Flammable Liquids Plan

Tips and Considerations

**Applicability.** This sample Flammable Liquids Plan (Plan) applies to any facility or operation that handles, stores, or uses flammable liquids in containers with a capacity equal to or less than 60 gallons (gal) per container and where employees may be exposed to hazards related to such liquids.

**Purpose.** The purpose of the sample Plan is to reduce employee exposure to the physical and health hazards of flammable liquids. The hazards include:

* Fire
* Explosion
* Toxic vapors
* Splashes on the skin or in the eyes that may cause irritation or an injurious reaction if absorbed by the body

**Examples of flammable liquids.** Flammable liquids include:

* Gasoline
* Diesel fuel
* Oil
* Solvents
* Alcohol (ethyl, isopropyl, and methyl)
* Paint and lacquer thinners and strippers
* Adhesives
* Cleaners
* Waxes and polishes

**Employee training.** The flammable liquids rule does not cover employee training; the training is covered under OSHA’s hazard communication (worker right-to-know) rule at 29 Code of Federal Regulations (CFR) 1910.1200(h). The rule states that employers must provide information and training to employees who work in areas where hazardous chemicals are present, including flammable liquids.

**Related rules.** The following regulatory requirements may apply to your Plan but are not covered in this Plan:

* Hazard Communication Standard at 29 CFR 1910.1200
* Spray finishing operations at 29 CFR 1910.107
* Additional requirements for dipping and coating operations at 29 CFR 1910.125
* Shippers—General Requirements for Shipments and Packagings at Department of Transportation (DOT) regulations 49 CFR Parts 171 to 173
* Specific design, construction, and operation standards for:

–Tanks storing flammable liquids (29 CFR 1910.106(b))

–Piping systems containing flammable liquids (29 CFR 1910.106(c))

–Industrial plants where use of flammable liquids is incidental to the principal business or flammable liquids are handled or used in physical operations that do not involve chemical reaction (29 CFR 1910.106(e))

–Bulk plants (29 CFR 1910.106(f))

–Service stations (29 CFR 1910.106(g))

–Processing plants (29 CFR 1910.106(h))

–Refineries, chemical plants, and distilleries (29 CFR 1910.106(i))

**Basic elements of the Plan.** The Plan should include information about:

* Hazard assessment
* Employer responsibilities and contact information
* Hazard controls and work practices, including personal protective equipment
* Employee information and training
* Emergency response

**Industry consensus standards.** Following are voluntary industry consensus standards that you may adopt in your Plan for the storage, handling, and use of flammable liquids:

National Fire Protection Association (NFPA) 30, *Flammable Liquids Code,* and

NFPA 30A, *Code for Motor Fuel Dispensing Facilities and Repair Garages.*

**Regulatory requirements.** The federal OSHA flammable liquids rule requirements are found at 29 CFR 1910.106.

**Review and incorporate state regulatory requirements.** This Plan is based on federal OSHA regulatory requirements and best practices. Some states have laws and regulations that are stricter than federal requirements and may affect how you customize this Plan.

# *[Company name]*

# Flammable Liquids Plan

**[*insert facility address*]**

**Plan last updated:** **[*insert date*]**

## Flammable Liquids Plan

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Authority and Scope

**Regulation:** 29 Code of Federal Regulations (CFR) 1910.16, Flammable Liquids and Appendix B to 29 CFR 1910.1200, Physical Hazard Criteria [*replace with the state regulations if applicable*].

**Scope:** This Flammable Liquids Plan (Plan) covers the storage, handling, and use of all flammable liquids in containers with a capacity equal to or less than 60 gallons (gal) per container at the facility. Keep this written Plan in the workplace, and make it available to employees for review.

Policy Statement

We will protect all property and employees who store, handle, or use flammable liquids from fire, explosion, illness, or injury through engineering controls, safe work practices, training, and personal protective equipment (PPE). All operations that involve flammable liquids will be performed in compliance with applicable federal and state regulations.

