



Stockholms
universitet

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Waste Management Procedures for Stockholm University

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General instructions

The procedures in brief

The waste management procedures are intended to give you guidance about how waste is handled at Stockholm University. The procedures cover all waste generated in the University's activities.

The procedures are divided into two parts, office waste and laboratory waste, and are based on current legislation. They will be revised in connection with amendments to the legislation or changes in other requirements.

The procedures have been produced in cooperation with the University's waste contractors, veterinary surgeon, biosafety expert, radiation protection expert, safety engineer, environmental coordinator and a working group of representatives from various departments and the administration as well as the City of Stockholm's Environment and Health Administration and Stockholm Vatten AB.

Responsibility and scope

Everyone working, studying or carrying out activities at Stockholm University, Frescati, Kräftriket and Sveaplan has to follow the University's procedures for waste management. Local waste management procedures apply to the other university areas.

The departments (or equivalent) are responsible for sorting waste according to current legislation and instructions issued by the University.

The Section for Purchasing and Logistics [*Sektionen för inköp och logistik*], which belongs to the Technical Support Office, is responsible for the procurement of waste contractors and has a coordinating responsibility for waste management.

The University's waste contractors for waste from its activities are responsible for the waste management centres. They are in charge of information, signage and the collection and removal of source-separated waste. The waste contractor for hazardous waste is responsible for information, signage and the collection and removal of hazardous waste.

Household waste and industrial waste

The waste that may be generated in the University's activities is either classified as household waste, industrial waste or hazardous waste.

Household waste is the waste that ends up in the waste baskets in our offices, lunch rooms and kitchenettes. It also includes waste produced in common areas, i.e. students' and visitors' waste. Akademiska Hus is responsible for the disposal of household waste, and it is their waste contractor that collects household waste.

The waste that the University is responsible for is *industrial waste* and *hazardous waste*. As an operator the University is required to ensure that all waste generated in its activities is disposed of in a safe and environmentally correct way. Waste is reused, recycled, destroyed or disposed of in landfills. It is the waste contractors procured by the University that handle the collection of industrial waste and hazardous waste.

Types of waste at Stockholm University

The following types of waste are disposed of and handled at Stockholm University:

Household waste	Industrial waste	Hazardous waste
Household waste ¹ Compostable ² Food waste ³	Glass containers Laboratory glass Metals Furniture Plastic (packaging and Styrofoam) Paper for recycling Separable waste Stretch- and shrink-wrap (pallet packaging) Wood Toner cassettes Corrugated cardboard and paper containers/packaging	Animal products Antibiotics Batteries Biological agents Electrical and electronic products (Electronic waste) GMMs GMOs Human by-products Chemicals Refrigerators and freezers Light sources Laboratory glass Narcotics/narcotic chemicals Radioactive waste Sharps

¹ Akademiska Hus is responsible for the disposal of household waste. This waste is classed as separated combustible waste and goes to energy recovery.

² Food leavings, fruit peel, coffee grounds, planting soil, i.e. compostable waste that is mainly generated in our kitchenettes and is handled as household waste.

³Food waste that arises in food preparation in restaurant kitchens and similar settings.

Depositing waste at the waste management centres

The University has a number of waste management centres where you can deposit your source-separated waste. The waste management centres have, as far as possible, been adapted to the source-separation needs of nearby operations.

Never deposit anything at a waste management centre that you cannot source separate. Never leave anything standing on the floor or in another container. This creates difficulties for the people working on waste management. Instead ask one of the contacts for waste management procedures, see the *Contact information* section.

When discarding bulky waste, such as old furniture, electrical equipment, fridges, or large amounts of waste, a collection order has to be made. There is a charge for this.

For advice about ordering the collection of bulky waste, please contact:

The Goods Reception at Purchasing and Logistics, tel. 08-16 2517 or e-mail: goods@su.se

Also notify the Goods Reception when leaving furniture at the designated spot outside the SU shop in the Arrhenius Laboratory.

Contaminated material (contaminated with, for example, chemicals, radioactive waste or infectious waste) is absolutely not included here and must be handled on the basis of the contamination, see the “Laboratory activities” section.

Waste management centres for industrial waste:

D3, South Building, opposite the large refuse storage room with an exit to the culvert.

A2, Arrhenius Laboratory, outside the SU Shop

Geoscience Building, floor 2 under the entrance

Manne Siegbahn Laboratory, between the buildings at Frescativägen 24B and 26

Frescati backe, Svante Arrheniusväg 21, ground floor

Frescati hagväg Building 8, at the gable end opposite building 10

Kräftriket Building 18, parking area at Building 3

Department of Social Work, Sveaplan 162

Edvard Anderssons Greenhouse, outside

Depositing hazardous waste

All types of hazardous waste apart from radioactive waste are marked with a waste label and delivered to room M212, Svante Arrhenius väg 16F. The opening hours are Wednesdays and Fridays at 10.30–11.00.

Radioactive waste is marked with waste labels and warning symbols for ionising radiation and deposited in room A205 (opposite the SU Shop) on Thursdays at 10.30–11.00.

For the collection of hazardous waste at a department, contact the University's waste contractor, Ragnsells, which also answers other questions. Contact: Anders Lindholm, anders.lindholm@ragnsells.se.

Source separation options for students

Students and other visitors can source separate their waste. The computer rooms and some seminar rooms have containers for paper for recycling.

Two other waste management centres are available for source separation of other types of waste: one in the South Building between House C and House D on floor 3 and one in the Arrhenius Laboratory, Building A on floor 2.

Recycling stations are also available at a number of places around campus, where you can sort your plastic, paper, metal and glass containers, newspapers and recycled paper, as well as refundable PET bottles and aluminium cans.

Other information about waste

You can find other information about waste and waste management at the following addresses:

www.stockholm.se	City of Stockholm
www.ftiab.se	FTI (Förpacknings- och tidningsinsamlingen)
www.naturvardsverket.se	Swedish Environmental Protection Agency
www.kemi.se	Swedish Chemicals Agency
www.sopor.nu	General information about waste
www.hansandersson.se	H.A. Andersson recycling, contractor
www.ragnsells.se	Ragn-Sells, contractor
www.avfallsverige.se	Industry organisation

Transport documents

In Sweden a transport document has to be drawn up for the transport of hazardous waste. The document has to contain information about the sender, recipient, carrier, type of waste and quantity of waste and be signed by the sender and recipient.

Transport documentation is handled by Stockholm University's waste contractor for hazardous waste. The University is obliged to check that the carrier has a permit to transport hazardous waste.

Record keeping

Under Section 55 of the Waste Ordinance, the operator of an activity that generates hazardous waste must keep records each year of the quantity and type of generated waste, as well as of the receiving plants. These records must be retained for at least three years.

Records of hazardous waste are collected by the Technical Support Office. They are held in electronic form. It is the waste contractor that keeps the records.

Dangerous goods by road

Dangerous goods must be separated, marked, packaged and transported in accordance with the Act (SFS 2006:263) and the Ordinance (SFS 2006:311) on the Transport of Dangerous Goods by Road and the Regulations (MSBFS 2011:1) of the Swedish Civil Contingencies Agency on the Transport of Dangerous Goods by Road and in Terrain (ADR-S⁴). Anyone transporting dangerous goods must be familiar with and follow these regulations. To help with this, the University has now signed an agreement with Ragn-Sells concerning a **safety advisor**. For help with these matters, please contact:

Anders Lindholm, Ragn-Sells AB, 0709-274522, anders.lindholm@ragnsells.se

Accidents or incidents that occur during transport should be reported in SAMIR as usual.

Spills and clean-ups of hazardous substances

Spills must be collected immediately and the site of the spill must be cleaned. Depending on the properties of the spill suitable protective and cleaning equipment must be used. Liquid spills must always be absorbed using absorbents. The spill is packed according to its properties and is treated as hazardous waste. Vermiculite is recommended as an absorbent.

Certificate for the deposit of electrical laboratory equipment

The person depositing the equipment has to sign a certificate that the equipment is not contaminated and does not contain dangerous components, in order to guarantee a safe work environment for the waste management staff.

The certificate can be arranged as shown below and has to be given to the waste contractor.

In case of any uncertainty regarding whether or not the equipment is contaminated, the depositor should contact Ragn-Sells for evaluation and possible collection: Anders Lindholm, 070-927 4522.

A template for the certificate is available under the “What to do” tab on the environmental website: <http://www.su.se/miljo>

Certificate for instrument/apparatus/equipment/refrigerator/freezer from laboratory activities

Name:

Department:

Tel:

I hereby certify that this equipment :

is NOT contaminated with hazardous substances (chemicals or radioactive or infectious substances)

does NOT contain any particularly dangerous components (e.g. radiation sources)

Signature: _____

Labelling hazardous waste

The Stockholm University waste label must be used on all packaging containing hazardous waste. Enter the details required by your department's invoicing procedures.



