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Waste Management Handbook





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1. INTRODUCTION

1.1 ABOUT THIS WASTE MANAGEMENT HANDBOOK

This Waste Management Handbook was produced by the Work Environment, Sustainability and Safety Division at LU Estates in collaboration with the hazardous waste group at Lund University, which includes representatives from the Faculty of Medicine, the Faculty of Science, and Sysav Industri. Ragn-Sells and Lund's municipal waste management services have also contributed information to this Waste Management Handbook.

The Waste Management Handbook is intended for everyone at Lund University who needs information about how to manage different types of waste correctly. It is also intended for everyone who has major or overall responsibility for waste being managed correctly in the workplace, such as heads of departments, building supervisors, heads of divisions and contact persons for waste management and hazardous waste.

The Waste Management Handbook provides answers as to how waste and hazardous waste produced by departments, divisions, restaurants, shared workplaces, coffee rooms, laboratories, workshops, etc. within Lund University is to be managed.

The Waste Management Handbook contains both general rules and information on the management of waste as well as detailed descriptions of how different types of hazardous waste must be packaged and labelled.

Contact persons for various questions relating to hazardous waste are listed in *15. Contact persons hazardous waste* and for questions relating to other waste are listed in *16. Contact persons waste*.

Please print out any sections relevant to your activity, for example packing instructions for hazardous waste, and display them where the information needs to be available.

It may be appropriate to supplement the Waste Management Handbook with your own instructions, for example information on where the waste sorting room is, where packaging materials can be found, local contact persons, etc.

The Waste Management Handbook will be revised as needed, for example in the event of changes in legislation, but at least once per year.

1.2 THE EU'S WASTE HIERARCHY

According to the EU's waste hierarchy, also called the waste staircase, figure 1 below, one must primarily strive to prevent waste from being produced. This is to be accomplished in part through improved production methods and in part through improved consumption patterns. *Preventing* waste may involve such things as considering whether a purchase is necessary, whether it is possible to purchase a service instead of a product, or perhaps to rent.



The next step in the waste hierarchy is *re-use* – that is, to consider whether existing waste can be re-used. The next step is *recycling*. By sorting waste correctly according to source, we contribute to a well-functioning recycling process. Recycling can be done by means of the materials being recycled or by the nutritional substances, for instance from food waste, being recirculated. *Energy recovery* means incineration with energy recovery in specially designed incineration plants. Finally, *landfill* may be the only appropriate method of processing from geographic, environmental, technological and socioeconomic points of view.



Figure 1: The EU's waste hierarchy/waste staircase shows that one must primarily prevent waste, thereafter strive for re-use, recycling of materials, energy recovery, and finally landfill (Source: <http://www.sysav.se/skola/lararrum/Avfallstrappan/>).

Hazardous waste, such as chemical or infectious waste, is to be managed in special processes which ensure the prevention of personal injury and environmental damage.

1.3 NATIONAL ENVIRONMENTAL OBJECTIVES

In Sweden, the work for a better environment and more sustainable development proceeds from the 16 environmental objectives approved by the Riksdag (see www.miljomal.nu) as well as the general *generational goal*.

“The general goal of environmental policy is to hand over to the next generation a society in which the large environmental problems have been solved, without causing increased environmental or health problems beyond Sweden’s borders.”

Waste management in Sweden has become more efficient and causes less environmental impact than previously. But the quantity of waste continues to increase. The quantity of waste must be reduced in order for the general generational goal and several of the environmental objectives to be achieved. Waste management measures contribute to/affect the possibilities of reaching the environmental objectives Reduced Climate Impact, A Non-Toxic Environment, A Good Built Environment as well as the generational goal (fig 2).



Figure 2: The quantity of waste and how we manage it affects our chances of achieving the Swedish environmental objectives Reduced Climate Impact, A Non-Toxic Environment and A Good Built Environment.

1.4 GOALS AND GUIDELINES OF LOCAL MUNICIPALITIES

In the municipalities in which Lund University operates (City of Lund, City of Malmö, City of Helsingborg and Klippan Municipality), there are local guidelines for waste management in each municipality's public sanitation ordinances. The waste plans and/or environmental programmes of these municipalities also contain goals and visions for reducing the quantity of waste and increasing the sorting of recyclable waste.

Lund University is a major organisation which produces a lot of waste. We thus have substantial opportunities to contribute to reaching these goals and thereby to work towards more sustainable development.

During 2014 Lund University produced:

- **500 tons** of paper waste (just from the activities in Lund).
- **70 tons** of electronic waste.
- **20 tons** of chemical waste from laboratories and workshops.

1.5 GUIDELINES, ETC., LUND UNIVERSITY

Lund University's policy for sustainable development¹ states that Lund University is to be a driving force for sustainable development. We must also "practise what we preach" by working preventively, and for continuous improvement. To work preventively for reduced climate impact can mean, for example, taking measures to reduce waste such as requirements in connection with purchasing and procurement, re-use, etc. It can also be by preventing emission of hazardous substances into the air or water. Secure management of hazardous waste is an important part of this work.

Lund University's campus plan states that employees, students and visitors on the campus must be able easily to sort their waste, including food waste, correctly.

1.6 COSTS FOR WASTE MANAGEMENT

¹<http://www.staff.lu.se/sites/staff.lu.se/files/lund-universitys-targets-and-action-plan-for-2015-2016.pdf>



In cases where the activity's landlord is Akademiska Hus, pickup of household waste is almost always included. Household waste means sorted packaging, sorted food waste, and what remains after sorting, i.e. residual waste. (See also decision By 2010/101, *Supplementary allocation of responsibility for recycling*). For other landlords, see the relevant lease agreement.

With regard to paper, corrugated cardboard and bulky waste, pickup of these is paid for by LU Estates. See more under 5. *Paper, confidential documents and corrugated cardboard* and 6. *Bulky waste*. Extra pickups, beyond those which are scheduled, are paid for by the activity itself.



Orders for removal of *hazardous waste* pursuant to Lund University's agreement with Sysav Industri are charged to the relevant office/equivalent. See more about this under 9. *Hazardous waste*.

1.7 FURNITURE FOR SORTING BY SOURCE

If you need furniture for sorting by source, Lund University has an agreement with Bröderna Perssons Specialsnickerier AB. Information on how you go about purchasing the furniture can be found in Lupin (Procedo) in an appended PDF in the agreement's information. This document contains descriptions of recommended modules.

Please contact Facilities Services to order the emptying of the sorting furniture if you don't already have this service. Also consider involving Facilities Services in conjunction with the design of sorting furniture in order to ensure good ergonomics and a good working environment for the cleaners.

2. RESIDUAL WASTE

EXAMPLES

- Residual waste is the waste which remains after the waste is sorted by source into those fractions which are set forth in the instructions in this Waste Management Handbook.
- **Broken glass, china, crystal, ceramics** must be placed in residual waste. The broken glass/china must first be placed in a protective outer covering, for example into an empty milk carton or the like, before being placed into residual waste. This is to avoid injury to cleaning and transport staff.
- **Post-it-notes, envelopes (both ordinary and padded)** etc. with adhesive must be placed in residual waste. This is because the adhesive can damage the recycling process if it is included among the paper waste.



- **Infectious solid materials (which are not pointed or sharp) and which have been decontaminated** by a microbiologically validated and documented method such as autoclaving can be dealt with as waste. This waste must be collected in a closed container or double plastic bag and **must be labelled as decontaminated, e.g., with autoclave tape or text** and may be placed in residual waste. **NOTE!** Labels for infectious sharp/ pointed waste are **not** to be used for this waste. See more on infectious waste under *10. Infectious waste*.

The following may **not** be included in residual waste.

- **Hazardous waste**, e.g. chemicals, infectious waste or waste with sharp/pointed properties, electronics, batteries.

COLLECTION

Residual waste is to be placed in a receptacle/container in the kitchen or equivalent, which is thereafter to be emptied into a container designated for it in the waste sorting room, etc.

Residual waste will be picked up in Lund by Lund's municipal waste management services, in Malmö by VA Syd, in Helsingborg by Nordvästa Skånes Renhållnings AB (NSR) and in Ljungbyhed (the School of Aviation) by Nårab. Contact information for each of these waste management companies is listed in *16. Contact persons waste*.

FINAL PROCESSING

Residual waste is transported to an incineration plant for energy recovery.

3. FOOD WASTE

EXAMPLES

- Food waste from staff kitchens, student kitchens and coffee rooms
- Food waste from restaurants and cafés
- Kitchen paper and napkins
- Teabags
- Coffee grounds



Source: <http://www.orebro.se/315.html>

NB! Wet food waste should be drained before being disposed of

It is important for the processing of food waste that it is cleansed of other materials since the end product – fertiliser – must be clean, otherwise it cannot be used on arable land.

For example, ashes, chewing gum, cigarette butts, snuff, tobacco, garden waste, cut flowers, earth or sand is **not** to be put into food waste.

COLLECTION



Food waste must be separated from other waste and placed in a container designated for it. Brown paper bags must be used.

Paper bags for food waste come in two different sizes and can be ordered from Lund's municipal waste management services (Lund), VA Syd (Malmö), NSR (Helsingborg) and Nårab (Ljungbyhed) via each of their customer services.

These bags are intended for food waste and tolerate moisture well. It is therefore important that no other bags be used.

Each of the waste management companies will provide holders for the small bags (figure 3) free of charge. Larger holders for larger food waste bags (figure 4) can be purchased from the relevant waste management company. See their websites and contact information listed in 16. *Contact persons waste.*

It is important that bags and holders are kept as well-aired as possible and are not placed in closed spaces. When the food waste is well-aired it dries out faster and reduces the risk of bad smells. Another advantage is that the bag will not get too wet and thus will hold better.



Figure 3: A small holder for food waste bags can be obtained free of charge from the relevant municipality's waste management company.



Figure 4: Carts and bags for larger quantities of food waste. To be ordered from the relevant municipality's waste management company.

FINAL PROCESSING

The food waste will be picked up by the relevant waste management company and delivered onwards for processing. The food waste will first be treated by being compressed so that the



bags and other solid materials are broken up. Thereafter the material will be forwarded to an anaerobic digester where it will decompose. It is in this process that biogas is produced. What remains after this process will be useable as fertiliser.

4. PACKAGING

4.1 PAPER PACKAGING

EXAMPLES

- Cleaned and dry packaging without wavy intermediate layers (see 5. *Paper, confidential documents and corrugated cardboard*), for example milk, egg, juice, cereal and pizza cartons
- Bags and shopping bags made of paper
- Toilet and kitchen paper tubes
- Wrapping paper



The following may **not** be included among paper packaging:

- Envelopes, window envelopes, padded envelopes

COLLECTION

To be placed in the designated container in the kitchen/coffee room etc. Thereafter to be emptied into the designated container in the waste sorting room or equivalent. If a plastic bag is used in the sorting receptacle in the kitchen/at the division, it must be removed after its contents have been emptied into the large recycling container.

FINAL PROCESSING

The paper packaging will be picked up by Lund's municipal waste management services (Lund)/VA Syd (Malmö)/NSR (Helsingborg)/Nårab (Ljungbyhed) and then forwarded to a recycling facility.

4.2 PLASTIC PACKAGING

EXAMPLES

- Packaging of hard plastic or soft plastic, e.g. bottles, pots, jugs, refill packets, plastic bags, plastic wrap, etc.
- Empty plastic pipette boxes (without contamination) etc.
- Plastic shopping bags
- Styrofoam (both food packages, e.g. take-away packaging, and larger fractions, e.g. computer packaging)



Hard and soft plastic packaging is sorted into the same container.

Packaging which has contained chemicals, infectious substances or medications – see management under 13. *Chemical waste*, 10. *Infectious waste* and 12. *Pharmaceutical waste*, respectively.

COLLECTION

Empty plastic packaging is to be placed in the designated container in the waste sorting room or equivalent. If possible, remove corks, lids, handles and other details of different material. Packaging containing such things as food residues, which can cause bad hygienic conditions, must be rinsed with cold water before being placed in the container for plastic recycling.

Plastic packaging which is covered by a deposit system (e.g. PET bottles) can be collected separately in the workplace and redeemed in shops.

FINAL PROCESSING

Lund's municipal waste management services (Lund)/VA Syd (Malmö)/NSR (Helsingborg)/Nårab (Ljungbyhed) will transport the plastic to a recycling facility.

The various types of plastic are sorted, bundled and delivered onwards for recycling into plastic granules (the plastic is re-melted) which will be used as a new raw material. It is then sent to various plastic industries. The recycled plastic is used in new manufacture of various plastic components.

A bag with an aluminium lining – is it a plastic or is it metal packaging?

Crumple up the packaging. If it stays crumpled it is sorted as metal packaging, if it returns to its original shape it is sorted as plastic packaging (Source: FTI AB)

Did you know that:

- A kilo of plastic corresponds to approximately a litre of oil.
- Items such as shopping bags, garbage bags, pipes, bottles and jugs (not for direct contact with food) and ground coverings for agriculture are made from recycled plastic.
- Fractions of more mixed quality and colour can be recycled into such things as planking or bench blocks in which the plastic material is sometimes mixed with sawdust to improve its properties.

