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1. OBJECT

Define the process to be followed for the collection of hazardous waste generated in the laboratories and workshops of the University of Barcelona, from the moment they are generated by each of the production units, to the moment they must be removed from the established warehouses in each centre.

2. SCOPE

The procedure applies to all laboratories, workshops, units, services, departments and centers of the University of Barcelona that generate toxic and hazardous waste, both chemical and biological, in their teaching, research and / or artistic creation activities.

The following units and people are affected by the procedure:

- waste management managers established by each production unit,
- staff in charge of the internal collection of hazardous laboratory waste,
- responsible for the temporary storage spaces established by the centre where they are located,
- waste management technicians from the Office of Safety, Health and Environment (OSSMA),
- OSSMA's Environment Unit and Prevention Service.

Radioactive waste, which is managed following specific processes through the Radiological Protection Unit, is not included in this procedure.

3. DEFINITIONS

- *Hazardous waste:* Any substance or object from which its holder is disposing of, or has the intention or obligation to dispose of, which has been classified as hazardous in the list of hazardous waste, approved in Decree 152/2017, of 17 October, on the classification, coding and management of waste in Catalonia, as well as the containers and packaging that have contained them.
- *Producer / Production unit:* Within the UB, any person, laboratory, unit, workshop or service that generates waste.
- *Internal collection:* Operation consisting of collecting, classifying and / or grouping waste generated in laboratories and workshops of the UB, to transport it to temporary storage spaces.
- *Internal transport:* Operation of transfer of waste from laboratories and workshops to warehouses located in the centres of the UB.
- *Storage:* Operation of temporary storage of waste in spaces adequately conditioned for this purpose, prior to the collection operation by a hazardous waste carrier or waste management company authorized by the *Agència de Residus de Catalunya*.

The definitions established in the reference regulations also apply in this procedure (see section 4).

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4. REFERENCES

- Work instruction IT/ZUB/MAM/001, on the classification of hazardous laboratory waste.
- Work instruction IT/ZUB/MAM/002, on containers for the management of hazardous laboratory waste.
- Work instruction IT/ZUB/MAM/003, on safety in management and storage and incompatibility between products and chemical waste.
- Work instruction IT/ZUB/MAM/004, on action in the event of a toxic and / or hazardous waste spill.
- Legislative Decree 1/2009, of July 21st, approving the Revised Text of the Law regulating waste (DOGC 5430, 28/7/2009).
- Barcelona Environmental Ordinance (BOPB 05/02/2011).
- Decree 197/2016, of February 23rd, on the previous communication in the matter of waste and on the general registers of waste producers and waste managers of Catalonia (DOGC 7066, 25/02/2016).
- Decree 152/2017, of October 17th, on the classification, coding and management of waste in Catalonia (DOGC 7477, 19/10/2017).
- Decree 93/1999, of April 6th, on waste management procedures (DOGC 2865, 12/4/1999), modified by Decree 88/2010, of June 29th, approving the Management Program of industrial waste of Catalonia (PROGRIC) (DOGC 5664, 06/07/2010).
- Decree 27/1999, of February 9th, on the management of sanitary waste (DOGC 2828, 16/2/1999).
- Law 22/2011, of July 28th, on waste and contaminated soils (BOE 181, 29/07/2011).
- Royal Decree 717/2010, of May 28th (BOE 75, 27/03/2010), amending Royal Decree 363/1995, of March 10th, approving the Regulation on classification, packaging and labelling of dangerous substances and Royal Decree 255/2003, of February 28th, approving the Regulation on classification, packaging and labelling of dangerous preparations

5. RESPONSIBILITIES

People responsible for waste management of the production unit

- Identify the hazardous waste generated and classify it according to Work Instruction IT/ZUB/MAM/001.
- Place them in the specific container for each group according to Work Instruction IT/ZUB/MAM/002, appropriately labelled.
- Request containers when they are not available at the centre using the form FOR/MAM/001.
- Check that the maximum storage time of the containers in the production unit is not exceeded.
- Transfer the full containers to the central warehouse of the centre, checking that they are properly closed and distributed according to the incompatibility between waste groups, and following the Work Instruction IT/ZUB/MAM/003.
- For those centres that do not have a centralized warehouse, provide the OSSMA with a list of waste that must be removed at each periodic collection and replacement material using forms FOR/MAM/001 and FOR/MAM/002.

