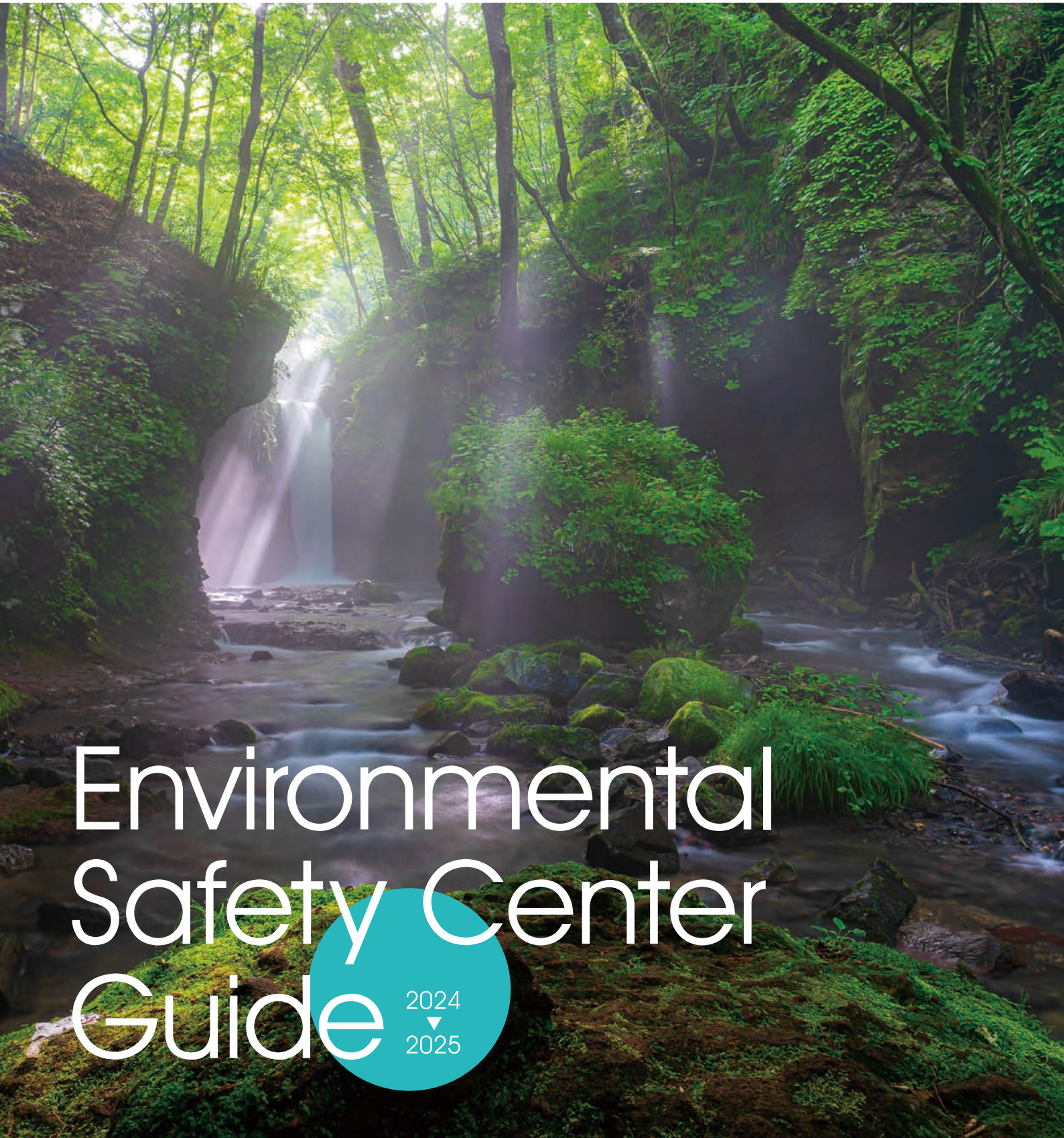
ENVIRONMENTAL SAFETY CENTER GUIDE

2024

ENVIRONMENTAL SAFETY CENTER, WASEDA UNIVERSITY

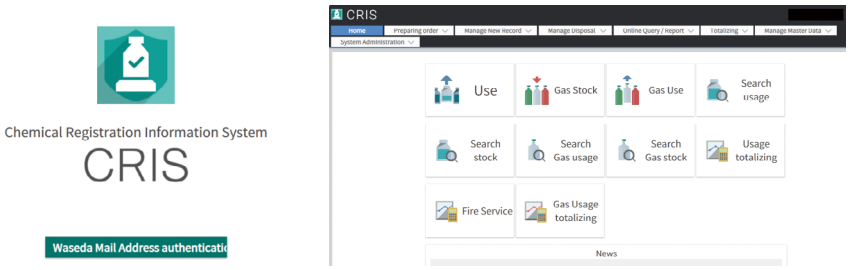


CONTENTS

Purchase and Storage of Chemical Substances

When you purchase chemical substances, you should register their information correctly and update the inventory data in the chemical substance management system (CRIS) of Waseda University. Please check the rules that have been set for safe management of chemical substances, which you should follow after purchasing chemical substances.

1 Chemical Registration Information System (CRIS)



Home screen of CRIS

(1) CRIS

At Waseda University, chemical substances used in education and research are managed under the Chemical Registration Information System (CRIS). The CRIS allows you to:

- check the chemical substances (chemicals and high-pressure gases) stored at each location, and where they are stored;
- check the quantities of hazardous materials stored;
- register the amounts of poisonous and deleterious substances used;
- produce aggregated data in accordance with relevant laws and regulations based on registered information, and report it to the central and local government*; and
- provide inventory data to the fire department and other relevant authorities if a fire occurs; etc.

Please scan the QR code at the upper right to find details about specific examples of reporting under relevant laws and regulations.

Examples of reporting under laws and regulations (PRTR and Tokyo metropolitan ordinances)

To achieve the above, information on the storage of chemicals and high-pressure gases registered in the CRIS must always match the actual situation. To ensure this, users must promptly affix a barcode label to each container of chemical substance upon delivery, and promptly return the label (a slip in the case of a high-pressure gas) after disposing of it. If a product is delivered without a barcode label or slip, ask the Chemical Management Office at your campus (refer to Chapter IV) to issue one.

Some chemical substances need not be registered in the CRIS. To determine whether to register chemical substances or high-pressure gases in the CRIS, refer to the flowchart on substances to be registered in the CRIS on the following page.

(2) How to use CRIS

- ID and password

  An ID for using the CRIS is issued to each individual. If you have not obtained an ID, apply for one to be issued by following the procedure in the CRIS manual, on the right.

  This ID is associated with your Waseda ID and cannot be shared with anyone else.

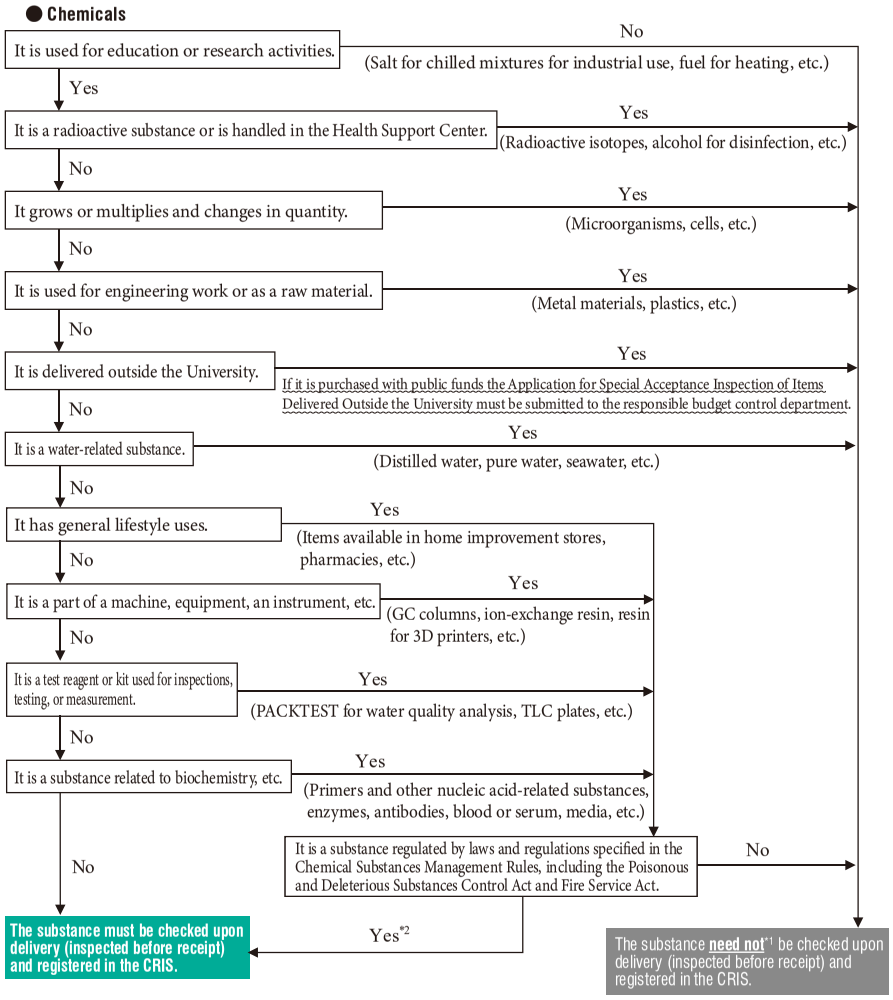
- Logging into the CRIS

  Students and faculty members can log into the CRIS by selecting “Chemicals Control” -> “CRIS (on cumpus only)” from the “Research” category in MyWaseda. Administrative staff can log in by selecting “Chemicals Control” -> “CRIS (on campus only)” from the “Tasks” category.

