain up to date, it will be necessary to periodically evaluate and reassess your program.

The information in your written program must be accurate. The list of hazardous chemicals required to be maintained as part of the written program will serve as an inventory. As new chemicals are purchased, the list must be updated. Revisions to the inventory of chemicals should be made when you eliminate chemicals in the workplace, or when you bring in a new chemical. The inventory also can be used to ensure that you have SDSs for all chemicals in the workplace, and such revisions are key to ensuring that is achieved. In addition, designation of people to handle different parts of the program should also be current and accurate. Many companies have found it convenient to include on their purchase orders the name and address of the person designated in their company to receive SDSs to help maintain a complete set.

Program coordinators should routinely walk around the workplace to check that containers are labeled as required and that workers are following established work practices to protect themselves from chemical exposure. Proactive monitoring of the workplace is critical to ensuring compliance with the HCS.

As new SDSs are received, there should be a process in place to review them and determine whether any handling procedures need to change to protect against the hazards of these chemicals. Using information on the SDS effectively will make safer workplace conditions a standard business practice in your facility.

This simple checklist will help to ensure that you are in compliance with the standard:

- Obtained/accessed a copy of the standard. \_\_\_\_\_
- Read and understood the requirements. \_\_\_\_\_
- Assigned responsibility for tasks. \_\_\_\_\_
- Prepared an inventory of chemicals. \_\_\_\_\_
- Ensured that containers are labeled. \_\_\_\_\_
- Obtained SDSs for each chemical. \_\_\_\_\_
- Prepared written program. \_\_\_\_\_
- Made SDSs available to workers. \_\_\_\_\_
- Conducted training for workers. \_\_\_\_\_
- Established procedures to maintain current program. \_\_\_\_\_
- Established procedures to evaluate program effectiveness, including maintenance of SDSs. \_\_\_\_\_

### III. CONCLUSION

OSHA believes that the Hazard Communication Standard is of critical importance to ensuring that hazardous chemicals are identified, and that proper measures are implemented in workplaces to achieve safe use and handling. By understanding the hazards of the chemicals, and using available information to pick the proper control measures

to address these hazards, employers can achieve many benefits for themselves, as well as for their exposed workers. HazCom 2012 provides the framework for building a chemical safety and health management program in a workplace. Figure 6 illustrates the steps that have been discussed to ensure that a workplace hazard communication program is effective.

**Figure 6: An Effective Hazard Communication Program**





## APPENDIX A: SAMPLE WRITTEN HAZARD COMMUNICATION PROGRAM

The following sample hazard communication program is based on the requirements of the Hazard Communication Standard (HazCom 2012), 29 CFR 1910.1200. The intent of this sample is to provide an easy-to-use format that can be modified to address the specific situation in your workplace. You are free to use whatever format you choose to develop your program—there is no requirement to follow this example. However, if you use this or any other sample program, you must customize it to your specific workplace, otherwise you will not be in compliance with the HCS.

### HAZARD COMMUNICATION PROGRAM

#### 1. Company Policy

To ensure that information about the dangers of all hazardous chemicals used by *(Name of Company)* is known by all affected workers, the following hazard communication program has been implemented. Under this program, workers will be informed of the requirements of the OSHA Hazard Communication Standard, the operations where exposure to hazardous chemicals may occur, and how workers can access this program, as well as labels and SDSs.

This program applies to any chemical which is known to be present in the workplace in such a manner that workers may be exposed under normal conditions of use or in a foreseeable emergency. All work areas that involve potential exposure to chemicals are part of the hazard communication program. Copies of the hazard communication program are available in the **(location)** for review by any interested worker.

*(Name of responsible person and/or position)* is the program coordinator, with overall responsibility for the program, including reviewing and updating this plan as necessary.

#### 2. Container Labeling

*(Name of responsible person and/or position)* will verify that all containers received for use will be clearly labeled in accord with the requirements of HazCom 2012, including a product identifier, pictogram, hazard statement, signal word, and precautionary statements, as well as the supplier's contact information (name and address).

The *(name of responsible person and/or position)* in each work area will ensure that all secondary containers are labeled with the original supplier's label or with an alternative workplace label. For help with labeling, see *(name of responsible person and/or position)*.

On the following individual stationary process containers, we are using *(description of labeling system used)* rather than a label to convey the required information:

##### ***(List containers here)***

We are using an in-house labeling system *(describe any in-house system which conveys required workplace label information)*.

The *(name of responsible person and/or position)* will review the company labeling procedures every *(provide a time period)* and will update labels as required.