4.3 GLASS PACKAGING

EXAMPLES

- Packaging, e.g. bottles and jars made of glass.

Coloured and clear glass are to be sorted in different containers.



The following are **not** to be included in glass waste:



- Laboratory glass – see *10. Infectious waste*, *12. Pharmaceutical waste* and *13. Chemical waste*
- Window glass, china, ceramics – see *2. Residual waste*
- Light bulbs and other light sources – see *6.4 Light sources*.

COLLECTION

Empty glass packaging is to be sorted into coloured and clear glass. Glass which contained food is to be rinsed as needed with cold water. Loose lids, corks and caps should be removed. Metal seals and rubber rings which are attached, as well as labels, may remain.

If a plastic bag is used in the sorting container in the kitchen/at the division, it must be removed after its contents have been emptied into the large recycling container.

Glass packaging which is covered by the glass deposit system (e.g., beer and soft drink bottles) can be collected separately and redeemed in shops.

FINAL PROCESSING

Lund's municipal waste management services (Lund)/VA Syd (Malmö)/NSR (Helsingborg)/Nårab (Ljungbyhed) will pick up the glass waste. From there it will be transported on to Svensk GlasÅtervinning in Närke. After sorting, the glass is crushed in order to be used as a new raw material.

It is important to avoid mixing coloured and clear glass. The clear glass raw material is especially sensitive. Coloured glass which ends up in a white container means that the contents must be classed as coloured. Then the glassworks must use new raw materials instead of recycled glass in its manufacture of clear glass.

4.4 METAL PACKAGING

EXAMPLES

- Packaging made of metal, or where most of the material is made of metal
- Food tins
- Caviar tubes etc.
- Metal lids, bottle tops
- Aluminium foil



Larger metal objects which are *not* metal packaging, e.g. metal waste from workshops, parts of furniture, broken scissors, etc., are managed as in *6.9. Scrap metal*.

Metal containers with remnants of paint, solvents or other chemicals are to be put aside for collection as chemical waste, see *13. Chemical waste*.



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Aluminium beverage cans can be sorted separately and redeemed in shops.

Aluminium tea-light holders are no longer sorted as metal packaging but instead are to be sorted as scrap metal, see 6.9. *Scrap metal*. If that is not possible, decorative candle holders are to be placed in residual waste.

COLLECTION

Metal packaging is placed in containers designated for metal in the waste sorting room or equivalent. If a plastic bag is used in the sorting container in the kitchen/at the division, it must be removed after its contents have been emptied into the large recycling container.

FINAL PROCESSING

Lund's municipal waste management services (Lund)/VA Syd (Malmö)/NSR (Helsingborg)/Nårab (Ljungbyhed) will pick up the metal packaging. After collection, the packaging is sorted so that steel is separated from aluminium.

The steel fraction is melted into new steel. Once melted down, the steel is sold to companies which manufacture new packaging, parts for refrigerators, engines etc.

The aluminium fraction will be transported to a melting facility where it will be melted down into new aluminium for new areas of use, including as raw material for new packaging.



5. PAPER, CONFIDENTIAL DOCUMENTS AND CORRUGATED CARDBOARD

Chapter 5 applies only to the activities in Lund. For Malmö, Helsingborg and Ljunghed, refer to the building supervisor, the building manager or equivalent for your premises.



5.1. PAPER

EXAMPLES

- Note paper and copy paper
- Forms
- Daily and weekly newspapers
- Journals
- Printed advertising
- Mail order catalogues and telephone directories

The following are **not** to be included among paper waste:

Post-it-notes, envelopes, window envelopes, padded envelopes, etc. This is because the adhesive can damage the recycling process if it is placed in the paper waste. Nor may self-copying carbon paper be included.

COLLECTION

The paper waste is placed in the designated container. There should be small containers for collection in offices etc. These must then be emptied into the designated container in the waste sorting room or equivalent.

Paper waste is picked up once per week as a rule according to a pickup schedule which can be found on the Staff Pages <http://www.staff.lu.se/support-and-tools/premises-and-parking/waste-hazardous-waste-and-recycling> (NB applies only to Lund.)

Information on pickup locations and contact persons can also be found on the Staff Pages using the link above.

The cost for pickup of paper waste is charged to LU centrally.

FINAL PROCESSING

Ragn-Sells pick up the paper waste. They will determine the quality of the waste, bundle it in working bales and store it temporarily at the Ragn-Sells facility in Malmö. The bales are then sold to various recycling facilities, primarily in Germany.



5.2. CONFIDENTIAL DOCUMENTS

LARGE QUANTITIES OF CONFIDENTIAL DOCUMENTS

Pickup of confidential documents is ordered from Ragn-Sells. Call the customer centre, tel: 0771 88 88 88, or email: kundcenter.malmo@Ragn-Sells.se

Ragn-Sells will then deliver a white container with a capacity of 190 litres to the designated place. When it is full you order pickup, and the container will be exchanged for a new one.

The cost will be billed directly to the ordering unit, so be careful to provide the full name and division when you order.

A price list for pickup of confidential documents can be found on the Staff Pages:

http://medarbetarwebben.lu.se/sites/medarbetarwebben.lu.se/files/bilaga_priser_avtal_2012.pdf

FINAL PROCESSING

Ragn-Sells will pick up the confidential documents to be shredded at the Ragn-Sells facility. The paper scraps will go to material recycling at various facilities, primarily in Germany.

SMALL QUANTITIES OF CONFIDENTIAL DOCUMENTS

For activities with small quantities of confidential documents it can be more efficient to acquire a document shredder. The shredded paper can then be placed in the ordinary container for paper to be recycled.

5.3 CORRUGATED CARDBOARD

EXAMPLES

- Packaging and boxes made of corrugated cardboard, i.e. paper with wavy intermediate layers.

Corrugated cardboard boxes and cartons must be flattened so as to take up less space in the collection container. Be careful to take out plastic, styrofoam and other materials from the box/carton. Packing tape and any address labels can remain.

COLLECTION

Corrugated cardboard is to be placed in the designated container in the waste sorting room or equivalent.

Corrugated cardboard is picked up once per week as a rule according to a pickup schedule. See <http://www.staff.lu.se/support-and-tools/premises-and-parking/waste-hazardous-waste-and-recycling> (NB applies only to Lund.)

Information on pickup locations and contact persons can be found on the Staff Pages. See the link above.



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The cost for pickup of corrugated cardboard is charged to LU centrally.

FINAL PROCESSING

Ragn-Sells picks up the corrugated cardboard waste. Ragn-Sells will determine the quality of the waste, bundle it into bales and store it temporarily at the Ragn-Sells facility in Malmö. The bales will then be sold to various recycling facilities, primarily in Germany.



6. BULKY WASTE

Chapter 6 applies only to activities in Lund with an exception for 7. IT equipment with classified/sensitive material.

For Malmö, Helsingborg and Ljungbyhed, refer to the building supervisor, building manager or equivalent for your premises.



EXAMPLES

Bulky waste that is removed in regular operations, e.g.:

- separate pieces of furniture
- loading pallets
- electronics, including cables (without confidential information)
- light sources*
- small batteries*
- toner cartridges*
- appliances *
- LDPE film/shrink wrap
- scrap metal

*Hazardous waste, see also 9. *Hazardous waste*, below.

COLLECTION

See instructions under the relevant waste categories below. Remember that light sources, small batteries and electronics also constitute hazardous waste pursuant to the Waste Ordinance and are thereby covered by special rules. See information on hazardous waste in chapter 9, as well as management under the relevant waste categories.

DEPOSITING THE WASTE/ORDERING OF REMOVAL

Bulky waste is picked up once per month as a rule according to an established schedule, see Staff Pages <http://www.staff.lu.se/support-and-tools/premises-and-parking/waste-hazardous-waste-and-recycling> and is included in LU's agreement with Ragn-Sells. The invoice for this is paid centrally. Ragn-Sells will prepare a transport document for each transport of the fractions which are hazardous waste removed from LU.

With larger quantities of waste, when ordinary containers and collections will not suffice, it is possible to order extra collections from Ragn-Sells.

Removal is ordered from the Ragn-Sells customer centre, Malmö: email: kundcenter.malmo@Ragn-Sells.se, tel: 0771 88 88 88.



NB! Be careful always to give the name of the department and division and your complete name and contact information when you order removal.

A price list for extra pickup is available on the Staff Pages

http://www.medarbetarwebben.lu.se/sites/medarbetarwebben.lu.se/files/bilaga_priser_avtal_2012.pdf.

For pickup locations and contact persons for the relevant pickup locations, see the map and contact list on the Staff Pages: <http://www.staff.lu.se/support-and-tools/premises-and-parking/waste-hazardous-waste-and-recycling> (NB applies only to Lund.)

The maps and contact lists are updated approximately twice per year. If you see any errors, or a new pickup location has been added, etc. contact avfall@bygg.lu.se.

FINAL PROCESSING

See under each of the categories of waste below, chapters 6.1–6.9.

6.1. SEPARATE PIECES OF FURNITURE

EXAMPLES

- Broken furniture/furniture which cannot be reused

Furniture which can be reused see 8. *Reusable furniture and office equipment.*

COLLECTION/ORDERING OF REMOVAL

To be placed in a designated area in the waste sorting room or equivalent, or in a place agreed upon with Ragn-Sells.

See more under 6. *Bulky waste.*

FINAL PROCESSING

To be picked up by Ragn-Sells who will forward it for incineration with energy recovery at Sysav, Malmö.

6.2 LOADING PALLETS

EXAMPLES

- Loading pallets which are used for delivery of goods, etc.

COLLECTION

To be placed in a designated area in the waste sorting room or equivalent, or in a place agreed upon with Ragn-Sells.

See more under 6. *Bulky waste.*



FINAL PROCESSING

To be picked up by Ragn-Sells who will forward it for reuse or repair for reuse.

6.3 ELECTRONICS WITHOUT CONFIDENTIAL CONTENT

EXAMPLES

- Broken printers, keyboards, copiers and other IT equipment which do not contain, or cannot contain, classified or sensitive information.
- Equipment containing batteries with environmentally hazardous substances which cannot be removed from the product.

Older electronic equipment, including transformers, may contain oil with PCBs or other hazardous substances, see *13. Chemical waste*.

Electronic and mechanical equipment which has been used in laboratories, workshops, etc. and which may contain hazardous substances, such as mercury and PCBs, see *13. Chemical waste*.

When larger printers/copiers are involved LU may, in its current agreement with Canon, be able to obtain help in dealing with old equipment cost-free. See more information on this in the agreement, Lupin (Procedo).

COLLECTION/ORDERING OF REMOVAL

To be placed in a container for electronics in a waste sorting room or equivalent.

FINAL PROCESSING

To be picked up by Ragn-Sells who will send it on to the Ragn-Sells recycling facility in Västerås. Certain parts will be reused, e.g. IC circuits. Metals are recycled. Plastics and glass can be either recycled as materials or used in energy recovery.

6.4 LIGHT SOURCES

EXAMPLES

- Light bulbs
- Low energy bulbs
- Fluorescent tubes
- LED bulbs, fluorescent diodes



COLLECTION

The various types of light sources are to be placed in the containers designated for them. Currently, LED bulbs are to be placed together with other light sources.



IMPORTANT

Fluorescent tubes and low energy bulbs must be dealt with carefully since they contain mercury. A crushed bulb can entail health risks! Be careful to ensure that storage of these waste fractions is secure.

Procedures for removing crushed bulbs can be found in appendix 1 *How to manage a broken low energy bulb or a broken fluorescent tube.*

See more on removal under 6. *Bulky waste.*

FINAL PROCESSING

Ragn-Sells picks up the various types of light sources, reloads at its facility in Malmö and forwards them to El-kretsen. Other types of bulbs, for example incandescent bulbs and LED bulbs, will be dealt with in the same process as fluorescent tubes and low energy bulbs.

What happens next to the bulbs?

In the recycling process at El-kretsen the light sources are crushed in a closed system and then washed in a liquid which oxidises and binds mercury. Phosphors and mercury are removed from the liquid into closed containers. The cleaned glass is sent to a glass recycler where it is melted down and reused for new manufacture of packaging. Metal and electronic waste goes to specialised recycling companies which recycle the metals and use the plastic for energy production. The separated phosphors can be reused for new manufacture of fluorescent tubes and low energy bulbs.

6.5 SMALL BATTERIES

EXAMPLES

- Small batteries

COLLECTION

Place small batteries in the container designated for them in the waste sorting room etc.

See more under 6. *Bulky waste.*

FINAL PROCESSING

The batteries are transported to the Ragn-Sells facility in Malmö where they are forwarded to El-kretsen. In the recycling process at El-kretsen, the batteries will be dealt with by different methods depending on their chemical composition. The various materials in the batteries can then be sent on for collection or for material recycling.



6.6 TONER CARTRIDGES

EXAMPLES

- All types of Toner cartridges/waste boxes for printers/copiers





COLLECTION

To be placed in the designated area in the waste sorting room. See also under 6. *Bulky waste* above. In certain activities, the toner cartridges will be picked up by the supplier (e.g. Canon).

FINAL PROCESSING

To be picked up by Ragn-Sells who transports the waste to its facility in Malmö. The items are then sorted and recycled by an external company in the Ragn-Sells facility.