Stockholm University waste label

Farligt avfall / Hazardous waste

Förvaring rumstemperatur / Storage room temperature ()

Förvaring kyl / Storage refrigerator ()

Förvaring frys / Storage freezer ()

Radioaktivt / Radioactive ()

pH **XXXXXX**

Avfallsslag, specifikation / Type of waste, specification:

XXXXXX

XXXXXX

Institution, avdelning / Department, Section: **XXXXXXXXXXXX**

Institutionsnummer / Department number: **XXXXXXXXXX**

Aktivitet, projektnummer / Activity, Project number: **XXXXXXXXXX**

Avlämnare / Depositor: **Förnamn Efternamn / First name Surname**

Telefon-nr / Phone no: **XXXX-XXXXXX**

Datum / Date: **ÅÅMMDD / YYMMDD**

Ragnsells Stockholm: 08-1207 6775

Contact/kontakt: Anders Lindholm 070-927 4522

Packaging for hazardous waste

The department (or equivalent) can order help with the sorting, packaging and collection of hazardous waste. The types of packaging used in transportation must be approved for the transport of dangerous goods.

It is important that the contents are known and documented on the waste label, and that substances that may react with each other are not mixed. For more information:

anders.lindholm@ragnsells.se

Some examples of suitable packaging that can be ordered from the SU Shop are shown below, such as waste containers in plastic and cardboard. Packaging for infectious waste must be designed so that it can be opened and then resealed without this being visible. Containers for infectious and/or sharp waste should thus be used.



Container for hazardous waste, with inner bag
Article no: 6344-038



Container for infectious waste and/or sharps
Article no: 6342-020



Jugs, UN-approved. Article no: 6305-10–6305-005
NB! Do not fill the jug to more than 80 per cent.



Infectious and/or sharp. ADR-approved containers. Article no: 3900-001–3900-002

General legislation about waste

Waste management is mainly governed by Chapter 15 of the Environmental Code (Swedish Code of Statutes SFS 1998:808) on waste and producer responsibility. A number of government ordinances are associated with the Environmental Code, and the most central of these is the Waste Ordinance (SFS 2011:927) The Waste Ordinance classifies and defines types of waste.

The legislation linked to each type of waste is given under that type of waste in the procedures.

Litter

The Waste Ordinance contains a ban on causing litter outdoors in a place that the general public has access to or can view.

For everyone's convenience, anyone working, studying or carrying out activities at Stockholm University is encouraged not to cause litter outdoors or indoors.

Contact information

Stockholm University

Mats Hansson 08-16 2251 mats.hansson@su.se
 Safety Engineer 070-333 8619

Jenny Lilliehöök 08-16 3988 jenny.lilliehook@su.se
 Environmental Coordinator

Stefan Trygg 08-16 2686 stefan.trygg@su.se
 Section Head, Purchasing and Logistics

Goods reception 08-16 2517 goods@su.se
 Purchasing and Logistics Section

Anki Östlund anki.ostlund@su.se
 Biosafety Expert 08-16 4097

Mats Jonsson 08-790 9123 matsj@kth.se
 Radiation Protection Expert

Raad Askar 08-524 86 786 raad.askar@ki.se
 Veterinary Surgeon

H.A. Andersson AB (industrial waste)

Tomas Arlinder 070-467 07 34 tomas.arlinder@hansandersson.se

Peter Lemberg 070-702 93 03 80 Peter.Lemberg@hansandersson.se

Ragnsells AB (hazardous waste)

Anders Lindholm 070-927 45 22 anders.lindholm@ragnsells.se

Responsible for hazardous waste and safety advisor concerning dangerous goods

Office activities

Batteries

Classification/separation

Batteries containing the heavy metals lead, mercury, hexavalent chromium and cadmium are classed as hazardous waste. Other batteries are not classed as hazardous waste. All spent batteries must be collected for reuse or disposal.

Collection/handling

Spent batteries are collected and delivered to a waste management centre. Car batteries are delivered to the nearest petrol station.

Marking/labelling

The container must be marked with a descriptive text (Swedish and English) and/or a symbol.

Storage at waste management centre

Plastic recycling container. No other special requirements.

Delivery/transport

Spent batteries are collected at the waste management centre by the waste contractor who takes the batteries down to the large recycling centre under Aula Magna. Then the spent batteries are transported to a recycling plant or to intermediate storage.

Final disposal

The batteries are sorted manually by their heavy metal content at a plant. Batteries containing mercury are stored with SAKAB pending a decision on final disposal. Other batteries containing the heavy metals nickel, cadmium and lead go to metal recovery.

Specific legislation

SFS 2008:834 Ordinance on Producer Responsibility for Batteries

Electrical and electronic products

Classification/separation

Electric waste is classified as hazardous waste and contains a large amount of heavy metals and toxic substances such as lead, mercury, cadmium, hexavalent chromium, brominated flame retardants and PCB.

Put simply, electric waste is an end-of-life apparatus that is run by a battery or a cable. Electric waste is divided into two categories: electrical and electronic products.

Electric products are, for example, lamps, computers, monitors, copiers, printers, electric kettles, coffee makers (deposited without jar), microwave ovens, fume cabinets and centrifuges. Electronic products are components that control electric products, for example light sensors and glow switches.

Electric cables are classified as metal and they are separated by the waste contractor.

The handling of fluorescent tubes and light sources is regulated in another ordinance, see the *Light sources* section.

For information about the handling of refrigerators and freezers, see the *Refrigerators and freezers* section.

Collection/handling

Small numbers of end-of-life electric products are deposited at the nearest waste management centre. For a larger number or bulky end-of-life electric products, order collection from the Goods Reception at Purchasing and Logistics, tel. 08-16 25 17 or e-mail: goods@su.se

Marking/labelling

The recycling containers/collection point must be marked with a descriptive text (Swedish and English) and/or symbols.

If the equipment has been used in laboratory activities, the depositor must write a certificate stating that it is not contaminated and does not contain any dangerous components.

Storage at waste management centre

Electrical cages or placed in the area marked for that purpose.

Delivery/transport

The electric waste deposited is collected by the waste contractor at the waste management centre. Then the electrical waste is taken to the large recycling centre under Aula Magna for further transport.

Final disposal

Electric waste is driven to electronics recovery where it is sorted and dismantled. The parts of the electric waste that are harmful to the environment are disposed of. The metal in the

electric waste goes to metal recycling and the plastic in the casings to energy recovery. Some components of the electric waste are repaired and reused.

Specific legislation

SFS 2005:209 Ordinance on Producer Responsibility for Electric and Electronic Products

SFS 2002:187 Ordinance on Ozone-Depleting Substances

SFS 1998:950 Ordinance on Environmental Sanction Charges

Glass containers (coloured and clear)

Classification/separation

Glass containers such as bottles and jars are separated into coloured and clear glass. In principle, container glass only consists of soda lime glass and this is the only glass that goes to recycling.

For the handling of *laboratory glass*, see the *Laboratory glass* section. For information about the handling of *other glass*, such as drinking glasses and window glass, see the *Separable waste* section

Contaminated material (contaminated with, for example, chemicals, radioactive waste or infectious waste) is absolutely not included here and must be handled on the basis of the contamination, see the “Laboratory activities” section.

Collection/handling

Glass containers are deposited at the nearest waste management centre. The waste management centre has a recycling container for coloured glass and one for clear glass. When the glass containers are deposited they must be completely empty and, if necessary, well-cleaned and evaporated.

Lids and bottle caps of other materials must be removed before the glass containers are placed in the recycling container.

Refundable glass containers are returned to a shop or point of purchase.

Marking/labelling

The collection point must be marked with a description text (Swedish and English) and/or a symbol.

Storage at waste management centres

Plastic banks 190 litres. Recycling containers for coloured glass and for clear glass.

Delivery/transport

Separated glass containers are collected by the waste contractor at the waste management centres and are taken down to the large recycling centre under Aula Magna for further transport.

Final disposal

All glass collected is driven to Svensk Glasåtervinning for processing into recycled glass. The glass collected is checked and sorted. Some of this process is done manually and some by machine so as to remove contaminants and other material. Then the glass containers are crushed or ground down.

Specific legislation

SFS 2006:1273 Ordinance on Producer Responsibility for Packaging

Household waste

Classification/separation

Household waste is classified as combustible and is waste that burns without additional energy once a combustion process has started.

Household waste includes, for example, tissue paper, dye-ingrained paper, OH film, transparent disposable plastic bags, dishcloths, dirty plastic and paper containers and packaging, string, candles, plastic flowerpots, plastic cutlery, disposable mugs, disposable glasses and disposable plates of plastic, plastic tape round packaging, teabags, fruit peel and coffee grounds.

In laboratory activities non-contaminated gloves, plastic pipettes, labels, wads and serviettes are also counted as household waste.

Contaminated material (contaminated with, for example, chemicals, radioactive waste or infectious waste) is absolutely not included here and must be handled on the basis of the contamination, see the “Laboratory activities” section.

Collection/handling

Household waste is placed in the container for the purpose. To avoid a sanitary nuisance bin liners for household waste must be tied properly and not torn.

Marking/labelling

A descriptive text (Swedish and English) and/or a symbol must be posted at waste management centres.

Storage at waste management centres

Plastic banks 660 litres.

Delivery/transport

The cleaners empty the containers for household waste in offices, kitchenettes and toilets. Then they take the household waste to the nearest waste management centre. Household waste is then collected by the waste contractor who takes the waste down to the large recycling centre under Aula Magna.

Final disposal

The energy in household waste is recovered through incineration at the thermal power station in Högdalen.

Specific legislation

NFS 2004:4 The Swedish Environmental Protection Agency's Regulations and General Advice on the Handling of Combustible Waste and Organic Waste.

Refrigerators and freezers

Classification/separation

Refrigerators and freezers contain coolants that can harm the ozone layer and are classified as hazardous waste.