#### 3. Safety Data Sheets (SDSs)

The *(name of responsible person and/or position)* is responsible for establishing and monitoring the company SDS program. The procedure below will be followed when an SDS is not received at the time of initial shipment:

##### ***(Describe procedure to be followed here)***

Copies of SDSs for all hazardous chemicals to which workers are exposed or are potentially exposed will be kept in *(identify location)*. Workers can access SDSs by *(insert procedure for access)*.

Note: If alternatives to paper copies of SDSs are used, describe the format used and how workers can access the SDSs.

SDSs will be readily available to all workers in each work area during each work shift. If an SDS is not available, contact *(name of responsible person and/or position)*.

When revised SDSs are received, the following procedures will be followed to replace old SDSs:

***(Describe procedures)***

The *(name of responsible person and/or position)* is responsible for reviewing the SDSs received for safety and health implications, and initiating any needed changes in workplace practices.

#### **4. Employee Information and Training**

*(Name of responsible person and/or position)* is responsible for employee information and training.

Every worker who will be potentially exposed to hazardous chemicals will receive initial training on the Hazard Communication standard and this program before starting work.

The training program for new workers is as follows *(describe how the training will be presented, and what it will include)*.

Prior to introducing a new chemical hazard into any work area, each worker in that work area will be given information and training as outlined above for the new chemical hazard. The training format will be as follows:

***(Describe training format, such as audiovisuals, interactive computer programs, classroom instruction, etc.)***

#### **5. Hazards of Non-routine Tasks**

Periodically, workers are required to perform non-routine tasks that are hazardous. Examples of non-routine tasks are: confined space entry, tank cleaning, and painting reactor vessels. Prior to starting work on such projects, each affected worker will be given information by *(Name of responsible person and/or position)* about the hazardous chemicals he or she may encounter during such activity. This information will include specific chemical hazards, protective and safety measures the worker should use, and steps

the company is taking to reduce the hazards, including ventilation, respirators, the presence of another worker (buddy systems), and emergency procedures.

#### **6. Informing Other Employers/Contractors**

It is the responsibility of *(Name of responsible person and/or position)* to provide other employers and contractors with information about hazardous chemicals that their workers may be exposed to on this work site, and suggested precautions for workers. It is the responsibility of *(Name of responsible person and/or position)* to obtain information about hazardous chemicals used by other employers to which our workers may be exposed.

Other employers and contractors will be provided with SDSs for hazardous chemicals generated by this company's operations in the following manner:

***(Describe company policy here)***

In addition to providing a copy of an SDS to other employers, other employers will be informed of necessary precautionary measures to protect workers exposed to operations performed by this company.

Also, other employers will be informed of the hazard labels used by the company. If alternative workplace labeling systems are used, the other employers will be provided with information to understand the labels used for hazardous chemicals to which their workers may have exposure.

#### **7. List of Hazardous Chemicals**

A list of all known hazardous chemicals in the workplace is attached to this program. This list includes the name of each chemical, and the work area(s) in which each of the chemicals is used. Further information on each chemical may be obtained from the SDSs, located in **(identify location)**.

When new chemicals are received, this list is updated within (x) days of introduction into the workplace. To ensure that any new chemical is added in a timely manner, the following procedures shall be followed:



***(Identify procedures to be followed)***

The hazardous chemical inventory is compiled and maintained by **(Name of responsible person and/or position and telephone number)**.

**8. Chemicals in Unlabeled Pipes**

Work activities may be performed by workers in areas where chemicals are transferred through unlabeled pipes. Prior to starting work in these

areas, the worker shall be informed by *(Name of responsible person and/or position)* about the identity and hazards of the chemicals in the pipe, as well as required precautionary measures required to be followed.

**9. Program Availability**

A copy of this program will be made available, upon request, to workers, their designated representatives, and OSHA.

## APPENDIX B: QUICK GUIDE TO HAZARD COMMUNICATION TRAINING

The Hazard Communication Standard (HCS) (29 CFR 1910.1200) requires employers that have hazardous chemicals in their workplaces to implement a hazard communication program. The program includes information about labels on containers, safety data sheets (SDSs), and training for workers. Each employer must describe in a written program how it will meet the requirements of the HCS in each of these areas.

For employers that use chemicals, rather than produce them, labels and SDSs are received with the products they purchase. These written documents form the basis of the hazard communication program, providing information for both employers and workers about the hazards of the chemicals, as well as ways to protect people from experiencing adverse effects as a result of their use. Training is the last step to be undertaken to implement an effective hazard communication program. Through proper training, the employer has the opportunity to ensure that workers understand the hazards of the chemicals they work

with, as well as what steps to take to ensure that they are protected from them. It also introduces them to labels and SDSs, explaining how to access these documents in their own workplace to obtain additional information. Training is therefore a critical part of the approach to hazard communication, tying together the three major components in an understandable form.