6.7 APPLIANCES

EXAMPLES

- Refrigerators
- Freezers
- Stoves
- Air conditioning equipment
- Heat pumps
- Other equipment with cooling units.



What happens next to appliances?

At Stena's disassembly facility all dangerous waste, for example batteries, mercury and chlorofluorocarbon, will be dealt with in the proper way. All products and components will be treated as hazardous waste until their content and their environmental impact have been established. They will first be processed manually and then mechanically for efficient and secure recycling. All components will be fragmented into different material functions, secondarily into raw materials like metal, steel scrap, plastic, glass and refined materials. The material can then be used in new products.

COLLECTION/ORDERING OF REMOVAL

To be placed in the designated area in the waste sorting room, or in a place agreed upon with Ragn-Sells. See 6. *Bulky waste*.

The waste will be picked up by Ragn-Sells for further transport to a recycling facility.

Equipment with cooling units, e.g. fridges and freezers, is hazardous waste. Ragn-Sells will prepare transport documents for this waste (see 9.5 *Transport documents*).

Please note that fridges and freezers from laboratory environments must be free from contamination by chemicals etc. Materials and contaminated water from cleaning of fridges and freezers must be treated as chemical waste, see 13 *Chemical waste*.

FINAL PROCESSING

Appliances are picked up by Ragn-Sells who transports the waste to its facility in Malmö. There the waste will be reloaded and delivered to an external facility (Stena) for destruction.

6.8 LDPE FILM/SHRINK WRAP

EXAMPLE

- Shrink wrap which has been used as packing material

COLLECTION



To be placed in the designated area in the waste sorting room or equivalent. See more under 6.
Bulky waste.

FINAL PROCESSING

To be picked up by Ragn-Sells who will send it on to various recycling facilities.

6.9 SCRAP METAL

EXAMPLES

- Metal parts from discarded furniture, electrical fittings, etc.
- Aluminium tea-light holders
- Broken scissors, etc.



COLLECTION/ORDERING OF PICKUP

To be placed in a designated area in a waste sorting room or equivalent. See more under 6.
Bulky waste

FINAL PROCESSING

To be picked up by Ragn-Sells who will send it on to various recycling facilities.

7. IT EQUIPMENT WITH CLASSIFIED/SENSITIVE MATERIAL

Lund University has an agreement with Inrego, a company which specialises in the reuse of computers and other IT equipment. By using Inrego's services for reuse of IT equipment, we ensure that the IT equipment which the University replaces will be reused in a sustainable way. The reuse can mean that the equipment will be used anew outside the University or that the equipment will be scrapped in an environmentally correct way. Using Inrego's services also ensures secure management and deletion of information on the units.



See more information on the agreement with Inrego in Lupin (Procedo).

Please note that IT equipment *without* classified/sensitive material can be managed in accordance with 6.3 *Electronics without confidential content*.

EXAMPLES

- Computers
- EGA computers (LDC will take these back when the rental period is over and will arrange for pickup from Inrego.)



- tablets
- Mobile telephones

COLLECTION/ORDERING OF REMOVAL

Contact Ulf Berglund (ulf.berglund@inrego.se, tel: 08 50 10 90 55, mobile: 0703 70 28 26) at Inrego for access to Inrego's customer portal. There you can order removal when it is convenient to you. Delivery or pickup of pallet/lockers/cartons must occur within five working days. No rent is due for pallets/lockers/cartons.

After the pickup you will receive a return report from Inrego which will be used as a basis for invoicing. Invoices to Inrego must state the cost centre and what the payment relates to.

The department/division or equivalent which has delivered the equipment will also be compensated financially according to the reimbursement levels stated in appendix 1 of the agreement in Lupin (Procedo). The reimbursement levels are a fixed percentage of the market price at the time of the purchase.

FINAL PROCESSING

Inrego will recondition the equipment and delete the data from it, evaluate it and then resell it to new users.

7.1 COMPUTER SUPPLIES

EXAMPLES

- CD/DVD disks, diskettes, USB storage devices, etc.

COLLECTION

Computer supplies such as CD and DVD disks as well as USB storage devices are treated as residual waste, 2 *Residual waste*.

If the material contains confidential classified information, you must physically destroy it first. A CD/DVD disk can be broken into pieces and most USB storage devices can also be broken apart.

For EGA customers, LDC can also help with this as needed.

FINAL PROCESSING

See 2. *Residual waste*.



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8. REUSABLE FURNITURE AND OFFICE EQUIPMENT

EXAMPLES

- Furniture and other office equipment which has been replaced, but which is still functional. For example, desks, bookcases, sofas, office chairs, arm chairs, tables, lamps, and so on.

If you need to dispose of furniture in connection with a move, renovation, etc. a moving company can often offer this service. There are governmental agreements with moving firms. See <http://www.avropa.se/ramavtal/ramavtalsomraden/transport-och-tjanstefordon/Flytt--och-formedlingstjanster/Flyttjanster/>.

Remember that Lund University is covered by the Transfer of State Movable Assets Ordinance (1996:1191). The ordinance entails, among other things, that all sales should take place in a commercially profitable manner.

The activity or the moving company/consultant should strive to carry out disposal with the least possible environmental impact.



9. HAZARDOUS WASTE

The Waste Ordinance (2011:927) contains definitions of what constitutes hazardous waste and how it is to be dealt with. Hazardous waste is waste which contains, or consists of, substances with hazardous properties, e.g. hazardous to health, irritating, corrosive, flammable, poisonous or environmentally toxic. It can also be waste which requires special management in connection with collection or landfill on the grounds of infection risk (see appendix 1 of the Waste Ordinance). Appendix 4 of the Waste Ordinance contains a list of all types of waste. Waste types with an asterisk (*) in the list are hazardous waste.

Hazardous waste is not to be mixed with other kinds of hazardous waste, other waste or other substances or materials (Section 16).

Hazardous waste is not to be poured into drains.

Hazardous waste must be packed and labelled correctly. See instructions in this Waste Management Handbook. Incorrectly packed or incorrectly labelled waste is not to leave the division. The relevant manager is responsible for ensuring that hazardous waste is correctly sorted, packed and labelled.

In Lund University there are various types of hazardous waste, such as:

- Chemical waste
- Infectious waste
- Biological waste
- Low-level radioactive waste
- Small batteries, light sources, electronics, etc. (see under 6. *Bulky waste*)

Examples of what types of waste are included in the categories above can be found in the chapters on those categories.

Within Lund University, infectious and biological waste is often designated as *risk waste*. In the present Waste Management Handbook, we have chosen not to use the term risk waste because the concept is not used in legislation and can be confusing since other types of hazardous waste can also constitute a risk.

Contact persons for different types of hazardous waste appear in *15 Contact persons hazardous waste*.

The faculties/equivalents pay for removal of hazardous waste – not the individual activity.

Removal of hazardous waste is charged to the relevant faculty office/equivalent. Removal is thus never paid for by the individual division which sends hazardous waste away. The purpose of this is to avoid any financial disincentive to getting rid of hazardous waste. This is



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because it is important from both environmental and work environment points of view to keep down the quantities of hazardous waste stored on the University's premises.

9.1 GENERAL PROCESS DESCRIPTIONS, MANAGEMENT OF HAZARDOUS WASTE

The figures below show a general picture of the process from production to removal of hazardous waste. Figure 5 shows the process for chemical and low-level radioactive waste. Figure 6 shows the process for infectious waste and biological waste.

Blue squares with solid edge lines illustrate the items/tasks where Lund University is to take action /be responsible for something. Red squares without edges illustrate the items/tasks where Sysav Industri is to take action /be responsible for something.

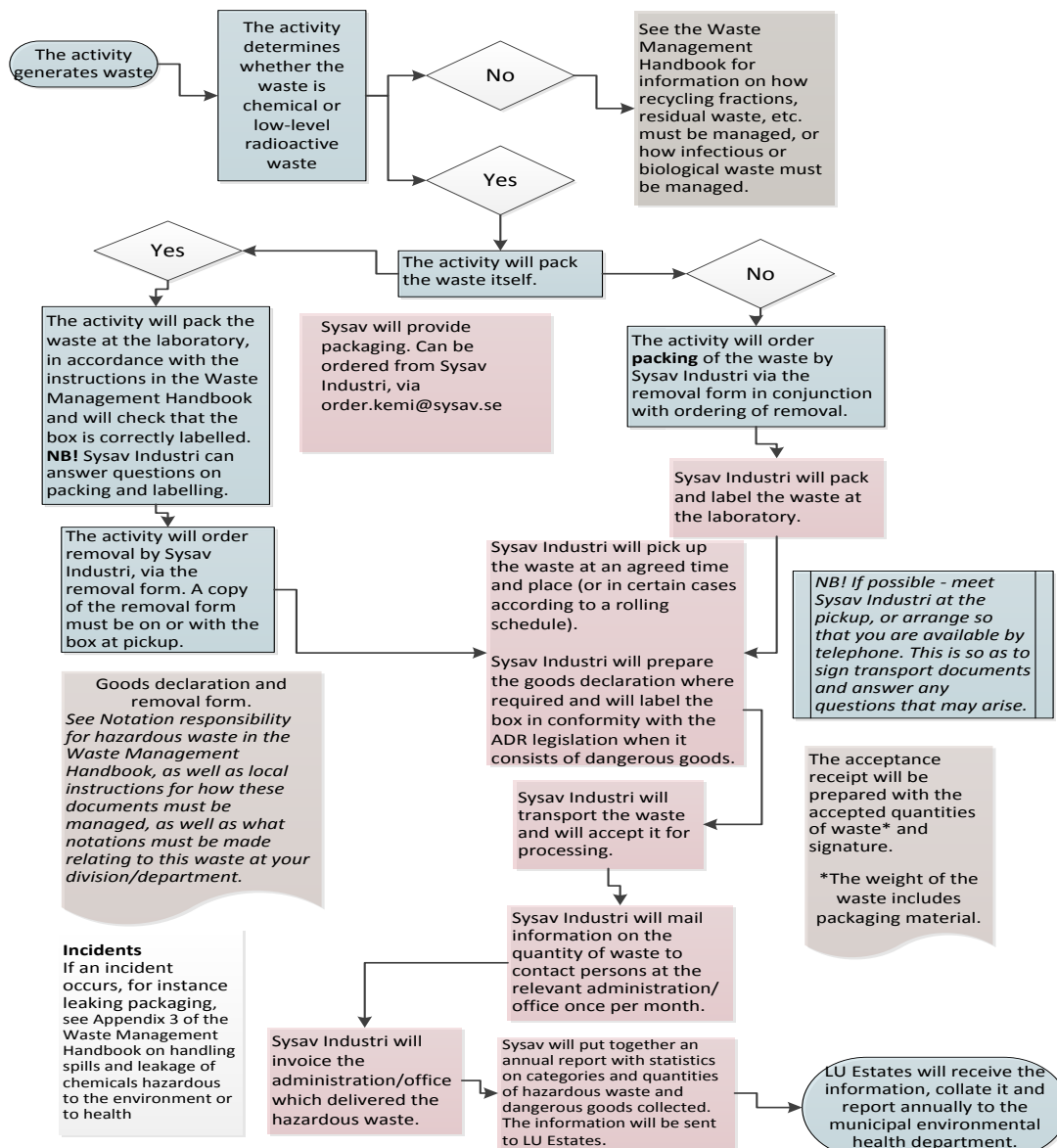


Figure 5: Description of the process from when chemical or low-level radioactive waste is produced until it is removed by Sysav Industri. **Summary:** Determine whether the waste is chemical or low-level radioactive waste. If you determine that the waste is chemical or low-level radioactive, you will order removal and any packaging via the removal form for chemical and low-level radioactive waste. You can also choose to pack the waste yourself. Thereafter the waste will be picked up and removed by Sysav Industri. Sysav Industri will invoice the relevant office and will report the quantity and category of the collected hazardous waste.