CRIS manual

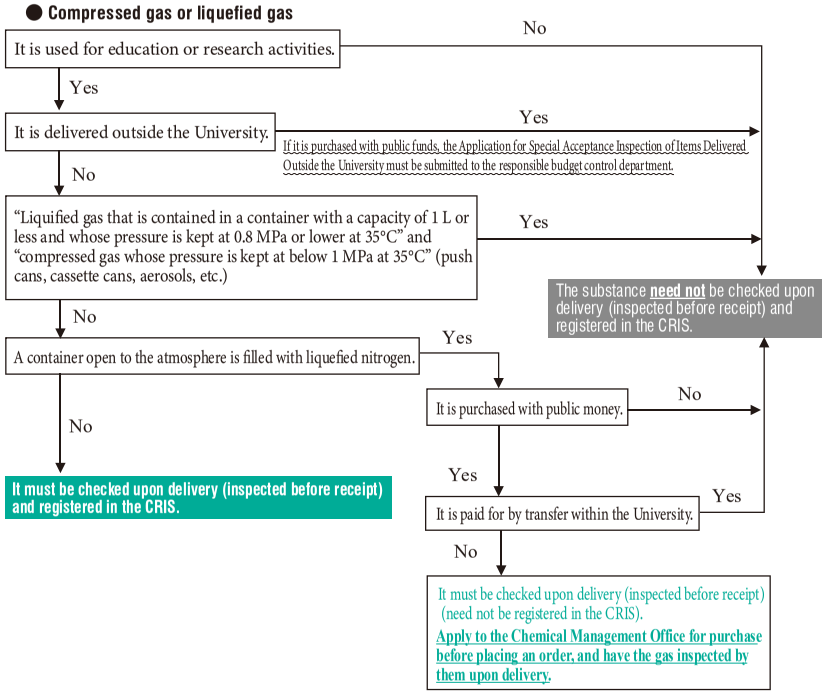
Revised on April 1, 2019

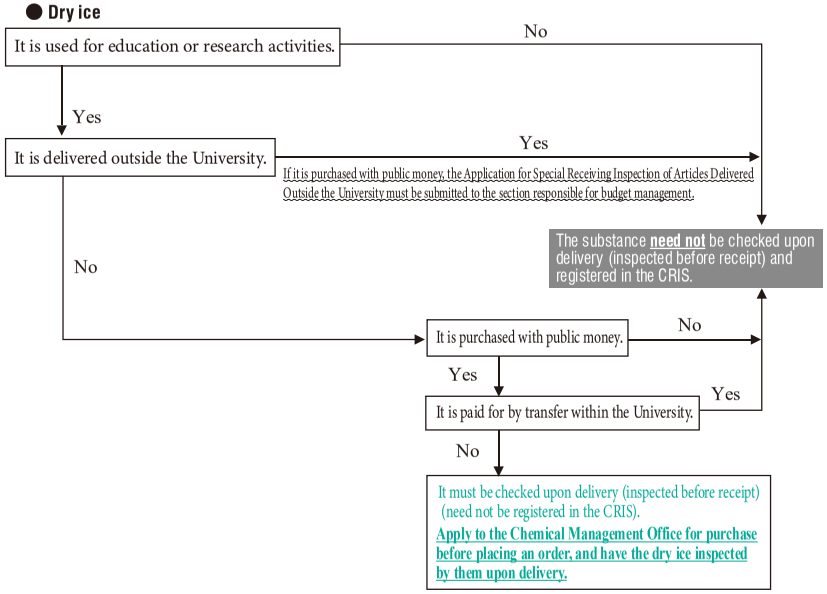
Flowchart on substances to be registered in the CRIS



*1 Even if the substance need not be checked upon delivery (inspected before receipt) at the Environmental Safety Center (ESC), it must be inspected before receipt at the acceptance inspection desk of the Accounting Center if it is purchased with public funds. For more details, contact the Waseda Acceptance Inspection Office (phone No.: 03-5286-8403, extension No.: 71-2603).

*2 Select Yes for all substances labeled "poisonous substance not for medical use" or "deleterious substance not for medical use." Select No if the substance does not carry such a label and does not have the risk of injuring users during normal use (such as resin for 3D printers, primers, silica gel for drying purposes, and membrane filters). If you are unsure which to select, contact the ESC (phone No.: 03-5286-3089, extension No.: 73-6202).





2 Purchasing Chemical Substances

The following describes the flow of steps from ordering a chemical substance through to delivery and final disposal. Before purchasing the following chemical substances, you should follow certain procedures in accordance with the relevant laws and regulations. Therefore, before placing an order for these substances, please contact the Chemical Management Office at your campus or the ESC to ask for advice. (For more details, refer to "Important Laws and Regulations regarding the Management of Chemical Substances," which can be accessed from the QR code on the right.)

Important Laws and Regulations regarding the Management of Chemical Substances

- Narcotics
- Psychotropics
- Stimulants
- Raw materials of stimulants
- Specified poisonous substances
- Duty-free industrial alcohol

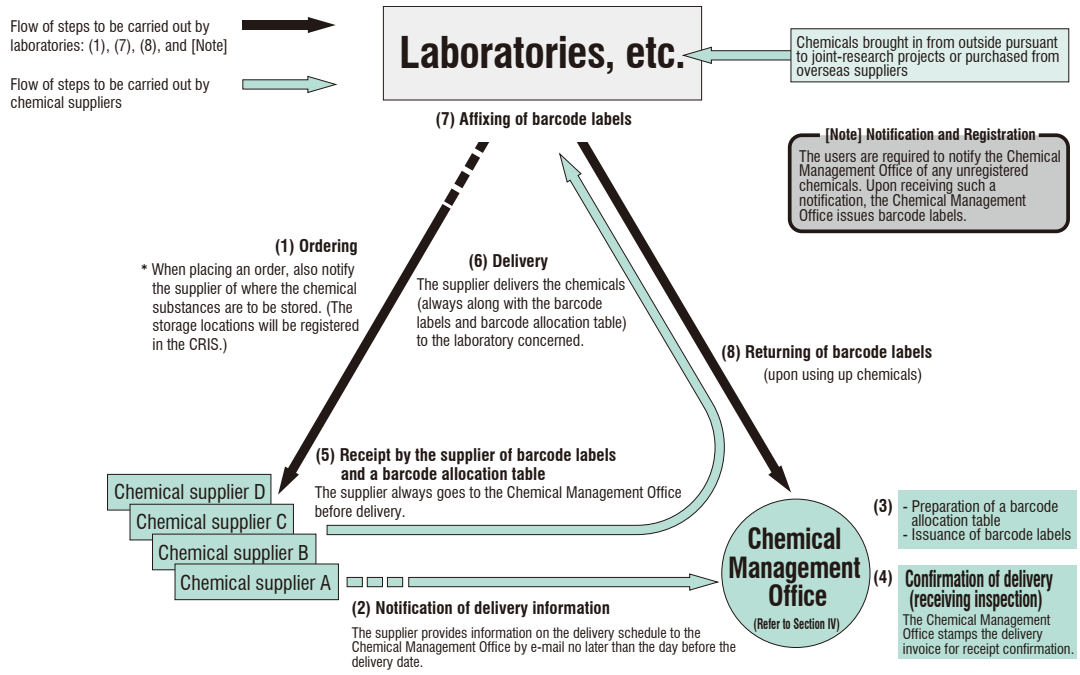
If you are importing chemical substances directly from overseas without using an agent, you may be required to follow the prior procedures of the Law Concerning the Evaluation of Chemical Substances and Regulation of Their Manufacture, etc. (Chemical Substances Control Law).
For details, please check the QR code link, and if an application is required, please follow the procedures by the purchaser.