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Personnel in charge of the internal collection of hazardous laboratory waste and responsible for the centre's warehouse

- In centres that have a centralized warehouse,
 - control waste entries to the centre's warehouse, checking that they contain the identification requirements indicated in the Work Instruction IT/ZUB/MAM/001;
 - make an inventory of the waste that enters the warehouse completing the registration form FOR/MAM/003; and
 - assign and write down the waste code in the corresponding box on the label of each of the containers.
- In centres that do not have a centralized warehouse,
 - collect the FOR/MAM/001 forms provided by the production units, and assign a waste code to each of the containers;
 - make an inventory of the waste to be removed at each collection by completing the registration form FOR/MAM/003;
 - assign and write down the waste code in the corresponding box on the label of each of the containers; and
 - accompany the authorized carrier and / or the authorized manager company on the day of collection and check that the planned waste is taken away.
- In all centres,
 - prepare a list of the waste to be collected in each collection using forms FOR/MAM/001 and FOR/MAM/002 (with all the data of the waste collection in the centre);
 - request the collection of hazardous waste from the authorized carrier or the authorized management company, sending him the forms indicated above;
 - once the collections have been completed, close in the registration form FOR/MAM/003 the data corresponding to the waste that has been removed.
- Those provided for in Article 8 of Decree 93/1999, on waste management procedures.

OSSMA's Environment Unit and Prevention Service

- Schedule periodic collection in centres that do not have a warehouse, notifying the production units to provide data on waste to be collected and replacement material.
 - Schedule the waste collection calendar for the centres that have a warehouse.
 - File all the documentation associated with the management procedure in paper format for a period of 5 years.
 - Prepare statistics and reports on the evolution of the management procedure.
 - Keep permanently in electronic format all the documentation associated with the management procedure.
 - Propose modifications to the procedure.
-

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- | | |
|--|---|
| Authorized carrier and / or
authorized manager
company | • Remove the waste that has been recorded in forms
FOR/MAM/001 and FOR/MAM/002, and transport it to a
treatment or valorisation facility, as appropriate. |
|--|---|
-

6. DESCRIPTION

6.1. WASTE IDENTIFICATION AND CLASSIFICATION

All hazardous waste generated in the laboratories and workshops of the UB must be properly identified by the head of the production unit, who will group them following the classification system contained in the Work Instruction IT/ZUB/MAM/001.

For identification, the producer can consult the «Laboratory Waste Finder» by accessing the OSSMA website at <<https://www.ub.edu/ossma/residus/cercador-residus-laboratori/>>. If the product is not listed, the producer can contact OSSMA by email (ossma@ub.edu) or by telephone (934 034 506), and make the relevant inquiry.

The OSSMA will analyse the characteristics of the waste and will give an answer to the producer about the group in which it is classified, incorporating it in the «Laboratory Waste Finder» so that in the future this consultation can be carried out automatically.

Once the waste has been identified, it must be deposited in approved drums and / or containers that can be obtained from the centre's warehouse, using only the model defined for the group to which each waste belongs, according to the indications of the Work Instruction IT/ZUB/MAM/002. In the event that the production unit does not have the required container, and that this is not available at the centre, it can be requested from the OSSMA by filling in form FOR/MAM/001.

6.2. WASTE LABELLING

Each of the drums / containers used to deposit hazardous laboratory waste must be properly labelled. To this end, the person in charge of the production unit must obtain the specific label of the classification group to which the waste corresponds, self-providing it from the centre itself or downloading it from the OSSMA website at <<http://www.ub.edu/ossma/residus/etiquetes-recollida-residus-laboratori/>>.