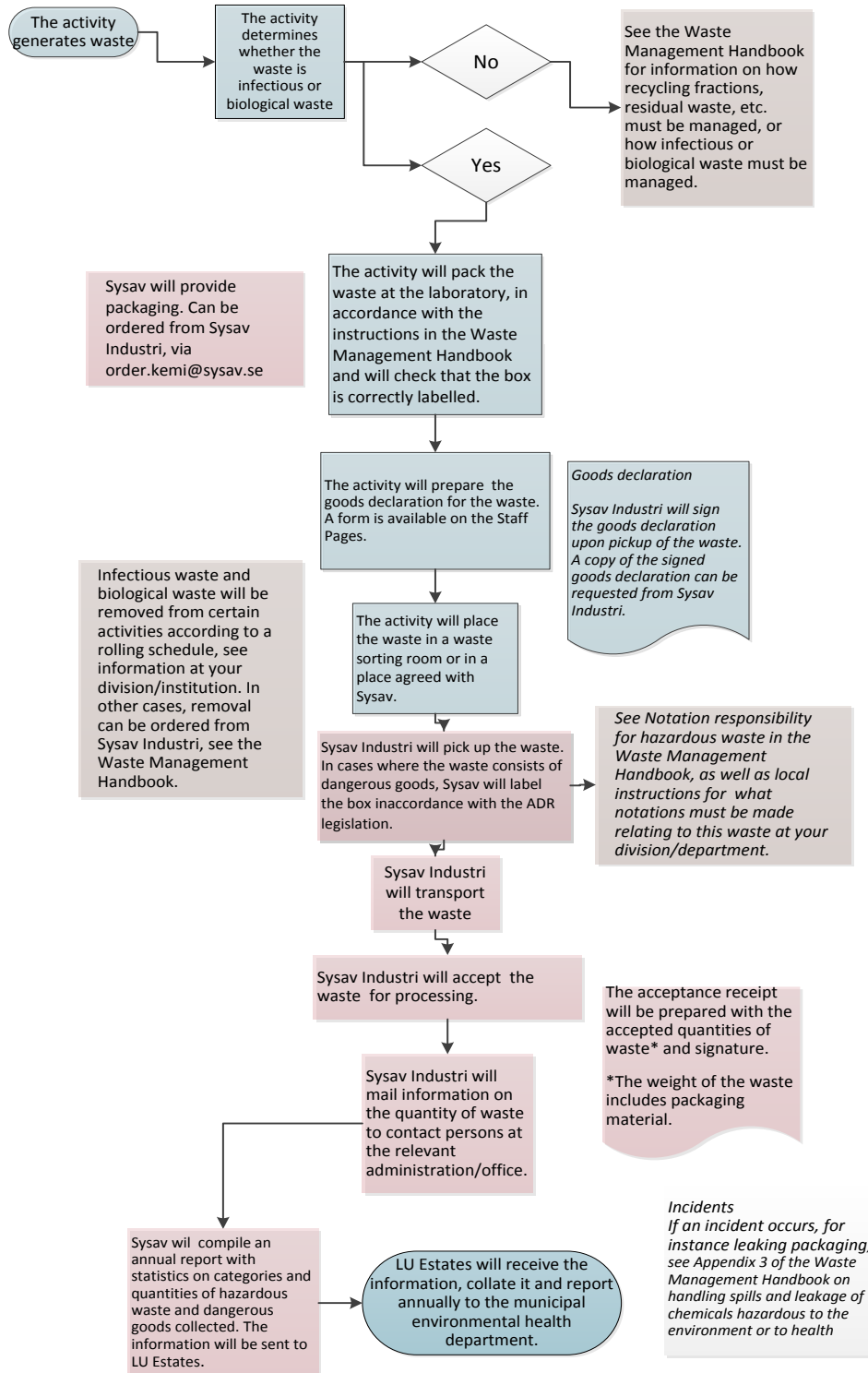


Figure 6: Description of the process from when infectious or biological waste is produced until it is removed by Sysav Industri. **Summary:** Determine whether the waste is infectious or biological waste. If you determine that it is infectious or biological waste, you pack the waste according to the instructions in this Waste Management Handbook and prepare a transport document. The activity will place the waste in a waste sorting room or in a location agreed upon with Sysav Industri. Sysav Industri will pick up the waste according to a rolling schedule, or after an order for removal. The waste will be picked up and removed by Sysav Industri. Sysav Industri will invoice the relevant faculty office and will report the quantity and category of the collected hazardous waste.



9.2 TRANSPORT OF HAZARDOUS WASTE

A permit is required in order to transport hazardous waste from Lund University. Sysav Industri has permits for this and must therefore always be contacted for transporting hazardous waste (except for the waste categories which are described under 6. *Bulky waste* and picked up by Ragn-Sells). Sysav Industri's website states which permits Sysav Industri has for transporting hazardous waste: <http://www.sysav.se/Om-oss/Om-foretaget/Tillstand-och-certifikat/>

HAZARDOUS WASTE WHICH IS ALSO DANGEROUS GOODS

Certain types of hazardous waste, for example infectious waste, can *also* be classed as dangerous goods. This type of waste is covered by the ADR/ADR-S- legislation.²

For these types of waste there are further provisions relating to transport, beyond what applies to hazardous waste generally. Among other things, this means that Sysav Industri will also classify and label the hazardous waste as dangerous goods, pursuant to the rules in ADR/ADR-S, in conjunction with the pickup. See also the process descriptions above.

Dangerous goods is a collective concept for substances and products which have such hazardous properties that they can harm people, the environment, property and other goods, if they are not managed correctly during transport. All activities which transport, load, unload or merely deliver dangerous goods for transport, and are covered by the provisions in the Transport of Dangerous Goods Act, must have a safety adviser. Contact information for Lund University's safety adviser can be found in 15. *Contact persons hazardous waste*.

9.3 ORDERING OF PACKAGING MATERIALS

Types of approved (pursuant to ADR/ADR-S) packing material (cardboard boxes, plastic boxes and cannula containers) and labelling materials which are included in the agreement between Lund University and Sysav Industri can be ordered cost-free from Sysav Industri on order.kemi@sysav.se. See also local instructions in your workplace, for information on where packing material is kept, ordering routines, etc.

The packaging materials which are described in this Waste Management Handbook are included in the agreement. As needed, special materials for packing can be ordered from Sysav and invoiced to the relevant faculty office/equivalent.

The descriptions of how to pack hazardous waste state that vermiculite is to be used. Vermiculite is an inert material and is therefore well suited to dealing with chemical spills.

² ADR or "European Agreement Concerning the International Carriage of Dangerous Goods by Road" is a joint regulatory structure within the EU which governs transport of dangerous goods by land. The rules are implemented in Swedish legislation by ADR-S. ADR-S contains, in addition to the direct implementation of the EU legislation, provisions which apply only to transport within Sweden.



Vermiculite in the packaging of hazardous waste also contributes to load safety. Another advantage is that it is a light material. For these reasons, Sysav recommends that you use vermiculite in preference to other absorption materials in the packing of hazardous waste. Vermiculite can also be used to clean up spills or leakage of chemicals. In the event of a spill or leakage of infectious substances, it is recommended instead to use drying cloths etc. (see *In case of an accident* under 9.6 *Storage of hazardous waste in a waste sorting room*).

9.4 NOTATION RESPONSIBILITY

Section 55 of the Waste Ordinance (2011:927) states that:

Anyone who engages in a professional activity in which any type of hazardous waste may be produced must make notations about

- 1. the quantity of waste which is produced annually, and*
- 2. to whom the waste is delivered for further management.*

The notations must be made in chronological order and must be preserved for at least three years.

Sysav Industri will deliver an annual waste report with this information for the relevant faculty/office to LU Estates

To enable follow-up and analysis of categories and quantities of waste at the level of divisions and departments, the activity should make its own notations about what categories and quantities of waste the division/department has delivered. This can be done, for example, by saving copies of removal forms or goods declaration forms, digitally or on paper.

See local instructions for this.

9.5 TRANSPORT DOCUMENTS AND GOODS DECLARATION FORM

Section 60 of the Waste Ordinance (2011:927) states that:

When hazardous waste is delivered to a new holder in order to be transported within Sweden the person who delivers the waste (the deliverer) and the person who receives the waste (the receiver) must ensure that there is a transport document.

The transport document must contain information on the category and the quantity of waste as well as who is the deliverer and who is the receiver.

The transport document must be signed by the deliverer. If the transport document is electronic, the deliverer is to sign it electronically.

In addition, the Swedish Environmental Protection Agency's instructions (NFS 2005:3) require the sender's name, postal address, corporate identification number and municipality code as well as the pickup date to appear on the transport document.

Transport documents will be prepared by Sysav Industri and must be signed by the deliverer of the waste.

For dangerous goods, the sender must ensure that a goods declaration form is produced. When chemical or low-level radioactive waste is involved, LU's agreement with Sysav Industri



includes Sysav doing this upon pickup. When infectious waste is involved, the activity itself is to fill in the goods declaration form.

Labelling of the packaging according to the legislation on dangerous goods (ADR/ADR-S) is to be done for all waste which is also categorised as dangerous goods (chemical, low-level radioactive and infectious waste), by Sysav Industri.

9.6 STORAGE OF HAZARDOUS WASTE IN A WASTE SORTING ROOM

Below are a number of points to remember in connection with storage of hazardous waste in a waste sorting room or equivalent. For management of hazardous waste in laboratories – see under the relevant waste category.

Hazardous waste must always be stored so that the hazardous waste does not cause personal injury or environmental damage.

In addition to the signage for the waste sorting room described below, it is wise also to identify the contact person for the waste sorting room.

STORAGE OF CHEMICAL WASTE

For chemical waste, the same rules apply for management and storage as for the chemical before it became waste. Hazardous waste made of chemicals must be stored separately from raw chemicals, so as to avoid confusion. Note also that the requirements for separation of chemicals for secure storage also apply to the waste.

Store chemical waste in a locked area so that unauthorised persons cannot access the waste. Mark the location with information that it is a waste sorting room. In addition, appropriate risk pictograms in conformity with the CLP ordinance (the ordinance relating to classification, labelling and packing of chemical substances and compounds) must be set up. Risk pictograms with lower grades of hazardousness may be omitted.

For example, a waste sorting room for chemical waste may be marked in accordance with figure 7 below.



Figure 7: Recommended marking of waste sorting rooms where chemical waste is stored.

Signs may be ordered from Pre, for example (see <http://pre.e-line.nu/>) or Collinder Märksystem (<http://www.collinder.se/>)



If you use lockers to separate different types of chemical waste, these lockers can be marked in an equivalent way, that is, state that it is storage for chemical waste together with the risk pictogram above.

For liquid chemicals/chemical waste you will often need to provide the storage area with a barrier so that spills or leakage can be contained. A barrier should encompass the largest storage container's volume plus 10 percent of the other containers' volumes. Remember to separate the products according to risk, see under *13. Chemical waste*, and that the area must be ventilated as needed, see AFS 2011:19.

It is **not** appropriate to have floor drains in the area where chemicals/chemical waste is stored. This is because of the risk that a spill or leakage may run out through the drain.

It is important to ensure that hazardous waste is regularly picked up so that the volumes of hazardous waste are kept down. This is to minimise risk from both environmental and health standpoints.

Flammable substances

Remember that chemical waste which is flammable must be included in the volumes which the activity has permission to manage according to the rescue service. See local permits for flammable goods.

STORAGE OF LOW-LEVEL RADIOACTIVE WASTE

Low-level radioactive waste must be stored in a separate room. If for any reason this cannot be arranged in the organisation, contact the radiation safety officer. In general, the same rules apply to waste storage as to chemical waste, including that signs with the text Storage for Radioactive Waste must be placed on the door of the waste sorting room, see *14. Radioactive waste*

STORAGE OF INFECTIOUS WASTE

Packaging or containers with infectious sharp/pointed waste may be stored at room temperature for at most three years (Section 15 of the National Board of Health and Welfare's instructions SOSFS 2005:26).

Closed packaging with infectious waste (except for waste with sharp/pointed properties) may be stored for a maximum of 24 hours at room temperature. Infectious waste (except waste with sharp/pointed properties) which must be stored for longer than 24 hours but less than a full week must be stored in a refrigerated area with an air temperature of no more than 8°C. If the waste is to be stored for a longer period than a full week, it must be frozen. Frozen, infectious waste may not be stored for longer than one year (Sections 16–18, SOSFS 2005:26).

The great differences in permitted storage periods between infectious waste and infectious sharp/pointed waste is based on the infectious sharp/pointed waste consisting of such things as cannulas, lancets and similar objects with only small quantities of biological material. This



waste thus contains limited risks for growth and putrefaction. This means that a box with material which is labelled sharp/pointed infectious waste, and which does not mostly contain cannulas, lancets, etc., must be stored according to the rules for infectious waste.

Areas where infectious waste is stored must be locked and marked with an easily visible warning sign with the international symbol for biological risk (figure 8). The warning sign must be supplemented with an additional sign with the text “Infectious Waste” in black on a yellow background.

Signs may be ordered from Pre, for example (see <http://pre.e-line.nu/>) or Collinder Märksystem (<http://www.collinder.se/>)



Figure 8: A sign with the international symbol for biological risk, and additional text Infectious Waste.

The area where the infectious waste is stored must be easy to clean and must tolerate disinfection. This is so that a good level of hygiene can be maintained and the spread of infection avoided. There must be a floor drain as well as hot and cold water in, or in the vicinity of, the area (Section 19, SOSFS 2005:26).

STORAGE OF BIOLOGICAL WASTE

In order to avoid bad smells which cause discomfort, biological waste which is to be stored for a longer period than 24 hours but less than five days should be stored in an area with an air temperature of 8°C at most (SOSFS 2001:8).

If the waste is to be stored for a longer period than five days it should be frozen. Frozen biological waste should not be stored longer than one year (SOSFS 2001:8).

The storage area should be kept locked. It should be easy to clean and should tolerate disinfection.

If the waste is also infectious, the provisions on infectious waste apply (see *Storage of infectious waste*, above, as well as SOSFS (2005:26) and SOSFS (2001:8)).

STORAGE OF PHARMACEUTICAL WASTE

Pharmaceutical waste must be stored and managed according to the same instructions as for the pharmaceutical before it became waste. For example, it is appropriate for the area where pharmaceutical waste is stored to be kept locked.

