



UNIVERSITÀ  
DEGLI STUDI  
DI PADOVA

## OPERATING PROCEDURE NO. 7

# TEMPORARY STORAGE OF CHEMICAL WASTE

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**Curated by:**

*Environment and Safety Office*



## TEMPORARY STORAGE OF CHEMICAL WASTE

### Purpose

Article 183 of Legislative Decree no. 152/06 defines Temporary Storage before the collection of waste (DTR) as *"the grouping of waste for the purpose of transporting it to a recovery and/or disposal plant, carried out before the collection pursuant to article 185-bis."*

Temporary storage of waste consists of one or more rooms with specific structural and plant characteristics for the preliminary grouping of waste carried out before collection, at the place where the waste is produced, under the conditions indicated in article 183, letter bb), of Legislative Decree 152/06 and subsequent amendments and in compliance with the regulations on hygiene and safety in the workplace (Legislative Decree 81/08 and subsequent amendments).

In practice, the waste, before being sent to companies authorized for transport/disposal, is gathered in a specific area called "Temporary Storage," where the grouping of waste is done by homogeneous categories.

The University of Padua produces a considerable amount of laboratory waste with different compositions and natures, depending on the activity from which it originates (scientific/educational). The extreme decentralization of these activities has increased the need for a single organizational scheme that guarantees uniform management of waste throughout the University.

For this reason, since 1982, the University of Padua has set up 32 Temporary Storage sites capable of complying with environmental regulations. Currently, the situation of Temporary Storage is represented by a series of Local Units that meet the needs of the structures, including the differentiation between healthcare and chemical waste.

### Main Figures Involved

**Responsible for the Local Unit:** identified as the "producer/holder" of the waste and is responsible for the Local Unit (Temporary Storage).

**Delegated to Operations:** entrusted with the correct execution of the waste management procedures for the Local Unit (Temporary Storage).

**Environmental and Safety Office,** with the following responsibilities:

- Administrative/accounting management of waste disposal;
- Coordination of waste disposal activities contracted out, related to the collection, transport, and final treatment of special waste produced by the University;
- Regulatory updates;
- Technical support in related procedures;



- Technical support in possible remediation operations (excluding asbestos);
- Coordination of: implementation, updating, and monitoring of the waste management mapping process.

**Laboratory Manager:** this is a structured staff member, either a professor or technical/administrative staff, assigned to the Structure, who carries out the specified activities. This may coincide with the figures of supervisor or RDRL. The name of the Laboratory Manager must be communicated by the Head of the Structure to the Responsible for the Local Unit.

## Technical Characteristics of a Temporary Storage

The spaces designated as Temporary Storage must have well-defined characteristics and equipment; they must also be organized to manage the potential risks associated with the presence of hazardous substances.

The main precautions to adopt in the presence of hazardous waste of chemical origin are:

- All containers, both fixed and mobile, must have chemical-physical and mechanical characteristics appropriate for the substances they contain. The substances inside must not alter the consistency of the container in any way, compromising its physical and mechanical characteristics during storage and transport; for chemical waste managed by the University, only containers with a density of not less than 1.7 kg/l are used;
- It is forbidden to introduce "expired," non-compliant, or physically modified containers;
- Waste that is incompatible in terms of chemical-physical characteristics must be stored separately to avoid uncontrolled reactions;
- It is absolutely forbidden to store flammable liquids, compressed gases, dissolved gases, combustible materials, and oxidizing gases in the same room;
- The flooring must include grids made of suitable material and containment tanks with a volume sufficient to retain potential spills. The tanks must be easy to empty;
- All containers used for storage must be labeled with hazard pictograms according to the current regulations on the characteristics of the substance contained;
- External storage areas must be protected by canopies and well-ventilated;
- Internal storage areas must have permanent and adequate ventilation, where this is not possible, a mechanical air exchange system must be in place;
- The structures and doors for internal storage must have at least REI 120 fire resistance characteristics;
- The storage areas must comply with fire prevention regulations;
- Storage areas with quantities greater than 1 m<sup>3</sup> of flammable materials must comply with fire prevention regulations and must be at least 3 meters away from other buildings;
- External storage areas, positioned at an adequate distance from surrounding buildings, must have fire-resistant structures (R);
- A fire detection system must be in place;



- An adequate number of fire extinguishers must be provided, based on the type of substances stored and the equipment present in the rooms;
- Access to the area must be assured for firefighting vehicles;
- Access to the storage area must be free of steps and provide space for handling with pallet trucks;
- The safety signage (labels/warning signs, danger, prohibition, instruction, rescue, etc.) must comply with current regulations and should be placed only in relevant areas (e.g., on the outside of the storage door);
- A first aid kit must be present;
- In the event of accidental spills, kits or appropriate absorption materials for chemical substances must be available. The materials used must be treated and disposed of as waste;
- Absolute prohibition of open flames/ignition sources around storage areas for at least 2 meters to prevent the formation of an ATEX zone;
- Avoid using mobile phones.

The management methods of the temporary storage area are not legally specified but must follow good technical practices; primarily, no mixing between hazardous and non-hazardous waste should occur.

Structurally, the Temporary Storage must have separate rooms so that waste can be divided according to their chemical/physical characteristics.

The main separation:

- Reagents room;
- Flammable and non-flammable chemical waste;
- Toxic/corrosive waste.

**In the flammable room:** non-halogenated organic solvents – halogenated solvents – oils

**In the toxic/corrosive room:** acids – bases – metals

All containers inside the rooms must be kept separate based on their chemical/physical characteristics in different containment tanks or spaced apart if the storage area has a grated floor.

## Protection and Safety Devices to Adopt

All operations involving the handling/movement of waste must be performed while wearing appropriate personal protective equipment (PPE); these should be chosen based on the type of risk and in accordance with the guidelines outlined in the risk assessment.

Below is an indicative, non-exhaustive list of the main PPE:

- Disposable gloves made of hypoallergenic material, compatible with the substances being handled;
- Safety goggles with side shields, face shields;
- Laboratory coats (fire-resistant and acid-resistant);
- Safety footwear.



## References

Legislative Decree no. 152 of 2006.

Legislative Decree no. 81 of 2008.

Applicable fire prevention regulations in force.

## Main signage of a temporary chemical waste storage



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