Collection/handling

End-of life refrigerators and freezers are collected at the department. A collection order is made to the Goods Reception at the Purchasing and Logistics Section, tel. 08-16 25 17 or e-mail: gods@.su.se

If refrigerators or freezers have been used in laboratory activities the person depositing the refrigerators or freezers must sign a certificate that they are not contaminated and do not contain dangerous components.

You will find the certificate at: <http://www.su.se/miljo/s%C3%A5-g%C3%B6r-du/avfallshantering/labavfall>

If you are not sure whether or not the equipment is contaminated, please contact Ragn-Sells for evaluation and possible collection.

Marking/labelling

The collection point must be marked with a descriptive text (Swedish and English) and/or a symbol.

Storage at waste management centres

End-of-life refrigerators or freezers must be handled with care and stored upright to avoid and coolant leakage.

Delivery/transport

End-of-life refrigerators or freezers are driven down to the recycling centre under Aula Magna. Then the end-of-life refrigerators and freezers are transported to an intermediate storage centre. After that the end-of-life refrigerators and freezers are taken to Svensk freonåtervinning for final disposal.

Final disposal

End-of-life refrigerators and freezers are first emptied of coolant and then cut apart. The coolant is disposed of in an environmentally correct way. The plastic goes to combustion for energy recovery and the metal is reused and made into new metal products.

Specific legislation

- | | |
|--------------|---|
| SFS 2002:187 | Ordinance on Ozone-Depleting Substances |
| SFS 2005:209 | Ordinance on Producer Responsibility for Electrical and Electronic Products |
| SFS 1998:950 | Ordinance on Environmental Sanction Charges |

Food waste and compostable waste

Classification/separation

Food waste and compostable waste are classified differently depending on where the waste is collected and handled. Food waste is the waste that is generated in food preparation in restaurant kitchens and cafés. Compostable waste is the waste that is generated in our activities, such as fruit peel, coffee grounds and food leavings.

Collection/handling

Food waste is collected and handled by the restaurant operator.

Compostable waste is placed in containers for household waste in kitchenettes, office areas, etc.

Marking/labelling

No requirements.

Storage at waste management centres

Food waste from food preparation must be stored in cold storage rooms.

Delivery/transport

Food waste is collected by the waste contractor who takes the waste down to the large recycling centre under Aula Magna for further transportation.

Final disposal

Food waste goes to a digestion plant where it produces biogas. Compostable waste is mixed with other household waste and goes to energy recovery.

Specific legislation

No specific legislation.

Light sources

Classification/separation

Fluorescent tubes, low-energy lamps and other light sources containing mercury are classed as hazardous waste. Incandescent bulbs contain lead but are not classed as hazardous waste, Unusual light sources such as LED-lamps, halogen lamps, etc. are not classed as hazardous waste either.

Collection/handling

All light sources must be collected. Used light sources are collected and placed in the intended recycling container at the waste management centre. That is, fluorescent tubes, low-energy lamps and incandescent bulbs are not mixed in one and the same recycling container.

Unusual light sources like LED lamps, halogen lamps and the lamps used in, for example, microscopes are placed in the recycling container for incandescent bulbs.

Great care must be taken in leaving and handling light sources so that they do not burst or are not broken off.

Marking/labelling

The waste management centre must be marked with a descriptive text (Swedish and English) and/or a symbol.

Storage at waste management centres

No special requirements.

Delivery/transport

Used light sources are collected at waste management centres by the waste contractor. Then they are taken down to the large recycling centre under Aula Magna.

Final disposal

Used light sources are sent to a recycling plant. Metal, glass and certain types of luminescent material are recycled and mercury is disposed of in a safe and controlled way.

Specific legislation

SFS 2000:208 Ordinance on Producer Responsibility for Incandescent Bulbs and Certain Light Fittings

SFS 1998:950 Ordinance on Environmental Sanction Charges

Metals

Classification/separation

Metal containers and objects are sorted as metal. Examples of metal containers are cans, tubes, aluminium foil, aluminium trays, lids, bottle caps and medicine tubes. Metal objects can be iron scrap, metal tubes, car and cycle parts, screws, nails, pots, metal cutlery, metal refill cartridges for pens, paper punches and staplers.

Contaminated material (contaminated with, for example, chemicals, radioactive waste or infectious waste) is absolutely not included here and must be handled on the basis of the contamination, see the “Laboratory activities” section.

Lead containers used for the delivery of isotope solutions or other radioactive material should be deposited in the hazardous waste room, M212 at KÖL. See the *Radioactive* section for more information.

Collection/handling

Metal collected is deposited at a waste management centre in the recycling container for the purpose. Containers must be empty, well-cleaned and aired. Lids and bottle caps of other materials are removed. Refundable drink cans are returned to a shop or point of purchase.

Marking/labelling

The waste management centre must be marked with a descriptive text (Swedish and English) and/or a symbol.

Storage at waste management centres

No special requirements.

Delivery/transport

Metal deposited is collected at the waste management centre by the waste contractor. Then it is taken down to the major recycling centre under Aula Magna.

Final disposal

Collected metal is ground, separated and smelted down to make a new raw material. Recovering metal saves energy, for example 95 per cent of the energy required to extract and produce new aluminium is saved (source: www.ftiab.se).

Specific legislation

SFS 2006:1273 Ordinance on Producer Responsibility for Packaging

Furniture

Classification/separation

Old furniture that consists of different materials is dismantled if possible and sorted by type of waste.

The furniture that cannot be dismantled is separated as separable waste.

Collection/handling

Collection has to be ordered when discarding old furniture, and there is a charge for this.

To order collection, contact the Goods Reception at Purchasing and Logistics, tel. 08-16 2517 or e-mail: gods@su.se

Marking/labelling

No requirements.

Storage at waste management centres

Sent by delivery service. Left standing at the designated place.

Delivery/transport

The waste contractor collects discarded furniture. Then it is taken down to the large recycling centre under Aula Magna. After that the furniture is taken to a plant and dismantled and separated.

Final disposal

Discarded furniture is separated and dismantled. Then it is sent to energy recovery and is used for district heating or is placed in a landfill.

Specific legislation

No specific legislation.

Plastic

Classification/separation

The plastic fraction is a mixed fraction containing rigid plastic, non-rigid plastic and Styrofoam. Rigid plastic is plastic containers such as bottles, jars, boxes, drums, empty spray cans, etc.

Non-rigid plastic is plastic containers such as carrier bags and plastic sacks and also non-rigid plastic used to protect an object. For example, cushions of non-rigid plastic used as protection from bumps and scratches in transport.

Styrofoam blocks and shavings count as Styrofoam.

For the separation of stretch and shrink plastic, see the *Pallet packaging* section. For other rigid plastic such as plastic cutlery, straws, washing-up brushes and flowerpots, see the *Household waste* section.

For the separation of stretch and shrink plastic, see the *Stretch- and shrink-wrap* section.

Contaminated material (with, for example, chemicals or radioactive or infectious waste) is absolutely not included here and must be handled on the basis of the contamination, see the “Laboratory activities” section.

Collection/handling

Plastic is deposited in the recycling container for rigid plastic at the waste management centre. All plastic containers deposited must be completely empty, well cleaned and, if necessary, evaporated. Lids and bottle caps and other material must be removed before the plastic containers are placed in the recycling container.

Other rigid plastic is placed in the recycling container for household waste.

Refundable plastic bottles are returned to a shop or point of purchase.

Marking/labelling

The waste management centre must be marked with a descriptive text (Swedish and English) and/or a symbol.

Storage at waste management centres

Plastic recycling containers, 660 litres.

Delivery/transport

Rigid plastic is collected at the waste management centre by the waste contractor who takes the separated plastic down to the large recycling centre under Aula Magna.

Final disposal

A test is being conducted on recovering recycled plastic as new plastic products. If the University's plastic for recycling does not meet these requirements, it will be recycled as heat energy through incineration at the thermal power station in Högdalen.

Specific legislation

SFS 2006:1273 Ordinance on Producer Responsibility for Packaging

Recyclable paper

Classification/separation

Recyclable paper is a mixed paper fraction. Examples of recyclable paper that is separated include newspapers, magazines with both soft and hard covers, direct advertising, phone books, surplus paper copies, photocopy paper wrapping, course booklets, course catalogues, computer lists, books, envelopes, Post-It notes (of recycled paper) and receipts.

Other paper products, such as labels (gummed paper), dye-impregnated paper, coated paper (glossy paper), carbon paper and self-adhesive stickers are separated as household waste.

Collection/handling

Recyclable paper is deposited in the recycling container either at the department or at the nearest waste management centre. Confidential documents are placed in separate recycling containers with locks.

If you are going to throw out large quantities of books and magazines/journals, you have to order extra recycling containers.

Contact the Goods Reception at Purchasing and Logistics, tel. 08-16 2517 or e-mail: gods@su.se

Other paper products are placed in the recycling container for household waste.

Marking/labelling

The waste management centre or collection point must be marked with a descriptive text (Swedish and English) and/or a symbol.

Storage at waste management centres

Plastic recycling containers, 190 litres. The fire authority's requirements apply to recycling containers kept in common areas. Otherwise no special requirements.

Delivery/transport

Returned office paper is collected at the department or deposited at the waste management centre. The paper is brought to the large recycling centre under Aula Magna for further transport.