AFS 2005:5 on cytotoxic and other drugs with persistent toxic effect states that written management and protection instructions must be available at the workplace. These must be adapted to the local circumstances. The instructions are to provide information on how waste which contains drugs is to be removed. Waste from drugs which are covered by Section 1 in AFS 2005:5 must immediately be placed in containers which are clearly labelled as containing that kind of waste. The container must be kept closed. In general, pharmaceutical waste must be stored in the same way as chemical waste or infectious waste.

The room where the cytotoxic waste is stored should be marked in accordance with figure 9 below. Also identify the coordination manager or contact person for this waste sorting room.



Figure 9: Recommended marking of waste sorting rooms where pharmaceutical waste covered by AFS 2005:5 on cytotoxic and other drugs with persistent toxic effect is stored.

IN CASE OF AN ACCIDENT

A description of what is to be done in the event of a spill or leakage of chemicals/chemical waste can be found in appendix 2 and a description of what is to be done in the event of a spill or leakage of infectious material can be found in appendix 3.

It is important that equipment enabling you to deal correctly with a spill or leakage is available where hazardous waste, chemicals or infectious materials are stored. Everyone who has access to the area should know where the equipment is and how to use it (see appendices 2 and 3)

Equipment for management of spills or leakage of chemicals/chemical waste

- Absorbant material (vermiculite, single-use wipes, etc.)
- Warning signs
- Brushes, dust pans
- Gloves which are resistant to chemicals
- Breathing masks which are adapted to the chemical risk
- Protective glasses/visors
- Boots/shoe covers
- Plastic bags or pails for waste collection



- Single use coats, depending on the source of risk

In addition, in connection with storage of sharp/pointed infectious waste the following should be available:

- Disinfectant
- Gloves which protect against cuts and puncture injuries/infection risk
- Absorbant materials (e.g. single-use wipes, **not** vermiculite)

10. INFECTIOUS WASTE

EXAMPLES

Liquid infectious/microbiological waste such as:

- Bodily fluids from humans (not tissue – see biological waste)
- Microorganisms in risk class 1 (cell cultures are classed at a minimum in risk class 1)
- Microorganisms in risk classes 2 and 3*
- Genetically modified microorganisms (also genetically modified cell cultures)*
- Genetically modified plants*
- Low-level radioactive liquid which has been contaminated with the above
- Liquid as above which has also been exposed to chemicals/pharmaceuticals, e.g. antibiotics
- Biological waste which has been contaminated with any of the above.

Solid infectious/biological waste such as:

- Materials which have been in contact with or have been used in dealing with the above such as blood sample tubes, Eppendorf tubes, Pasteur pipettes, pipette tips, filter paper, gloves, paper towels
- In dealing with animals with infection risk, materials which have been in contact with the animals, such as sawdust, must also be taken into account.
- Pointed/sharp objects, such as cannulas, lancets, slides and the like, regardless of whether they have been in contact with infectious materials

* management requires permit/report. Management of waste (liquid or solid) must follow the waste rules which are stated in the report.

EXCEPTIONS FOR INACTIVATED/DECONTAMINATED WASTE



Liquid waste as above which has been inactivated or decontaminated with microbiologically validated and documented methods such as autoclaving may be poured into drains if it does not contain chemicals/pharmaceuticals which may not be poured out.

Solid waste as above which is not sharp/pointed, which has been inactivated or decontaminated with microbiologically validated and documented methods such as autoclaving, must be collected in closed containers or double plastic bags and labelled as inactivated, e.g., with autoclave tape or text.

*NB! Labels with infectious sharp/pointed waste are **not** to be used for this waste.*

The packed and labelled inactivated/decontaminated solid waste may be placed with residual waste (see 2. *Residual waste*).

WASTE LEGISLATION, INFECTIOUS WASTE

The National Board of Health and Welfare's instruction SOSFS 2005:26 *Management of infectious waste from healthcare and medical care*, *The National Handbook for healthcare and medical care work*, AFS 2005:1 *Microbiological safety risks*, as well as AFS 2011:2 *Contained use of genetically modified microorganisms*, contain further information on what is infectious waste.

A risk assessment of the management of infectious materials, in which the management of waste is included, is to provide the basis for the management of infectious waste. In addition, in most cases, management instructions for the method are also required.

PACKING AND LABELLING




Packaging material for infectious waste is presented in the pictures below. Certain waste categories must *always* be packed in a plastic box with a cover or in a cannula container. These waste categories are:

- Pointed/sharp materials
- Culture materials in risk class 2 if high titre (high cell concentration), e.g. culture plates.
- Culture materials with airborne infectious matter in risk class 2/airborne infectious GMM category L independent of titre.
- Bodily fluids from humans with known or suspected illness which has been caused by microorganisms in risk class 3 or 4.

Other types of infectious waste can also be properly packed in corrugated cardboard boxes for infectious materials (yellow and white, see below) with internal plastic bags (unless the risk assessment requires a plastic box/cannula container). **Note that brown cardboard boxes must never be used for infectious materials.**

See instructions on packing below

Packaging materials for infectious waste:

Packaging type	Sizes
<p>Box labelled Infectious/ sharp/pointed and symbols, including blue inner bag and tape for closing.</p> 	<p>Two different sizes</p> <ul style="list-style-type: none"> • 25 litres: Maximum weight 8 kg, measures: 185x377x377 mm. • 55 litres: Maximum weight 13 kg, measures: 377x377x377 mm
<p>Cannula container including lid</p> 	<p>Two different sizes</p> <ul style="list-style-type: none"> • 0.6 litre • 2 litres
<p>Plastic box, including lid.</p> 	<p>Two different sizes</p> <ul style="list-style-type: none"> • 25 litres • 50 litres

PACKING IN A PLASTIC BOX WITH A LID OR IN A CANNULA CONTAINER

- The waste is to be placed directly into the box/cannula container. In order to ensure that the lid and the centre lid (cannula container) are closed correctly it is important to follow the supplier's instructions on closing.
- If the waste is liquid, vermiculite or another absorbant material must be included in the box. Use so much absorbant material that all of the liquid waste could be absorbed if it were to leak out.



- Heavy boxes result in increased risk of accident. Therefore divide heavy waste into several smaller boxes. Check the maximum weight stated on the box.
- Fill in information about date and delivering division in the space provided on the box.
- Fill in the goods declaration form:
http://www.medarbetarwebben.lu.se/sites/medarbetarwebben.lu.se/files/godsdeklaration-transport-av-farligt-gods_kliniskt-avfall.pdf
- When cannula containers are involved, it can in some cases be good to place it, or them, in a cardboard box for infectious waste. This is to facilitate loading and transport.

PACKING IN A CARDBOARD BOX

- Pack the infectious waste in a cardboard box lined with a blue plastic bag intended for infectious waste. The cardboard box must have printed text “Infectious sharp/pointed waste”, see the picture above.
- If the waste is liquid, vermiculite or another absorbant material must be included in the box. Use so much absorbant material that all of the fluid waste could be absorbed if it were to leak out.
- If the waste consists of biological materials, e.g. animal bodies, these must be packed in separate bags before they are placed in the blue plastic bag in the cardboard box.
- Ensure that the carrying handle is left open when the box is closed and that the box is not filled to more than 2/3 of capacity.
- Heavy boxes result in increased risk of accident. Therefore divide heavy waste into several smaller boxes. Check the maximum weight stated on the box.
- Fill in information about date and delivering division in the space provided on the box.
- Fill in the goods declaration form:
http://www.medarbetarwebben.lu.se/sites/medarbetarwebben.lu.se/files/godsdeklaration-transport-av-farligt-gods_kliniskt-avfall.pdf

STORAGE OF INFECTIOUS WASTE

See 9.6 *Storage of hazardous waste in waste sorting rooms.*

DEPOSITING THE WASTE/ORDERING OF REMOVAL

Infectious waste will be picked up at most places in Lund University which generate this type of waste according to a rolling schedule. See information about this at the department/division.

Removal of infectious waste can also be ordered.

Ordering via email to: OrderTotal@sysav.se

State *Ordering of clinical and biological waste/LU* in the subject line

Ordering by telephone: Call Sysav Industri’s transporter of infectious waste and biological waste, see 15. *Contact persons hazardous waste.*



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FINAL PROCESSING:

The waste will be transported by Sysav Industri to Sysav's incineration plant for destruction (incineration with energy recovery). The waste will be loaded onto a specially equipped truck enabling entirely automated on and off loading of the infectious waste. No manual management of the waste will occur after the waste has left Lund University.



11. BIOLOGICAL WASTE

EXAMPLES

Waste from:

- Laboratory animals
- Large tissue from humans or animals

The laboratory animals and the tissue may be genetically modified or chemically or pharmaceutically contaminated. For infectious or low-level radioactive contaminated animals, see 10. *Infectious waste*.

Please note that waste contaminated with pharmaceuticals according to Section 1 in AFS 2005:5, Cytotoxic and other drugs with persistent toxic effect, requires special labelling. See packing and labelling below.


WASTE LEGISLATION, BIOLOGICAL WASTE

The Swedish National Board of Health and Welfare's regulation SOSFS 2001:8 *Safety measures in connection with management and labelling of biological waste which can affect human health pursuant to the Environmental Code*, and AFS 1990:11 *Working with laboratory animals* contain information on the management of biological waste.

A risk assessment of the management of human tissue, including the management of waste, is to provide the basis for the management of biological waste. Management instructions for the method are also needed. See AFS 2005:1 *Microbiological work environment risks*.

PACKING AND LABELLING

Packaging materials for biological waste

 <p>Unlabelled box including bag and tape for closing</p>	<p>Two different sizes</p> <ul style="list-style-type: none"> • 25 litres: Maximum weight 8 kg, measures 185x377x377 mm. Blue inner bag • 55 litres: Maximum weight 13 kg, measures 377x377x377 mm. Red inner bag
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- The biological waste, such as a small number of laboratory animals, is first to be placed into a smaller plastic bag. A filled plastic bag is to be placed in an unlabelled cardboard box lined with a plastic bag (blue or red depending on the size of the box).
- If the waste contains liquid an absorbant material, e.g. vermiculite, is to be placed in the bag. The absorbant material must be able to absorb the entire liquid content.
- Close the plastic bag with tape (provided by Sysav).
- Close the box in accordance with the instructions on the box.
- Label the box with a *Biological Waste* label which can be ordered from Sysav.
- If the biological waste is contaminated with cytotoxic or other drugs according to Section 1 of AFS 2005:5 the packaging must also be labelled *Cytotoxic and pharmaceutically contaminated waste*, see 12. *Pharmaceutical waste*.
- Ensure that the carrying handle is left open when the box is closed and that the box is not filled to more than two-thirds of capacity. Note the stated maximum weight on the box.
- Fill in information about the delivering division in the designated box.
- Fill in the goods declaration form:
http://medarbetarwebben.lu.se/sites/medarbetarwebben.lu.se/files/godsdeklaration-transport-av-farligt-gods_kliniskt-avfall.pdf
- If the waste consists of dead animal the Swedish Board of Agriculture's form *Management document for transport within Sweden of animal parts for disposal or autopsy* must also be filled in, see the Swedish Board of Agriculture's home page.
http://www2.jordbruksverket.se/webdav/files/SJV/blanketter/Djur/ovriga_djur/D135.pdf

STORAGE

See 9.6 *Storage of hazardous waste in waste sorting rooms*.

DEPOSITING THE WASTE/ORDERING REMOVAL

Place the box for removal in the designated area in the waste sorting room, or equivalent space, or in the place agreed upon with Sysav.

Biological waste will be picked up at most of the departments/divisions which generate this type of waste according to a rolling schedule. See information about this at the department/division.

Removal of biological waste can also be ordered as needed.

Ordering via email to: OrderTotal@sysav.se

State Ordering of clinical and biological waste/LU in the subject line

Ordering by telephone: Call Sysav Industri's transporter of infectious waste and biological waste, see 15. *Contact persons hazardous waste*.



LUND
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FINAL PROCESSING

The waste will be transported by Sysav Industri to Sysav's incineration plant for destruction (incineration with energy recovery). The waste is loaded onto specially equipped trucks which enable entirely automated on and off loading of biological waste. No manual management of the waste will occur after the waste has left Lund University.



12. PHARMACEUTICAL WASTE, INCLUDING ANTIBIOTICS

EXAMPLES

- Drugs in concentrated or diluted form
- Materials, such as pharmaceutical packaging, syringes, pipette tips, containing residues of liquid drugs.
- *All material which has been in contact with or has been used in the management of products which are regulated by Section 1 AFS 2005:5 Cytotoxic and other drugs with persistent toxic effect (above all ATC code L01, see FASS ATC register), i.e. even pharmaceutical packaging, pipette tips, syringes, gloves, paper towels, etc.*

WASTE LEGISLATION, PHARMACEUTICAL WASTE

A risk assessment of management of pharmaceuticals which can be hazardous for people or the environment, including the management of waste, must provide the basis for the management of pharmaceutical waste. See more in AFS 2005:5 *Cytotoxic and other drugs with persistent toxic effect*, among others Section 3 and commentary to Section 3 as well as the instructions on chemical work environment risks (AFS 2011:19).

PACKING AND MARKING

Waste including cytotoxins and other drugs with persistent toxic effect which are governed by AFS 2005:5 Section 1.

