COSEC training -

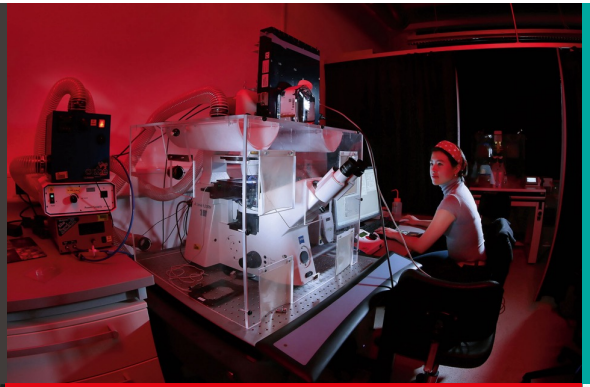
workshop : storage of chemicals

OHS

Occupational Health and Safety

How to find the correct storage place of a chemical

Find the right place



Use the flow chart and control the SDS and respect both documents

Respect table of incompatibilities

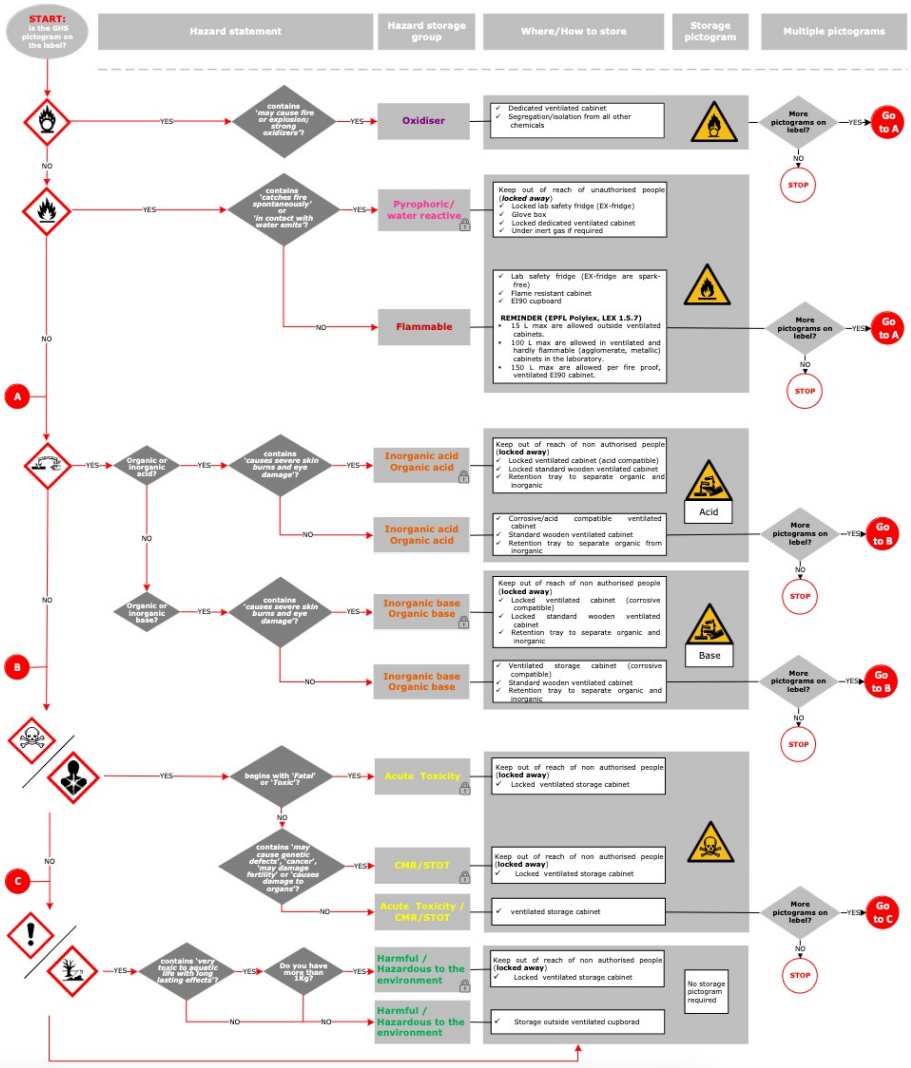
How to store chemicals correctly ?