Final disposal

Collected recyclable paper is taken to a separation plant for checking, sorting and baling. Then it is brought to a paper mill to become new raw material for the production of new paper.

Confidential documents, books and journals with hard covers, and other papers products are disposed of through incineration and energy recovery.

Specific legislation

SFS 1994:1205 Ordinance on Producer Responsibility for Paper for Recycling

Separable waste

Classification/separation

Separable waste is a fraction that consists of many different materials, objects that cannot be separated from one another and/or cannot be separated at the waste management centre. That is, the final separation takes place at the separation plant.

Separable waste is separated into combustible, metal, filler and landfill waste.

Combustible is waste that cannot be reused and where the materials cannot be recovered. Examples are ring-binders, plastic wallets, magazine rack holders, videotapes, CDs, CD covers, diskettes, video tapes, ink ribbons, plastic pens without metal cartridges, mouse-pads and fabric products, plastic pipette racks, fruit baskets, etc.

Metal arises when waste consisting of metal and other materials is separated at the separation plant. Examples are ring-binders of metal and hardboard and tables of wood and metal.

Filler is waste such as broken porcelain, ceramics, windowpane glass, drinking glasses and stone.

Landfill is waste that cannot be reused or recycled. Examples are concrete, gypsum wallboard and insulation.

Collection/handling

Separable waste is deposited at a waste management centre. Order a recycling bank or a container when throwing out large quantities of separable waste. Contact the Goods Reception at Purchasing and Logistics, tel. 08-16 2517 or e-mail: goods@su.se

Marking/labelling

A waste management centre must be marked with a descriptive text (Swedish and English) and/or a symbol.

Storage at waste management centres

Plastic recycling containers 660 litres.

Delivery/transport

Separable waste is collected at the waste management centre by the waste contractor who takes it down to the large recycling centre under Aula Magna.

Final disposal

The waste is driven to a separation plant where it is separated into four different fractions. Then the waste is used for material recovery or energy recovery or placed in a landfill. The waste for energy recovery is then transported to a combustion plant.

Specific legislation

SFS 2001:512 Ordinance on the Landfill of Waste

Stretch- and shrink-wrap (pallet packaging)

Classification/separation

Stretch- and shrink-wrap is transparent soft polythene (LPDE, LLDPE) and is separated as stretch- and shrink-wrap. Other names for stretch- and shrink-wrap are stretch film, blown film, air bubble film and shrink film.

Collection/handling

The wrap is collected in perforated, transparent plastic sacks placed in sack stands. These sack stands are available as selected collection points. Stretch- and shrink-wrap must be dry and clean from contaminants.

Marking/labelling

The collection point must be marked with a descriptive text (Swedish and English) and/or a symbol.

Storage at waste management centres

Plastic bags in sack containers.

Delivery/transport

The stretch-and shrink-wrap is collected at the waste management centre by the waste contractor. Then the plastic is compressed in a baling press and taken down to the large recycling centre under Aula Magna.

Final disposal

Recycled stretch-and shrink-wrap is used to make plastic sacks at Miljösäck in Norrköping

Specific legislation

SFS 2006:1273 Ordinance on Producer Responsibility for Packaging

Toner cassettes and ink cartridges

Classification/separation

Toner cassettes and ink cartridges mainly contain plastic, toner powder and certain metal components. The toner cassettes that have the Swan label can be reused several times before going to energy recovery. The toner powder is controlled from an environmental and harm to health perspective.

Collection/handling

The used toner cassettes, toner bottles and ink cartridges must be collected and deposited at the nearest waste management centre.

Toner cassettes and ink cartridges are placed in the paperboard box in place at the waste management centre. The toner bottles are put in the recycling container for plastic for recycling.

Marking/labelling

A waste management centre must be marked with a descriptive text (Swedish and English) and/or a symbol.

Storage at waste management centres

Paperboard box.

Delivery/transport

The used toner cassettes and ink cartridges are returned to the manufacturer's production plant.

Final disposal

The toner cassettes and ink cartridges are not separated until they come to the plant. The bulk of the cassettes and cartridges are reused in the manufacture of new toner cassettes and ink cartridges. In the case of cassettes and cartridges that are broken, some plastic parts and residues of toner powder go to energy recovery and are burned in Mora's district heating plant.

Specific legislation

SFS 2005:209 Ordinance on Electric and Electronic Products

Wood

Classification/separation

Painted, varnished and clean wood and wood products are separated as wood. Examples of wood products include disposable pallets, planks, wooden crates, wooden furniture and plywood.

Wood contaminated with, for example, plaster or concrete waste is separated as separable waste.

Impregnated wood is classed as hazardous waste and treated on this basis. It can be difficult to see the difference between impregnated wood and wood that is untreated.

If there is any doubt as to whether or not the wood is impregnated, contact Tomas Arlinder at H.A. Andersson recycling AB, tel. 070-467 07 34 or e-mail: tomas.arlinder@hansanderson.se.

Collection/handling

Wood and impregnated wood products are deposited at a waste management centre. A collection order must be made when disposing of large quantities. There is a charge for this.

To order collection, contact the Goods Reception at Purchasing and Logistics, tel. 08-16 2517 or e-mail: goods@su.se

Marking/labelling

The waste management centre must be marked with a descriptive text (Swedish and English) and/or a symbol.

Storage at waste management centres

Plastic recycling containers 660 litres. No special requirements.

Delivery/transport

Then wood is taken down to the large recycling centre under Aula Magna. Then the wood and wood products are transported to a plant. The wood is broken down into chips and furniture is dismantled.

Final disposal

Wood and wood products are chipped and sent for energy recovery as district heating. Impregnated wood and wood products are treated as hazardous waste and are sent to a combustion plant with a permit to handle the wood.

Specific legislation

SFS 2006:1273 Ordinance on Producer Responsibility for Packaging (applies, for example, to wooden crates or pallets used to protect products on delivery)

Corrugated cardboard and paper packaging/containers

Classification/separation

Corrugated cardboard is paperboard with a corrugated middle layer. Paper containers are containers like cereal, juice, milk and pizza cartons.

Contaminated material (contaminated with, for example, chemicals, radioactive waste or infectious waste) is absolutely not included here and must be handled on the basis of the contamination, se “Part for laboratory activities”.

Collection/handling

Cardboard and paper containers are deposited at the nearest waste management centre or placed in the recycling container provided at the department.

If possible, remove tape and other material adhering to the cardboard. The paper containers must be clean and dry before being deposited for recycling.

Marking/labelling

The collection point and waste management centre must be marked with a descriptive text (Swedish and English) and/or a symbol.

Storage at waste management centres

Plastic recycling containers 660 litres. No special requirements.

Delivery/transport

Recycling containers for cardboard are collected by the waste contractor from the department or at the nearest waste management centre. Cardboard and paper containers then go to the large recycling centre under Aula Magna.

Final disposal

The cardboard and paper containers go to recycling. The material is separated first and then becomes new raw material. New cardboard, new containers and the surface layer of gypsum board are made from the recycled pulp.

Specific legislation

SFS 2006:1273 Ordinance on Producer Responsibility for Packaging

Laboratory activities

Animal products and by-products

Background

The Swedish Board of Agriculture (SJV) requires a licence for the use, import, and transport of animal by-products for research and diagnostic purposes. These regulations are in place in order to ensure traceability. Stockholm University has been granted a general licence from SJV for the import and use of animal products and by-products for research purposes. The University must maintain an import register that can be presented upon request. A complete list of imported products must be sent to SJV every six months.

Definition: All products from the animal kingdom that are not intended for human consumption are defined as animal by-products and regulated by Regulation (EC) No 1069/2009 of the European Parliament and of the Council. This includes proteins (excl. antibodies, cell cultures or other proteins that are affinity-purified and placed in a saline solution) and sera of animal origin.

CE-certified products count as finished products and are exempt from the regulations, as are entire bodies or parts of Swedish wild animals (incl. wild-caught fish that not carry any infectious diseases).

Import: All import from a third country (i.e. from outside the EU, Norway, Iceland and Switzerland) must be accompanied by an import permit and a commercial document (issued by the consignor). A copy of the commercial document should be sent to Mats Hansson at the Section for Safety and Security (08-16 22 51, mats.hansson@su.se). The original must be kept by the recipient for at least two years.

Import/transport: No import/entry permit is required for research material from within the EU, but the carrier must be certified and a commercial document must accompany the material. When transported, samples for research and diagnostic purposes must be labelled "For research and diagnostic purposes". Export consignments may need to be labelled in another language depending on the destination country.

Commercial document

In accordance with Commission Regulation (EU) No 142/2011, the consignor must ensure that the shipment of samples for research and diagnostic purposes is accompanied by a commercial document specifying the following:

- a description of the material and the animal species of origin;
- the category of the material;
- the quantity of the material;
- the material's place of origin and the place of dispatch;
- the name and the address of the consignor;
- the name and the address of the consignee and/or user.

The commercial document is available on the Swedish Board of Agriculture's website.

Classification/separation

Animal products/by-products are divided into three different categories based on a risk assessment, where Category 1 is considered to involve the greatest risk and Category 3 the least risk to human and animal health. A few examples are provided below:

Category 1: Entire bodies or body parts of animals suspected of being infected by a TSE (Transmissible Spongiform Encephalopathy). Animals that have ingested prohibited or hazardous substances. Laboratory animals used in experiments, and wild animals suspected of carrying an infectious disease. Specified risk material (defined according to Article 3.1 g and Annex V of EC 999/2001).

