

Flammable and Combustible Liquids Safe Handling Guideline

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Synonyms

Will vary depending upon specific chemicals

Reactivity and Physical Concerns

Liquids that pose a fire hazard are grouped as flammable and combustible according to their flashpoints. Generally speaking, flammable liquids will ignite and burn easily at normal working temperatures (i.e., flash points at or below 100°F [38°C]) while combustible liquids usually burn at temperatures that are above (i.e., must be preheated in order to ignite). At normal room temperatures, flammable liquids can give off enough vapor to form mixtures with air that present fire hazards. Spray mists of flammable and combustible liquids in air may burn at any temperature if an ignition source is present. The vapors from most flammable and combustible liquids are heavier than air: these vapors can settle and collect in low areas and present a hazard of flash back. Some flammable and combustible liquids are corrosive; many undergo dangerous chemical reactions if they contact incompatible chemicals such as oxidizing materials or if they are stored improperly.

Exposure Hazards

Routes of Exposure

The health hazards associated with flammable and combustible liquids will vary depending upon the individual chemical's hazards; the manufacturer's SDS should be consulted for each chemical in use. Generally the hazards presented may include the following:

- **Inhalation** of flammable liquids can cause irritation to the respiratory passages, nausea, headaches, muscle weakness, drowsiness, loss of coordination, disorientation, confusion, unconsciousness, and death.
- **Skin contact** with flammable liquids can cause the skin's oils to be removed, resulting in irritated, cracked, dry skin, rashes, and dermatitis.
- **Eye contact** with flammable liquids can cause burning, irritation, and eye damage.

Chronic Exposure

Chronic exposure hazards associated with flammable and combustible liquids will vary greatly and range from damage to the lungs, liver, kidneys, heart, and/or central nervous system; cancer and reproductive effects are also possible. Consult the SDS for specific chronic hazards.

First Aid

First aid measures will vary based on the individual chemical's hazard properties. In general the following steps should be taken. **If inhaled or ingested** remove person from the contaminated area if it is safe to do so. Obtain medical attention and do not leave person unattended. **If skin contact occurs** remove person from source of contamination. Remove clothing, jewelry, and shoes from the affected areas. Flush the affected area with water for at least 15 minutes and obtain medical attention. **If eye contact occurs** remove person from the source of contamination. Flush the eyes with water for at least 15 minutes. Obtain medical attention. (See [Chemical Safety: Accidental Exposure Requirements](#) [SLAC-I-730-0A09S-041].)

Exposure Limits

Exposure limits will vary based on individual chemical hazards, consult the manufacturer's [SDS](#) for established exposure limits.

Exposure Controls

Engineering Controls

Local exhaust ventilation or breathing protection is generally required. Depending upon the level of flammability involved with specific chemicals, engineering control requirements may increase. Consult the SDS for hazardous properties and your local jurisdictional authority for specific requirements. Secondary containment of all storage and use is generally required if an exposure risk to personnel or the environment is present.

Administrative Controls

Administrative controls will vary based on individual chemical hazards. Personnel working with the materials must receive detailed training on the hazards, safe use, and emergency procedures.

Personal Protective Equipment

Follow SDS recommendations for PPE. In general, prevent skin/eye contact through the use of impervious gloves, clothing, boots, apron, and eye goggles or full face shield. If the airborne oxygen concentrations are elevated and engineering controls are not feasible wear a NIOSH-approved self-contained breathing apparatus with full face-piece operated in the pressure demand or other positive pressure mode.

Disposal

In general, flammable and combustible liquids are disposed of as hazardous waste. Regulatory requirements will vary depending on the individual chemical; contact the Waste Management Group for specific disposal requirements and procedures.

Medical Monitoring (if applicable)

Medical monitoring will vary depending on the individual chemical's hazards. Consult the SDS or chemical safety program manager for the appropriate medical monitoring.

Emergency Response

In the event of a spill that poses a threat to health and/or the environment, immediately evacuate the area and call 911. Then call SLAC Site Security (ext. 5555 or 650-926-5555 from a cell phone) and notify your supervisor.

For other spills, notify your supervisor then SLAC Site Security; these may be cleaned up with appropriate spill response supplies by trained personnel who have been authorized via work planning and control. (See [Spills: Response, Cleanup, and Reporting Procedure](#) [SLAC-I-750-0A16C-006].)

Standards and Regulations

- OSHA. PEL: [29 CFR 1910.1000 Table Z-1](#); Respiratory Protection: [29 CFR 1910.134](#)
- EPA. Release: [40 CFR 355.40](#); Waste: [40 CFR 261.21-261.24](#)
- *California Fire Code*, Chapters 27 through 41 ([24 CCR Part 9](#))

Other References

- CCOSH. [OSH Answers: Flammable & Combustible Liquids – Hazards](#)