Definitions

*[Insert any additional definitions of key terms.]*

*Flash point*—the minimum temperature at which a liquid gives off vapor in sufficient concentration to form an ignitable mixture with air near the surface of the liquid. The lower the flash point, the more likely liquid is to catch fire and burn.

*Flammable liquid container*—any can, barrel, or drum with a capacity equal to or less than 60 gal.

*Flammable liquid*—any liquid with a flash point below or equal to 199.4°F (93°C). Flammable liquids are divided into the following four categories:

|  |  |  |
| --- | --- | --- |
| **Category** | **Flash Point in degrees F (C)** | **Boiling Point in degrees F (C)** |
| Flammable 1 | below 73.4°F (23°C) | below or equal to 95°F (35°C) |
| Flammable 2 | below 73.4°F (23°C) | above 95°F (35°C) |
| Flammable 3\* | above or equal to 73.4°F (23°C) and below or equal to 140°F (60°C) |  |
| Flammable 4\*\* | above 140°F (60°C) andbelow or equal to 199.4°F (93°C) |  |
| Flammable 4\*\*\* | above 199.4°F (93°C) |  |

\* When a Category 3 liquid with a flashpoint at or above 100°F (37.8°C) is heated for use to within 30°F (16.7°C) of its flashpoint, it will be handled as a Category 3 liquid with a flashpoint below 100°F (37.8°C).

\*\* When a Category 4 flammable liquid is heated for use to within 30°F (16.7°C) of its flashpoint, it will be handled as a Category 3 liquid with a flashpoint at or above 100°F (37.8°C).

\*\*\* When liquid with a flashpoint greater than 199.4°F (93°C) is heated for use to within 30°F (16.7°C) of its flashpoint, it will be handled as a Category 4 flammable liquid.

*Flammable (or explosive) limits*—the range between the lowest and highest concentrations of vapor in air that will burn or explode.

Plan Administration

Table [*number*] provides the roles and contact information for the administration of the Plan.

They may be contacted for more information about the Plan or an explanation of an employee’s duties under the Plan. [*Modify the table as applicable to your organization.*]

**Table [*number*]—Plan Contact Information**

**Personnel Contact Information**

|  |  |  |
| --- | --- | --- |
| **Function** | **Contact Person** | **Phone Numbers** |
| Plan Administrator | Name, job title, and department | Work:Mobile: |
| Supervisor | Name, job title, and department | Work:Mobile: |
| Supervisor | Name, job title, and department | Work:Mobile: |
| Trainer | Name, job title, and department | Work:Mobile: |
| [*other*] | Name, job title, and department | Work:Mobile: |

**Plan Administrator.** The Administrator is responsible for the implementation of the Plan, including reviewing and updating it as necessary.

**Supervisors.** A facility supervisor has overall responsibility for ensuring that workers comply with all safety and health requirements, including responsibility to:

* Ensure that workers know and follow safe work practices, protective equipment is available and in working order, and appropriate training has been provided.
* Provide regular inspections, including routine inspections of emergency equipment.
* Know the current legal requirements concerning regulated substances.

**Employees.** Employees will plan and conduct each operation that involves flammable liquids in accordance with the practices and procedures in this Plan.

Plan Review and Update

This Plan will be reviewed and updated whenever:

* New types of flammable liquids are introduced.
* The processes or operations that utilize such liquids are changed.

Hazard Assessment

[*Name*] will conduct an initial assessment of hazards related to the storage, handling, and use of flammable liquids at the facility, including an inventory of locations where such liquids are stored, handled, or used.

See Attachment *[number]* for a copy of the Chemical Job Hazard Analysis Worksheet for the hazard analysis procedure.

See Attachment *[number]* for a copy of the *Flammable Liquid Inventory and Location List.*

**Periodic hazard reassessment.** Periodic reassessments of hazards will be conducted when new types of flammable liquids are introduced and when the processes or operations that utilize flammable liquids are changed.