Judgment flow of the Chemical Substances Control Law (Ministry of Economy, Trade and Industry)(In Japanese)

Flow of Steps from Ordering through to Disposal

Step	Carried out by	Instructions
(1) Ordering[*1,2]	Laboratories, etc.	Place a purchase order directly with the supplier. (Notify them where the chemical substances should be delivered, **and where they are to be stored**.)
(2) Notification of delivery information	Supplier	Prior to delivery, the supplier notifies the Chemical Management Office about the delivery via e-mail.
(3) Preparation of barcode labels and a barcode allocation table[*3]	Chemical Management Office	Chemical Management Office personnel enter the delivery information into the CRIS, and then issue barcode labels to be affixed to chemical containers, as well as a barcode allocation table.
(4) Confirmation of delivery	Chemical Management Office	The supplier goes to the Chemical Management Office before delivering the chemicals to the laboratory. Chemical Management Office personnel confirm receipt of the delivery based on the delivery invoice, and stamp it for receipt confirmation.
(5) Receipt by the supplier of barcode labels and a barcode allocation table	Supplier	The supplier receives the barcode labels and barcode allocation table.
(6) Delivery	Supplier	The supplier delivers the chemicals to the appropriate laboratory along with the barcode labels and barcode allocation table.
(7) Affixing of barcode labels[*3]	Laboratories, etc.	User(s) affix the barcode labels to the chemical containers in accordance with the allocation table.
(8) Returning of barcode labels (upon using up chemicals)	Laboratories, etc.	User(s) affix the barcode labels to a barcode label collection sheet and promptly return the sheet to the Chemical Management Office.

*1 Hundreds of bottles of chemicals are discarded as unnecessary chemicals every year. Be careful not to purchase chemicals and other supplies in larger quantities than necessary.
*2 If your laboratory purchases chemicals for the first time, please send an e-mail to WCRIS@list.waseda.jp. You will need to register the laboratory itself in the CRIS.
*3 For high-pressure gases, slips are issued instead of barcode labels.



(4) Confirmation of delivery

Whether they are purchased with public funds or not, when you purchase chemical substances to be registered in the CRIS, the registaration process requires confirmation of their delivery and stamping of the delivery invoice as receipt confirmation at the Chemical Management Office. Please check the chemical substances subject to CRIS registration by referring to the flowchart on substances to be registered in the CRIS shown previously.

(7) Affixing of barcode labels

Receive barcode labels and a barcode allocation table from the supplier, and then affix the labels to the chemical containers as shown in the photograph. Be sure to check applicable laws and regulations and other details (for poisonous or deleterious substances or hazardous materials) on SDSs and the labels on the containers.

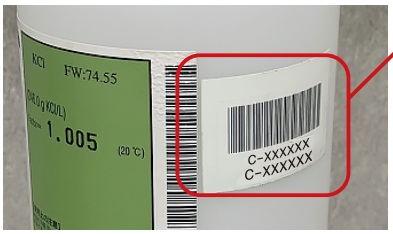
Example of a Barcode Allocation Table

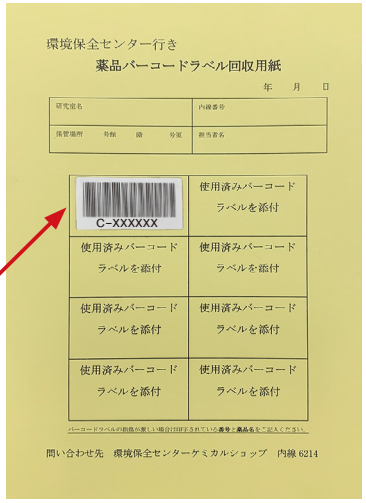
伝票番号：00001

バーコード	化学物質製品名	グレード	容量	容量単位	…	毒物劇物取締法
C-0000001	硝酸（1.38）	一級	500	mL	…	劇物

(8) Returning of barcode labels (upon using up chemicals)

Once you have used up all the content of a chemical bottle, remove the barcode label affixed to the bottle, affix the label to a blank box on the collection sheet, and then promptly return the sheet to the Chemical Management Office (refer to Section IV). You can return the sheet before all the boxes have been filled with barcode labels. If you apply for disposal of an unnecessary chemical, do not remove the label but follow the instructions given by the ESC.





Procedures for changing information registered in the CRIS

Amongst the information registered in the CRIS, the storage locations of chemicals and amounts used can be changed by users. In the following cases, however, special corresponding procedures are required. The request forms necessary for these procedures can be downloaded from the ESC website.

① When there is a chemical that is not registered in the CRIS
(1) When a chemical was handed over, purchased from an online shop, or obtained by other means not confirmed by the Chemical Management Office, so that it has not been registered in the CRIS
The chemical needs to be registered in the CRIS. Download the Request Form for Chemical Registration (薬品登録依頼書) from the ESC's website, fill out the form, and contact the office specified in the form.
(2) If the chemical had been registered before but has been deleted from the inventory, and you want to re-register it
We will check whether data on the chemical remains in the system. Let the ESC (WCRIS@list.waseda.jp) know the ID written on the chemical's barcode label. If the data on the chemical had been deleted from the inventory before FY2019, the data will no longer be on the system. In this case, you need to submit the Request Form for Chemical Registration (薬品登録依頼書) to re-register it.
② When a chemical registered in the CRIS does not exist
(1) If you have an empty container and barcode label for the chemical at hand
The chemical needs to be deleted from the inventory. Remove the barcode label, affix it to the barcode label collection sheet, and then submit the sheet to the appropriate Chemical Management Office.
(2) If the chemical is registered in the CRIS but is not in stock
The chemical needs to be deleted from the inventory. Download the Request Form for Change of Information Registered in the CRIS (CRIS登録情報変更依頼書) from the ESC's website, fill out the form, and contact the address specified in the form. If it is a poisonous substance, you also need to submit the Report of Exhaustion of Poisonous Substances (毒物使用済み報告書) to confirm that it has not been lost or stolen.

Environmental Safety Center Website – Forms

3 How to Store Chemical Substances

To store chemicals safely, please take the following measures in case of earthquakes or other disasters:

- Use dedicated chemical safes.
- Take measures to prevent chemical safes from toppling over.
- Take safety measures inside chemical safes (use dividers or cushioning materials).

4 Purchasing Dry Ice and Liquid Nitrogen (at the Nishi-Waseda Campus)

(1) Chemical Shop location and operating hours

- Location: Room 15 (first floor) of Building No. 60
- Operating hours: Monday–Friday, 9:30–17:00
- Contact info: Extension No.: 73-6214

(2) Purchasing dry ice

- You can order dry ice, in 500-gram increments, at the Chemical Shop.
- If you want to purchase dry ice, place an order with the Chemical Shop (orders accepted from 9:30 to 15:30) by the day before the day you need it.
- The Chemical Shop is closed on Saturdays. If you want to use dry ice on a Saturday, you need to place an order by 15:30 on Thursday and collect it on Friday.
- **Purchasing with public funds requires an inspection before receipt. Therefore, if you purchase dry ice with public funds, please inform the Chemical Management Office of this.**

(3) Supply of liquid nitrogen

- Location: Liquid nitrogen supply facility on the north side of Building No. 56
- Supply hours: Monday to Saturday, 9:00 to 10:10, 10:40 to 11:50, and 15:10 to 16:30
- Supply-operations training course: Only students and faculty members who have attended a liquid nitrogen supply-operations training course given by the ESC and are registered as liquid nitrogen supply workers may supply and obtain liquid nitrogen by themselves. Apply for the supply-operations training course at the Chemical Shop.
- **Purchasing with public funds requires a witnessed inspection before receipt. Therefore, if you purchase liquid nitrogen with public funds, please inform the Chemical Management Office of this in advance.**

No.

液体窒素供給受領書［ｹﾐｶﾙｼｮｯﾌﾟ控え］

日付：　年　月　日　時　分

学部・機関	学　科	研究室・実験室	電　話

供給担当者	液面計値	圧力計値	供給量（Kg）

＊配管冷却分として、供給一回につき一律１リットル加算して請求致します

Receipt of Liquid Nitrogen
Fill out a Receipt of Liquid Nitrogen every time you receive a supply of liquid nitrogen, and place the form in the postbox. This form comes in duplicate; the second copy is a delivery slip that should be retained at the laboratory.

Neither liquid nitrogen nor dry ice can be used on Saturdays during the summer and winter vacation periods.

(4) Billing and payment

Bills for monthly charges are prepared by the supplier at the end of each month and sent to the relevant laboratories and offices at the beginning of the following month (bills cannot be paid in cash).

Please also check the page on the ESC website that has questions and answers concerning the management of chemical substances.

Q&A (in Japanese)

Precautions When Using Chemical Substances

Some chemical substances may be dangerous or harmful when they are handled improperly. In particular, some chemical substances are subject to rules on handling that are stipulated by laws and regulations.
Please conform to these laws and regulations, confirm the following precautions, and handle chemical substances safely.

1 Investigation of the Hazards of Chemical Substances to be Used

(1) Safety Data Sheet (SDS)

An SDS is a document prepared by the manufacturer of a chemical substance or chemical product to provide buyers with information about it when it is shipped. You can obtain an SDS from:

- the supplier of the chemical,
- the Shokuba-no-Anzen Site (website of the Ministry of Health, Labour and Welfare providing information on workplace safety), or
- the website of the reagent manufacturer.