In each label, the producer must fill in the boxes corresponding to the following concepts:

- *Laboratory*: Code or name of the laboratory or workshop that generates the waste.
- *Department*: Name of the department or service to which the workshop or laboratory that produces the waste corresponds.
- *Start date*: Date on which the drum / container was filled for the first time.
- *Date of filling*: Date on which the drum / container is closed for having reached the level of filling, which must never be higher than 90%, or for having exceeded the legal maximum storage time limit for hazardous waste (six months for chemical waste, and one month for biohazardous and cytotoxic waste).
- *Product*: In the line below the group name, indicate the product or type of compound contained in the drum / container. This information will not be required for cytotoxic and biohazardous waste.

To print the label, a colour printer must be used, preferably using adhesive paper, and respecting the original format at all times.

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Under no circumstances may product labels or any other label format other than those designed for this purpose be used to identify waste. Any other previous labels must be removed to attach the labels to the waste container. During the period of use of the container, any deterioration of the label that makes it difficult to identify the waste later will be avoided.

6.3. EMMAGATZEMATGE TEMPORAL

The drums / containers for management of hazardous waste will remain, conveniently identified, in the production unit during use, and during the time that may elapse between filling and transfer to the centralization warehouses or until removal by an authorized management company. The person in charge of the production unit will be responsible for:

- Maintain order in the temporary storage space.
- Check that each waste is packaged in the appropriate container.
- Make sure containers are properly closed and properly identified.

For the temporary storage of waste in the production unit, the same requirements as for reagents will be followed, applying the following basic principles:

- Minimization of the stock, to avoid the disorderly accumulation of waste and its location in places of passage or exposed to possible accidents, spills, etc. (in case of spillage, act in accordance with the instructions of Work Instruction IT/ZUB/MAM/004). In any case, the temporary storage of a drum / container in the production unit may never exceed six months from the date on which it was first used for chemicals, and one month for biohazardous and cytotoxics.
- Separation of waste by families of incompatibility, using any system that allows isolation from each other (distribution on shelves, island system, etc.).
- Confinement of the most hazardous waste families. To avoid accidental contact or adverse reactions with products of special danger, the waste of these groups must be stored in specific cabinets or spaces, which guarantee the maximum safety conditions. This is the case of flammables, such as solvent waste, or highly hazardous ones, such as explosives or oxidizers.

It is the responsibility of the production unit to have properly conditioned spaces to store waste temporarily.

For more information on storage conditions or incompatibilities between products, production units and users can consult the *Work Instruction IT/ZUB/MAM/003 on safety in management and incompatibilities in the storage of chemical waste*.

6.4. INTERNAL COLLECTION

There are two situations in this section: centres without their own waste warehouse, and centres that have a central waste warehouse.

6.4.1. Internal collection in centres without a warehouse

For centres that do not have a waste warehouse, a regular collection is planned, which must be scheduled by the OSSMA. Production units must store their waste in the appropriate conditions until the OSSMA contacts them to carry out the next collection.

According to the schedule, the person in charge of the production unit will send the OSSMA a list of the waste that needs to be removed in its laboratory or workshop and the necessary



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replacement material (drums, containers, packaging boxes, etc.), filling out the form FOR/MAM/001. In case obsolete reagents are included in the collection, these will be detailed by filling in the form FOR/MAM/002

OSSMA staff collects the FOR/MAM/001 forms provided by the production units and assigns a waste code to each of the containers and writes them down provisionally in the FOR/MAM/003 registration form of the centre.

With this information, the OSSMA staff prepares a new version of the FOR/MAM/001 form for all the laboratories and workshops, and sends it to the authorized carrier and / or management company, with whom he schedules the day and time of the collection.