This waste must immediately be placed in a container which is clearly labelled as containing this waste. The container must be kept closed (Section 15 AFS 2005:5). This means that the waste must be in a closed container on a safety bench before it is placed in a waste container.

The waste container must be a cannula container or a plastic box. See instructions on the packing of these types of packaging under 10. *Infectious waste*.

Label the packaging with *Cytotoxic and pharmaceutically contaminated waste*, (fig 10). The label can be ordered from Sysav. Labelling which is needed for the transport will be done on location by Sysav.

**CYTOTOXIC AND
PHARMACEUTICALLY
CONTAMINATED WASTE**

Division/equivalent:
.....

Name:

Tel:



Figure 10: Label for cytotoxic and pharmaceutically contaminated waste

Pharmaceutical waste which has been contaminated by infectious/microbiological material

Pharmaceutical waste which is *not* covered by Section 1 of AFS 2005:5 which may be contaminated by infectious material must be managed as infectious waste. This waste is to be managed according to the instructions under *10. Infectious waste*.

Other pharmaceutical waste

Pharmaceutical waste which is *not* covered by Section 1 of AFS 2005:5 or may be contaminated by infectious material must be managed as chemical waste, see instructions for this under *13. Chemical waste*. Remember that if the waste has sharp or pointed properties, closed packaging, e.g. cannula containers, must be used.

DEPOSITING THE WASTE/ORDERING OF REMOVAL

Pharmaceutical waste (including waste with cytotoxic and other drugs with persistent toxic effect) will be picked up by Sysav Industri after ordering via the removal form for chemical and low-level radioactive waste (<http://www.staff.lu.se/support-and-tools/premises-and-parking/waste-hazardous-waste-and-recycling>) or according to a rolling schedule for removal of infectious waste. See information about this at the department/division.

FINAL PROCESSING

The waste will be transported by Sysav Industri to Sysav's incineration plant for destruction (incineration with energy recovery). The waste is loaded onto specially equipped trucks which enable entirely automated on and off loading of pharmaceutical waste. No manual management of the waste will occur after the waste has left Lund University.



13. CHEMICAL WASTE

FUNDAMENTAL PRINCIPLES FOR DISCHARGE OF CHEMICALS TO DRAINS

- 1) All chemicals must be managed in accordance with the information in section 13 of the safety data sheet (see LU's chemicals register KLARA). **Only in those cases where the safety data sheet clearly describes that the product may be poured out into the drain may it be managed in that manner.** The product may only be poured out when it is flushed with abundant quantities of water.
- 2) If there is no safety data sheet to consult (for instance if it is a half-finished/new chemical or compound) it is never to be poured into the drain.
- 3) Nor may chemicals be poured if, as a result of their properties, they could entail a risk for the employee of breathing/skin exposure or fire risk (see the safety data sheet's risk instructions as well as observing any protective measures such as access to ventilation) or damage to pipes, for instance on the basis of their acid or alkaline properties. A pH range of 5–11.5 is acceptable, so adjustment can be necessary.

This means that only solutions which **without any doubt whatsoever are entirely harmless** for staff, water traps, pipe systems, plumbers, various cleansing processes, the Öresund strait and its organisms, both short and long term, may be poured into the drain.

THE PRODUCTS BELOW MUST ALSO BE MANAGED AS CHEMICAL WASTE:

- Certain residues of drugs, (see under *12. Pharmaceutical waste*).
- Scintillation liquid without alpha emitting substances and with low activity concentration, see details *14.3 Scintillation liquid*.
- Photo chemicals, e.g. developer
- Workshop chemicals, e.g. glue and paint residues, oils
- Spray bottles with residues
- Thermometers (NB – electronic thermometers must be sorted as *6.3 Electronics*)
- Mercury electrodes
- Mercury switches
- HPMV (high pressure mercury vapour) bulbs
- Lead containers
- Old electronic equipment which can, for instance, contain oils with PCB
- Large liquid-filled batteries, e.g. car batteries
- Pointed/sharp materials, e.g. razor blades and broken laboratory glass which are, or may be, contaminated with chemicals

Materials and packaging which have come into contact with chemicals as above, must, in certain cases, also be managed as chemical waste.



This applies for example to:

- Containers or packaging which have contained certain substances hazardous to health or to the environment (see details under *Chemically contaminated packaging and materials*, below).
- Other materials, such as gloves, paper towels and pipette tips, which have come into contact with certain substances hazardous to health or to the environment (see details under *Chemically contaminated packaging and materials*, below).

NB! Pointed/sharp materials, such as razor blades and broken laboratory glass must *always* be placed in packaging which cannot be penetrated, e.g. cannula containers, and managed as chemical waste, see *Packing and labelling*, below.

NB! Laboratory glass is not manufactured from the same type of glass as glass packaging for food and may never be placed in an ordinary glass collection even if it is not contaminated with chemicals.

If there is uncertainty about whether waste is hazardous or not, see the relevant safety data sheet and/or the Waste Ordinance (2011:927), appendix 4, or contact Sysav Industri for information on classification and management, see *15. Contact persons hazardous waste*.

CHEMICALLY CONTAMINATED PACKAGING AND MATERIALS

Packaging and materials which have contained substances, or been in contact with substances, which are labelled with a danger symbol or danger pictogram must in *certain cases* be managed as chemical waste.

Packaging labelled with a skull and crossbones (T or T+, i.e. poisonous, carcinogenic, mutagenic, toxic to reproduction or allergenic) or “the dead fish” with risk phrase 50/53, or strongly corrosive with risk phrase R35 (see figures 10–12 below), must *not* be placed for recycling in the packaging collection system. It must instead be delivered as hazardous waste to Sysav Industri for special disposal.

Other materials, e.g. gloves, paper towels, pipette tips and broken laboratory glass, which have been in contact with chemicals labelled as above must also be managed as chemical waste.



Figure 10: Danger symbol for Very poisonous/Poisonous (T or T+)



Figure 11: Danger symbol for Environmentally hazardous (R50/53)



Figure 12: Danger symbol for Corrosive (R35)

From 2015 newly produced chemicals must be labelled with a danger pictogram in accordance with the CLP ordinance instead of the danger symbols above. The danger symbol “skull and crossbones” (T or T+) has been replaced by a danger pictogram with a skull and crossbones (GHS06) and a danger pictogram for health risk (GHS08) (see 13 and 14 below).



Figure 13: Danger pictogram for “Poisonous” (GHS 06)



Figure 14: Danger pictogram for “Health risk” (GHS08)

The “dead fish” danger symbol with risk phrase 50/53 has been replaced by danger pictogram “Environmentally hazardous” GHS09 and the danger symbol for corrosive has been replaced by the danger pictogram “Corrosive” (GHS05), see figures 15 and 16 below.



Figure 15: Danger pictogram for “Environmentally hazardous” (GHS09)



Figure 16: Danger pictogram for “Corrosive” (GHS05)



Packaging with these labels, as well as materials such as gloves, paper towels, pipette tips and broken laboratory glass, which have been in contact with chemicals labelled as above, must be managed as chemical waste.

Other packaging with danger symbols or danger pictograms may be sorted and managed as ordinary waste (non-hazardous waste) if the packaging is *drip and dust free*. Assessment as to whether a packaging is drip and dust free must be made case by case since this varies with regard to the packaging material, the appearance of the packaging and the viscosity of the contents.

In the event of uncertainty as to this assessment, the packaging should be sorted as hazardous waste.

Other materials, such as gloves, paper towels and pipette tips, which have *not* been in contact with chemicals labelled as above, must be placed into a plastic bag and can then be sorted as residual waste.

WASTE LEGISLATION, CHEMICAL WASTE

A risk assessment of the management of chemicals, in which the management of waste is included, must provide the basis for the management of chemical waste. See AFS 2011:19 *Chemical work environment risks*. There is a module for risk assessment of chemicals in KLARA.

In storing chemical and low-level radioactive waste, remember to use containers which are resistant to the chemicals stored in them and to check that the storage containers are in good condition. Waste containers for chemical waste must be kept clean on the outside (AFS 2014:43 Section 26). In order to prevent evaporation and any spills the receptacles must have a lid or other closing devices. The storage receptacles must be labelled so that all who manage them will know what they contain. Preferably use the original packaging.

STORAGE

See 9.6 *Storage of hazardous waste in waste sorting rooms*.

PACKING AND LABELLING

Packing and labelling of chemical waste is included in Lund University's agreement with Sysav Industri. On the removal form for chemical and low-level radioactive waste, available on the Staff Pages, see under *Depositing the waste/Ordering of removal*, below, you can state whether you want Sysav Industri to pack the waste.

Proceed as follows:

- If possible, leave the waste in the product's original packaging.
- If the waste cannot be delivered in the product's original packaging – ensure that the packaging will tolerate the chemical involved (there are type-approved varieties of packaging) and label the storage container with information on the risk in




printed letters, risk pictograms, and key words or risk symbols with a risk notation (can be printed out from KLARA) if they are to be used for the chemical products which have formed the waste, and with the waste category according to the Waste Ordinance.

- If the chemical belongs to group A or B according to AFS 2011:19 this must clearly appear from the packaging.
- Note that sharp/pointed materials which are, or may be, contaminated by chemicals, must be packed so that the packaging cannot be penetrated. For example, in a glass jar/glass bottle, plastic box/cannula container from Sysav Industri or other closed packaging

If you pack the waste yourself it is important to follow the instructions below.

Packaging materials for chemical waste

<p>Unmarked box including bag and tape for closing</p> 	<p>One size: 38 litres: Maximum weight 13 kg, measures: 340x270x430 mm. Black liner bag</p>
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- Pack in an unmarked box (see above) with absorbant material, e.g. vermiculite, in the plastic liner bag.
- Label the box with information on what it contains, e.g. on a label for chemical waste (http://www.staff.lu.se/sites/staff.lu.se/files/label_chemical-waste.png) Note that Sysav will label the box in accordance with legislation for dangerous goods (ADR). LU staff thus must not do this themselves.
- Do NOT close the box. Sysav Industri will do this in connection with pickup. If you close the box yourself you will also be responsible for doing the labelling pursuant to the legislation for dangerous goods (ADR/ADR-S).

SPECIAL MANAGEMENT ON PACKING OF CERTAIN CHEMICAL WASTE

- Waste containing mercury must be packed separately



- Waste containing other heavy metals must be packed separately
- Halogenated and non-halogenated solvents must be kept separate both in containers and in boxes.
- Ensure that peroxygen chemicals (EUH 019/R19) do not have any risk of explosion, e.g. by means of a peroxide test.

Chemicals are not to be packed together if they could react with each other and cause:

- Exothermic reactions
- Develop flammable, suffocating, oxidising or poisonous gases
- Creation of corrosive substances
- Creation of unstable substances

Scintillation containers: Labels for *Chemical waste*, *Liquid scintillation solution* or *Low-level radioactive waste* must be placed on the box. See 14.3 *Scintillation liquid*.

NB! If there is the least uncertainty about packing, contact Sysav Industri for advice, or let Sysav Industri pack the waste (advice about, and help with, packing of chemical waste is included in Lund University's agreement with Sysav Industri), see 15. *Contact persons hazardous waste*.

STORAGE OF CHEMICAL WASTE

See 9.6 *Storage of hazardous waste in waste sorting rooms*.

DEPOSITING THE WASTE/ORDERING REMOVAL

Removal of chemical waste is done via the removal form for chemical and low-level radioactive waste which is available on the Staff Pages: <http://www.staff.lu.se/support-and-tools/premises-and-parking/waste-hazardous-waste-and-recycling>. Follow the instructions on the form.

Order pickup often enough that large quantities of hazardous waste never need to be stored in the organisation. This is to minimise risks both to the environment and to human health.

NB! If possible – meet up with Sysav Industri at the time of pickup. If you are unable do so, arrange so that you are available on the telephone.

Certain activities also have scheduled removal of chemical waste, e.g. activities where a lot of solvents are used. See local instructions at the department/division.

FINAL PROCESSING

The hazardous waste is sorted, classified, packed for transport and removed by Sysav Industri. At Sysav Industri the waste is stored temporarily for further transport to an approved facility for final disposal. Some waste, such as oil, will be sent for recycling.



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Certain types of chemical waste, e.g. halogenated solvents, require high temperature incineration in special facilities.



13.1 GAS CYLINDERS

IN MOST CASES

Gas containers are retrieved by the gas supplier where there is an agreement with LU. There is a common agreement, with other higher education institutions, relating to gas cylinders with AGA Gas AB. Under the heading *Delivery*, the agreement states that AGA Gas AB will deliver to the ordering entity pursuant to Intercoms DDP (Delivered Duty Paid³) at a designated location and in an agreed way, as well as transporting empty gas cylinders cost-free. Deliveries with order values exceeding SEK 2000 will be delivered with free shipping.

If the gas cylinders which the supplier provides require a change of gas regulators or connections at the ordering unit the supplier must, without cost, provide gas regulators and connectors adapted to the gas cylinders which are delivered.

Where necessary, bottle carriers may be included without additional cost.

NB! AGA will accept only AGA containers.

Read more about the agreement with AGA Gas AB in Lupin (Procedo).