Shokuba-no-Anzen Site(In Japanese)

An SDS contains the following sections and provides information on safety: 1. Chemicals and Company Information, 2. Hazard Identification, 3. Composition and Ingredient Information, 4. First Aid Measures, 5. Firefighting Measures, 6. Accidental Release Measures, 7. Handling and Storage, 8. Exposure Controls/PPE, 9. Physical/Chemical Properties, 10. Stability and Reactivity, 11. Toxicological Information, 12. Ecological Information, 13. Disposal Considerations, 14. Transport Information, 15. Regulatory Information, and 16. Other Information. Keep SDSs in a readily accessible location and **be sure to check SDSs before you use chemical substances**.

(2) Globally Harmonized System of Classification and Labelling of Chemicals (GHS)

The Globally Harmonized System of Classification and Labelling of Chemicals (GHS) is a system designed to classify the hazards of chemicals according to certain globally uniform standards, show those hazards in an easily understandable manner using pictograms, etc., present the results of classification on labels or in SDSs, and thereby help to prevent disasters and protect human health and the environment. When using chemical substances, **be sure to check their GHS labels**. If you repackage chemical substances into smaller containers, ensure that those containers also carry the same information. You can find the meanings of GHS symbols on the website linked from the QR code on the right.

Reference: GHS symbols and their names (Ministry of Health, Labour and Welfare)

2 Ensure Safety and Obligations to Wear Personal Protective Equipment

You are required by law to wear protective clothing, protective gloves, and protective goggles (safety glasses), etc., and take other relevant safety measures when carrying out an experiment using chemical substances (be sure to follow the basic rule of wearing clothes and shoes that do not expose your skin).

(1) Protective clothing (lab coat or work clothing)

Wearing appropriate protective clothing helps to protect you from injury caused by scattering of chemical substances. Select protective clothing whose materials and form are appropriate for the intended use, and **be sure to wear protective clothing when using the relevant chemicals**.

(2) Protective gloves

Correct use of protective gloves not only protects your hands but also prevents scattering of chemical substances. Select protective gloves whose materials and form are appropriate for the intended use and which are chemically resistant to the substances to be used, and **be sure to wear protective gloves** when using chemical substances. You are recommended to immediately replace disposable gloves with new ones if they become soiled with a chemical substance. You can find the resistance of various materials to different chemical substances on the website linked from the QR code on the right.

Reference: Permeation test data table (Ministry of Health, Labour and Welfare / in Japanese)

(3) Protective goggles (safety glasses)

There are numerous accidents in which scattered chemicals get into a person's eyes. For better prevention of eye exposure, you are recommended to wear protective goggles. **Be sure to wear protective goggles** when using chemical substances.

If necessary, consider using a gas or dust mask, etc., in addition to the protective equipment detailed above (if a gas or dust mask is used, inspection involving a fit test must be regularly performed).

(4) Chemical risk assessment

Chemical risk assessment refers to activities to identify the hazards of chemical substances, estimate the possibility (risk) of their causing a dangerous situation or health problem, and consider and implement risk reduction measures in order to minimize that risk.

When planning a new experiment, and once a year at a regular time (to be announced in July), **be sure to conduct a risk assessment** in accordance with the guidance from University.

Reference: Chemical risk assessment (in Japanese)

(5) Hazard prediction

Check if there are operations during experiments that may lead to a fire, explosion, or injury.

In particular, many accidents occur during experiments conducted under high temperature or pressure conditions, or in which sharp objects are used.

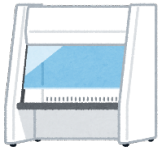
Predict the phenomena that may occur due to differences in temperature conditions, experiment procedures or instrument materials, or due to unexpected contact or mixing, and thoroughly identify the hidden dangers that experiments may involve.

Reference: Website regarding hazard prediction training

(6) Use of local exhaust ventilation

When using harmful substances, **be sure to use local exhaust ventilation correctly** to prevent them from contact, thereby ensuring your safety and that of the people around you.

e.g.: Draft chambers, external hoods, portable gas removers



In particular, when handling a substance designated by law as "a specified chemical substance (特定化学物質)" (Class 1 or 2) or "organic solvent (有機溶剤)" (Class 1 or 2), you are legally required to use local exhaust ventilation that meets the relevant specified requirements. You can find these specified chemical substances and organic solvents on the websites linked from the QR codes on Pages 11 and 12, respectively.

3 Handling of Chemical Substances Based on Laws and Regulations

(1) Hazardous materials by the Fire Service Act

Certain chemicals that pose a high risk of causing a fire are designated as hazardous materials under the Fire Service Act.

- Some combinations of hazardous materials may cause a fire if they are mixed or come into contact with each other. After checking the hazardous material category on the labels attached to reagent containers, store and transfer hazardous materials in a manner that prevents dangerous combinations. You can find a list of dangerous combinations of hazardous materials on the website linked from the QR code on the right.
- Since storing hazardous materials in large quantities increases the risk of causing a fire, the permissible quantities of hazardous materials that can be stored in each fire-prevention compartment are specified in the Fire Service Act and fire prevention ordinances. The CRIS can calculate the quantity of each hazardous material stored in each room, so be sure to check this on a regular basis. (The amount of hazardous material stored in a standard room must not exceed the specified quantity multiplied by 0.2. For more details, refer to the Fire Service Act.)
- If you find that the stored quantity of a hazardous substance exceeds the upper limit, then take prompt measures to ensure that the quantity falls below that limit, such as storing part of the substance in another chemical safe for hazardous materials.

Combinations of hazardous materials in mixed storage, and hazardous material categories stipulated in the Fire Service Act

(2) Poisonous and deleterious substances

Among the chemical substances in common circulation, those that exhibit acute toxicity are designated as poisonous or deleterious substances in the Poisonous and Deleterious Substances Control Act.

- To prevent theft or loss, store poisonous and deleterious substances separately from general reagents in a strong safe that can be locked with a key. Use a safe that does not allow the contents to be seen (glass windows are inappropriate). Appropriate key management should be performed by designating a person (or persons) to manage keys, and keeping records of key use, etc.
- Lockers for poisonous substances should be labeled as “Non-medicinal Poison (医薬用外毒物)” in white against a red background, and lockers for deleterious substances as “Non-medicinal Deleterious Substances (医薬用外劇物)” in red against a white background.

医薬用外毒物

医薬用外劇物

- If you repackage poisonous or deleterious substances into smaller containers, ensure that those containers are also labeled in the same way.
- Store poisonous and deleterious substances together in one location inside the relevant room so as to manage them in a centralized manner. Treat reagents that are categorized as both “poisonous or deleterious substances” and “hazardous materials” in the same way as poisonous or deleterious substances, and manage them together with other poisonous or deleterious substances.
- To prevent poisonous and deleterious substances from leaking or being lost, do not take them out of the campus. Do not transfer poisonous or deleterious substances from one campus to another.
- If a poisonous or deleterious substance is spilled, stolen, or lost, then it is necessary to report the incident immediately to a public health center, police station, or fire station. If such an incident occurs, immediately notify the ESC (refer to Chapter IV).
- After a poisonous or deleterious substance has been used, **be sure to register the amount used in the CRIS**. Note that a poisonous substance cannot be deleted from the inventory unless you have correctly registered the amounts used and the remaining amount has fallen to 0.

(3) Poisonous and deleterious drugs

Certain pharmaceuticals that are likely to cause harm when absorbed into the human body are designated as poisonous or deleterious substances by the Act on Securing Quality, Efficacy and Safety of Products Including Pharmaceuticals and Medical Devices.

- Store poisonous drugs separately from other pharmaceuticals in a dedicated safe that can be locked with a key. Store deleterious drugs separately from other pharmaceuticals (safes for deleterious drugs need not be locked, but should be managed correctly so as to avoid loss or theft).
- After a poisonous drug has been used, **be sure to register the amount used in the CRIS**. Note that a poisonous drug cannot be deleted from the inventory unless you have correctly registered the amounts used and the remaining amount has fallen to 0.
- To poisonous drugs, affix a black label with the kanji character "毒" and product name written in white inside a white outer frame; to deleterious drugs, affix a white label with the kanji character "劇" and product name written in red inside a red outer frame. Purchased poisonous and deleterious drugs will have these labels affixed to the containers or directly to the packets themselves, but if, for any reason, you repackage these drugs into other containers, then ensure that those containers are also labeled in the same way.

(4) Specified chemical substances

Some chemical substances that may cause occupational cancer or other health problems in workers, such as chloroform, benzene, and formaldehyde, are designated as specified chemical substances by the Industrial Safety and Health Act, and are subject to rules on handling, some of which are shown below. You can find specified chemical substances on the website linked from the QR code on the right.

Specified chemical substances(In Japanese)

- When handling Class 1 or 2 chemical substances indoors, **use local exhaust ventilation.**
- In places where a specified chemical substance is handled, put up a notice saying, "関係者以外立入禁止 (Authorized personnel only)" and "飲食・喫煙禁止 (No eating, drinking or smoking)," as shown below.
- In places where a carcinogenic chemical substance that is categorized as "特別管理物質" (a specially controlled substance) is handled, put up a notice that contains the following information:
  - 名称 (Name of the specially controlled substance)
  - 人体に及ぼす作用 (Effects of the specially controlled substance on the human body)
  - 取扱い上の注意事項 (Precautions for handling the specially controlled substance)
  - 保護具 (Personal protective equipment to be used)
- For any experiment in which a specially controlled substance is used, keep a record that, for purposes of later reference, gives an outline and the period of the work in which the substance was used, the manner in which any accidents—if any occurred—were dealt with, and any other relevant details, and retain this record for the relevant period specified by law.

