

# Technical directive complementary to LEX

## 1.5.1 : Directive on flammable liquids


February 2025  
Version 2.0

*The English version is provided for information purposes only and has no legal force. Only the French version is legally binding.*

### 1. Preamble

#### 1.1 Context

A flammable liquid refers to any substance that has flammable properties. These flammable liquids are classified into three categories (table 1) based on the following criteria: flash point (FP) and boiling point (BP).

GHS PICTOGRAM			
HAZARD CATEGORY	Category 1	Category 2	Category 3
FLASH POINT (FP)	< 23°C	< 23°C	23°C ≤ FP ≤ 60°C
TEMPÉRATURE D'ÉBULLITION (Téb)	≤ 35°C	> 35°C	
SIGNAL WORDS	<b>Danger</b>		<b>Warning</b>
HAZARD STATEMENTS	<b>H224:</b> Extremely flammable liquid and vapor.	<b>H225:</b> Highly flammable liquid and vapor.	<b>H226:</b> Flammable liquid and vapor.

**Table 1.** GHS Classification of flammable liquids.

In the context of this directive, the term *flammable liquids* encompasses all flammable products purchased, as well as flammable solutions or mixtures prepared in the laboratory, and flammable waste.

Specific fire protection requirements apply to all flammable liquids. When the ambient temperature exceeds the flash point of a substance, its flammable vapors, in combination with the surrounding air, can create an explosive atmosphere (ATEX). Therefore, additional safety measures must be implemented for all substances with a flash point below 30°C.

#### 1.2 Legal framework

- CFST directive 1825: 'Flammable Liquids. Storage and handling' (as of May 2005).
- CFST directive 1871: 'Laboratories Directive' (as of June 2022).
- AEAI Fire Protection Directive 26-15: 'Hazardous Materials' (as of 01.08.2022).
- Ordinance on the Protection Against Dangerous Substances and Preparations (Chemical Ordinance, ChemO, version 01/01/2024), RS 813.11.
- SUVA Publication 2153 : 'Explosion Prevention - Principes, Minimum Requirements, Zones' (as of 01.02.2020).

- SUVA Thematic Sheet 33038: 'Transport of Highly Flammable Liquids Within the company' (as of August 2011).
- 'Storage of Hazardous Materials, Practical Guide, Environmental Protection Service of the Cantons of North-Western Switzerland, Thurgau, and Zurich, as well as the Real Estate Insurance of the Canton of Zurich' (as of 2018).

## 2. Scope of application

The provisions of this directive apply to laboratories (chemistry, physics, biology, hybrid labs, chemical storage shops, and service platforms), as well as workshops.

According to the EPFL safety standardization manual for laboratories and workshops, the term "laboratory" refers to a workroom dedicated to research activities. This includes conducting experiments, process controls, quality controls, tests, calibrations, or measurements, as well as the processing of materials in the fields of chemistry, biology, and physics, and the storage of chemicals.

The term "workshop" refers to a workroom where manufacturing, maintenance, and repair activities of products, objects, and scientific equipment take place, even on a small scale.

The laboratories and workshops at EPFL are classified based on the types of activities and hazards present, by the users of the respective rooms in collaboration with the DSE-OHS and DSE-SIS. In addition to this classification, whether the activities carried out in these rooms are emissions-producing or not plays a crucial role in determining the technical specifications for each room.

## 3. Instructions

### 3.1. General storage measures

- A physical separation, in distinct cabinets, must be systematically respected based on incompatibilities (Figure 1). Flammable liquids must never be stored with oxidizing and/or corrosive substances.
- All flammable liquids must be stored in appropriate containers (with flat bottoms and chemically, mechanically, and thermally resistant):
  - Maximum volume of 5 liters for unbreakable containers (HDPE, metal).
  - Maximum volume of 3 liters for breakable containers (glass).
- All containers must be closed and properly labelled. For laboratory preparations, the label must include the contents, concentration, GHS pictograms, manufacturing date, and the responsible person. For waste, an official EPFL label indicating the OMoD code must be used and completed. Use [the EPFL special waste management decision tree](#) to select the correct OMoD code.
- Containers must be stored in spill containment trays, with enough free space to collect 100% of the contents of the largest container.

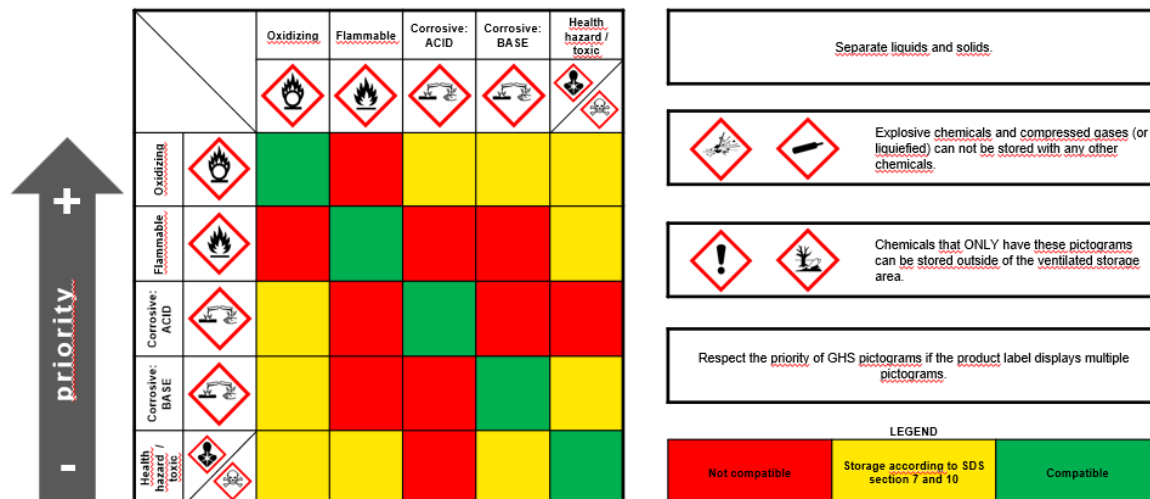


Figure 1. Incompatibilities for chemical storage.