Before providing training, the employer should have a basic understanding of the requirements of the HCS, and have prepared its hazard communication program. This quick guide will focus on what is needed to set up a hazard communication training program. It is based on *Training Requirements in OSHA Standards and Training Guidelines (OSHA 2254)* developed by OSHA to assist employers to design any type of occupational safety and health training program, but relates the Guidelines specifically to hazard communication. It is a step-by-step approach. OSHA has also developed a series of QuickCards™ on elements of the training that employers may find useful: [www.osha.gov/dsg/hazcom/ghsquickcards.html](http://www.osha.gov/dsg/hazcom/ghsquickcards.html).

Training Step	Factors to Consider
<b>Determining if training is needed</b>	Are workers potentially exposed to hazardous chemicals in your workplace? You can determine this by reviewing the labels received on containers of chemicals you use, as well as safety data sheets (SDSs). You must have a hazard communication program if you have workers who are potentially exposed to hazardous chemicals. Training workers is part of the required hazard communication program. Therefore, training is needed wherever workers are potentially exposed to hazardous chemicals in their workplaces.
<b>Identifying training needs</b>	Workers must be trained before they are initially assigned to work where they are potentially exposed to a hazardous chemical. Therefore, if you have never provided training before, you must train all workers who are potentially exposed. Once this initial training is completed, you must train any new workers who are hired and will be working with hazardous chemicals. You must also provide training whenever a new hazard is introduced, or when workers change jobs and therefore face potential exposures. While training is not required to be repeated on a regular basis, you may want to consider doing that to be sure that workers remember what they have learned. It is also a good opportunity for you to review your hazard communication program, and make sure that it is still working effectively.

Training Step	Factors to Consider
<b>Identifying goals and objectives</b>	<p>Compliance with the requirements of the Hazard Communication Standard is a primary goal. Compliance will promote a safer workplace by ensuring that the potential hazards of chemicals are known both to you and to your workers. In addition, the measures to follow to prevent adverse health or physical effects resulting from chemical exposures should be familiar to everyone in the workplace. Preparing for the training gives you an opportunity to review the hazards of the chemicals you have in the workplace, and to consider substituting less hazardous chemicals where appropriate. It also allows you to review the protective measures you have in place to ensure that they are working, and to consider other types of protection as well. Implementation of a hazard communication program should be useful both to employers that have hazardous chemicals as part of their workplace processes, and to workers who are exposed to those chemicals. Training ties together all of the aspects of the workplace hazard communication program to relate it to the actual workplace conditions. Thus both employers and workers should be more familiar with the hazards present, know what steps must be taken to control those hazards, and be assured that the workplace is safer. They should also know how to obtain more information when needed from the container labels and the SDSs.</p> <p>You may want to consider if you have any additional learning objectives you would like to accomplish through this training program. For example, you may also have compliance obligations for related standards that could be combined into this program and accomplished in one training session (such as training required under the Respiratory Protection standard). Also, it may be an opportunity to review safe work practices and ways to perform jobs in a more efficient manner, and tie this into avoiding chemical hazards.</p>
<b>Identifying learning activities</b>	<p>The Hazard Communication Standard specifies what information must be provided to workers:</p> <ul style="list-style-type: none"> <li>• The requirements of the Hazard Communication Standard;</li> <li>• Any operations in their work area where hazardous chemicals are present; and</li> <li>• The location and availability of the written hazard communication program, including the required list(s) of hazardous chemicals, and SDSs required by the standard.</li> </ul> <p>In addition to providing this information to workers, they must be trained on the following:</p> <ul style="list-style-type: none"> <li>• Methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area (such as monitoring conducted by the employer, continuous monitoring devices, visual appearance or odor of hazardous chemicals when being released, etc.);</li> <li>• The physical and health hazards of the chemicals in the work area;</li> <li>• The measures workers can take to protect themselves from these hazards, including specific procedures the employer has implemented to protect workers from exposure to hazardous chemicals, such as appropriate work practices, emergency procedures, and personal protective equipment to be used; and</li> <li>• The details of the hazard communication program developed by the employer, including an explanation of the labeling system and the SDS, and how workers can obtain and use the appropriate information.</li> </ul> <p>The way in which this information is conveyed is left up to the trainer to determine. You can use any type of media available to you (such as slides, videos, computer interactive programs). Combinations of media are often an effective way to keep the workers' attention. In addition, active participation is important, so you may want to include learning activities that allow the workers to participate and have hands-on experiences. Relating the information to their specific workplace conditions helps to ensure that you meet the requirements of the standard, as well as improving learning and making the training more interesting.</p>