名称	エチルベンゼン (Ethylbenzene) C_8H_{10}
人体に及ぼす作用	
取扱い上の注意事項	
保護具	
応急措置	

特定化学物質取扱い部屋
(特定化学物質障害予防規則)
関係者以外立入禁止
飲食・喫煙禁止

(5) Organic solvents

Acetone, hexane, toluene, and some other organic solvents are also subject to the rules on handling stipulated in the Industrial Safety and Health Act. You can find these organic solvents on the website linked from the QR code on the right.

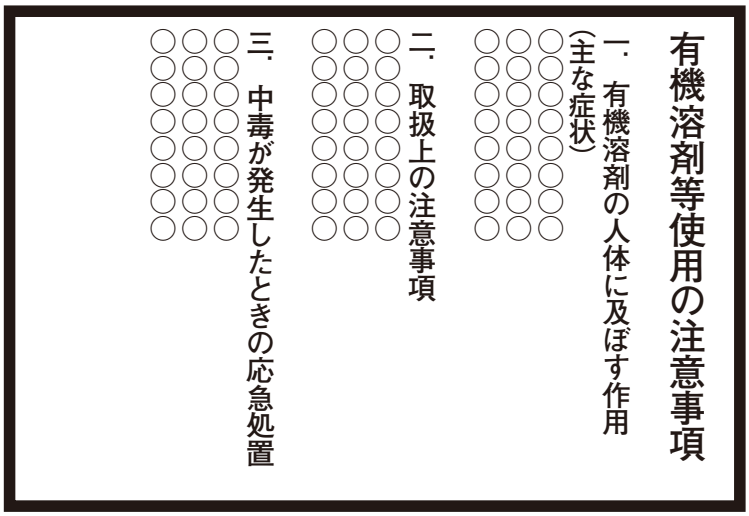
Reference: Organic solvents (Ministry of Health, Labour and Welfare)

- When using Class 1 or 2 organic solvents indoors, **use local exhaust ventilation**.
- In places where an organic solvent, etc., is handled, put up a notice that indicates the category of the solvent and lists precautions for use, as shown below:

第一種有機溶剤等 (Class 1)

第二種有機溶剤等 (Class 2)

第三種有機溶剤等 (Class 3)



(6) High-pressure gases

High-pressure gases are subject to the rules on handling stipulated in the High Pressure Gas Safety Act. In order to use them safely, suitable knowledge regarding high-pressure gases is required. In addition to checking the contents of the “Workshop on the Safety of High-Pressure Gases,” which is a workshop on safety and health held at the Nishi-Waseda Campus, or the “Safety Guide” issued by your own campus, check the safety instruction by the relevant individual suppliers, so that you can use high-pressure gases in a suitable manner.

Reference: Workshop on the Safety of High-Pressure Gases

4 Working Environment Measurement

At Waseda University, in accordance with relevant laws and regulations, we perform measurement (working environment measurement) once every six months to monitor the levels of harmful chemical substances present in the air in laboratories where certain chemical substances such as specified chemical substances and organic solvents, lead, or dust are handled in large quantities (i.e. have been purchased in large quantities according to the CRIS). The purpose of working environment measurement is to check whether those who handle chemical substances in a working environment that will not cause health problems. The results are categorized into the following control classes:

第１管理区分 (Control Class 1) : Management of the working environment is judged to be suitable.
第２管理区分 (Control Class 2) : Management of the working environment is judged to have room for improvement.
第３管理区分 (Control Class 3) : Management of the working environment is judged to be unsuitable.

If no improvement is made to the conditions in a working environment categorized as Control Class 3, then the chemical substance in question cannot be used until certain procedures have been implemented in accordance with the relevant laws and regulations.

5 Rules for Washing Instruments after Use of Chemical Substances

Sort all chemicals left after experiments according to the rules for sorted collection of laboratory waste, collecting them in the prescribed containers. Before washing instruments and chemical bottles in a sink or washing machine, be sure to wash thoroughly them with tap water or an appropriate organic solvent (such as alcohol or acetone). Collect the resulting wash solution in a waste liquid container.

As a general rule, the following wash solutions should be collect into a waste liquid container.

- Wash solution used in the first three washings of a laboratory instrument that has been used with substances that include any specified in the water quality standard (refer to the webpage linked from the QR code below).
- Wash solution used in the first two washings of a laboratory instrument that has been used with substances that do not include any specified in the water quality standard.

The quantity of water or solvent used per wash should be roughly 1/50 of the capacity of the instrument, but please determine the quantity of water or solvent and number of times it should be washed in accordance with the degree of soiling, as appropriate.

Everyone who uses chemical substances in their educational and research activities is obliged to observe the water quality standards in the Water Pollution Control Act and Sewerage Act (and the Tokyo Metropolitan Sewerage Ordinance) (refer to the webpage linked from the QR code below), and to strive to prevent hazardous substances, etc., from being discharged into the sewage system or public waters.

At Waseda University, we perform analysis every month of the quality of wastewater discharged from laboratories that use specific chemical substances designated by law. If any water quality standard is exceeded, we investigate the cause and take preventive measures in collaboration with relevant laboratories, facilities, and offices to ensure the safety and health of students and faculty members, together with proper management of the water environment on campus and in the surrounding area.

Reference:
Sewage removal standards(In Japanese)

Handling of Laboratory Wastes

Laboratory wastes generated as a result of education and research activities at universities is categorized as industrial wastes or specially controlled industrial wastes under the Waste Management and Public Cleansing Act. When storing, transporting, and disposing of such laboratory wastes, those involved in its generation are responsible for handling it correctly in accordance with the law until final waste disposal has been performed.

Reference: Waste Management and Public Cleansing Act

At Waseda University, laboratory wastes are sorted and collected under the responsibility of those involved in its generation, and then transported to the ESC, which, after checking that it has been correctly sorted and is safe, outsources its disposal to qualified industrial wastes disposal contractors. Inorganic waste liquids are processed using neutralization/detoxification or recovery of the metals they contain, while organic waste liquids, infectious wastes, and solid wastes are incinerated or processed using another appropriate method.

When outsourcing disposal of laboratory wastes to an industrial wastes disposal contractor, a manifest is issued to confirm whether the contracted disposal has been properly carried out. Contractors are selected only after examining their intermediate and final treatment facilities. It is necessary to reduce waste in order to help realize a decarbonized, recycling-oriented society, and we are making corresponding efforts to achieve this.

In conducting research and experiments, each experimenter who handles chemical substances must always remember that proper treatment of the resulting waste is their own duty and responsibility. **It is important for individuals involved in the generation of laboratory wastes to sort it correctly and keep accurate records of the content**.

1 Laboratory Wastes Disposal Procedures

At campuses other than the Nishi-Waseda Campus, receiving and handing over containers, etc., and bringing waste to appropriate locations should be performed in accordance with the instructions of the Laboratory Wastes Management Office at each campus, listed in Chapter IV. The rules regarding collection categories and forms to be submitted are the same at all campuses.

First, please understand the disposal procedures for laboratory wastes. Laboratory wastes are broadly divided into two types, i.e., wastes that falls under a collection category, and wastes that does not.

● Wastes that falls under a collection category
(Wastes collection in dedicated containers lent out by the ESC)

(1) Apply for containers and a set of forms.
↓
(2) Receive the containers and set of forms.
↓
(3) Sort and collect wastes into the containers.
↓
(4) Fill out a laboratory waste disposal request/ chemicals management form.
↓
(5) Bring the wastes containers to the ESC and submit the disposal request/chemicals management form.

● Wastes that does not fall under a collection category
(e.g., unnecessary chemicals, spray cans, etc.)

(1) Fill out a disposal request form.
↓
(2) Prepare lists as needed
(only if you want to dispose of unnecessary chemicals or waste with unidentified content)
↓
(3) Make a reservation through the reservation site
(only at the Nishi-Waseda Campus)
↓
(4) Bring the wastes to the ESC and submit the disposal request form, etc.

Acceptance hours and location at Nishi-Waseda Campus

[Acceptance hours] Monday to Friday (in accordance with the University calendar)
[Mornings] 9:00 to 12:30* [Afternoons] 13:30 to 17:00*
* If you bring laboratory wastes directly to the ESC, arrive at least 30 minutes before the end of the acceptance period because checking for acceptance must be performed on an individual basis.