- Any flammable liquid that needs to be stored at low temperatures (see section 7 of the safety data sheet) must be kept in an EX-certified refrigerator according to the ATEX95 standard (2014/34/EU) or ATEX95 certified freezer.
- Flammable products must be inventoried. The chemical inventory must be updated at least twice a year. This inventory is essential to quickly identify their nature and quantity in case of a leak or fire.
- Specific hazards must be indicated by yellow and black triangles (in accordance with EN ISO 7010 standard) on storage furniture (cabinets, refrigerators, etc.) in a visible manner (Figure 2). This information must also be provided on the door panels.

	Oxidizing	Flammable	Corrosive: ACID	Corrosive: BASE	Health hazard / toxic
Hazard pictograms (GHS) on the container label in the cupboard					
Labelling of the storage cupboard using the triangular pictogram					

Figure 1. Hazard labeling on chemical storage locations.

### 3.2. Permitted quantities in EPFL premises

- In non-ventilated rooms, the storage of flammable liquids is prohibited.
- In ventilated rooms, flammable liquids must be stored in accordance with the following limits:
  - Cumulative volume  $\leq 25$  liters: storage is allowed at the workplace.
  - Cumulative volume  $\leq 150$  liters: storage is allowed in a certified EI90 ventilated cabinet (in compliance with standard EN14470-1).
  - Cumulative volume  $< 450$  liters: maximum volume of flammable liquid allowed per room, provided they are stored in certified EI90 ventilated cabinets.

### 3.3. Use

- When using flammable liquids, it is essential to wear appropriate personal protective equipment, including chemical-resistant gloves, a lab coat, and safety goggles compliant with EN 166.
- The amount of flammable liquid is limited to 5 liters per experiment to prevent the formation of an explosive atmosphere (ATEX).
- It is strictly prohibited to use ovens that are not EX-certified (in accordance with ATEX95 standard (2014/34/EU)) for the use of flammable substances that may generate explosive atmospheres.

### 3.4. Summary table for the storage and use of flammable liquids in EPFL premises

STORAGE	CONTAINER	OUTSIDE CUPBOARD IN VENTILATED LAB	PER EI90 VENTILATED CUPBOARD	PER VENTILATED ROOM (IN EI90 CUPBOARDS)	PER NON-VENTILATED ROOM
QUANTITY	<ul style="list-style-type: none"> <li>· Max 5 liters (unbreakable container in HDPE or metal)</li> <li>· Max 3 liters (glass container)</li> </ul>	≤ 25 liters	≤ 150 liters	< 450 liters	/
USE	PER LAB FUME HOOD or EXPERIMENT				
QUANTITY	≤ 5 liters				

**Table 2.** Maximum Authorized Quantities for the Storage and Use of Flammable Liquids.

### 3.5. Transport within EPFL

Transport must be organized to avoid any shocks, drops, or accidental spills. It is mandatory that all bottles be carried in a secondary container. Substances must be separated according to their incompatibility. The authorized means of transport depending on the quantity are summarized in Table 3.

QUANTITY	CONTENANT SECONDAIRE/ MOYEN DE TRANSPORT
< 5 LITERS	Box, retention tray, basket, bucket
> 5 LITERS	Trolley
> 30 LITERS	Use of the freight elevator is prohibited

**Tableau 3.** Authorized or Prohibited Means of Transport Based on Quantities.

### 3.6. Waste disposal

- Waste must be disposed of at least once every 2 months or as soon as containers reach 80% of their capacity. It must be brought to the assigned collection point
- Waste must be collected and stored while considering chemical incompatibilities.

### 3.7. Evaluation of exceptions

Any exceptions to the guidelines in this complementary directive must be evaluated by a health and safety specialist from the OHS-PR group, via the OHS Support webpage [Support OHS](#).

## 4. In case of chemical accident

**Immediately call 115** (or 021.693.30.00 from a mobile phone) and provide all available information regarding the product or mixture involved in the accident. Also report the accident via the Incident Manager webpage [Incident Manager](#).

#### 4.1. In case of projections

- **In the eyes:** ask a colleague to guide you to the nearest eye wash station and call 115. Use the eye wash until it is exhausted.
- **On the hands:** Rinse immediately with running water and ask a colleague to call 115. Continue rinsing until the intervention team arrives.
- **On the body:** Use the safety shower and, under running water, remove all contaminated clothing. Ask a colleague to call 115. Then, use a shower with lukewarm water.

#### 4.2. In case of a spill

Immediately call 115.

### 5. Final Provisions

#### 5.1. Effective date

This supplementary technical directive, which came into effect on February 20, 2025, was revised on February 19, 2025 (version 2).

Version	Modifications	OHS Validation	DSE Validation	Date
1.0	LEX 1.5.7 repealed	–	E. Du Pasquier	24.06.2025
2.0	Complementary directive F. Gaggini	S. Karlen	E. Du Pasquier	24.06.2025