Training Step	Factors to Consider
<p><b>Conducting the training</b></p>	<p><b>Preparation:</b> In order to train workers under the Hazard Communication Standard, the trainer must be familiar with:</p> <ul style="list-style-type: none"> <li>• the requirements of the standard that apply to the workplace;</li> <li>• the hazardous chemicals in the workplace to which workers are potentially exposed, as well as the types of hazards they pose;</li> <li>• the hazard communication program implemented in the workplace; and</li> <li>• the protective measures being employed in the workplace to prevent adverse effects from occurring.</li> </ul> <p>In addition to being thoroughly familiar with the material to be covered in the training, the trainer must be aware of the facilities available for the training, including the physical location, the type of equipment (e.g., a PowerPoint projector, computer), and plan the training session accordingly based on the conditions.</p> <p><b>Presenting the training:</b> The purpose of the training is to convey information that is important to the student, and will achieve a safer workplace. Care should be taken to ensure that the facilities are conducive to a successful training session, and that the presentation is done in a way that motivates learning and a positive outcome. Worker participation helps to ensure that the learning objectives are accomplished. This can be done through hands-on examples, discussions, and other active means of conveying the required information.</p>
<p><b>Evaluating program effectiveness</b></p>	<p>Consideration should be given to including some sort of evaluation tool in the training to obtain feedback from the workers on the presentation, what formats might work better, and what they learned. This could be in the form of a sheet to be filled out by workers after the training. In evaluating the effectiveness of the program, you should observe how the training has changed worker behavior. For example, if workers have better compliance with use of protective measures (such as wearing gloves when appropriate), this could factor into the evaluation of the program.</p>
<p><b>Improving the training</b></p>	<p>The trainers should use their own impressions as well as feedback from the students to improve the training before it is presented again. If workers are not interested in the training as it is conducted, do not appear motivated, and do not exhibit an increased knowledge of hazards and the use of protective practices, it may be necessary to review and revise the training to achieve a better outcome.</p>

Following these seven steps should enable you to design and implement an effective hazard communication training program. A safer workplace

benefits the employer as well as the worker, and their shared interest in this goal should help to achieve effective hazard communication training.

## WORKERS' RIGHTS

Under OSHA law, workers are entitled to working conditions that do not pose a risk of serious harm. To help assure a safe and healthful workplace, the law provides workers with the right to:

- File a confidential complaint with OSHA to have their workplace inspected.
- Receive information and training about hazards, methods to prevent harm, and the OSHA standards that apply to their workplace. The training must be done in a language and vocabulary workers can understand.
- Receive copies of records of work-related injuries and illnesses that occur in their workplace.
- Receive copies of the results from tests and monitoring done to find and measure hazards in their workplace.
- Receive copies of their workplace medical records.
- Participate in an OSHA inspection and speak in private with the inspector.
- File a complaint with OSHA if they have been retaliated against by their employer as the result of requesting an inspection or using any of their other rights under the OSH Act.
- File a complaint if punished or retaliated against for acting as a "whistleblower" under the 21 additional federal laws for which OSHA has jurisdiction.

For more information, visit OSHA's Workers' Rights page at [www.osha.gov/workers.html](http://www.osha.gov/workers.html).

## OSHA ASSISTANCE, SERVICES AND PROGRAMS

OSHA offers free compliance assistance to employers and workers. Several OSHA programs and services can help employers identify and correct job hazards, as well as improve their injury and illness prevention program.

### Establishing an Injury and Illness Prevention Program

The key to a safe and healthful work environment is a comprehensive injury and illness prevention program.

Injury and illness prevention programs are systems that can substantially reduce the number and severity of workplace injuries and illnesses, while reducing costs to employers. Thousands of employers across the United States already manage safety using injury and illness prevention programs, and OSHA believes that all employers can and should do the same. Thirty-four states have requirements or voluntary guidelines for workplace injury and illness prevention programs.

Most successful injury and illness prevention programs are based on a common set of key elements. These include management leadership, worker participation, hazard identification, hazard prevention and control, education and training, and program evaluation and improvement. Visit OSHA's illness and injury prevention program web page at [www.osha.gov/dsg/topics/safetyhealth](http://www.osha.gov/dsg/topics/safetyhealth) for more information.

### Compliance Assistance Specialists

OSHA has compliance assistance specialists throughout the nation located in most OSHA offices. Compliance assistance specialists can provide information to employers and workers about OSHA standards, short educational programs on specific hazards or OSHA rights and responsibilities, and information on additional compliance assistance resources. For more details, visit [www.osha.gov/dcsp/compliance\\_assistance/cas.html](http://www.osha.gov/dcsp/compliance_assistance/cas.html) or call 1-800-321-OSHA [6742] to contact your local OSHA office.