The OSSMA notifies the people in charge of the production units of the day and time that the collection will take place, and reminds them that they must leave the waste in a visible and safe space in the laboratory or workshop, in order to facilitate the withdrawal operation,

On the day of collection, OSSMA staff accompanies the authorized carrier and / or management company to the production units with a copy of form FOR/MAM/001 and a list of the provisional register to verify that the waste to be removed corresponds to what was indicated by the production unit, and writes down to each recipient the registration number that had been previously assigned.

Once the collection has been carried out, the OSSMA staff who attended the collection collects the documentation provided by the authorized carrier and / or management company (follow-up sheet), checking that it matches the waste removed.

The OSSMA then makes the final registration of the waste collected, making the corresponding modifications to the registration form FOR/MAM/003 of the centre.

On the scheduled collection day, the authorized carrier and / or management company will only remove the waste that has been recorded on form FOR/MAM/001 and those authorized by the OSSMA personnel who assist in the collection operation. To accept waste not previously reported by the production unit, it must be stored in a suitable container and properly classified and labelled.

If these requirements are not met, the person in charge of the production unit will have to wait for the next collection or, when this is not possible, an extraordinary collection may be requested by filling in form FOR/MAM/001.

6.4.2. Internal collection in centres with warehouse

The collection service at the centres that have a central warehouse is carried out by the people in charge of waste management established by each production unit, who must bring the duly labelled waste directly to the warehouse on the days defined in each centre.

During these days, OSSMA personnel go to the centre's waste warehouse to monitor the entry of waste and make an inventory of the waste collected. To this end, they check that the waste is delivered in suitable containers and that it is properly classified and labelled.

Then they fill in the registration form FOR/MAM/003 in all its sections, and write down the waste code assigned in the registration form in the corresponding box on the label of the drums or containers.

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In accordance with the needs of each centre and the provisions of current regulations, the warehouse manager requests the authorised carrier and / or management company to collect the waste deposited there, sending him a list of containers to be removed from each group using form FOR/MAM/001 and obsolete reagents with FOR/MAM/002.

On the scheduled collection day, the person in charge of the warehouse accompanies the authorised carrier and / or management company and collects the documentation provided by him (follow-up sheet), checking that it matches the waste removed. The OSSMA then makes the final registration of the waste collected, making the corresponding modifications to the registration form FOR/MAM/003 of the centre.

Under no circumstances will the carrier collect waste that has not been previously included in the registration, that does not have the registration code on the label, or that has a number that does not correspond to the one entered in the registration form. For the removal of this waste, it will be necessary to register it properly following the procedure from its beginning, and wait for the next collection.

6.5. ARCHIVE

The documentation associated with this procedure in paper format is archived for a period of 5 years. The documentation in digital format, including analysis and statistics obtained, is archived permanently.

6.6. CONTROL AND MONITORING

The people responsible for the management of the warehouses of each centre, due to their direct contact with the production units, will exercise the following functions provided for in article 8 of Decree 93/1999 for those responsible for waste:

- Control the route of waste from its origin to its management.
- Monitor compliance with the provisions applicable to waste management, especially controlling the production centre, reporting the defects observed and making proposals on the measures to be taken to resolve them.
- Make entries in the waste register.

The OSSMA assumes the other functions indicated in article 8 of Decree 93/1999:

- Promote the adoption of clean technologies and the application of the principles of minimization and recovery of waste.
- Act as an interlocutor with the *Agència de Residus de Catalunya* and send them the information required in the waste regulations.
- Ensure the accuracy of data and analysis on waste.

Accordingly, it is the responsibility of the OSSMA to carry out the control and monitoring of this procedure, analyse the data from the records of each centre and prepare statistics and reports on the evolution of waste management. Depending on the assessments derived from this control and monitoring, OSSMA may propose modifications to the procedure and actions to promote the continuous improvement of the management and minimization of the special waste generated.



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7. FLOWCHART

The English version of this document does not include a flowchart.