**Employee identification of hazards.** Employees will be able to identify flammable liquids in one or more of the following three ways:

* Safety data sheets (SDSs) will show the flash point, flammable limits, and vapor density; enumerate safety and health hazards; and give safe handling and storage instructions.
* A flammable container label, tag, or marking with product identifier and combination of words, pictures, or symbols that provide general information regarding the hazards of the chemicals and information about the physical and health hazards of the chemicals.
* Warning signs posted in areas where flammable liquids are used or stored are in red letters and warn that there are hazardous materials present that can burn or explode if ignited.

Containers

All flammable liquids will be kept in approved closed containers when not in use.

**Design, construction, and capacity of containers.** Only containers listed by a nationally recognized testing laboratory will be used for the storage of flammable liquids. Such containers will be labeled to show contents and warnings. Containers and their contents will comply with 49 CFR Department of Transportation (DOT) regulations. DOT-approved containers must be used in compliance with the restrictions of Table H-12 (Maximum Allowable Size of Containers and Portable Tanks) in 29 CFR 1910.106. Table [*number*] provides the information from Table H-12 concerning the maximum capacities of drums or other containers that may be used for storing flammable liquids.

**Table [*number*]—Maximum Container Capacity**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Container Type** | **Category 1** | **Category 2** | **Category 3** | **Category 4** |
| Glass or approved plastic | 1 pint | 1 quart | 1 gal | 1 gal |
| Metal (not DOT drums) | 1 gal | 5 gal | 5 gal | 5 gal |
| Safety cans | 2 gal | 5 gal | 5 gal | 5 gal |
| Metal DOT drums | 60 gal | 60 gal | 60 gal | 60 gal |

Glass or plastic containers of no more than 1 gal capacity can be used for a Category 1 or 2 flammable liquid if the containers are intended for direct export outside the United States as well as in this situation:

* Such liquid either would be rendered unfit for its intended use by contact with metal or would excessively corrode a metal container, which could create a leakage hazard; *and*
* The user's process either would require more than 1 pint of a Category 1 flammable liquid or more than 1 quart of a Category 2 flammable liquid of a single assay lot to be used at one time or would require the maintenance of an analytical standard liquid of a quality that is not met by the specified standards of liquids available, and the quantity of the analytical standard liquid required to be used in any one control process exceeds one-sixteenth the capacity of the container allowed under this Table for the category of liquid.

Safe Work Practices and Procedures

Following are the safe practices and procedures for all employees working around or with flammable liquids.

See Attachment *[number]* Flammable Liquids Checklist for the list of regulatory requirements.

Ignition Source Controls

All sources of ignition are prohibited in areas where flammable liquids are stored, handled, transferred, or processed. Flammable liquids will never be used near ignition sources such as:

* Electrical switches
* Open motors
* Static electricity
* Radiant heat
* Friction
* Cutting and welding

Equipment and systems installed on heat- or ignition-producing equipment and processes will be maintained to prevent the accidental ignition of flammable materials.

Flammable materials and residues will be controlled so that they do not cause or contribute to a fire emergency. **Table** [*number*] lists fire or combustion hazards, ignition sources, and fire prevention measures.

**Table** [*number*]—**Fire or Combustion Hazards, Ignition Sources, and Fire Controls**

|  |  |  |  |
| --- | --- | --- | --- |
| **Fuel Source Hazard** | **Ignition Source Hazard** | **Handling/Storage/Control Procedure** | **Fire Protection System/Equipment** |
| [List the specific fire or fuel source liquid.] | [List specific ignition source (e.g., smoking, electrical equipment, hot work (welding, etc.), or flame-producing equipment).] | [List specific control procedure (e.g., hot work permit, ventilation, closed containers, chemical segregation).] | [List specific system or equipment (e.g., sprinklers, fire extinguishers (types)).] |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