1. Find the correct storage place with the hazardous chemical storage workflow

Workflow

2. Respect incompatibilities

Chapiter 7 and 10 of the Safety Data Sheet



Stpe 2 : Incompatibility

	Oxidizing	Flammable	Corrosive: ACID	Corrosive: BASE	Health hazard / toxic
Oxidizing					
Flammable					
Corrosive: ACID					
Corrosive: BASE					
Health hazard / toxic					

LEGEND

Not Compatible	Store according to SDS Section 7 and 10	Compatible

Explosive chemicals and compressed gases can not be stored with any other chemicals

Separate liquids and solids

Chemicals that ONLY have these pictograms can be stored outside of the ventilated storage area.

In case of multiple hazard pictograms the following order should be considered

Note that two chemicals can have the same pictogram and still be incompatible!

Example: Acetic acid and triethylamine are both flammable, but cannot be stored together because they are an acid and a base.

Storage places for chemicals in your lab

Chemical hood only for **waste storage**

Fridge EX (explosion-proofed)

EI 90 cupboard

Fridge

Shelf

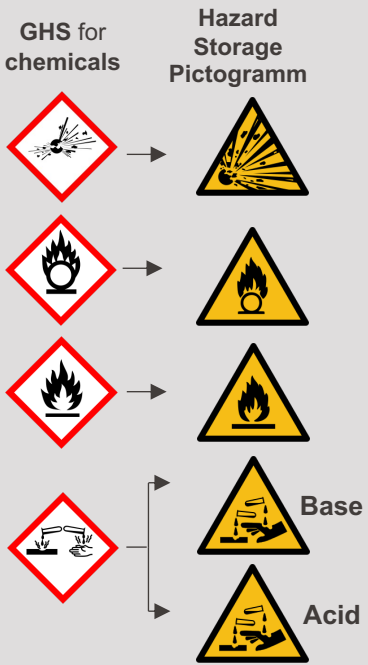
EI 30 connected to the ventilation

Occupational Health and Safety

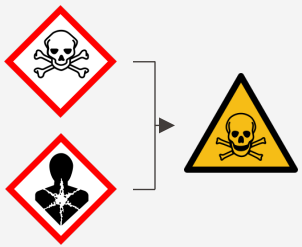
Display the corresponding hazard storage pictograms

Physical hazards

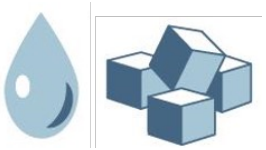
(priority from top to bottom; only 2 different pictograms on one cupboard)



Health hazards



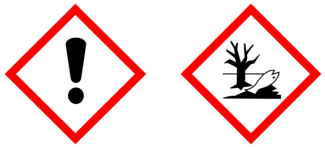
Storage of chemicals (I)



Separate liquid from solid chemicals.

Explosives and compressed gas are stored apart form other chemicals.

Chemical with at least one of these pictograms must be stored in **ventilated cabinet**. Flammable must be stored in **fire proof cabinets** (e.g. EI 90).



Chemicals with these two pictograms could be stored in **non-ventilated areas**.

Flammables which need to be stored at low temperatures must be stored in certified **Ex** fridges.

Storage of chemicals (II)

Use **retention trays** for all hazardous liquid chemicals (any pictogram).

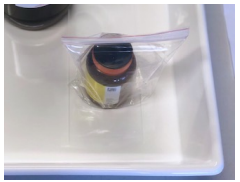
Volume of the retention tray ≥ volume of the biggest container stored.

Carefully **reseal** containers before returning to storage.

Replace broken, cracked or deteriorated caps.

Use Teflon tape OR “Parafilm” to limit emissions.

Use a **secondary container**, when using very smelly or highly volatile chemicals.



