



Chemical Reactivity Hazards

Chemical reactivity is when a material or materials change under certain conditions. Through reactivity, certain chemicals can be altered to create new and useful products. However, reactivity creates the potential for uncontrolled reactions, which can lead damage of people, property, or the environment.

Some materials can be reactive when exposed to heat, pressure, friction, water, or air. Chemical industries or other manufactures must have a safe operation system, design, and adequate hazardous materials handling procedures on their facilities. If there is not proper control at the facility, unexpected release of toxic or flammable liquids or gases can cause major disasters.

OSHA issued the process safety management of highly hazardous chemicals standard. This is the requirement for handling hazardous chemicals. Chemical reactivity is a very serious topic. When they are not properly understood or handled, chemicals can be extremely hazardous to employees as well as the public. The best method for preventing these hazards is to thoroughly train all employees on chemical hazards and safety requirements according to the OSHA standard.



Protection Includes:

- Consider all chemicals are reactive.
- Make sure containers are labeled.
- Understand the fire control plan.
- Store flammables according to the guidelines.
- Do not store chemicals above eye level.
- Do not put strong chemicals on the floor.
- Store liquids in safe containers.
- Do not overcrowd the shelves.
- Follow safe housekeeping.
- No blocked exits or aisles
- Waste handling procedures.
- Have ongoing safety training, as required.
- Conduct spill procedure training.

Work Site Review: Hazards/Safety Suggestions

Company Name: _____ Work Site Location: _____

Date: _____ Start Time: _____ Finish Time: _____ Foreman/Supervisor: _____

Employee Signatures: (continue on back of sheet if necessary)

(My signature attests and verifies my understanding of and agreement to comply with, all company safety policies and regulations, and that I have not suffered, experienced, or sustained any recent job-related injury or illness)

Manager/Supervisor's Signature: _____

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Dermal Exposure

Skin is the thin layer of tissue that forms the natural cover of the human body. One of its functions is to protect the human body (UV radiation, toxic substances, etc.). Skin is a very important exposure route for many different substances and products at the workplace, home, or other facilities. Dermal exposure can cause local damage or systemic effects if it crosses the skin barrier.

Absorption of chemicals through the skin can occur without being noticed. Employees working at industries such as health care, cleaning, painting, mechanics, construction, printing, food service, and cosmetology are at risk for dermal exposure to hazardous substances. Occupational skin exposure can create different kinds of health problems. Direct skin effects, immune-mediated skin effects, and systemic effects are major concerns of occupational dermal exposure. The symptoms of acute skin exposure can cause pain, itching, redness, and swelling. Severity of skin contact depends on exposure concentration, absorption, chemical property of the substance, length of time, condition of skin, and frequency of the exposure.

Understanding dermal exposure hazards is important in order to properly implement protective measures and ensure the safety and health of workers. All employees should be educated and trained according to the OSHA requirement.

Some Protection Tips:

- Keep your workplace clean.
- Have proper waste containers in place.
- Have MSDS for all substances at the workplace.
- If you are outside use sunscreen and sunglasses.
- Label and safely store chemicals.
- Have eye wash stations and showers close if you work with strong acids or dangerous chemicals.
- Use required PPE (gloves, aprons, etc.).
- Eye protection is particularly important.
- Wear clean clothes to work. I
- If your clothes come into contact with any chemical take them off immediately after work.
- Do not clean your skin with oil, grease, or turpentine.
- Do not smoke, eat, or drink at your work area.
- Avoid chemical contact your eyes or skin.
- Avoid or reduce contact with the materials that can cause skin systemic problems.
- Complete training on chemical handling, labeling, personal protective equipment, and general safety before working with chemicals or other hazardous substances.



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Fire Triangle

The fire triangle or combustion triangle is a combination of three elements: fuel, heat, and an oxidizing agent (oxygen). The right proportion of these three elements must be combined for a fire to occur. When starting a fire, heat is the most important element, fuel (such as chemicals, wood, paper, etc.) is the second most important element, and oxygen to maintain the fire is the third most important element. The fire triangle can help to prevent fires at the workplace if it is part of the fire protection program. The cause of workplace fires is often friction from heat, cutting metals improperly, welding, improperly storing flammable materials, open flames, and smoking. The best way to prevent fires at the workplace is to have a written fire prevention program, which includes all fire hazards, fire controls, an emergency action plan, and training/education for all employees in accordance with OSHA requirements.