[Insert a detailed description for each of the handling/storage/control procedures outlined in this table in the third column for controlling the accumulation of flammable materials. Examples could include chemical segregation during storage and contaminated rags in closed containers. Here’s an example for gasoline:

**Gasoline will be stored in OSHA- or DOT-approved safety cans of not more than 5 gal capacity with a spring-closed lid and spout cover and designed to safely relieve internal pressure under fire exposure. The outside gasoline storage area will be posted on the outside with a sign labeled “Flammable—Keep Fire Away.” The area must be [*distance*] from another building and have a fire resistance rating of at least [*duration*].**]

Fire Prevention and Protection

**Flash point limit.** No flammable liquid with a flash point (closed cup test) below 100°F (37.7°C) will be used for cleaning purposes.

**Clothing.** When practicable, workers should avoid wearing synthetic clothing when using flammable liquids. Workers will guard carefully against contaminating any part of their clothing with flammable fluids and will not be allowed to continue work if their clothing becomes contaminated. Contaminated clothing must be removed or wet down immediately and will either be disposed of or washed before reuse.

**Fire extinguishers.** Suitable fire control devices, such as small hose or portable fire extinguishers, will be available at locations where flammable liquids are stored. In addition:

* At least one portable fire extinguisher having a rating of not less than 12-B units will be located outside of, but not more than 10 feet from, the door opening into any room used for storage.
* At least one portable fire extinguisher having a rating of not less than 12-B units must be located not less than 10 feet, nor more than 25 feet, from any Category 1, 2, or 3 flammable liquid storage area located outside of a storage room but inside a building.
* Special extinguishing equipment such as that utilizing foam, inert gas, or dry chemical will be provided as the need is indicated by the special hazards of operation dispensing and storage.

Bulk plants, service stations, and processing plants that use flammable liquids may have additional requirements. Local fire marshals will be consulted to determine specific requirements as to type and size of available fire extinguishers and other fire control equipment.

**Grounding of containers.** Category 1 or 2 flammable liquids, or Category 3 flammable liquids with a flashpoint below 100°F (37.8°C), will not be dispensed into containers unless the nozzle and container are electrically interconnected. This can be accomplished where the metallic floorplate on which the container stands while filling is electrically connected to the fill stem or where the fill stem is bonded to the container during filling operations by means of a bond wire.

**Disposal of contaminated rags.** Rags and other materials soaked with flammable materials will be discarded in designated tightly covered metal containers only.

Ventilation

Ventilation will meet regulatory standards to prevent the accumulation of flammable vapors to hazardous levels in all areas where flammable liquids are handled or used. In general, ventilation is considered adequate to prevent fire and explosion if it is sufficient to prevent accumulation of significant quantities of vapor-air mixtures in concentration over one-fourth of the lower flammable limit. See ***Inside Storage Rooms*** in this Plan for more information as to the standards for inside storage rooms**.**

Transferring Flammable Liquids

All flammable liquids that are transferred from one container to another will be handled in one of four ways:

* Through a closed piping system
* From safety cans
* By gravity through an approved self-closing safety faucet
* By means of a device drawing through the top (e.g., safety pump)

Storage

Safe Storage Practices

All employees will follow safe storage practices:

* Keep storage areas free of other combustible materials, such as cardboard, paper, and wood.
* Use only approved, properly labeled, closed containers or portable tanks for storage.
* Do not stack containers.
* Report leaks or spills immediately.
* Never smoke or bring an open flame or other ignition source into a flammable liquid storage area.

Storage Areas

Flammable liquids will be stored in fire-resistant rooms or in cabinets meeting NFPA standards. Storage areas will be located away from potential ignition sources, such as electrical panels and furnaces, and they will be marked with warning signs. Such areas will be well-ventilated to prevent buildup of vapors.