## **Free On-site Safety and Health Consultation Services for Small Business**

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. Each year, responding to requests from small employers looking to create or improve their safety and health management programs, OSHA's On-site Consultation Program conducts over 29,000 visits to small business worksites covering over 1.5 million workers across the nation.

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 programs.

For more information, to find the local On-site Consultation office in your state, or to request a brochure on Consultation Services, visit [www.osha.gov/consultation](http://www.osha.gov/consultation), or call 1-800-321-OSHA [6742].

Under the consultation program, certain exemplary employers may request participation in OSHA's **Safety and Health Achievement Recognition Program (SHARP)**. Eligibility for participation includes, but is not limited to, receiving a full-service, comprehensive consultation visit, correcting all identified hazards and developing an effective safety and health management program. Worksites that receive SHARP recognition are exempt from programmed inspections during the period that the SHARP certification is valid.

## **Cooperative Programs**

OSHA offers cooperative programs under which businesses, labor groups and other organizations can work cooperatively with OSHA. To find out more about any of the following programs, visit [www.osha.gov/dcsp/compliance\\_assistance/index\\_programs.html](http://www.osha.gov/dcsp/compliance_assistance/index_programs.html).

## **Strategic Partnerships and Alliances**

The OSHA Strategic Partnerships (OSP) provides the opportunity for OSHA to partner with employers, workers, professional or trade associations, labor organizations, and/or other interested stakeholders. OSHA Strategic Partnerships are formalized through unique agreements designed to encourage, assist, and recognize partner efforts to eliminate serious hazards and achieve model workplace safety and health practices. Through the Alliance Program, OSHA works with groups committed to worker safety and health to prevent workplace fatalities, injuries and illnesses by developing compliance assistance tools and resources to share with workers and employers, and educate workers and employers about their rights and responsibilities.

## **Voluntary Protection Programs (VPP)**

The VPP recognize employers and workers in private industry and federal agencies who have implemented effective safety and health management programs and maintain injury and illness rates below the national average for their respective industries. In VPP, management, labor, and OSHA work cooperatively and proactively to prevent fatalities, injuries, and illnesses through a system focused on: hazard prevention and control, worksite analysis, training, and management commitment and worker involvement.

## **Occupational Safety and Health Training**

The OSHA Training Institute in Arlington Heights, Illinois, provides basic and advanced training and education in safety and health for federal and state compliance officers, state consultants, other federal agency personnel and private sector employers, workers, and their representatives. In addition, 27 OSHA Training Institute Education Centers at 42 locations throughout the United States deliver courses on OSHA standards and occupational safety and health issues to thousands of students a year.

For more information on training, contact the OSHA Directorate of Training and Education, 2020 Arlington Heights Road, Arlington Heights, IL 60005; call 1-847-297-4810; or visit [www.osha.gov](http://www.osha.gov).

## OSHA Educational Materials

OSHA has many types of educational materials in English, Spanish, Vietnamese and other languages available in print or online. These include:

- Brochures/booklets that cover a wide variety of job hazards and other topics;
- Fact Sheets, which contain basic background information on safety and health hazards;
- Guidance documents that provide detailed examinations of specific safety and health issues;
- Online Safety and Health Topics pages;
- Posters;
- Small, laminated QuickCards™ that provide brief safety and health information; and
- *QuickTakes*, OSHA's free, twice-monthly online newsletter with the latest news about OSHA initiatives and products to assist employers and workers in finding and preventing workplace hazards. To sign up for *QuickTakes* visit OSHA's web site at [www.osha.gov](http://www.osha.gov) and click on *QuickTakes* at the top of the page.

To view materials available online or for a listing of free publications, visit OSHA's web site at [www.osha.gov](http://www.osha.gov). You can also call 1-800-321-OSHA [6742] to order publications.

OSHA's web site also has a variety of eTools. These include utilities such as expert advisors,

electronic compliance assistance, videos and other information for employers and workers. To learn more about OSHA's safety and health tools online, visit [www.osha.gov](http://www.osha.gov).

## NIOSH HEALTH HAZARD EVALUATION PROGRAM

### Getting Help with Health Hazards

The National Institute for Occupational Safety and Health (NIOSH) is a federal agency that conducts scientific and medical research on workers' safety and health. At no cost to employers or workers, NIOSH can help identify health hazards and recommend ways to reduce or eliminate those hazards in the workplace through its Health Hazard Evaluation (HHE) Program.