Category 2: Droppings and digestive tract content of farmed animals. Animals that do not belong to Category 1 and have not been slaughtered for human consumption (e.g. died as the result of an accident). Laboratory animals that have not been used in experiments, with the exception of domestic game not deemed to be infectious.

Category 3: Parts of slaughtered animals that are fit for human consumption, but are not intended as such for commercial reasons. Parts of slaughtered animals that have declared unfit for human consumption, but do not show any signs of infectious diseases. Animal by-products derived from the production of products intended for human consumption.

Handling/storage

Users handling and storing samples for research and diagnostic purposes must take all the necessary precautions to avoid the spread of diseases transmissible to humans or animals, primarily by observing good microbiological practice (according to AFS 2005:1).

Non-CE-marked animal products/by-products for research and diagnostic purposes (and any products originating from the use of such products) should, unless they are saved for reference purposes or returned to the third country of origin, be disposed of in the following way:

- Animal products from the EU, Norway, Iceland and Switzerland can, after autoclaving, be treated as household waste or poured down the drain. Alternatively, they can be disposed of through incineration.
- Animal products/by-products from a third country can, after autoclaving, be treated as household waste or poured down the drain as long as the volume does not exceed 2,000 ml and the products originate from a country from which the EU permits the import of fresh meat (see the list in EU 206/2010, Part I, Annex II). Alternatively, they can be disposed of through incineration.
- Other products, including animal carcasses, are disposed of through incineration. Category 1 products containing or suspected of containing infectious organisms should, if possible, be treated to ensure that the pathogenic organisms are inactivated before the products are delivered to the certified waste contractor.

Animal products/by-products going to be incinerated should be packed in yellow plastic containers intended for this purpose (SU Shop article number 6342-020) and delivered to

the waste contractor as soon as possible. The waste may be held in intermediate storage in a refrigerator (max + 8 C) for 1-5 days – for more than 5 days, freezer storage is required. The storage should take place at the department.

The Animals Section [Djuravdelningen] has its own procedures for handling waste (e.g. cage material, dead animals and organs). A special document with more information can be obtained from the Animals Section.

Marking/labelling

Fill in Stockholm University's waste label with the following details:

- Storage room temperature/refrigerator/freezer (x);
- Type of waste, specification: "Animal products/by-products" and specification;
- Depositing department, section and department number (as well as activity and project number if required by the department);
- Depositor's name and phone number, as well as the date.

Animal products that have been inactivated and classified as household waste should NOT be labelled.

Delivery/transport

Waste should be delivered to the waste contractor in room M212 at KÖL (Chemical Education Laboratories), Svante Arrhenius väg 16F, on the same day that the carrier will collect it for transport (if refrigeration/freezing is required, which it generally is). Contact Anders Lindholm, 070-927 45 22, anders.lindholm@ragnsells.se. The contractor will then transport the waste for incineration at an approved facility (Regulation K14, Chapter 2, Section 30).

Final disposal

Incineration arranged by the waste contractor.

Specific legislation

- | | |
|---------------|---|
| EC 1069/2009 | Regulation of the European Parliament and of the Council laying down health rules as regards animal by-products and derived products not intended for human consumption and repealing regulation 177/2002 (Animal by-products Regulation). |
| EU 142/2011 | Commission regulation implementing Regulation (EC) No 1069/2009 of the European Parliament and of the Council laying down health rules as regards animal by-products and derived products not intended for human consumption and implementing Council Directive 97/78/EC as regards certain samples and items exempt from veterinary checks at the border under that Directive. |
| SFS 2006:805 | Act on Feed and Animal By-products. |
| SFS 2006:814 | Ordinance on Feed and Animal By-products |
| SJVFS 2006:84 | Involvement with Animal By-products and the Import of Other Products, apart from Products for Human Consumption that can Spread Communicable Diseases to Animals. |
| SJVFS 2007:21 | Public Control of Feed and Animal By-products. |

More information is available at:

www.sjv.se/amnesomraden/djur/djurprodukter

Antibiotics

Classification/separation

It is important to avoid the release of antibiotics that may reach the ecosystem. Antibiotic waste should be handled differently depending on its stability.

The following information assumes that the waste does not contain any other substances or organisms that will make the waste be classified as hazardous waste. Any antibiotics not listed below will be treated as hazardous waste until another decomposition method has been approved (via the biosafety expert, who will then add the antibiotic to the list).

Readily biodegradable and may be poured down the drain:

Ampicillin, Carbenicillin, Chloramphenicol, Penicillin.

Inactivated by heat and must be autoclaved (or boiled) before they can be poured down the drain:

Amphotericin (Fungizone), Erythromycin, Geneticin (G418), Gentamicin, Neomycin, Puromycin, Streptomycin, Sulfadoxine, Tetracycline.

Resistant to heat/autoclaving or have unknown properties and should be deposited for incineration:

Blasticidin S, Ciprofloxacin, Enrofloxacin, Kanamycin, Nalidixic acid, Vankomycin (should preferably be substituted; the last one that works against multiresistant staphylococci), Zeomycin, Zeocin.

Handling/storage

Antibiotics to be deposited for incineration should be treated as hazardous waste. Solutions containing antibiotics should be collected in plastic jugs and treated as hazardous waste.

Marking/labelling

Fill in Stockholm University's waste label with the following details:

- Storage room temperature/refrigerator/freezer (x);
- Type of waste, specification: "Antibiotics" and specification;
- Depositing department, section and department number (as well as activity and project number if required by the department);
- Depositor's name and phone number, as well as the date.

Delivery/transport

Waste can be deposited on Wednesdays and Fridays at 10:30-11:00 in room M212 at KÖL (Chemical Education Laboratories), Svante Arrhenius väg 16F. The waste contractor will then transport the waste for destruction.

Final disposal

Incineration arranged by the waste contractor.

Specific legislation

AFS 2005:05 Cycostatics and Other Medicinal Products with Lasting Toxic Effects.

Biological agents (bacteria, viruses, etc.)

Classification/separation

Biological agents are defined as microorganisms, cell cultures and human internal parasites with the potential to cause ill health. Please note that human cell lines may also be contaminated with viruses. If prophylaxis is available, the staff handling the organisms should be vaccinated. The organisms are divided into different risk groups (see AFS 2005:1):

Risk group 1 – low risk: Work with organisms belonging to risk group 1 does not have to be reported.

Risk group 2 – moderate risk: Work with organisms belonging to risk group 2 must be reported to the Swedish Work Environment Authority (Stockholm district) via the University's Biosafety Committee. The report should include a description of the work and details about waste management.

Risk group 3 – high risk: A permit for work with organisms belonging to risk group 3 must be obtained from the Swedish Work Environment Authority via the University's Biosafety Committee. Requires a laboratory with special equipment where the organisms are inactivated through autoclaving before leaving the lab.

Risk group 4 – very high risk: No work with such organisms is carried out at Stockholm University – requires special safety laboratories.

Handling/storage

Biological agents should be inactivated as soon as possible, either through autoclaving or chemical treatment. They can then be poured down the drain or treated as household waste, provided that they do not contain any other hazardous waste.

Biological agents that cannot be inactivated on site should be packed in yellow plastic containers intended for this purpose (SU Shop article number 6342-020) and delivered to the waste contractor as soon as possible. The waste may be held in intermediate storage in a refrigerator (max +8 C) for 1-7 days – for more than 7 days, freezer storage is required. The storage should take place at the department.

Inactivation

For autoclaving (20 min, 121 C, 150 kPa), the material must be packed in sealed autoclave bags when it leaves the laboratory for transport to the autoclave, where it will be taken care of by informed staff.

Chemical treatment, alt. I: *Virkon* (Handelshuset Viroderm) or *Perform* (Schülke & Mayr, Germany, importer REKAL). Active substance: 0.5% Potassium Peroxymonosulphate.

Chemical treatment, alt. II: *Klorin* (Colgate-Palmolive AB). Active substance: 0.5% NaClO.

Chemical treatment, protocol: Objects: Place object in 1% *Virkon*, 1% *Perform* or 15% *Klorin* solution for 2 minutes, remove from solution, leave damp for 10 minutes, rinse in water.

Liquids: Add *Virkon* or *Perform* powder directly to the liquid, 2% final concentration, or add *Klorin* concentrate to the liquid, final concentration 15%, leave overnight.

Marking/labelling

Fill in Stockholm University's waste label with the following details:

- Storage room temperature/refrigerator/freezer (x);
- Type of waste, specification: "Biological agents", risk group and specification;
- Depositing department, section and department number (as well as activity and project number if required by the department);
- Depositor's name and phone number, as well as the date.

Biological agents that have been inactivated and classified as household waste should NOT be labelled.

Delivery/transport

Waste should be delivered to the waste contractor in room M212 at KÖL (Chemical Education Laboratories), Svante Arrhenius väg 16F, on the same day that the carrier will collect it for transport (if refrigeration/freezing is required, which it generally is). Contact Anders Lindholm at Ragn-Sells to arrange a date/time: 070-927 45 22, anders.lindholm@ragnsells.se. The contractor will then transport the waste to be destroyed.

Final disposal

Incineration arranged by the waste contractor.

Specific legislation

AFS 2005:01 Microbiological Work Environment Risks – Infection, Toxigenic Effect, Hypersensitivity.