[Acceptance location] Environmental Safety Center, ESC (1st basement of Building No. 55N)

2 Disposal Procedure for Wastes that Falls Under a Collection Category

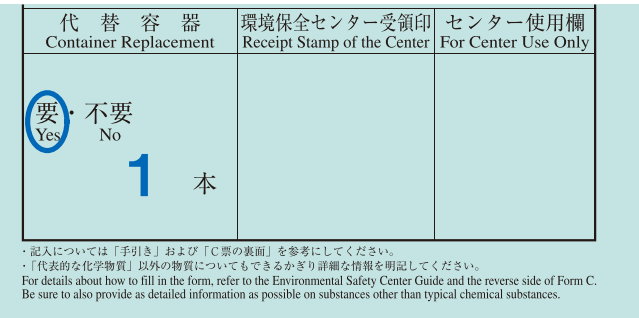
(1) Applying for containers and a set of forms

[When you first apply for a certain type of container]

- Apply for the containers and a set of forms by filling out the application form at the laboratory waste management office.

[If you are applying for the same type of container again]

- Fill out the container replacement field of the disposal request/chemicals management form.



代 替 容 器 Container Replacement	環境保全センター受領印 Receipt Stamp of the Center	センター使用欄 For Center Use Only
要 Yes ・ 不要 No 1 本		

・記入については「手引き」および「C票の裏面」を参考にしてください。
・「代表的な化学物質」以外の物質についてもできるかぎり詳細な情報を明記してください。
For details about how to fill in the form, refer to the Environmental Safety Center Guide and the reverse side of Form C.
Be sure to also provide as detailed information as possible on substances other than typical chemical substances.

(2) Receiving the containers and set of forms

For the Nishi-Waseda Campus

[Set of forms*]

Pick up a set of forms from the letter case next to the reception counter of the ESC **after 13:30 on the following business day**.

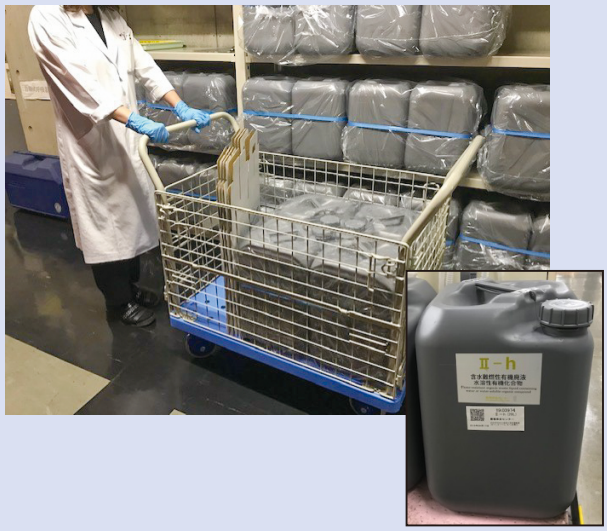
[Containers]

Take the appropriate collection containers from among those in the rack located in the corridor in front of the ESC, and affix a category seal and barcode label to each container at that time.

* This set of forms consists of a Laboratory Waste Disposal Request/Chemical Management Form, category seal(s), and barcode label(s) (but does not include a category seal for Categories II-g or P).

A set of forms

A drawer is provided for each laboratory.



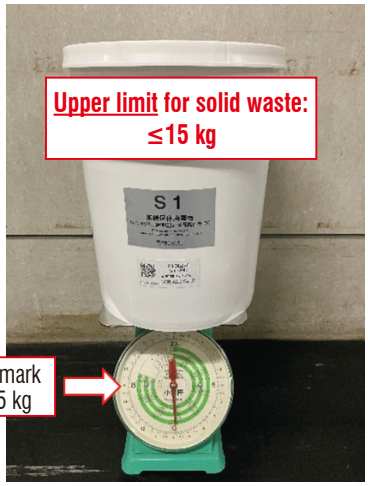
Affix a category seal and barcode label to each container as soon as possible after receiving it.

(3) Sorting and collecting wastes

Collect waste liquids and other wastes in the designated collection containers in accordance with the classification tables and sorted collection flowchart.

<Precautions when collecting wastes>

- **Be sure to keep a record of the contents** of collection containers in order to prevent accidents and secure management of chemical substances.
  Refer to the Record of Waste Liquid Tank Contents (Example), as required, which can be accessed from the QR code at the bottom of this page.
- Ensure that the total amount of waste liquids put into a single collection container does not exceed 80 percent of the container's capacity.
- Ensure that the solid waste in a single collection container does not exceed 15 kg.
- Be careful not to stain the barcode labels on collection containers with waste liquid, etc.
- Collect waste liquids with great care, as mixing two or more waste liquids of the same category may cause them to generate heat, give off smoke, or even ignite. Pour waste liquids into collection containers a little at a time, checking that any problematic phenomena does not observed as you proceed.
- If you are unsure how to safely put wastes into a container, contact the ESC for advice.
- As a general rule, bring unnecessary chemicals to the laboratory waste management office in their original containers rather than mixing them or putting them into a collection container.
- After putting wastes into a container, it should, in general, be kept covered at all times. If you find that gas is being produced in a container, vent the gas as appropriate in a suitable environment such as a draft chamber with great care because there are possibility that explosive hydrogen gas or other toxic gas has been generating.
- Avoid storing waste for a long period of time, and be sure to bring it to the laboratory waste management office within approximately 6 months, even if the container is not full.
- If the amount of laboratory wastes will be small, such as less than 1 L, ask at the laboratory waste management office for a special container.
- In particular, if you mistakenly put wastes into the wrong container, clearly describe the content in the blank space on the form (e.g.: "[Substance name] contains").



廃液タンク投入記録
Contents Record of Wastes Liquid Tank

廃液区分 Category	容器番号 Container No.

日付 Dates	試薬名 Name of chemical Substance	濃度 Concentrations	投入量 Amount	投入者 Name

Record of Waste Liquid Tank Contents (Example)

Table 1. Classification of Inorganic Waste Liquids and Collection Container Types

Consult the ESC if you wish to use any containers or capacities other than those specified here.

	Waste classification	Container type Color/capacity	Category	Handling instructions/ side note
Inorganic waste liquids	I-c		Acid and alkaline waste liquids	1. Dilute strong acid or alkaline liquids, or add several liters of water, before putting them in containers. 2. Indicate the pH.
	I-d-1		Waste liquids containing mercury compounds	Specify the mercury concentration.
	I-d-2		Waste liquids containing cadmium, lead, or chromium (or thier compounds)	1. Use care in handling because these waste liquids contain hazardous substances. 2. In particular, if waste liquids contain ammonium ions or chelate compounds, do not forget to specify their concentrations. 3. Indicate the pH.
	I-d-3		Waste liquids contains general heavy metal, excluding I-d-1, I-d-2, I-d-4, and I-e-5	
	I-d-4		Chromic acid-mixture solution (chromium-sulfuric acid) waste liquids	1. Use extreme care in handling because these waste liquids are highly acidic and hazardous. 2. Do not mix organic substances with these waste liquids.
	I-e-5		Waste liquids containing arsenic, selenium, antimony, tellurium, or their compounds	1. Take great care in handling these waste liquids because they contain hazardous substances. **2. Avoid mixing these liquids with other ingredients whenever possible.** 3. Indicate the pH.
	I-e-6		Waste liquids containing cyanide compounds	1. Waste liquids containing free cyanide **2. Do not mix acids with these waste liquids** (to avoid generating hydrogen cyanide gas). **Keep these waste liquids in an alkaline state**. 3. Waste liquids containing cyanide complexes, such as ferricyanide and ferrocyanide compounds, should be collected under the II-j category.
	I-e-8		Waste liquids containing phosphorous compounds	1. Organic phosphorous should be collected under the II-d category. 2. Indicate the pH.

	Waste classification	Container type Color/capacity	Category	Handling instructions/ side note
Inorganic waste liquids	I-e-9		Waste liquids containing hydrofluoric acid or fluorine compounds	1. Do not put undiluted hydrofluoric acid in collection containers. **2. Do not mix strong acids with these waste liquids** (to avoid generating hydrogen fluoride gas). Keep these waste liquids in an alkaline state as much as possible. 3. Indicate the pH.
	I-f		Photography developing solution wastes	If fixing solution is mixed in these waste liquids,this must be clearly stated.
	I-g		Photography fixing solution wastes	If developing solution is mixed in these waste liquids,this must be clearly stated.

Table 2. Classification of Organic Waste Liquids and Solid Wastes, and Collection Container Types

Consult the ESC if you wish to use any containers or capacities other than those specified here.

	Waste classification	Container type Color/capacity	Category	Handling instructions/ side note
Combustible waste liquids	II-a		Combustible general organic solvents (e.g., acetone, hexane, benzene, alcohol)	1. Water content ≤5% **2. Do not mix this type of solvent with a peroxide, concentrated nitric acid, or concentrated sulfuric acid. Doing so is strictly prohibited.**
	II-b		Waste oils (e.g., heavy oil, machine oil, animal and plant oils, silicon oil)	1. Dilute viscous oils with an appropriate solvent prior to collection. 2. PCBs and oils containing PCBs are excluded.
	II-d		Organic compound waste liquids containing nitrogen, sulfur, and phosphorous (e.g., aniline, pyridine, dimethylsulfoxide, phosphoric ester)	**1. Explosive substances such as nitrate ester, nitromethane, and diazo compounds are excluded.** 2. Collect organic phosphorous pesticides separately. 3. Collect and handle malodorous substances separately.
	II-g		Low-ignition-point organic waste liquids (those that consist mainly of gasoline, diethyl ether, pentane, etc.)	1. De-gas containers periodically. 2. Avoid mixing these waste liquids with other substances as much as possible. 3. Do not store large amounts of these waste liquids; instead, frequently bring small amounts to the office. 4. These waste liquids may fall into the category of special inflammable materials under the Fire Service Act. 5. Do not put acids or alkalis in this container.