Workers, union representatives and employers can request a NIOSH HHE. An HHE is often requested when there is a higher than expected rate of a disease or injury in a group of workers. These situations may be the result of an unknown cause, a new hazard, or a mixture of sources. To request a NIOSH Health Hazard Evaluation go to [www.cdc.gov/niosh/hhe/request.html](http://www.cdc.gov/niosh/hhe/request.html). To find out more about the Health Hazard Evaluation Program:

- Call (513) 841-4382, or to talk to a staff member in Spanish, call (513) 841-4439; or
- Send an email to [HHERequestHelp@cdc.gov](mailto:HHERequestHelp@cdc.gov).



## OSHA REGIONAL OFFICES

### Region I

Boston Regional Office  
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JFK Federal Building, Room E340  
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### Region III

Philadelphia Regional Office  
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### Region V

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230 South Dearborn Street  
Room 3244  
Chicago, IL 60604  
(312) 353-2220 (312) 353-7774 Fax

### Region VI

Dallas Regional Office  
(AR, LA, NM\*, OK, TX)  
525 Griffin Street, Room 602  
Dallas, TX 75202  
(972) 850-4145 (972) 850-4149 Fax  
(972) 850-4150 FSO Fax

### Region VII

Kansas City Regional Office  
(IA\*, KS, MO, NE)  
Two Pershing Square Building  
2300 Main Street, Suite 1010  
Kansas City, MO 64108-2416  
(816) 283-8745 (816) 283-0547 Fax

### Region VIII

Denver Regional Office  
(CO, MT, ND, SD, UT\*, WY\*)  
Cesar Chavez Memorial Building  
1244 Speer Boulevard, Suite 551  
Denver, CO 80204  
(720) 264-6550 (720) 264-6585 Fax

### Region IX

San Francisco Regional Office  
(AZ\*, CA\*, HI\*, NV\*, and American Samoa,  
Guam and the Northern Mariana Islands)  
90 7th Street, Suite 18100  
San Francisco, CA 94103  
(415) 625-2547 (415) 625-2534 Fax

### Region X

Seattle Regional Office  
(AK\*, ID, OR\*, WA\*)  
300 Fifth Avenue, Suite 1280  
Seattle, WA 98104  
(206) 757-6700 (206) 757-6705 Fax

\* These states and territories operate their own OSHA-approved job safety and health plans and cover state and local government employees as well as private sector employees. The Connecticut, Illinois, New Jersey, New York and Virgin Islands programs cover public employees only. (Private sector workers in these states are covered by Federal OSHA). States with approved programs must have standards that are identical to, or at least as effective as, the Federal OSHA standards.

Note: To get contact information for OSHA area offices, OSHA-approved state plans and OSHA consultation projects, please visit us online at [www.osha.gov](http://www.osha.gov) or call us at 1-800-321-OSHA (6742).



## HOW TO CONTACT OSHA

For questions or to get information or advice, to report an emergency, report a fatality or catastrophe, order publications, sign up for OSHA's e-newsletter *QuickTakes*, or to file a confidential complaint, contact your nearest OSHA office, visit [www.osha.gov](http://www.osha.gov) or call OSHA at 1-800-321-OSHA (6742), TTY 1-877-889-5627.

**For assistance, contact us.  
We are OSHA. We can help.**







U.S. Department of Labor

**For more information:**



[www.osha.gov](http://www.osha.gov) (800) 321-OSHA (6742)





## Anasphere Plus Safety Data Sheet

## SAFETY DATA SHEET

Anasphere Plus

Date Issued : 12/12/2016

SDS No : 2500

### 1. PRODUCT AND COMPANY IDENTIFICATION

**PRODUCT NAME:** Anasphere Plus  
**GENERAL USE:** Disinfectant, Virucide, Fungicide  
**PRODUCT DESCRIPTION:** Disinfectant  
**PRODUCT CODE:** 2500

#### DISTRIBUTOR

Anabec, Inc.  
9393 Main Street, PO Box 433  
Clarence, NY 14031

**E-Mail:** anabec@anabec.com  
info@anabec.com

**Phone:** 716-759-4006  
800-369-8463

#### 24 HR. EMERGENCY TELEPHONE NUMBERS

**CHEMTREC (Within the U.S. and Canada) :** (800) 424-9300  
**Poison Control Center (US):** (800) 222-1222

**EPA REG. NO.:** 61178-1-7 2786

### 2. HAZARDS IDENTIFICATION

#### Classification of the substance or mixture

**Skin Corr. 1C**  
**Eye Dam. 1**  
**Acute Tox. 4 (oral)**



**GHS05** GHS07  
Corrosion

**SIGNAL WORD:** DANGER

#### HAZARD STATEMENTS

Skin Corr. 1C H314: Causes severe skin burns and eye damage.

