

Information Sheet

Use of spill trays for storing hazardous substances

Hazardous substances are stored at many laboratories and workshops of ETH Zurich, some of which must be prevented from spreading to neighboring areas, rooms or outdoors in case of accident (leaking, breakage, spilling ...). This factsheet indicates which hazardous substances must be stored in spill trays. Depending on the substance, additional measures may be necessary to ensure safe storage (e.g. ventilated cabinet, locks, a ban on storing certain substances together ...). However, these are not dealt with in this factsheet.

A comprehensive guideline to the storage of hazardous substances is the „Leitfaden für die Praxis“ (2018), issued by the Cantonal Environmental Authorities of Northwest Switzerland (AG, BL, BS, BE, SO) and the Cantons of Thurgau and Zurich and the building insurance of Zurich (Gebäudeversicherung Zürich, GVZ).

Legal basis


Federal Coordination Commission of Occupational Safety:

- EKAS Guideline 1825 (Flammable Liquids)
- EKAS Guideline 6501 (Acids and Lyes)

Which substances must be stored in spill trays?


The following substances (up to 100 kg) must be stored in a spill tray. If the quantity exceeds the 100 kg limit, the floor of the room must form a containment basin (i.e. all floor drains must be sealed, run off through door openings not possible → sill)

1) Flammable liquids (Class 3)


Pictogram (GHS)	Examples
	Acetone Diethylether Pentane Ethanol Butyllithium

Pictogram (GHS)	Examples
In the event of fire, these substances burn very rapidly or even explosively. Because they flow off, fire can spread very quickly. Since they are generally lighter than water and do not mix with water, they float on the surface of the extinguishing water and continue to burn (fire spreading). Many of these substances are harmful to health and are water-polluting. The vapors of flammable liquids are usually explosive. A spark from a light switch or an electrostatic discharge is enough to ignite these vapors. Empty containers, which have not been cleaned often, contain explosive air/gas mixtures.	


2) Substances liable to spontaneous combustion (Class 4.2)

Pictogram (GHS)	Examples
	Phosphorous
Spontaneously combustible substances including mixtures and solutions (solid or liquid) can rapidly catch fire in contact with air and in small quantities.	


3) Substances which emit flammable gases in contact with water (Class 4.3)

Pictogram (GHS)	Examples
	Calcium Sodium Zinc dust Aluminium carbide
Substances in this class react with water and form flammable or explosive gases. Such a reaction generally releases so much heat that the resulting gas self-ignites.	


4) Oxidizing substances (Class 5)

Pictogram (GHS)	Examples
	Potassium nitrate Hydrogen peroxide
In conjunction with flammable materials, these substances form combustible or explosive mixtures. The flammable substance does not necessarily have to be classified as hazardous. Anything that is generally flammable, such as sugar, paper or wood shavings, will create combustion.	


5) Toxic substances (Class 6.1)

Pictogram (GHS)	Examples
	Methanol Mercury
<p>Even in very small amounts (a few milligrams or grams), these substances can have serious health impacts or even be fatal for humans and animals. These substances are absorbed through the digestive or respiratory tract or through the skin. Toxic substances are classified and identified according to the Swiss chemicals' legislation which is largely identical to EU legislation.</p>	

6) Corrosive or caustic substances (Class 8)

Pictogram (GHS)	Examples
	Hydrochloric acid Sulfuric acid Ammonia Caustic soda
<p>Important:</p> <ul style="list-style-type: none"> • In contact with skin, eyes or when ingested, these substances can cause serious damage to health or even be fatal • These substances can attack and corrode metals 	

7) Liquids (Class 10/12)

Pictogram (GHS)	Examples
	Bromine Chlorobenzene Pyridine
<p>Harmful or irritating substances can have adverse effects on health upon contact or when inhaled. Also included are environmentally hazardous substances that do not exhibit any other dangerous characteristics.</p>	

Important for spill trays:

- The spill tray should be large enough so that in case of accident the content of the largest container can at least be contained without the tray overflowing.
- For flammable liquids: The wetted surface should be kept as small as possible so that the evaporation rate is lower.
- The spill tray must be chemically and mechanically resistant. The chemical resistance need not be permanent, but should last at least long enough until the leaked substances can be disposed of.

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