	Waste classification	Container type Color/capacity	Category	Handling instructions/ side note
Flame-resistant waste liquids	II-h		Organic waste liquids containing ≥5% water (excluding II-i and II-j)	1. Water solutions containing water soluble organic compounds such as alcohol and organic acid 2. Emulsive waste liquids
	II-i		Organic waste liquids containing halogen (e.g., dichloromethane, chloroform, carbon tetrachloride)	1. PCBs and waste liquids containing PCBs are excluded. 2. Under this category, classify solutions used to rinse instruments that have been used with organic chlorine solvents. 3. If the waste liquid contains components categorized as II-g, use a 10-L container and avoid storing it for a long period of time.
	II-i-2		Circulating aspirator wastewater	Wastewater used in circulating aspirators that contains solvents such as dichloromethane, benzene, chloroform, carbon tetrachloride, or acetone
	II-j		Waste liquids containing ferrocyanide or ferricyanide compounds and metals	Do not mix organic mercury compounds with other waste in this collection category but collect them separately.

Consult the ESC if you wish to dispose of solid wastes that is larger in size than a person's fist.

	Waste classification	Container type Color/capacity	Category	Handling instructions/ side note
Solid waste	S1		Inorganic solid wastes (e.g., silica gel, alumina, inorganic salts, metal oxides, waste metals) * Before you dispose of waste soil, contact the ESC.	**1. Contents must not weigh more than 15 kg.** 2. Completely dehydrate the sediment. 3. Collect waste containing mercury as unclassified waste. 4. Put lid on before transporting.
	S2		Organic solid reagents (e.g., high polymer compounds, resins)	**1. Content must not weigh more than 15 kg.** 2. Completely remove any liquids. 3. Put lid on before transporting.

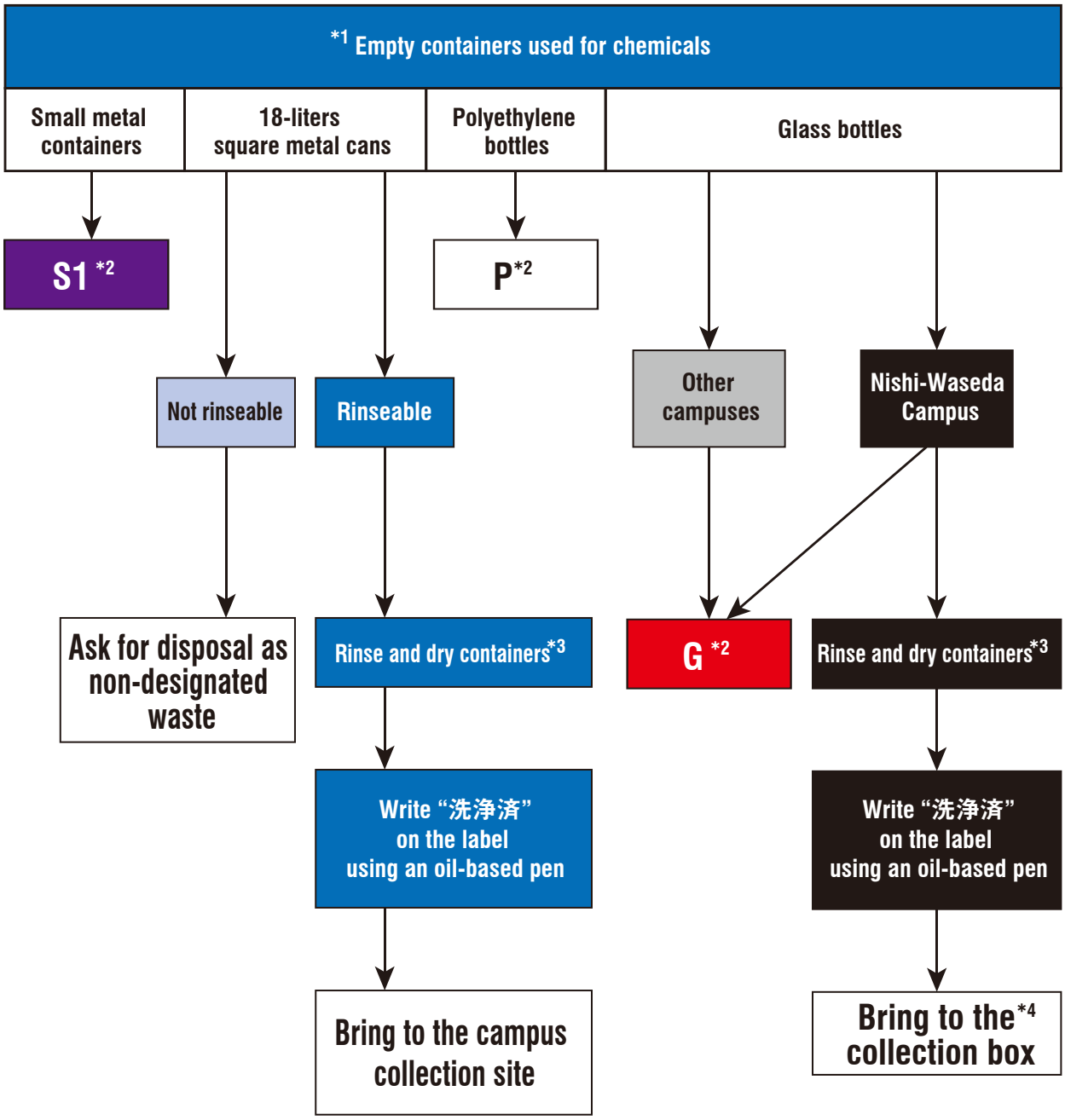
You can find details of how to use containers on the website linked from the QR code below(In Japanese)

Table 3. Classification of Infectious Waste and Laboratory Instrument Waste, and Collection Container Types

	Waste classification	Container type Color/capacity	Category	Handling instructions/ side note
Infectious waste	III		Blood and other waste liquids (blood, serums, plasma, body fluids, and waste liquids in which these fluids are mixed)	1. Put the inner lid on this container. 2. Containers should be transported with the container lids tightly closed. 3. Add formalin or other preservatives to these waste liquids to prevent decay, as necessary, and store them in a cool, dark place. 4. When transporting this container, prevent it from toppling onto its side.
	III-a		Injection needles and other sharp edged objects (e.g., injection needles, capillaries, Pasteur tubes, surgical scalpels)	1. Take great care not to prick your finger or body with a needle. **2. Set the lid of the box properly before use. Before transporting, be sure to close up the box by bending the lug on the lid and inserting it into the hole.** 3. Check how to use the box.
	III-b		Blood and other deposits (e.g., plastics, glass, paper, cloths)	1. Keep containers covered and avoid storing them for a long period of time. 2. Do not put waste in liquid form in these containers (sterilize liquid waste and dispose of it as II-h or other appropriate organic waste liquid category). 3. Put lid on before transporting.
	IV	Follow instructions by the management office because containers differ among campuses.	Carcasses of laboratory animals (including internal organs)	Check the weight and number of animal carcasses, put them in bags, and then freeze and store them in a dedicated cold storage vault.
	V	Follow the instruction by the management office.	Bedding materials and other matter (articles used for breeding laboratory animals)	Put small articles in plastic bags, and put the bags in a dedicated container.