Eye Dam. 1 H318: Causes serious eye damage.

Acute Tox. 4 H302: Harmful if swallowed.

#### PRECAUTIONARY STATEMENTS

P260 Do not breathe mist/spray.

P280 Wear protective gloves/protective clothing/eye protection/face protection.

P264 Wash hands thoroughly after handling.

P270 Do not eat, drink or smoke when using this product.

P303+P361+P353+P310 IF ON SKIN (or hair): Remove/Take off immediately all contaminated clothing. Rinse skin with water/shower. Immediately call a poison center / doctor.

P363 Wash contaminated clothing before reuse.

P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310 Immediately call a POISON CENTER or a doctor/physician.

P304+P340 IF INHALED: Remove person to fresh air and keep comfortable for breathing.

P301+P330+P331 IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. Call a POISON CENTER or doctor/physician if you feel unwell.

P405 Store locked up.

P501 Dispose of contents/container in accordance with local regulations.

### 3. COMPOSITION / INFORMATION ON INGREDIENTS

Chemical Name	Wt.%	CAS
n-Alkyl dimethyl benzyl ammonium chloride (C12-C18)	2.37	68391-01-5
N-alkyl Dimethyl Ethyl Benzyl Ammonium Chloride (C12-C14)	2.37	68956-79-6

### 4. FIRST AID MEASURES

**EYES:** Immediately flush eyes with water for at least 15 minutes, while holding eyelids open. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Seek medical attention immediately.

**SKIN:** Wash with soap and water. Get medical attention if irritation develops or persists.

**INGESTION:** Get immediate medical attention. Do not induce vomiting unless instructed to do so by poison center or physician.

**INHALATION:** Remove victim to fresh air and monitor. Seek medical advise if irritation persists.

**NOTES TO PHYSICIAN:** Probable mucosal damage may contraindicate the use of gastric lavage.

### 5. FIRE FIGHTING MEASURES

**FLAMMABLE CLASS:** None

**HAZARDOUS COMBUSTION PRODUCTS:** Not Established

**EXPLOSION HAZARDS:** None

**HAZARDOUS DECOMPOSITION PRODUCTS:** Not Established

### 6. ACCIDENTAL RELEASE MEASURES

**SMALL SPILL:** Avoid runoff into storm sewers and ditches which lead to waterways.

**LARGE SPILL:** Avoid walking in material. Prevent product from entering into stream, soil, storm sewer or other bodies of water.

#### ENVIRONMENTAL PRECAUTIONS

**WATER SPILL:** Avoid discharges into open waterways.

**LAND SPILL:** Avoid discharge to soil.

**AIR SPILL:** NA = Not Applicable

**GENERAL PROCEDURES:** Isolate spill or leak area immediately. Keep unauthorized personnel away. Do not touch or walk through spilled material. Prevent entry into waterways, sewers, or confined areas. Absorb with dry earth, sand or other non-combustible material and transfer to containers.

### 7. HANDLING AND STORAGE

**GENERAL PROCEDURES:** Store containers away from children. Close container after use.

**HANDLING:** Avoid contact with skin and eyes. Wash hands before eating, drinking, smoking or using toilet facilities.

**STORAGE:** Store in area inaccessible to children.

**STORAGE TEMPERATURE:** Store at ambient temperatures.

### 8. EXPOSURE CONTROLS / PERSONAL PROTECTION

#### PERSONAL PROTECTIVE EQUIPMENT

**EYES AND FACE:** Chemical splash goggles, full face-shield.

**SKIN:** Rubber or other chemical resistant gloves. Rubber boots of used on floors. Chemical resistant outerwear (tyvek) if contact with spray or mist is anticipated.

**RESPIRATORY:** Where danger of mist contact may occur, wear NIOSH approved respiratory protection for mists.

**PROTECTIVE CLOTHING:** None Expected.



**WORK HYGIENIC PRACTICES:** Wash with soap and water after handling. Do not eat, drink or smoke while using product.

**9. PHYSICAL AND CHEMICAL PROPERTIES**

**PHYSICAL STATE:** Liquid  
**ODOR:** Mild, pleasant  
**COLOR:** Clear  
**pH:** 11.5 to 12.5  
**FLASH POINT AND METHOD:** NA = Not Applicable  
**FLAMMABLE LIMITS:** NA = Not Applicable  
**VAPOR PRESSURE:** 20  
**VAPOR DENSITY:** ~ 1  
**BOILING POINT:** 212° F; 100° C  
**SOLUBILITY IN WATER:** Complete  
**EVAPORATION RATE:** ~ 1  
**DENSITY:** 8.66  
**SPECIFIC GRAVITY:** 1.039 grams/ml.  
**VISCOSITY:** Water thin.