Small containers of flammable liquids (e.g., 1 gal paint cans, solvents, thinners) will be stored in fireproof cabinets in the locations as specified in **Table** [*number*]:

**Table** [*number*]—**Cabinets Storing Small Containers of Flammable Liquids**

|  |  |  |
| --- | --- | --- |
| **Name and type of chemical** | **Number of cabinet or other means to identify it** | **Location of cabinet** |
| [List the specific chemical name and type (such as paint, solvent, thinner).] |  | [Describe area of facility where located, such as which building, floor, storage room, etc.] |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |

**Incompatible materials.** Incompatible materials will be identified by checking the SDS for each material. Flammable liquids will be isolated and separated from incompatible materials. For example, materials that react with water will not be stored in the same room with flammable liquids. Incompatible materials (e.g., oxidizers) that are stored in the same room will be kept separate from each other.

**Fire extinguishers.** Fire extinguishers will be located near, but not in, storage areas. If extinguishers are too close to storage areas, the extinguishers may be inaccessible once a fire has started.

**Storage inside building.** Storage must not impede any means of exit. Storage of flammable liquid is prohibited in office areas except where small quantities (1 gal or less) are needed for maintenance and cleaning of office equipment.

**Storage outside building.** Outdoor storage quantities are determined by the class of the liquid. Table H-16 (Outdoor Container Storage) in 29 CFR 1910.106(d) provides appropriate guidelines. Appropriate spill containment and security measures must be provided.

**Storage cabinets.** Storage capacity limits are listed in Table [*number*]. Cabinets must comply with NFPA Standard 251 for construction, design, and fire resistance. All cabinets will be clearly labeled “Flammable—Keep Fire Away.”

**Table [*number*]—Maximum Capacity of Storage Cabinet**

|  |  |  |  |
| --- | --- | --- | --- |
| **Category 1 Liquids** | **Category 2 Liquids** | **Category 3 Liquids** | **Category 4 Liquids** |
| 60 gal | 60 gal | 60 gal | 120 gal |

Note that local authorities and insurance companies may require the use of flammable storage cabinets for quantities less than those specified in this table.

**Inside storage rooms.** Inside storage rooms must comply with NFPA Standards 251 and 80 for construction, design, and fire resistance. When rooms are constructed to comply with these requirements, the rating and capacity restrictions of Table H-13 (storage in inside rooms) in 29 CFR 1910.106(d)(4) apply. Table [*number*] provides the information from Table H-13.

**Table [*number*]—Storage in Inside Rooms**

|  |  |  |  |
| --- | --- | --- | --- |
| **Fire protection provided (e.g., sprinkler, water spray, carbon dioxide, or other system)** | **Fire resistance** | **Maximum size** | **Total allowable quantities(gal/sq. ft./floor area)** |
| Yes | 2 hours | 500 sq. ft. | 10 |
| No | 2 hours | 500 sq. ft. | 5 |
| Yes | 1 hour | 150 sq. ft. | 4 |
| No | 1 hour | 150 sq. ft. | 2 |

In addition, all wiring and electrical equipment located in storage rooms used for Class I liquids must meet specific standards for Class I, Division 2 Hazardous Locations. Gravity or mechanical exhaust must provide at least six air changes per hour. Exhaust systems must be designed and constructed in compliance with specific requirements.

Warning Signs

Suitable NO SMOKING, MATCHES, OR OPEN FLAME signs will be posted in all areas where flammable liquids are stored and where flammable liquid vapors are normally present.

Flammable liquids stored outside of approved storage cabinets:

* 10 gal for glass, plastic, or metal containers
* 25 gal for safety cans

Indoor Office Storage

Flammable liquids used indoors must be kept in closed metal containers in quantities that do not exceed that which is required for maintenance and operation of equipment. Such liquids will be stored in a storage cabinet, in safety cans, or in an inside storage room without a door that could open into a portion of the building used by the public.