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APPENDICES

1. Modification of documents
2. FOR/MAM/001
3. FOR/MAM/002
4. FOR/MAM/003



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Appendix 1. Modification of documents

Date	Edition	Modification
01/03/2013	2	<ul style="list-style-type: none">— Update of regulations in section 4. <i>References</i>— Update of the type of labels available (section 6.2. <i>Labelling of waste</i>)— Update of the form FOR/MAM/001, incorporating new types of drums
01/06/2018	3	<ul style="list-style-type: none">— UB brand update.— Update of regulations in section 4. <i>References</i>— Update of links in sections 6.1 and 6.2
01/06/2020	4	<ul style="list-style-type: none">— Update of link in section 6.1. <i>Waste identification and classification</i>.— Content update of section 6.6. <i>Control and monitoring</i>.

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Appendix 2. FOR/MAM/001

















Sol·licitud de recollida i reposició d'envasos de residus especials de laboratori

FOR/MAM/001

DADES GENERALS	
Centre	-----
Edifici	
Departament	
Laboratori	
Nom i cognoms sol·licitant	
Correu-e	
Codi productor	
Planta	
Data	
Telefón	

RECOLLIDA SOL·LICITADA	
Grup	Volum (litres)
	0,5 1 2 5 10 25 30 60 120 200
Compostos halogenats	
Compostos no halogenats	
Solucions orgàniques o d'alta DQO	
Compostos inorgànics	
Àcids inorgànics	
Bases inorgàniques	
Olis minerals	
Altament perillosos	
Sòlids contaminats	
Envasos contaminats	
Bioperil·losos (sanitaris grup III)	
Citotòxics (sanitaris grup IV)	
Reactius purs obsolets	caixes *
Altres	
(especificar tipus residu i quantitat)	

Indiqueu la quantitat de bidons a retirar de cada grup en funció del seu volum (només a les caselles activades). Si teniu reactius purs obsolets, mantingueu-los a l'envàs original i *feu una llista per caixa utilitzant el formulari FOR/MAM/002.

MATERIAL SOL·LICITAT	
Descripció	Imatge
Bidó de químics (boca petita)	   
	0,5 litres
	5 litres
	10 litres
	25 litres
Bidó de químics (boca ampla)	 
	5 litres
	10 litres
Bidó ballesta (per a envasos de reactius buits i sòlids contaminats)	  
	60 litres
	120 litres
	200 litres
Chemobox per a punxants (residus sanitaris de grup III)	
	1 litre
	2 litres
	5 litres
	10 litres
Contenedor de bioperil·losos (residus sanitaris de grup III)	
	30 litres
	60 litres
Contenedor de citotòxics (residus sanitaris de grup IV)	
	30 litres
	60 litres
Caixa per a ampolles i envasos de reactius caducats	
	Big bag
	

Guardau aquest formulari al vostre ordinador, empleueu la informació sol·licitada i envieu-lo com a adjunt per correu electrònic al responsable de residus del centre indicant a l'assumpte «Sol·licitud recollida i envasos residus especials».

Validity is only guaranteed for the documents found on the OSSMA website:
<https://www.ub.edu/ossma/>

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Appendix 3. FOR/MAM/002

Oficina de Seguretat,
Salut i Medi Ambient

Llista de reactius purs obsolets de laboratori

FOR/MAM/002

DADES GENERALS			
Centre	-----		
Edifici		Planta	
Departament		Data	
Laboratori			

[illegible]



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Appendix 4. FOR/MAM/003



OSSMA Oficina de Seguretat, Salut i Medi Ambient

Registre de residus especials de laboratori
FOR/MAM/003

Centre:

Any:

Codi	Grup	Producte	Dept. / unitat / servei	Laboratori	Volum contenidor	Núm. contenidors	Volum total	Data entrada magatzem	Data recollida	# full de seguiment	Data inici	Data tancament	Observacions
CCCC/AAAA/001													
CCCC/AAAA/002													
CCCC/AAAA/003													
CCCC/AAAA/004													
CCCC/AAAA/005													
CCCC/AAAA/006													
CCCC/AAAA/007													
CCCC/AAAA/008													
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