Chemical waste storage

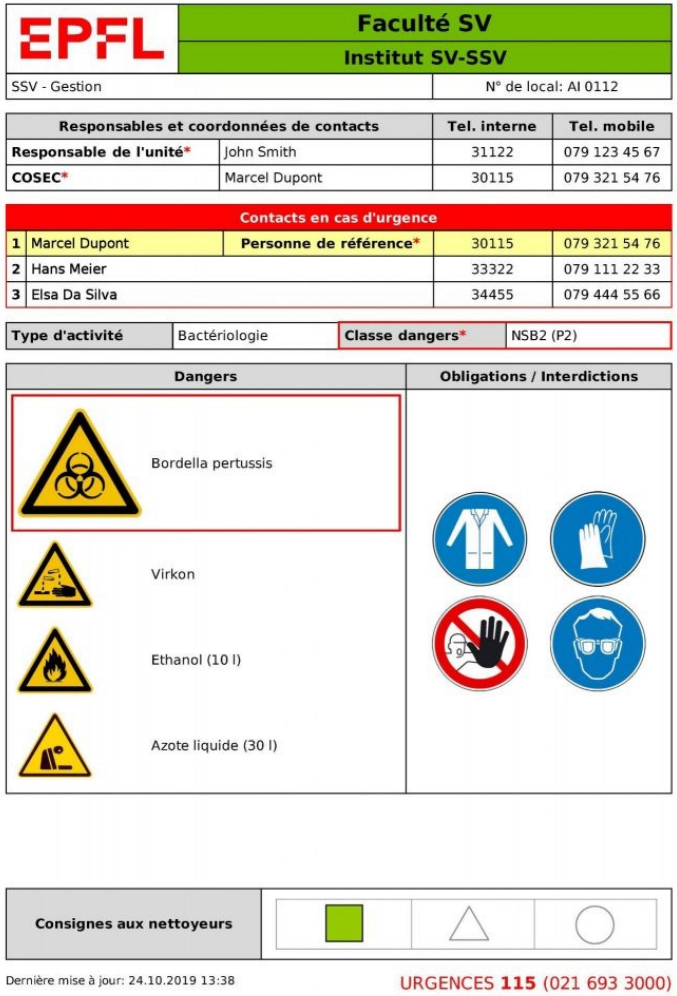
Storage of chemical waste =

same rules apply as for chemical storage

- Incompatible waste containers are separated.
- Food packaging and glass containers are prohibited.
- Liquid waste is stored in retention trays.
- Containers are properly labelled.
- Use appropriate and approved waste containers with the safety cap.
- Do not store waste longer than 2 months.
- Dispose when waste reaches 80% of the container volume.

Use this safety cap with a white pressure valve

Monitoring of chemical storage



EPFL

Faculté SV

Institut SV-SSV

SSV - Gestion | N° de local: AI 0112

Responsables et coordonnées de contacts		Tel. interne	Tel. mobile
Responsable de l'unité*	John Smith	31122	079 123 45 67
COSEC*	Marcel Dupont	30115	079 321 54 76

Contacts en cas d'urgence				
1	Marcel Dupont	**Personne de référence***	30115	079 321 54 76
2	Hans Meier		33322	079 111 22 33
3	Elsa Da Silva		34455	079 444 55 66

Type d'activité	Bactériologie	**Classe dangers***	NSB2 (P2)

Dangers	Obligations / Interdictions
Bordella pertussis	
Virkon	
Ethanol (10 l)	
Azote liquide (30 l)	

Consignes aux nettoyeurs

Dernière mise à jour: 24.10.2019 13:38

URGENCES **115** (021 693 3000)

- Do the chemical inventory twice a year.
- Label all personnel solutions, mixtures and reaction products.
- Get rid off chemicals that are not used or are ol der than 5 years.
- Update the door panel once a year.

Tracing chemicals

OHS

Occupational Health and Safety

Tracing your chemicals

- An inventory required to ensure traceability of chemicals
  - An inventory audit is requested by the confederation
  - Useful to the group for inventory tracking and product location
  - Useful for the OHS service to register hazardous products by laboratory (cadaster)
  - Useful for the intervention team SIS (115)

- Every unit must have an inventory of chemical products
  - An inventory, updated every 6 month
  - The location must be known at least down to cabinet level

Tracability of chemical products

- Support for the inventory of your chemicals :
  - Catalyse is the official, centralized tool for ordering consumables and equipment
  - Catalyse's chemical catalog (Jaggaer) features an inventory module:
    - **Operational only for SB faculty units**
    - The module has not yet been deployed in the ENAC, SV and STI faculties (work in progress).
    - Other tools, such as Excel or Slims, are provisionally accepted.
- In all cases, an inventory must be taken at least every 6 months.