PPE

**General PPE requirements.** All employees who use, store, or dispense flammable liquids will wear PPE appropriate to the job task in order to prevent inhalation or direct exposure to the eyes and skin. Employees will be trained to wear, use, and maintain the following PPE while handling flammable liquids:

* Safety glasses with side shields or goggles
* Gloves
* Footwear that completely covers the feet and toes

Additional protective clothing should be worn if the possibility of skin contact is likely.

**Respirators.** Appropriate respiratory protection will be worn by any employee who may be exposed to vapors or fumes from flammable liquids that exceed the permissible exposure limits for the chemical.

**Eyewash facility.** Facilities will be provided for immediate flushing of the eyes in work areas where any person may be exposed to flammable liquids.

**Shower facility.** A body shower should be available in a nearby location where the flammable liquids are used.

Emergency Response

Emergency Action Plan

This facility has developed an emergency action plan and evacuation procedures in the event of fire, explosion, or large spill of flammable liquids. See the facility’s Emergency Action Plan for more information.

Spill Response

The following are the locations of information and equipment for responding to a chemical spill:

* Spill containment and security equipment: *[location(s)]*
* PPE: *[location(s)]*
* SDSs: *[physical location of file system or electronic access]*

Following are procedures for responding to large and small spills of flammable liquids.

*Large Spill*

The following procedure must be followed by all employees when a large spill of flammable liquids that involves more than [insert minimum quantity] has occurred:

[Modify the list to include all site-specific procedures for responding to a large spill at your facility.]

1. Immediately notify [name].
2. Contain the spill with available equipment (e.g., pads, booms, and absorbent).
3. Secure the area and alert other site personnel.
4. Do not attempt to clean the spill unless trained to do so.
5. Attend to injured personnel, and call the medical emergency number, if required.
6. Evacuate the building as necessary.

Small Spill

The following procedure will be followed by all employees when a small spill of flammable liquids that involves less than [insert maximum quantity] has occurred:

1. Notify [insert name, such as the emergency coordinator and/or supervisor].
2. If toxic fumes are present, secure the area (with caution tape or cones) to prevent other personnel from entering.
3. Deal with the spill in accordance with the instructions described in the SDS.
4. Small spills must be handled in a safe manner while wearing the proper PPE.
5. Review the general spill cleanup procedures.

Training

The Administrator will ensure that employees who work in areas where flammable liquids are present are provided with information and training to protect them from the hazards of such liquids.

The training will be provided at the time of each employee’s initial work assignment and whenever a new physical or health hazard is introduced into an employee’s work area.

Minimum Content of the Training Program

At a minimum, information and training given to employees will include:

* Details of the facility’s written Hazard Communication Plan**,** including the labeling system and SDS requirements
* Physical and health hazards of the chemicals in the work area
* Methods and observations to detect the release of a hazardous chemical in the work area
* Measures employees can take to protect themselves, including work practices, emergency procedures, and the use of PPE
* Emergency evacuation
* Use of portable fire extinguishers
* Spill response procedures
* Use, handling practices, procedures (including storage and transfer)
* Area limitations, such as no-smoking rules or open-flame rules
* Ventilation systems
* Housekeeping procedures
* Special concerns

Training Records

The Administrator or designee will maintain initial and refresher training records for all facility employees that document:

* Who attended
* When each training session was held
* What was covered
* The method used to verify successful completion and understanding of the training
* Who gave the training and the trainer’s qualifications.

Recordkeeping

The Administrator will maintain records of SDSs, identification and inventory of flammable liquids, container product warning labels (including secondary containers), and employee training for *[duration]* at *[location].*

Supporting Materials

*[This is the list of supporting materials referred to in this Plan, which you will need to supplement your Flammable Liquids Plan. Insert them as attachments, as indicated in the Plan.]*

### Attachments

Chemical Job Hazard Analysis Worksheet

Flammable Liquid Inventory and Location List

Flammable Liquids Checklist