Genetically modified microorganisms – GMMs (not GMOs)

The main principle is that no living, genetically modified microorganisms should leave the University unless there are special reasons to the contrary. Cleaning and decontamination must be carried out to the extent necessary to prevent GMMs causing harm to health or the environment. The methods used should be designed to prevent the spread of GMMs. How to handle GMMs depends on the activity.

Classification/separation

F activity: Contained use of genetically modified microorganisms with negligible or no risk of harm to human health or the environment. The activity must be reported to the Swedish Work Environment Authority via the University's Biosafety Committee, where a risk assessment and information about risk management should be available.

L activity: Contained use of genetically modified microorganisms with low risk of harm to human health or the environment. The activity must be reported to the Swedish Work Environment Authority via the University's Biosafety Committee, where a risk assessment and handling instructions with information about risk management should be available.

R activity: Contained use of genetically modified microorganisms with moderate or high risk of harm to human health or the environment. The activity requires special laboratories and a permit from the Swedish Work Environment Authority and is not dealt with here.

Handling/storage

GMMs should be inactivated as soon as possible, either by autoclaving or chemical treatment. They can then be poured down the drain or treated as household waste, provided that they do not contain any other hazardous waste.

GMMs that cannot be inactivated on site should be packed in yellow plastic containers intended for this purpose (SU Shop article number 6342-020) and delivered to the waste contractor as soon as possible. The waste may be held in intermediate storage in a refrigerator (max +8 C) for 1-7 days – for more than 7 days, freezer storage is required. The storage should take place at the department.

Inactivation

For autoclaving (20 min, 121 C, 150 kPa), the material must be packed in sealed autoclave bags when it leaves the laboratory for transport to the autoclave, where it will be taken care of by informed staff.

Chemical treatment, alt. I: *Virkon* (Handelshuset Viroderm) or *Perform* (Schülke & Mayr, Germany, importer REKAL). Active substance: 0.5% Potassium Peroxymonosulphate.

Chemical treatment, alt. II: *Klorin* (Colgate-Palmolive AB). Active substance: 0.5% NaClO.

Chemical treatment, protocol: Objects: Place object in 1% *Virkon*, 1% *Perform* or 15% *Klorin* solution for 2 minutes, remove from solution, leave damp for 10 minutes, rinse in water.

Liquids: Add *Virkon* or *Perform* powder directly to the liquid, 2% final concentration, or add *Klorin* concentrate to the liquid, final concentration 15%, leave overnight.

Marking/labelling

Fill in Stockholm University's waste label with the following details:

- Storage room temperature/refrigerator/freezer (x);
- Type of waste, specification: "GMM" and specification;
- Depositing department, section and department number (as well as activity and project number if required by the department);
- Depositor's name and phone number, as well as the date.

GMMs that have been inactivated and classified as household waste should NOT be labelled.

Delivery/transport

Waste should be delivered to the waste contractor in room M212 at KÖL (Chemical Education Laboratories), Svante Arrhenius väg 16F, on the same day that the carrier will collect it for transport (if refrigeration/freezing is required, which it generally is). Contact Anders Lindholm at Ragn-Sells to arrange a date/time: anders.lindholm@ragnsells.se, 070-927 45 22.

The contractor will then transport the waste to be destroyed.

Final disposal

Incineration arranged by the waste contractor.

Specific legislation

AFS 2011:02 Contained Use of Genetically Modified Microorganisms.

Genetically modified organisms – GMOs (not GMMs)

Classification/separation

The main principle is that no living, genetically modified organisms (GMOs) should leave the University unless there are special reasons to the contrary. Anyone conducting activities with the contained use of GMOs must report this via the University's Biosafety Committee to the relevant supervisory authority, which can issue a time-limited permit after an inspection.

With regard to the contained use of GMOs (not GMMs) the supervisory authority is the Swedish Board of Fisheries for aquatic organisms and the Swedish Board of Agriculture for other organisms.

Handling/storage

GMOs should be inactivated as soon as possible, either by autoclaving or other approved treatment. They can then be treated as household waste, provided that they do not contain any other hazardous waste.

GMOs that cannot be inactivated on site should be packed in yellow plastic containers intended for this purpose (SU Shop article number 6342-020) and delivered to the waste contractor as soon as possible. The waste may be held in intermediate storage in a refrigerator (max +8 C) for 1-7 days – for more than 7 days, freezer storage is required. The storage should take place at the department.

Marking/labelling

Fill in Stockholm University's waste label with the following details:

- Storage room temperature/refrigerator/freezer (x);
- Type of waste, specification: "GMO" and specification;
- Depositing department, section and department number (as well as activity and project number if required by the department);
- Depositor's name and phone number, as well as the date.

GMOs that have been inactivated and classified as household waste should NOT be labelled.

Delivery/transport Waste should be delivered to the waste contractor in room M212 at KÖL (Chemical Education Laboratories), Svante Arrhenius väg 16F, on the same day that the carrier will collect it for transport (if refrigeration/freezing is required, which it generally is). Contact Anders Lindholm at Ragn-Sells to arrange a date/time: anders.lindholm@ragnsells.se, 070-927 45 22.

The contractor will then transport the waste to be destroyed.

Final disposal

Incineration arranged by the waste contractor.

Specific legislation

AFS 2000:271 Ordinance on the Contained use of Genetically Modified Organisms.

FIFS 2004:2 Genetically Modified Aquatic Organisms
 SJVFS 1995:33 The Use of Genetically Modified Animals.
 SJVFS 2007:29 Contained Use of Genetically Modified Plants.

Human by-products (blood, tissue, and cell cultures)

Classification/separation

Blood and blood products that have not been decontaminated may contain infectious agents, such as the Hepatitis B or HIV virus, and should thus be treated as infectious. Please note that human cell lines may also be contaminated with viruses. Blood infections cannot be airborne or transferred through undamaged skin. Laboratories handling blood or blood products that have not been decontaminated must have written instructions for their work. When handling non-decontaminated human blood samples, the staff should be vaccinated against Hepatitis B.

Handling/storage

Human by-products should be inactivated as soon as possible, either by autoclaving or chemical treatment. They can then be poured down the drain or treated as household waste, provided that they do not contain any other hazardous waste.

Human by-products that cannot be inactivated on site should be packed in yellow plastic containers intended for this purpose (SU Shop article number 6342-020) and delivered to the waste contractor as soon as possible. The waste may be held in intermediate storage in a refrigerator (max + 8 C) for 1-5 days – for more than 5 days, freezer storage is required. The storage should take place at the department.

Inactivation

For autoclaving (20 min, 121 C, 150 kPa), the material must be packed in sealed autoclave bags when it leaves the laboratory for transport to the autoclave, where it will be taken care of by informed staff.

Chemical treatment, alt. I: *Virkon* (Handelshuset Viroderm) or *Perform* (Schülke & Mayr, Germany, importer REKAL). Active substance: 0.5% Potassium Peroxymonosulphate.

Chemical treatment, alt. II: *Klorin* (Colgate-Palmolive AB). Active substance: 0.5% NaClO.

Chemical treatment, protocol: Objects: Place object in 1% *Virkon*, 1% *Perform* or 15% *Klorin* solution for 2 minutes, remove from solution, leave damp for 10 minutes, rinse in water.

Liquids: Add *Virkon* or *Perform* powder directly to the liquid, 2% final concentration, or add *Klorin* concentrate to the liquid, final concentration 15%, leave overnight.

Marking/labelling

Fill in Stockholm University's waste label with the following details:

- Storage room temperature/refrigerator/freezer (x);
- Type of waste, specification: “Human by-products” and specification;
- Depositing department, section and department number (as well as activity and project number if required by the department);
- Depositor’s name and phone number, as well as the date.

Human by-products that have been inactivated and classified as household waste should NOT be labelled.

Delivery/transport

Waste should be delivered to the waste contractor in room M212 at KÖL (Chemical Education Laboratories), Svante Arrhenius väg 16F. If refrigeration/freezing is required, the waste must be delivered on the same day that the carrier will collect it for transport. Contact Anders Lindholm at Ragn-Sells to arrange a date/time: anders.lindholm@ragnsells.se, 070-927 45 22.

The contractor will then transport the waste to be destroyed.

Final disposal

Incineration arranged by the waste contractor.

Specific legislation

AFS 2005:01 Microbiological Work Environment Risks – Infection, Toxigenic Effect, Hypersensitivity.

Chemicals

Classification/separation

In principle, chemicals are classified as hazardous waste/goods and should not be poured down the drain, except as permitted by the University's procedures for the disposal of liquid chemical residue.

Handling/storage

For a more detailed description of the separation and packaging of chemical residues, please contact Anders Lindholm at Ragn-Sells to arrange a date/time: anders.lindholm@ragnsells.se, 070-927 45 22. The same requirements apply to the storage of chemical residues as to pure chemicals. Pure chemicals and chemical residues to be destroyed should be stored separately.

NB! Chemicals that may react with each other should be stored separately in individual containers. If this is not done, the department will be billed for the time it takes to separate these chemicals.

Small chemicals

Small chemicals can be deposited in their original containers if the packaging and seal are intact and the contents are clearly stated on the label. Each container should be marked with a waste label containing certain information (see the "Marking/labelling" section below). A list of the deposited chemicals glued onto the container will not be accepted.