IN OTHER CASES

In cases involving a gas container from another supplier, e.g. Air Liquide, removal is ordered from that supplier (with whom there is a previous agreement) or, if there is an agreement with a local gas supplier, from the latter. The 20 cylinders and 50 cylinders are owned by the gas supplier and are individually labelled (except for very old cylinders which may lack such labelling). Contact details for Air Liquide can be found at:

<http://www.airliquide.se/sv/kontakt-forsaljning.html>

IF NONE OF THE ABOVE APPLIES

In cases where gas cylinders are not covered by any of the agreements described above, where it is not possible to find out who the supplier is and where the cylinders cannot be disposed of via any of the gas suppliers, Sysav Industri can take care of these gas cylinders according to the procedure for chemical waste. For information on ordering of removal etc. as for chemical waste, see *13. Chemical waste*

Charging for the cost of gas cylinder removal is done as for chemical waste, i.e. to the relevant faculty office/equivalent.

³ DDP (Delivered Duty Paid) means that the supplier is responsible for transport and delivery, including responsibility for following rules on import, taxes and customs.



14. RADIOACTIVE WASTE

Radioactive waste is divided up into low-level radioactive waste, medium-level radioactive and high-level radioactive waste, as well as liquid scintillation solution. For radioactive waste, the Swedish Radiation Safety Authority's (SSM) rules as well as Lund University's local rules are to be followed, see below.

QUALITY HANDBOOK FOR RADIOACTIVE WASTE

There must be a quality handbook (journal) in which all low-level radioactive, medium-level radioactive and high-level radioactive waste is registered. The information must be saved for at least five years.

STORAGE OF RADIOACTIVE WASTE

A storage place for radioactive waste must be marked with a sign conforming to figure 17 below.



Figure 17: Sign for marking of storage place for radioactive waste.

Information on storage of low-level radioactive waste can be found under 9.6 *Storage of hazardous waste in waste sorting rooms*. For information on storage of other radioactive waste, contact the radiation safety officer.

Contact the radiation safety officer for information on ordering of signs.

14.1 LOW-LEVEL RADIOACTIVE WASTE

For low-level radioactive waste, the Swedish Radiation Safety Authority's waste management instructions, SSM FS 2010:2, as well as its errata sheet must be followed.

The Swedish Radiation Safety Authority's instructions on management of radioactive waste and emissions from activities with open radiation sources:

<http://www.stralsakerhetsmyndigheten.se/Global/Publikationer/Forfattning/SSMFS/2010/SSMFS-2010-2.pdf>



Errata sheet, with activity concentrations:

<https://www.stralsakerhetsmyndigheten.se/Global/Publikationer/Forfattning/SSMFS/2010/R%c3%a4ttelse-SSMFS-2010-2.pdf>

SPECIAL REQUIREMENTS FOR ACTIVITY LEVELS FOR LOW-LEVEL RADIOACTIVE WASTE


In connection with removal, transport and incineration of low-level radioactive waste there are special requirements as to activity levels, activity concentrations, packaging and checking of the waste.

Low-level radioactive waste means that the radioactivity per package is not to exceed 1 limit value (L) per time (see exception levels SSM FS 2010:2 errata sheet) and 10L limit values per month and local agreement.

PACKING AND LABELLING

The waste must be packed in a designated brown cardboard box for chemical waste, see below.

Packaging materials for low-level radioactive waste

<p>Unlabelled box including bag and tape for closing</p> 	<p>One size:</p> <ul style="list-style-type: none">• 38 litres: Maximum weight 13 kg, measures: 340x270x430 mm. Black liner bag
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- Pack the waste in a plastic bag. If the waste contains liquid, fill the plastic bag with some form of absorbant material, e.g. vermiculite, in an amount sufficient to absorb the entire liquid content.
- Place the bag with its contents in the cardboard boxes provided with a plastic liner bag.
- Do not close the plastic bag or the box, wait for Sysav Industri.
- Fill in the sender information in the printed field on the top of the box.



- Label as “Low-level radioactive waste” (see below). Place the label in an easily visible place on the top of the box.
- The labelling on the boxes must be such that it will not come loose during transport.

NB! – in the event of uncertainty concerning packing, contact Sysav Industri. They will provide advice on packing or can take care of packing the waste. The radiation safety officer can also answer questions about this.

Label for low-level radioactive waste is shown in figure 18 below.

The label is yellow with black text and symbols. It features two radiation warning symbols (trefoil) on either side of the title. The title is 'Lågradioaktivt avfall'. Below the title are four lines for information: 'Radionuklid(er):', 'Aktivitet (MBq):', 'Avdelning/institution:', and 'Datum: 201_ _ _ _'. A dashed box contains a certification statement: 'Härmed intygas att :', followed by three bullet points: '• Ytdosrat <5µSv/h', '• Aktivitet < 1L(SSM FS 2012:2 rättelseblad)', and '• Punktkälla <50kBq'. To the right of each bullet point is a line for a signature, with 'Namnteckning' and 'Namnförtydligande' written below the lines. At the bottom left of the label is 'UN 2910'.

Figure 18: Label for low-level radioactive waste.

Information on nuclide and radioactivity can be found on the label. A signature is required to certify that the surface dose rate is less than 5 µSv/h, the radioactivity less than 1 limit value (L), and whether it is a point source, in which case the radioactivity is less than 50 kBq.

The label can be obtained here:

http://medarbetarwebben.lu.se/sites/medarbetarwebben.lu.se/files/lagradioaktivt_avfall_etikett.png

LINK TO ACTIVITY CONCENTRATIONS

Here is information on what activity levels and concentrations may be delivered as low-level radioactive waste:



<https://www.stralsakerhetsmyndigheten.se/Global/Publikationer/Forfattning/SSMFS/2010/R%c3%a4ttelse-SSMFS-2010-2.pdf>

DEPOSITING THE WASTE/ORDERING REMOVAL

For low-level radioactive waste pickup is ordered via the pickup form for chemical and low-level radioactive waste. See instructions on the form.

LIQUID LOW-LEVEL RADIOACTIVE WASTE

Generally at Lund University nothing is to be flushed down the drain.

If the research group wants to flush any nuclide into the sink, **the radiation safety officer must be consulted beforehand!** The radiation safety officer will determine if this is **permissible from case to case** depending on radionuclide, half-life, etc.

FINAL PROCESSING

The waste will be incinerated in Sysav Industri's incineration plant in Malmö.

14.2 MEDIUM- AND HIGH-LEVEL RADIOACTIVE WASTE

Medium- and high-level radioactive waste must **remain (be kept)** at the department/division until agreement on appropriate disposal of the waste has been reached with the radiation safety officer, see 15. *Contact persons hazardous waste*, below.

A label with information on radionuclide, person in charge and radioactivity at the time of packing must be pasted onto the box. The box must be stored correctly according to instructions from the radiation safety officer.

14.3 SCINTILLATION LIQUID

See 13. *Chemical waste* for information on packing and labelling

NB! Liquid scintillation solution is usually not classified as low-level radioactive waste but instead as chemical waste, on condition that:

- The solution does not contain alpha-emitting nuclides
- The solution only contains H-3 or C-14 and the radioactivity is at most 10 Bg/ml, or 100 Bq/ml

Brown corrugated cardboard boxes with liquid scintillation solution classed as chemical waste must be specially labelled:

http://medarbetarwebben.lu.se/sites/medarbetarwebben.lu.se/files/etikett_vatskescintillationslosning.pdf



If the liquid scintillation solution is classed as low-level radioactive waste, a label for low-level radioactive waste must be used instead:

http://medarbetarwebben.lu.se/sites/medarbetarwebben.lu.se/files/lagradioaktivt_avfall_etikett.png

FINAL PROCESSING

Different final processing depending on nuclide and activity.

15. CONTACT PERSONS HAZARDOUS WASTE

SYSAV INDUSTRI:

Question /What?	Who?	Contact information
Safety advisor regarding transport of dangerous goods	Chemist Per Malmquist	Per.malmquist@sysav.se 040 635 19 02
Questions about chemical and low-level radioactive waste	Chemist Per Malmquist Chemist Martin Andersson	Per.malmquist@sysav.se 040 635 19 02 Martin.andersson@sysav.se 040 635 19 03
Transporter, chemical and low-level radioactive waste (packing, pickup, etc.)	Chemist Martin Andersson	Martin.andersson@sysav.se 040 635 19 03
Transporter, sharp/pointed infectious waste and biological waste (packing, pickup, etc.)	Lasse Nilsson	Lasse.nilsson@sysav.se 040 635 18 80
Ordering of packaging materials Ordering of removal of chemical and low-level radioactive waste (must be done via the removal form, see 13. Chemical waste and 14.1 Low-	Sysav Industri	Order.kemi@sysav.se



<i>level radioactive waste.</i>		
Ordering of removal of infectious waste and biological waste	Lasse Nilsson <i>or</i> Email	Lasse.nilsson@sysav.se 040 635 18 80 <i>or</i> OrderTotal@sysav.se
Other questions to Sysav Industri	Sysav's customer service	http://www.sysav.se/foretag/Kundservice1/ 040- 635 18 00 kundservice@sysav.se

LUND UNIVERSITY:

Question /What?	Who?	Contact information
General waste questions, agreements, finance, agency contacts	Environmental manager Claes Nilén	Claes.nilen@bygg.lu.se 046 222 41 59
Questions about agreements, the Waste Management Handbook's instructions etc. Questions/opinions about the Waste Management Handbook.	Environmental Coordinator, Maria Nilsson	Maria.nilsson@bygg.lu.se 046 222 70 82
Questions about infectious waste, biological waste, pharmaceutical waste and GMO/GMA waste	Work Environment Engineer Johan Ohlin	Johan.ohlin@bygg.lu.se 046 222 70 26
Questions about radioactive waste, management, storage, packing, labelling, transport, removal, etc.	Radiation Safety Officer Hanna Holstein	Hanna.holstein@med.lu.se 046 222 01 93
The organisations's own procedures and instructions for management of	Work Environment Coordinator/equivalent at the faculty, the department and/or the division	



hazardous waste, location of packaging materials, etc.		
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16. CONTACT PERSONS WASTE

Question /What?	Who?	Contact information
Missed emptying, ordering of extra removal, bulky waste, paper and cardboard	Ragn-Sells customer service.	0771 88 88 88 email: kundcenter.malmo@Ragn-Sells.se
Missed emptying, etc. Packaging materials, food waste, residual waste (Lund)	Lunds Renhållningsverk customer service	046 35 53 90
Missed emptying, etc. Packaging materials, food waste, residual waste (Malmö)	VA Syd customer service	040 635 10 00 or: http://www.vasyd.se/Artiklar/Avfall/Anmal-utebliven-sophamtning
Missed emptying, etc. Packaging materials, food waste, residual waste (Helsingborg)	NSR customer service	042 400 13 40 Email: kundservice@nsr.se
Missed emptying, etc. Packaging materials, food waste, residual waste (Ljungbyhed)	Nårab customer service	0435 296 50 Or: http://www.narab.se/kop/index.htm



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Questions about waste management in your premises, waste sorting rooms, collection times, etc.	Contact persons for waste	Contact persons for waste appear on this list: http://www.medarbetarwebben.lu.se/sites/medarbetarwebben.lu.se/files/avfallskarta_med_kontaktpersoner_papper-well_2014-12-18.pdf
Questions about waste management <i>within</i> your premises	Relevant head of department or equivalent	
Questions about agreements and invoicing	Environmental Coordinator Maria Nilsson	Maria.nilsson@bygg.lu.se 046 222 70 82

APPENDIX 1

HOW TO MANAGE A BROKEN LOW ENERGY BULB OR A BROKEN FLUORESCENT TUBE

Low energy bulbs and fluorescent tubes contain mercury which is hazardous to health and to the environment. Here is advice on what to do if a bulb breaks so as to protect health and the environment.

RECOMMENDATIONS IN CASE OF A BROKEN BULB

When a cold bulb breaks:

- Collect the bulb pieces with, for example, a piece of stiff paper or cardboard and place them in a glass jar with a lid.
- Clean the floor with a damp cloth.
- Also place the cloth in the glass jar, close the jar and label it, for instance, with the text “may contain mercury from a low energy bulb”.
- Place the jar with hazardous (chemical) waste. See 13. *Chemical waste*
- Wash your hands.

Do not use a vacuum cleaner. There is a risk that the vacuum cleaner will further vaporise and spread the mercury in the air.

When a warm bulb breaks:

- Air the room and leave it for 20–30 minutes
- Collect the bulb pieces with, for example, a piece of stiff paper or cardboard and clean the floor and other surfaces in the vicinity of the broken bulb with a damp cloth.
- Place the bulb pieces in a glass jar with a lid. Also place the cloth in the glass jar, close the jar and label it, for instance, with the text “may contain mercury from a low energy bulb”.
- Place the jar with hazardous (chemical) waste. See 13. *Chemical waste*
- Wash your hands

Do not use a vacuum cleaner. There is a risk that the vacuum cleaner will further vaporise and spread the mercury in the air.

FACTS ABOUT MERCURY IN LOW ENERGY BULBS AND FLUORESCENT TUBES

Low energy bulbs and fluorescent tubes contain mercury. A low energy bulb can contain up to 5 mg mercury while a fluorescent tube can contain up to 10 mg. It is important to know that bulbs containing mercury must be dealt with as environmentally hazardous waste and not mixed with household waste.

