



TITLE: Safety in management and storage and incompatibility between products and chemical waste

WRITTEN BY: OSSMA

DATE: 18/11/2010

REVISED BY: _____

DATE:

APPROVED BY: _____

DATE:

WITH DATE OF DISTRIBUTION: 24/11/2010

MODIFICATION:

TOTAL NUMBER OF PAGES: 7



INDEX

1.	OBJECT	3
2.	SCOPE	3
3.	DEFINITIONS	3
4.	REFERENCES	3
5.	DEVELOPMENT	3
	5.1. GENERAL SAFETY CRITERIA IN HANDLING	3
	5.2. GENERAL SAFETY CRITERIA IN INTERNAL TRANSPORT OPERATIONS	4
	5.3. INCOMPATIBILITIES BETWEEN PRODUCTS	4
	5.4. SAFETY CRITERIA FOR WASTE STORAGE	4
	5.5. OBSERVATIONS	5
6.	APPENDICES	6
	Appendix 1. Modification of documents	7

IT/ZUB/MAM/003

Edition number 1

1. OBJECT

Define the general safety criteria in the tasks of hazardous laboratory waste management in order to reduce accidents and incidents that may occur in the processes of handling and / or internal transport.

2. SCOPE

Centres, departments and services of the University of Barcelona that generate toxic and hazardous waste, both chemical and biological, in its teaching, research and / or artistic creation activities.

Any person who generates special laboratory waste is affected by the instruction, as well as personnel with specific responsibility for the management of this type of residual material (see the hazardous laboratory waste management procedure, P.MA.4.4.6/002).

3. DEFINITIONS

Those listed in the hazardous laboratory waste management procedure (P.MA.4.4.6/002).

4. REFERENCES

- Hazardous laboratory waste management procedure (P.MA.4.4.6/002).
- Work Instruction IT/ZUB/MAM/001, on classification of hazardous laboratory waste.

5. DEVELOPMENT

Safety during the handling and internal transport of waste is essential to prevent accidents and incidents that, such as accidental spillage of products, can affect the health of people and the environment, as well as ensure the proper functioning of the waste management system.

5.1. GENERAL SAFETY CRITERIA IN HANDLING

- Use the appropriate personal protective equipment (gloves, goggles, masks), depending on the hazard of the product to be handled.
- In case of not knowing the characteristics of a product, the principle of maximum hazard must be applied, manipulating it with the greatest possible protection measures.
- Fill drums and / or containers up to a maximum of 90% of their capacity, as this prevents spills, splashes and excess pressure on the container.
- Close properly the waste drums and / or containers when depositing the waste. In the case of toxic and hazardous products, this reduces staff exposure to these products, and with flammable waste such as solvents, the generation of vapours that could start a fire is avoided.
- Limit the processes of transfer of products. Accordingly, it is necessary to adjust the volume of the containers used to the amount of waste that is expected to be generated, avoiding the transfer between drums and / or containers. In case it needs to be transferred, do it whenever possible in a fume hood.



IT/ZUB/MAM/003

Edition number 1

- Ensure and maintain order and cleanliness in both the laboratory space for containers and the waste warehouse, as a messy, dirty environment, slippery floors, materials piled up in the middle of the passage, and with accumulation of surplus material, is the cause of many accidents (blows, falls, fires, etc.).
- Have absorbent material to collect spills in both the laboratory and the waste warehouse, and act as detailed in Work Instruction IT/ZUB/MAM/004, on action in case of spillage of toxic and / or hazardous waste.

5.2. GENERAL SAFETY CRITERIA IN INTERNAL TRANSPORT OPERATIONS

- Thoroughly adjust the closure of drums and / or waste containers before carrying out any transport of containers inside the building. In the case of sanitary waste containers, it must be borne in mind that the closure is final and no longer allows them to continue to be used.
- According to the regulations on the handling of loads, the maximum weight that is recommended not to exceed in ideal handling conditions is 25 kg. However, if the exposed population is women, the elderly..., loads over 15 kg should not be handled.
Whenever possible, drums and / or containers will be filled without exceeding these limits, and in case of exceeding them, preventive measures must be taken, such as the use of mechanical aids to lift the loads, or lift the load between two people.
- The transport of drums and / or containers must be carried out with carts and suitable means of support.

5.3. INCOMPATIBILITIES BETWEEN PRODUCTS















- One of the main risks in waste management is that adverse reactions may occur due to incompatibility between two or more substances, especially in the case of highly hazardous chemical waste (see the Work Instruction IT/ZUB/MAM/001).
- Avoid, in general, mixing the following incompatible products:

INCOMPATIBLES PRODUCTS		
ACIDS	BASES	
STRONG ACIDS	WEAK ACIDS THAT RELEASE TOXIC GASES	
OXIDIZERS	REDUCERS	
WATER	AMINES BORANES ANHYDRIDES CARBIDES TRICHLOROSILANES HALIDES	ACYL HALIDES ISOCIANATES ALKALINE METALS PHOSPHORUS PENTOXIDE GRIGNARD REAGENTS

- If in doubt, consult the OSSMA by e-mail (ossma@ub.edu) or by telephone (ibercom 34506), on the specific treatment of any particularly reactive waste, or on the incompatibility between products.

5.4. SAFETY CRITERIA FOR WASTE STORAGE

- The same safety criteria apply to waste storage as to product storage.
- Avoid, in general, the joint storage of waste depending on its hazard in accordance with the following table of incompatibilities:

			 			
	+	—	—	—	○	+
	—	+	—	—	—	—
 	—	—	+	—	+	+
	—	—	—	+	—	○
	○	—	+	—	+	+
	+	—	+	○	+	+

+ They can be stored together
 ○ They can only be stored together if certain preventive measures are taken
 — They cannot be stored together



Flammable



Toxic



Oxidizing



Harmful



Explosive



CMR/STOT



Corrosive

- Have a specific area for the storage of chemical waste, conveniently signposted. It can be the same as that intended for reagents.
- Establish separations between incompatible product families by:
 - *Island system*. Arrangement of products by islands, using each of them for a family of products.
 - *Shelving system*. Arrange the chemicals so that there is always a shelf column with inert products between two incompatible.
- Flammable products should be stored in a place free of ignition sources, well ventilated, and preferably inside safety cabinets.
- On the shelves always have:
 - the heaviest containers on the lower shelves,
 - the containers of acids and bases, the more towards the lower shelves the greater their aggressiveness, and
 - water-sensitive reagents, separated from water intakes or conduits, and isolated from flammable materials.
- Respect the maximum storage time provided by current waste regulations: six months for chemical waste and one month for sanitary waste. Once these deadlines have been exceeded, the waste must be removed.

5.5. OBSERVATIONS

The safety criteria detailed in this work instruction are applicable to all hazardous laboratory waste management processes included in the procedure P.MA.4.4.6/002.



6. APPENDICES

1. Modification of documents



IT/ZUB/MAM/003

Edition number 1

Appendix 1. Modification of documents

Date	Edition	Modification