It is very important that substances that may react with each other are stored separately (e.g. acids and alkalis, cyanide and acids, sodium azide and heavy metals). Cellulose nitrate and picric acid must be moistened to at least 30% before being deposited, and aqua regia must be neutralised.

If you have large quantities of small chemicals to be deposited for destruction, it is recommended to contact Ragn-Sells. They can pack the chemicals on site before transporting them.

Solvents (organic, water-based, pure, or mixtures)

Emptied and cleaned glass bottles can be used for the collection of solvents. Solvents should not be kept in plastic jugs for long-term storage, since the plastic may be affected by the content. Solvents should maintain a pH value between 4 and 10. Different types of solvents (e.g. halogenated and non-halogenated) should be collected separately, since the destruction costs vary between different types.

Solvent residues should be deposited in approved plastic jugs intended for transport (no more than 5 years old). Solvents in glass bottles should be packed in cardboard boxes for hazardous waste with an inner plastic bag. Plastic jugs containing solvents should not be packed together in large waste containers. The SU Shop sells plastic jugs approved for transport.

Perchloric acid with a concentration higher than 72% may not be deposited; it must first be diluted to lower concentrations.

Peroxide-forming substances (e.g. ethers, THF, dioxane, isopropyl ether) should normally be tested for peroxides and labelled “Peroxide test OK”, including the date of the test, prior to delivery. However, if you encounter a solvent suspected to contain high levels of peroxides: do not touch the bottle, close the lab, and contact Anders Lindholm at Ragn-Sells, 070- 927 45 22, and the Section for Safety and Security, 08-16 42 00.

NB! Always contact Ragn-Sells when you are not sure what to do.

Gels, buffers, dying solutions, etc.

Acrylamide – Polymerised gels should be put in airtight packaging, such as a tied plastic bag, in order to avoid dust, and then put in a container for hazardous waste. Monomers should be put in jars and treated as small chemical residues.

Ethidium bromide – Stock solution and pure ethidium bromide should be treated as small chemicals. Gels containing low concentrations of ethidium bromide should be packed in plastic bags and placed in containers for hazardous waste. Contaminated pipette tips, gloves, underlay paper, etc., should be placed in containers for hazardous waste.

Buffer solutions and dying baths should be treated in order to reduce the concentration of ethidium bromide. Several products for treating ethidium bromide solutions are available from, for example, Merck Eurolab AB and Tamro MedLab. Many of them use so-called “tea bags” to purify solutions and baths. The tea bags are placed in plastic containers and treated as small chemicals.

Solutions and baths can also be treated with 1 g of active carbon per litre of solution. The solution is left to stir overnight and then filtered. The carbon is treated as a small chemical.

Disposal into drains is subject to restrictions from Stockholm Vatten (the Stockholm Water Company); see the University’s procedures for the disposal of liquid chemical residues. In case of any uncertainty, deliver this waste to Ragn-Sells.

Marking/labelling

Fill in Stockholm University’s waste label with the following details:

- Storage room temperature: (x);
- Type of waste, specification: “Chemicals” and specification;
Specify the content in percentages, including the proportion of water. Heavy metals should be specified in mass percentage.
The pH value of solutions should also be specified
- Solvent residues – please note that all included substances must be specified on the label. Descriptions such as “slop” or “waste” should not be used;
- Peroxide-forming substances, such as ethers, must be tested for peroxides and labelled “Peroxide test OK” prior to delivery;
- Category A or B substances should be labelled “Category A substance” or “Category B substance” and, for example, “carcinogen”;
- Depositing department, section and department number
(as well as activity and project number if required by the department);
- Depositor’s name and phone number, as well as the date.

Delivery/transport

Waste can be deposited on Wednesdays and Fridays at 10:30-11:00 in room M212 at KÖL (Chemical Education Laboratories), Svante Arrhenius väg 16F. The waste contractor will then transport the waste for destruction.

Any Category A or B substance (AFS 2011:19) should be labelled as such and delivered when a chemist is in attendance. Contact Anders Lindholm at Ragn-Sells to arrange a date/time: anders.lindholm@ragnsells.se, 070-927 45 22.

Final disposal

Chemical residues are disposed of in different ways by our waste contractor. Some chemical residues are destroyed through incineration, some through wet chemical treatment, while others are deposited in a landfill site.

Specific legislation

AFS 2011:18 Occupational Exposure Limit Values.

AFS 2011:19 Chemical Work Environment Risks.

Laboratory glass

Classification/separation

Laboratory activities generate different types of glass that go to recycling, incineration or disposal. Examples of laboratory glass include bottles, cans, bowls, and glass tubes. Laboratory glass used as containers is made of soda-lime glass, while other types of laboratory glass are usually made of borosilicate glass, quartz glass, or special-purpose glass.

Laboratory glass is divided into the following categories:

- Contaminated laboratory glass (whole or broken);
- Non-contaminated laboratory glass not used as containers (whole or broken);
- Non-contaminated laboratory glass used as containers (whole or broken).

Handling/storage

Contaminated laboratory glass that may contain chemical residue, microorganisms, or radioactive substances should be handled based on of the type of contamination. This waste should be marked with waste labels and packaged in approved containers, i.e. the “container for hazardous waste”, article number 6344-038, or the “container for infectious waste/and or sharps”, article number 6342-020.

Non-contaminated laboratory glass that has not been used as containers should be placed in the laboratory glass recycling container (the green barrels) at the department.

Non-contaminated laboratory glass **that has been used as containers** must be empty, well cleaned, and evaporated, and then placed in the recycling container for coloured or clear glass at the **waste management centre**.

Receptacles for non-contaminated laboratory glass must have a liner bag. The bag should be sealed and the lid closed prior to transportation. After use, the container should be washed if necessary.

Marking/labelling

Receptacles for non-contaminated laboratory glass that has not been used as containers should be labelled “Laboratory glass”. Contaminated laboratory glass should be labelled based on the type of contamination.

Delivery/transport

Contaminated and non-contaminated laboratory glass that has not been used as containers can be delivered on Wednesdays and Fridays at 10:30-11:00 to room M212 at KÖL, Svante Arrhenius väg 16F. The contractor will then transport the waste for destruction or disposal in a landfill.

Non-contaminated laboratory glass that has been used as containers will be collected by the waste contractor at the waste management centre and transported to the recycling centre underneath Aula Magna.

Final disposal

Contaminated laboratory glass will be disposed of in an appropriate manner based on the type of contamination.

Non-contaminated laboratory glass that has not been used as containers will be used for energy recovery or placed in a landfill.

Non-contaminated laboratory glass that has been used as containers will be sent to Svensk glasåtervinning (Swedish Glass Recycling). The collected glass will be checked and sorted. The glass will be crushed or ground to various sizes depending on the area of use. Most of the glass will be used to make new containers, while the remainder will be used as an additive in concrete or as insulation material.

Specific legislation

AFS 2006:1273 Ordinance on Producer Responsibility for Packaging.

Narcotics, narcotic chemicals/precursors

Classification/separation

A destruction certificate must be issued for any narcotics listed in the Swedish Medical Products Agency's regulation LVFS 2011:10 (about 300 substances). Choose the consolidated version for the most recently updated list:

<http://www.lakemedelsverket.se/overgripande/Lagar--regler/Lakemedelsverkets-foreskrifter---LVFS/Amnesvis-forteckning/Narkotika/>

A destruction certificate must also be issued for Category 1 narcotic chemicals/precursors, i.e. for:

<http://www.lakemedelsverket.se/malgrupp/foretag/narkotikakemikalier/>

N-Acetylanthranilic acid (2-Acetamidobenzoic acid)	Lysergic acid
Ephedrine	3,4-Methylenedioxyphenylpropane-2-one
Ergometrine	Norephedrine
Ergotamine	Piperonal
1-Phenyl-2-propanone (Phenylacetone)	Pseudoephedrine
Alpha-Phenylacetoacetonitrile	Safrole
Isosafrol (cis & trans)	

The destruction certificate is available under the "What to do" tab on the environmental website: www.su.se/miljo.

Handling/storage

Three copies of the certificate should be made: one for the consignor, one for Mats Hansson at the Section for Safety and Security, and one for the hazardous waste room. Narcotics can be deposited in their original container if the packaging and seal are intact and the content is clearly stated on the label.

The department should issue three filled-in copies of the destruction certificate. Ragn-Sells's staff should sign each copy. One signed copy should be sent to Mats Hansson at the Section for Safety and Security (mats.hansson@su.se), one copy should be given to Ragn-Sells, and one should be kept by the depositor.

Marking/labelling

Fill in Stockholm University's waste label with the following details:

- Storage room temperature: (x);
- Type of waste, specification: "Narcotics/narcotic chemicals" and specification;
- Depositing department, section and department number (as well as activity and project number if required by the department);
- Depositor's name and phone number, as well as the date.

Delivery/transport

The waste should be delivered to the waste contractor in room M212 at KÖL (Chemical Education Laboratories), Svante Arrhenius väg 16F, on the same day that the carrier will collect it for transport. Contact Anders Lindholm at Ragn-Sells to arrange a date/time: anders.lindholm@ragnsells.se, 070-927 45 22.

The contractor will then transport the waste to be destroyed. The transport is covered by transport protection in accordance with MSBFS 2011:1.

Final disposal

Incineration arranged by the waste contractor.