The Plan must Include:

- List of all fire hazards at workplace. Procedure for safe handling/storage.
- Potential ignition sources (smoking, welding, etc.).
- Separation of incompatible materials.
- Proper construction and storage.
- Proper ventilation.
- Unobstructed exits.
- Fire prevention strategy, including containment procedures to reduce the potential spread of fire.
- The name of the employees responsible for the maintenance of fire controlling equipment and systems (i.e. fire extinguishers/sprinklers).

Training:

- All employees must be trained for fire emergency procedures.
- New employees must be trained and understand the fire prevention program. Employees who are responsible for using extinguishers must be trained accordingly.
- The written plan must be available for all employees at the workplace to review.
- Emergency telephone numbers should be available at the workplace.

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Hearing Protection

Noise is one of the major occupational health concerns in the United States. Long term exposure to high levels of noise can cause permanent hearing loss, and short-term exposure can cause temporary hearing loss. Loud noises can cause stress, affect communication, reduce productivity and concentration, and may contribute at workplace accidents and injuries. At the workplace, excessive noise exposure can be controlled or reduced through administrative, engineering, and hearing protection devices. This includes keeping employees away from noisy equipment, isolating noisy areas, providing less noisy tools/equipment, and using hearing protection devices.

NIOSH has recommended that all workers' exposure limit to noise should be under or equal to 85 dBA for eight hours in order to reduce exposure to noise and prevent hearing loss. The OSHA standard requires a hearing conservation program when workers are exposed to a time weighted average noise level of 85 Dba or higher over an 8-hour work shift. Hearing conservation programs require employers to measure noise levels, provide free yearly hearing checks and ear protection, and provide training to employees

Hearing PROTECTION



Hearing Protection Practices:

- Wearing ear protection:
 - Good quality earplugs or earmuffs
 - Noise-cancelling headphones
 - Proper selection of hearing protection is dependent on workplace noise levels.
- Do not smoke and check your blood pressure regularly (can be damaging to your ear).
- Choose low-noise tools or equipment.
- Maintain machinery and equipment.
- Provide noise sampling and personal noise monitoring.
- Have a hearing test program in place.
- Providing training and information to make sure workers are protected according to OSHA requirements.
- Educate workers for noise hazard levels and protection.

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Truck Safety

All industrial companies are required to have a written safety transportation policy to meet the DOT and OSHA transportation safety requirements. To maintain safe transportation practices, all employees must be trained and educated on safe driving and complying with all required safety regulations on the roads. Truck drivers must meet all of the requirements for transporting materials, including the ability to read and write understand all requirements in English. Drivers must be mentally and physically qualified to drive a company truck and must provide valued medical certificate according to the standard.

The DOT (US Department of Transportation) oversees the national transportation policy, and it includes the following agencies: FAA, FHWA, FMCSA, USCG, and TSA. The department of transportation has jurisdiction over transportation of hazardous materials on the interstate. OSHA's jurisdiction is limited to vehicles operated on the workplace and not on public roads. Companies must train and educate drivers. Training must be refreshed according to regulations, and it must be recorded.



Truck Safety

Driver must:

- Have a valid commercial driver's license.
- Have at least 2 years of driving experience and 5 years of experience to transport hazardous materials.
- Be able to understand all signs.
- Have no violations within the past 5 years for driving under the influence of alcohol and drug, hit and run accidents, reckless driving, passing a stopped school bus, distracted driving, or failure to report an accidents.
- Must be in good health.

For safe driving:

- Watch your blind spots.
- Reduce your speed when driving through interstate construction.
- Always make sure to check and maintain your truck each morning before starting your work.
- Fill out the company check list.
- Load your truck wisely.

Reduce your speed on curves. Follow speed limit.

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