https://lhd.epfl.ch/lhd_cosecs/barcodes/#/insert

Create a bar-code for storage places of the chemicals

- Mangement of the bar-codes of the storage places

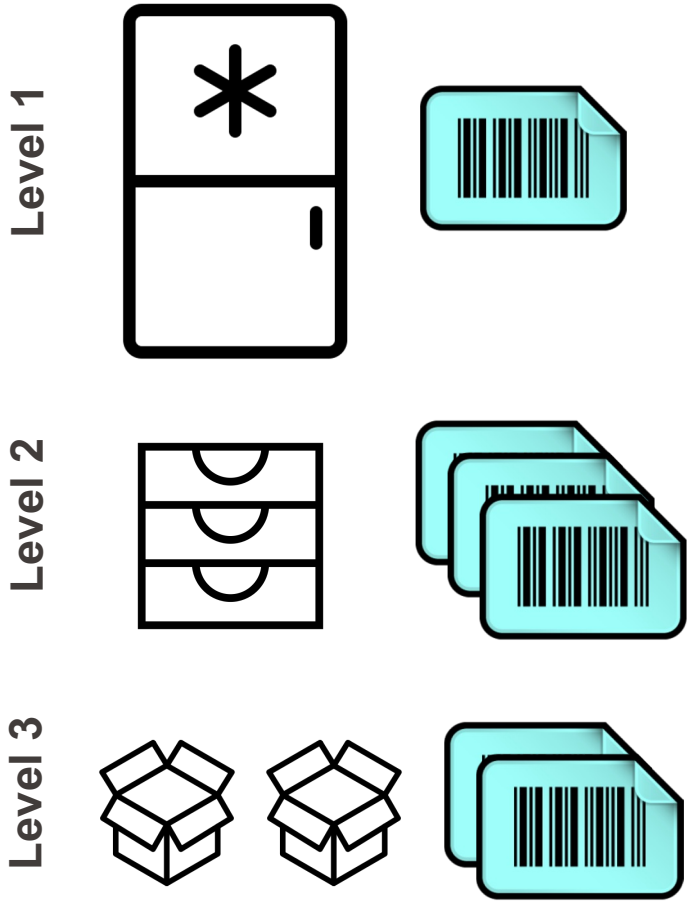
3 types available

- 1. Fridges or cupboards (**mandatory**)
- 2. Retention tray or shelve
- 3. Box of storage or section of a shelve

- Creation of the bar-codes in LHD (Laboratory Hazard Database)

  - Accessible for COSECs only
  - The shop prints the bar-codes for the place /lab
  - Every Tuesday you can pickup the bar-codes from the faculty shop

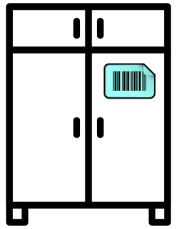
https://lhd.epfl.ch/lhd_cosecs/barcodes/#/insert



How to do the inventory of chemicals ?

1. Every 6 month : Take the scanner CATALYSE from the shop and identify yourself

2. Go into your lab and scan the bar-code for the storage place



Attention to the bar-code of the product

3. Then scan the bar-code of every chemical

Repeat for every storage place

4. Return to the shop and validate your scans (all your products = inventory) on the CATALYSE station

5.Inspections of errors by the shop personal

5.1 Shop indicats the products missing

5.2. Return the following info to the shop:

n° CAS, Furnisher, Quantity, Storage place

5.3. The shop generates a new bar-code

5.4. Label the product with the new bar-code

Only for SB

ENAC, SV and STI are in the starting block

Types of storage places for chemicals

Definition of each barcode parts :

1. AI.2127 : Room number
2. –H : Localisation
   a. « – » : located **in** the room
   b. « **–H.** » : located **in the hall** near the room
   c. « **–T.** » : located **on the terrace** near the room
3. C : Type of container
   a. « **C** » : cabinet containing **chemicals**
   b. « **G** » : cabinet containing **gases**
   c. « **R** » : refrigerator
   d. « **F** » : freezer
   e. « **GB** » : glovebox
   f. « **S** » : shelf or bookcase
4. 9V : Container subtype
   a. « **9** » : fire proof cabinet for 90 minutes
   b. « **V** » : ventilated cabinet
   c. « **EX** » : explosive protected cabinet
5. 1 : location number
6. S2 : sublocation number (here : 2nd shelf) – Max. 30
7. A : sub-sublocation number (here : 1st bac) – Max. 26

AI.2127 –H. C 9V. 1 S2 A

1 2 3 4 5 6 7

Print the labels for the storage places in the shop

https://lhd.epfl.ch/lhd_cosecs/barcodes/#/insert

https://go.epfl.ch/chemical-barcodes

Occupational Health and Safety