Specific legislation

AFS 1992:860 Act on the Control of Narcotic Drugs
AFS 1992:1554 Ordinance on the Control of Narcotic Drugs
LVFS 2011:9 Control of Narcotic Drugs
AFS 2011:10 List of Narcotic Drugs

Radioactive waste

Classification/separation

Radioactive waste can be divided into:

- Gaseous radionuclides
- Solid radioactive waste
- Liquid radioactive waste
- Scintillation waste
- Radioactive substances in the form of sealed radiation sources

Whenever possible, radioactive substances should not be mixed with any other type of waste.

Written procedures for the handling of radioactive waste, estimation of activity in the waste, measurement of the surface dose rate, and estimation of activity in air emissions can be found in the University's "Radiation Safety Manual" (quality manual for protection against radiation for the KTH Royal Institute of Technology and Stockholm University).

Lead containers

Lead containers used for the delivery of isotope solutions or other radioactive material can be deposited on Wednesdays and Fridays at 10:30-11:00 in the hazardous waste room, M212 at KÖL, Svante Arrhenius väg 16F. Ragn-Sells will check the containers for radiation before they are transported to be recycled. There is no charge for disposing of these containers.

Documentation

The following documentation must be available:

- stored radionuclide waste with a half-life of >10 h, specifying the nuclide, activity, and surface dose rate on a particular date, as well as an origin and identity traceable to a waste container;
- annual activity of radionuclides with a half-life of >10 h that have been sent to an incineration plant or poured down a drain;
- annual activity that has been released into the atmosphere;
- activity of waste that has been sent to an approved waste plant.

The documentation must be kept for at least five years after the final disposal.

Handling/storage

Radioactive substances must be stored under lock and key so that they are not accessible to unauthorised persons. The storage must be secure in terms of fire safety. The storage site must be shielded so that the dose rate does not exceed 20 $\mu\text{Sv/h}$ in areas where people circulate, or 2 $\mu\text{Sv/h}$ in areas continuously occupied by any person. The storage site must be easy to clean. When storing volatile substances, or if there is a risk that such substances may be formed, the storage site must be properly ventilated. The storage site must be marked with a warning sign for ionising radiation, the text "Storage site for radioactive substances" or "Storage site for radioactive waste", as well as the name and phone number of the person responsible for the storage site. Containers used for radioactive waste should be made from a suitable material and design with respect to the chemical and physical

properties of the stored substance. The containers must be marked with the chemical symbol of the radionuclide and information about its activity at a specified date. The above also applies to the storage of radioactive waste awaiting final disposal.

Gaseous radionuclides

In activities where gaseous radionuclides are produced or generated from systems with radioactive substances, the contribution to the radiation dose from the emissions to a representative person should be estimated. In addition, the information and method used to calculate the correlation between the released activity and the effective dose should be documented. Those who carry out such activities should, by 1 March every year, report the released activity per radionuclide for the previous calendar year to the Radiation Protection Authority. A radiation protection expert must always be consulted before starting any activity that may give rise to air emissions.

Solid radioactive waste

All solid waste (paper balls, plastic, glass, etc.), solutions, precipitates, filtrates, etc., containing radioactive substances must be disposed of as radioactive waste. Any work with radioactive substances must be planned in order to minimise the quantity of waste that needs to be disposed of as radioactive waste.

The radioactive waste must be packed in a waste container, a properly sealed plastic inner bag and, if the waste is or may become liquid, an absorbent solution equivalent to twice the amount of waste in liquid form.

Maximum permitted activity level per waste package

The total quantity of radioactive substances per waste package may not exceed the quantity of activity specified in SSMFS 2010:2. The dose rate on the surface of a waste package delivered to an incineration plant may not exceed 5 μ Sv/h.

Summation rule

When multiple radioactive substances are placed in a single waste package, the following restriction applies:

$$\sum_k(A_k/L_k) \leq 1$$

where A_k is the activity of radionuclide “k” and L_k is the limit value for the same nuclide.

The total activity of the waste delivered to an incineration plant from a laboratory in one calendar month may not exceed ten times the activity specified in SSMFS 2010:2.

Example: Can 1 MBq P-32 and 5 MBq C-14 be placed in the same container and sent for incineration as final disposal of radioactive waste?

Answer: Divide each activity value by the corresponding limit value from SSMFS 2010:2 and add up the result: 1 MBq/0,1 MBq = 10 for P-32 and 5 MBq/10 MBq = 0.5 for C-14, the sum of 10 + 0.5 gives the value 10.5.

This value exceeds the summation rule value of no more than 1, so the container may not be sent for incineration, at least not yet.

Action: In this specific case, the container and its contents have to decay for 16 weeks. P-32 has a half-life of 14 days, which means that the summation rule value will fall below 1 after 8 half-lives, after which the container can be labelled and sent for incineration.

Liquid radioactive waste and scintillation liquids

Organic and environmentally harmful/hazardous solvents, such as liquid scintillation solutions, may not be poured into the sink for liquid radioactive waste. Instead, they should be packed in plastic or glass bottles placed in a waste container together with a sufficient quantity of absorbent to prevent leaks.

The total activity level of the waste poured down the drain from a laboratory in one calendar month may not exceed ten times the level specified in SSMFS 2010:2. The activity level of the waste being poured out on one occasion may not exceed the level specified in SSM FS 2010:2. The same summation rule applies to waste being poured down the drain as to waste being incinerated. The waste should always be washed down with plenty of water. At each place of disposal, there should be a clearly visible sign indicating that liquid radioactive waste may be poured down the drain.

NB! Solvents containing NPE (nonyl phenol ethoxylate), for example, scintillation liquids such as Optiphase 'Hisafe' 2, are listed in Council Directive 2003/53/EC and may not be disposed of into any water system in the European Community; they should always be sent for final disposal by incineration.

Flammable scintillation solutions should always be packed in small plastic or glass bottles with a total volume of no more than 1 litre per waste container. An absorbent should be added to the container, the quantity of which should have the capacity to absorb at least double the amount (2 litres) of liquid.

When it comes to non-flammable liquid scintillation solutions, no more than 5 litres may be packed in a waste container with a sufficient quantity of absorbent.

Radioactive substances in the form of sealed radiation sources

In accordance with the regulations (SSM FS 2010:2), sealed radiation sources with an activity level of no more than 50 kBq may be sent for incineration. In case of any uncertainty regarding the activity level of the sealed radiation source to be disposed of, contact the University's radiation protection expert Mats Jonsson (08-790 9123, matsj@kth.se) or Mats Hansson at the Section for Safety and Security (08-16 2251, mats.hansson@su.se).

Marking/labelling

Fill in Stockholm University's waste label with the following details:

- Storage room temperature: (x);
- Type of waste, specification: "Radioactive" and specification;
- Depositing department, section and department number

- (as well as activity and project number if required by the department);
- Depositor's name and phone number, as well as the date.

The warning symbol for ionising radiation should also be attached to the waste container.

The following information should be provided on the waste label:

- Radionuclide, activity level, and surface dose rate on a specified date;
- Identity code linked to the waste documentation.

The activity level of each individual waste package must not exceed the limit value specified in SSM FS 2010:2 at the time of deposit for transportation to the waste recipient.

Delivery/transport

Radioactive waste meeting these restrictions can be deposited on Thursdays at 10:30–11:00 in room A205 (opposite the SU Shop). The waste contractor will then transport the waste for destruction.

Radioactive waste that does not meet the restrictions laid out in these instructions and SSMFS 2010:2 should be handled by Studsvik Nuclear AB. In such cases, always contact the University's radiation protection expert and/or Ragn-Sells's radiation protection expert Erik Gustafsson (070-927 2539 or erik.gustafsson2@ragnsells.se) in order to comply with other requirements in the ARD-S transport regulations as well as the obligation to report to the relevant permit authority.

Final disposal

Incineration arranged by the waste contractor.

Specific legislation

- | | |
|--------------|--|
| SFS 1988:220 | Radiation Protection Act. |
| SFS 1988:293 | Radiation Protection Ordinance. |
| SFS 2007:193 | Ordinance on Producer Liability for Certain Radioactive Products and Orphan Radioactive Sources. |
| SSMFS 2009:1 | Control of Cross border Transports of Radioactive Waste and Spent Nuclear Fuel. |
| SSMFS 2010:2 | Handling of Radioactive Waste and Discharges from Activities with Open Radiation Sources. |

Sharps

Classification/separation

Sharps waste includes discarded syringes, knife blades, Pasteur pipettes, etc. Sharps that may be contaminated with chemical residues, microorganisms or radioactivity must be handled on the basis of the contamination in question. For more information, see the relevant section for each type of waste.

Handling/storage

Sharps are collected in puncture-safe jars or directly in the containers for infectious waste and/or sharps.

Contaminated sharps are stored on the basis of the contamination in question. For more information, see the relevant section for each type of waste.

Marking/labelling

Fill in Stockholm University's waste label with the following details:

- Store in room temperature: (x);
- Type of waste, specification: "Sharps" and any contamination;
- Depositing department, section and department number (as well as activity and project number if required by the department);
- Depositor's name and phone number, as well as the date.

Delivery/transport

Deliveries are made on the basis of the type of contamination. For more information, see the relevant section for each type of waste. If refrigerator/freezer storage is not required, the waste can be deposited on Wednesdays or Fridays at 10:30-11:00 in room M212 at KÖL, Svante Arrhenius väg 16F. The waste contractor will then transport the waste for destruction.

Final disposal

Incineration arranged by the waste contractor.

Specific legislation