When a bulb is turned on the temperature rises and the mercury vaporises so as to finally fill the bulb with vapour. When the bulb cools after use the mercury returns to a more solid state.

If a cold bulb breaks the mercury content is spread in the room in small particles but will reasonably quickly fall to the floor together with the broken pieces of the bulb and any crushed glass. By contrast, if a warm bulb breaks, the gaseous metallic mercury spreads in the room's air.

HEALTH EFFECTS

No health effects are expected to result from individual exposure to low doses of mercury. But since gaseous mercury is easily inhaled and accumulates in the body, all exposure to gaseous mercury must be avoided as a safety measure. Long term exposure to low concentrations can primarily affect the nervous system and the brain.

Facts from the Swedish Chemicals Agency: <https://www.kemi.se/sv/Innehall/Fragor-i-fokus/Kvicksilver-i-lagenergilampor-och-lysror/>

APPENDIX 2

HOW TO MANAGE SPILLS AND EMISSIONS OF CHEMICALS THAT ARE HAZARDOUS TO THE ENVIRONMENT AND TO HEALTH.

INTENDED FOR THOSE WHO WORK IN ACTIVITIES WITH CHEMICALS, E.G. LABORATORIES AND WORKSHOPS

SPILLS OF CHEMICALS WITH DANGER SYMBOLS/DANGER PICTOGRAMS

1. Put up a barrier, close the door and notify persons near the spill location. Evacuate if necessary. Post warning signs.
2. Use the disconnecter which is outside the room to switch off electricity if a flammable substance has been spilled.
3. If there is a critical emission of hazardous chemicals or a flammable substance entailing a risk of serious consequences, e.g., injury to a person or fire, call SOS Alarm at (0)112.
4. Inform your manager about what has happened, and for flammables you must also report to the head of the department or to the person appointed by him or her for flammable substances.
5. Assess whether you can clean up yourself without risk, by reading the risk assessment and/or safety data sheet or asking your manager. If you need help, contact Sysav Industri tel: 040-635 19 00 or the safety advisor directly, Per Malmquist 040 635 19 02. Outside office hours, contact LU Emergency, tel: 046 222 07 00.

IF YOU CAN CLEAN IT UP YOURSELF:

1. Fetch the equipment you need, i.e. protective equipment, absorbant materials, containers for collecting the spill, a shovel or the like. The equipment should be available in the chemicals storage area or the storage area for hazardous waste
2. Ask a colleague to assist you in cleaning up – you may need help fetching things or calling someone
3. Put on a breathing mask, gloves a lab coat and protective eye glasses, boots/shoe protectors.
4. For liquid spills, use appropriate absorbant material.
5. Remove the spill with a shovel or the like. Transfer it to a plastic container with an airtight lid, e.g. a yellow plastic box from Sysav Industri or an unlabelled corrugated cardboard box with a plastic liner bag (place the waste/spills in the plastic bag and then close the bag). Contaminated gloves, absorbant material, drying materials, etc. must also be placed in the container.
6. Close the container.

7. The container must be labelled “Spill of xx (name of the spilled substance)” and when appropriate “soaked up in absorbant material”
8. The waste will be managed as chemical waste. See *13. Chemical waste* in the Waste Management Handbook.
9. Clean the floor carefully afterwards. **Never** have the cleaners wipe up the chemical spill! They do not have the training to manage this type of cleaning.
10. Ensure that the cleaning materials you have used are replaced. See local procedures for how to order them.
11. Report the event in accordance with the University’s incident and accident reporting. (<http://www.hr-webben.lu.se/hr-blanketter-mallar-och-manualer>)

DISCHARGE TO DRAINS OF CHEMICALS THAT ARE HAZARDOUS TO THE ENVIRONMENT AND TO HEALTH.

If a spill of chemicals with a danger symbol or a danger pictogram has been poured into a drain the following must be done:

1. Contact your manager and the organisation’s work environment/environmental coordinator or equivalent to assess what is to be done.
2. Inform the Work Environment, Sustainability and Safety Division (Head of Sustainability Claes Nilén, tel: 046 222 41 59, Environmental Coordinator Maria Nilsson 046 27082 or Ylva Lundgren 046 222 30 87). Outside of office hours, contact LU Emergency, tel: 046 222 07 00.
3. The Work Environment, Sustainability and Safety Division will determine whether the event must be reported to VA Syd (or equivalent) and the municipal environmental health department and how this is to be done. See contact information below.
4. Report the event in accordance with the University’s incident and accident reporting. (<http://www.hr-webben.lu.se/hr-blanketter-mallar-och-manualer>).

CONTACT INFORMATION:

Drainage cleaning agency

Lund and Malmö: VA Syd, tel: 040 635 00 00

Helsingborg: NSVA, tel: 010 490 97 00

Ljungbyhed: Klippans kommun, tel: 0435 280 00. Emergency number, outside of office hours: 0435 103 10

Municipal environmental health departments

Lund: 046 35 52 61

Malmö: 040 34 10 00

Helsingborg: 042 10 50 00

Ljungbyhed (Klippan municipality): 0435 280 00

APPENDIX 3

HOW TO MANAGE SPILLS OR LEAKAGE OF INFECTIOUS WASTE.

INTENDED FOR THOSE WHO WORK IN LABORATORIES AND MANAGE INFECTIOUS WASTE

1. Put up a barrier, close the door and notify persons near the spill/leakage location. Post warning signs.
2. Notify your manager about what has happened.
3. Assess whether you can clean up yourself without risk or ask your manager for advice. Contact the safety advisor (Per Malmquist, tel: 040 635 19 02) or Sysav Industri, tel: 040 635 19 00 if you need support. The safety advisor will make a report to the Swedish Civil Contingencies Agency (MSB) where required.

If you and/or the safety advisor consider that you can clean up yourself without risk, follow the instructions below:

LARGE SPILLS/LEAKAGE:

1. Fetch the equipment you will need, i.e. protective clothing, gloves which protect against cuts and puncture injuries (in appropriate cases) as well as microorganisms and the disinfectant materials which will be used, breathing protection against microorganisms and any disinfectant material (not a mouth mask), eye protection, and shoe protection/boots, absorbant cloths, containers for collecting the spill, a shovel or the like and disinfectant materials (choose disinfectant materials based upon the risk source if possible, in other cases a disinfectant material which has a broad disinfectant spectrum such as oxidising or chlorine products). The equipment should be available in a chemicals storage area or a storage area for hazardous waste.
2. Ask a colleague to assist you in cleaning up – you may need help fetching things or calling someone.
3. Put on the personal protective equipment (listed in point 1 above).
4. Cover the spill with absorbant cloths and pour the disinfectant over them. Let it work for 10 minutes (time for it to be effective). Remember to cover a larger area than what is visible to the naked eye.
5. Remove the wet absorbant cloths with a shovel or the like. Transfer them to a plastic container with an airtight lid, e.g. a yellow plastic box from Sysav Industri, labelled sharp/pointed infectious waste. Contaminated gloves, absorbant materials, drying materials, etc. must also be placed in the container.
6. Then disinfect an even larger area such as the whole floor. Clean the floor carefully afterwards. Swill with water if possible.
7. Also process any further absorbant cloths and suspected contaminated personal protective equipment and anything else which may have come into contact with the infection as waste in accordance with the above.
8. Close the container.
9. The waste is to be managed as pointed/sharp infectious waste. See *10. Infectious waste* in the Waste Management Handbook.

10. Ensure that the cleaning materials which you have used are replaced. See local instructions for how to order them.
12. Report the event in accordance with the University's incident and accident reporting. (<http://www.hr-webben.lu.se/hr-blanketter-mallar-och-manualer>)

Never have the cleaners wipe up infectious materials! They do not have the training to manage this type of cleaning.

LEAKING PACKAGING WITH SHARP/POINTED INFECTIOUS WASTE

1. Follow the procedure above.
2. In connection with the cleaning up, the leaking packaging must be repacked in two strong garbage bags, with any necessary absorbant materials.
3. The leaking packaging, enclosed in two garbage bags, must be placed in a new cardboard box/container for sharp/pointed infectious waste and thereafter dealt with as this type of waste in accordance with the instructions in this Waste Management Handbook.

APPENDIX 4, REMOVAL FORM FOR CHEMICAL AND LOW-LEVEL RADIOACTIVE WASTE



LUNDS
UNIVERSITET

Form for removal of chemical waste and low-level radioactive waste

Faculty Office:

- Medicine
 Science
 LTH
 USV/KOM/MAX IV
 Humanities and Theology

Department		Division/equiv.	
Waste removal location (provide as much detail as possible, e.g., building, room no. etc.)			
Contact person			
Telephone (if possible a continuously staffed phone number)			
Email		Date	

If you are in any doubt as to how the waste should be packed, Sysav will pack it for you.

Packing by Sysav requested:

- YES NO

Instructions

Complete the form as precisely as possible. Submit the order via this [link](#) (email till Sysav). (NB! Attach the removal form to the email.) You will receive an order confirmation by email from Sysav. Sysav will then contact you via email in order to set a pick-up time.

If there is any doubt as to how the waste is to be packaged, Sysav will pack it for you, or provide you with packing advice if you are to do it yourself. Tick the YES box above for help with packing.

If there are questions, contact Per Malmquist, per.malmquist@sysav.se (Tel: 040 635 19 02) or Martin Andersson, martin.andersson@sysav.se at Sysav Industri.

Remember that the removal form, or equivalent documentation of the removal, is to be kept for at least 3 years (Waste Ordinance 2011:927 Section 55).

Substance or mixture of substances	Quantity/volume* *State the volume of the container, regardless of whether or not it is full.	Number	Other information (e.g. information on activity levels for low-level radioactive waste)

APPENDIX 5, GOODS DECLARATION FORM

X



Beställning av hämtning
040-6351880 för kunder
med Budningsavtal

VID OLYCKA
Kontakta Räddnings-
tjänsten Telefon 112

TRANSPORTDOKUMENT/GODSDEKLARATION

Avsändare:

Kommunkod:

- Lund 1281
 Malmö 1280
 Helsingborg 1283

Företag: Lunds universitet

Adress:

Postadress

Org.nr: 202100-3211

Tel.nr:

Godsmottagare:

Sysav Industri AB

Spillepengsgatan 13, 211 24 Malmö

Org.nr: 556474-8803

Telnr: 040-635 18 00

Ansvarig mottagare:

Lasse Nilsson, 040-635 18 80

Innehåll / ADR-beteckning	Typ av kolla	Antal kolla	Volym	Vikt
Smittförande avfall klassas enligt avfallsförordningen (SFS 2011:927) som farligt avfall, LOW-kod 18 01 03* eller 18 02 02*.	Kanylburk 0,6 L.			
	Kanylburk 2,0 L.			
UN 3291 Avfall Smittförande avfall, ospecificerat, n.o.s., eller (Bio)Medicinskt avfall, n.o.s. eller Föreskriftsenligt Medicinskt avfall, n.o.s., 6.2, II (stryk det som inte stämmer)	Kanylbox 25 L.			
	Kanylbox 50 L.			
	Kartong 25 L.			
	Kartong 55 L.			
<input type="checkbox"/> Avfall från behandling eller förebyggande av sjukdomar hos människor. LOW-kod 18 01 03*				
<input type="checkbox"/> Avfall från behandling eller förebyggande av sjukdomar hos djur. LOW-kod 18 02 02*				
Summa				

Transportör

Sysav Industri AB, Box 50344, 202 13 Malmö. Org.nr: 556474-8803

Annan: _____

Avfallslämnarens underskrift

Datum: 20 _____

Underskrift: _____

Namnförtydligande: _____

Transportörens underskrift

Datum: 20 _____

Underskrift: _____

Namnförtydligande: _____

Mottagarens underskrift

Datum: 20 _____

Underskrift: _____

Namnförtydligande: _____

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APPENDIX 6, LABELS, HAZARDOUS WASTE

The labels below can be obtained on: <http://www.staff.lu.se/support-and-tools/premises-and-parking/waste-hazardous-waste-and-recycling>

Laboratorieavfall / Chemical waste	
Lösningsmedel / Solvent:	_____
Innehåll / Content:	_____ _____ _____
Namn / Name:	_____
Avd / Dept:	_____
Tel / Phone:	_____ Datum / Date: _____

	Lågradioaktivt avfall	
Radionuklid(er): _____		
Aktivitet (MBq): _____		
Avdelning/institution: _____		
Datum: 201_ _ - _ - _		
Härmed intygas att:		
• Ytdosrat <5µSv/h	_____	Namn-teckning
• Aktivitet < 1L _(SSM FS 2012:2 rättelseblad)	_____	Namn-förtydligande
• Punktkälla <50kBq	_____	
UN 2910		

Ref: www.medfak.lu.se/stralskydd/	Kemiskt avfall	C 896 12.007
	Vätskescintillationslösning	
	Härmed intygas att:	
	1. Inga alfastrålande ämnen ingår	
	2. Aktivitetskoncentrationen är <ul style="list-style-type: none">• < 10 Bq/ml alternativt• < 100 Bq/ml för ³H eller ¹⁴C	
Datum / 200_ _	_____	
	Namn-teckning	
	Namn-förtydligande	