**10. STABILITY AND REACTIVITY**

**STABLE:** Yes  
**HAZARDOUS POLYMERIZATION:** No  
**POLYMERIZATION:** Will not occur.  
**CONDITIONS TO AVOID:** Oxidizing materials.  
**HAZARDOUS DECOMPOSITION PRODUCTS:** Not Established  
**INCOMPATIBLE MATERIALS:** Strong acids, oxidizers.

**11. TOXICOLOGICAL INFORMATION**

**ACUTE**

Chemical Name	ORAL LD <sub>50</sub> (rat)	DERMAL LD <sub>50</sub> (rabbit)
n-Alkyl dimethyl benzyl ammonium chloride (C12-C18)	> 1890 mg/kg	> 2000 mg/kg
N-alkyl Dimethyl Ethyl Benzyl Ammonium Chloride (C12-C14)	> 500	> 2000

**DERMAL LD<sub>50</sub>:** > 2000 mg/kg male and female rabbits.

**ORAL LD<sub>50</sub>:** > 1890 mg/kg Male and Female rats.

**EYE EFFECTS:** Corrosive to eyes. Permanent damage may occur.

**SKIN EFFECTS:** Severe skin irritant. May cause burns to skin.

**CARCINOGENICITY**

**IARC:** None known.

**OSHA:** None known.

**SENSITIZATION:** Not Available

**REPRODUCTIVE EFFECTS:** None known.

**TARGET ORGANS:** None known.

**TERATOGENIC EFFECTS:** Not Available

**MUTAGENICITY:** Not Available

## 12. ECOLOGICAL INFORMATION

**ENVIRONMENTAL DATA:** Not Available

**ECOTOXICOLOGICAL INFORMATION:** No known significant effects or critical hazards noted.

**BIOACCUMULATION/ACCUMULATION:** Not Available

**AQUATIC TOXICITY (ACUTE):** Not Established

## 13. DISPOSAL CONSIDERATIONS

**DISPOSAL METHOD:** Although not a hazardous waste, the discarding or disposal of this material should be done at a properly permitted facility in accordance with the regulations 40CFR 262, 263, 264, and 268. Additionally, the discarding or disposal of this material may be further regulated by state, regional, or local regulations.

## 14. TRANSPORT INFORMATION

**DOT (DEPARTMENT OF TRANSPORTATION)**

**PROPER SHIPPING NAME:** Not regulated.

**ROAD AND RAIL (ADR/RID)**

**PROPER SHIPPING NAME:** Not regulated.

**AIR (ICAO/IATA)**

**SHIPPING NAME:** Not regulated.

**VESSEL (IMO/IMDG)**

**SHIPPING NAME:** Not regulated.

**CANADA TRANSPORT OF DANGEROUS GOODS**

**SHIPPING NAME:** Not regulated.

## 15. REGULATORY INFORMATION

**UNITED STATES**

**SARA TITLE III (SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT)**

**311/312 HAZARD CATEGORIES:** Health - Acute

**REACTIVITY:** Yes

**313 REPORTABLE INGREDIENTS:** No products were found.

**302/304 EMERGENCY PLANNING**

**EMERGENCY PLAN:** No products were found.

**CERCLA (COMPREHENSIVE RESPONSE, COMPENSATION, AND LIABILITY ACT)**

**CERCLA REGULATORY:** None

**TSCA (TOXIC SUBSTANCE CONTROL ACT)**

Chemical Name	CAS
n-Alkyl dimethyl benzyl ammonium chloride (C12-C18)	68391-01-5
N-alkyl Dimethyl Ethyl Benzyl Ammonium Chloride (C12-C14)	68956-79-6

**TSCA REGULATORY:** All ingredients are listed on the TSCA Chemical Inventory.

**OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA)**

**29 CFR1910.119—PROCESS SAFETY MANAGEMENT OF HIGHLY HAZARDOUS CHEMICALS:** No products were found.

**CARCINOGEN:** No products were found.

**FIFRA (FEDERAL INSECTICIDE, FUNGICIDE, AND RODENTICIDE ACT):** Regulated

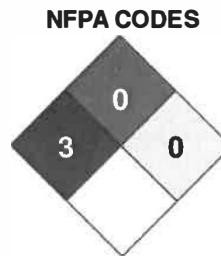
## 16. OTHER INFORMATION

**APPROVED BY:** Nancy Ewing **TITLE:** President

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**PREPARED BY:** Kim Hall

HMIS RATING	
HEALTH	3
FLAMMABILITY	0
PHYSICAL HAZARD	0
PERSONAL PROTECTION	B



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