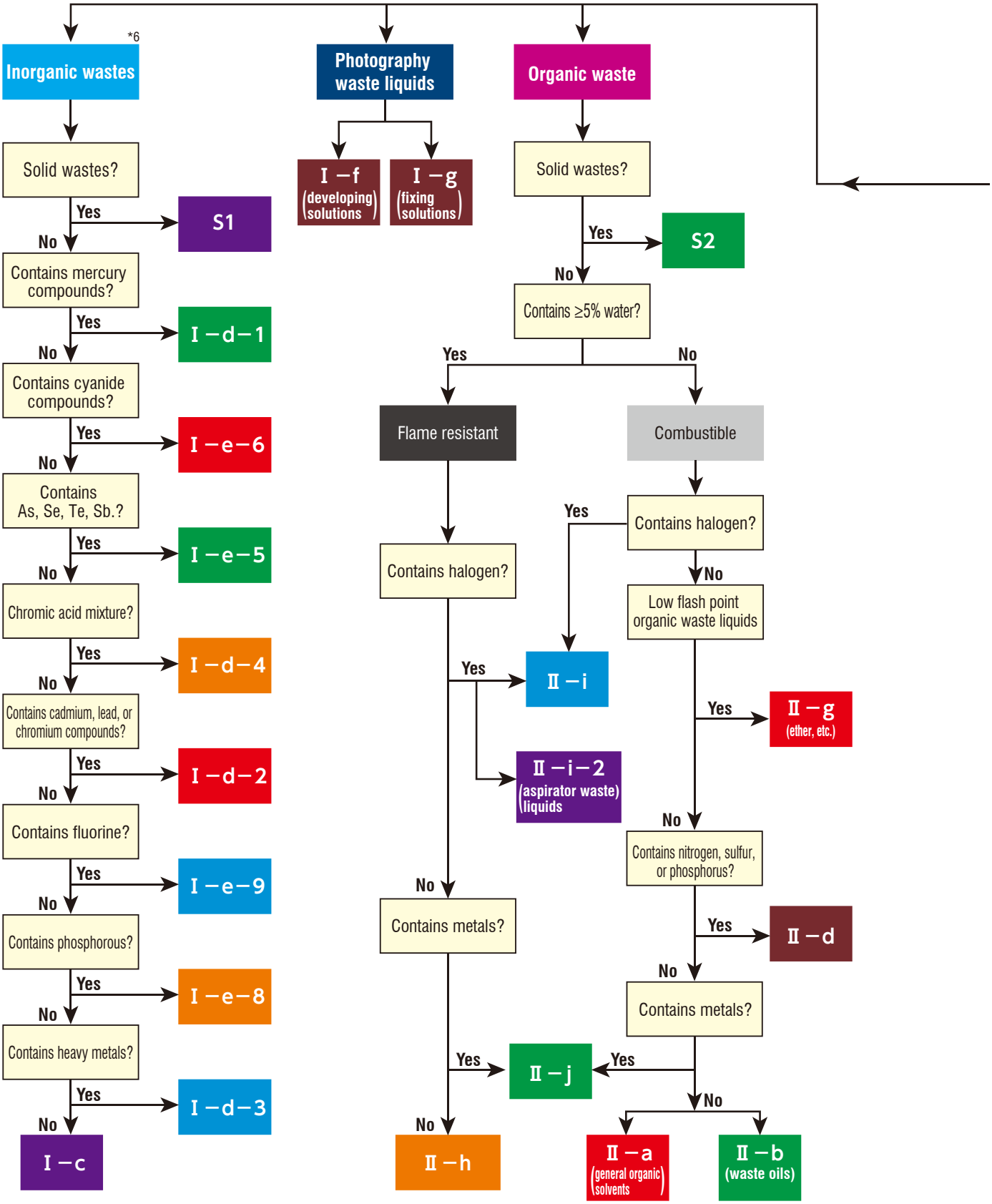
	Waste classification	Container type Color/capacity	Category	Handling instructions/ side note
Laboratory instruments	G		Glass instrument wastes (glass instruments soiled by chemicals)	**1. Content must not weigh more than 15 kg.** 2. Glass instruments used in experiments that have been soiled by small amounts of chemicals or contain chemical residue. 3. Put lid on before transporting.
	P		Plastic instruments and other similar wastes (plastic instruments, rubber and silicon instruments, gloves, masks, and paper articles soiled by chemicals)	1. Laboratory instruments, as listed on the left, that were used in experiments and have been soiled by small amounts of chemicals or contain chemical residue. 2. Dehydrate waste for collection as much as possible in a manner that prevents leakage. **3. Before transporting, tie the plastic bag that comes with the box.**

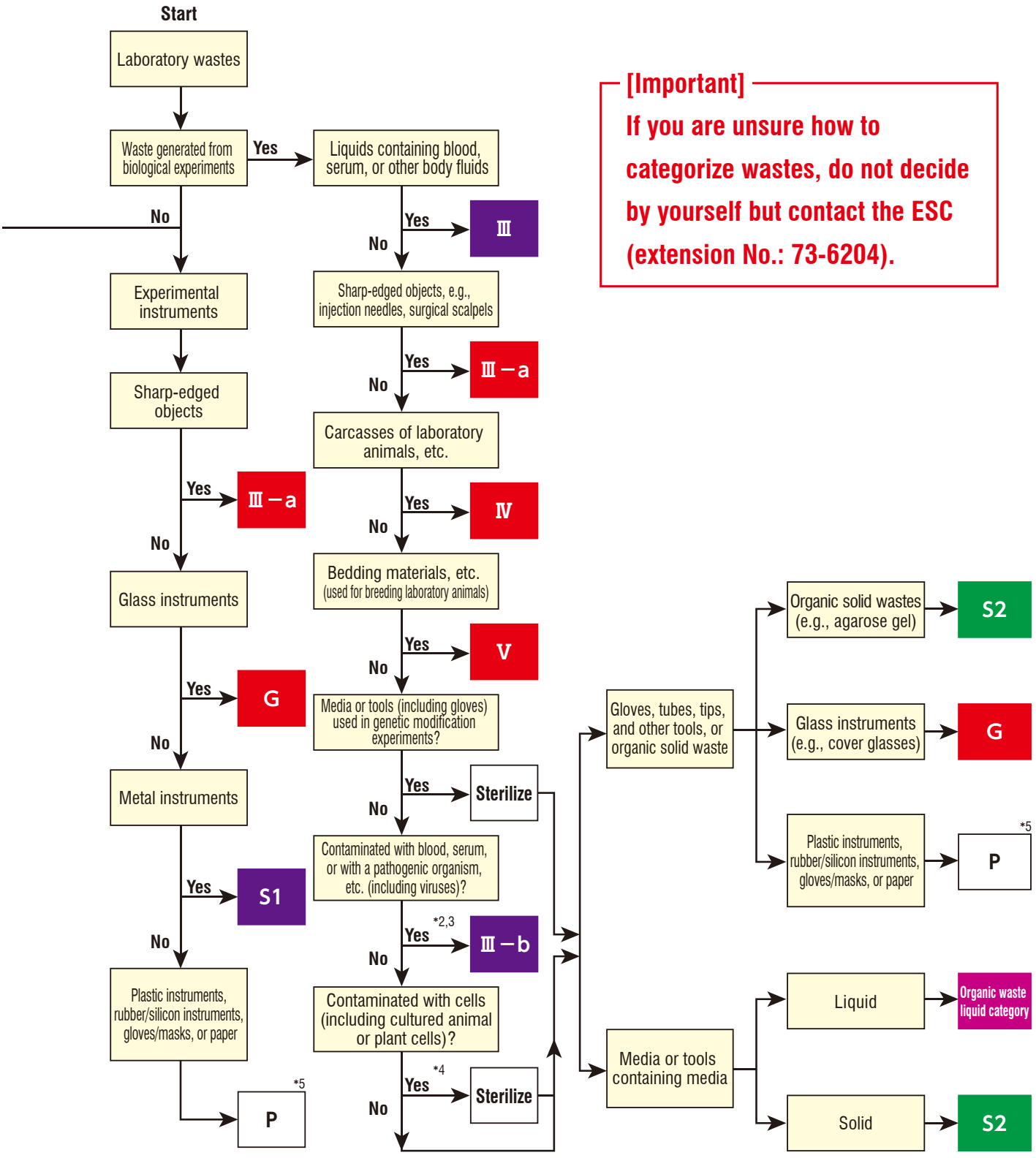
Figure 1. Flowchart for Sorted Collection of used empty chemical containers



*1 Do not forget to affix barcode labels (chemical management labels) to the collection form.
*2 For vials or bottles that are too large to put in a container for their category, ask for disposal as non-designated wastes.
*3 Rinse containers of an inorganic substance in water, and those of an organic substance in acetone, ethanol, or another appropriate solvent (Dry containers rinsed in an organic solvent under local ventilation).
*4 Before putting empty chemical containers in the collection box, remove the cap (put in only the vials and bottles).

Figure 2. Flowchart for Sorted Collection of Laboratory Wastes[*1]





[Important]

If you are unsure how to categorize wastes, do not decide by yourself but contact the ESC (extension No.: 73-6204).

*1 For details regarding disposal of non-designated waste, refer to "3. Disposal Procedure for Waste that Does not Fall Under a Collection Category (Unnecessary Chemicals, Spray Cans, etc.)." **In particular, be careful not to put Hg (other than inorganic waste liquid), Be, Os, or Tl into a collection container for any of the categories**.
*2 Please sterilize waste that has been heavily contaminated with blood, pathogenic organisms, etc. and is considered likely to cause an infection.
*3 Dispose of waste in liquid form as II-h, II-i, or other appropriate organic waste liquid category after sterilizing it.
*4 Dispose of waste that cannot be sterilized as III-b.
*5 If the waste smells bad, put it in an airtight S1 or S2 container.
*6 Collect waste containing ferricyanide or ferrocyanide as category II-j. Treat waste containing organic matter, even in small amounts, as organic waste.

(4) Filling out the Laboratory Waste Disposal Request

Fill out the Laboratory Waste Disposal Request/Chemical Management Form. In the Details of Chemical Substances Contained field, state, in an organized manner, the names, concentrations, and quantities of chemical substances put in by the experimenter.

How to fill out the Laboratory Waste Disposal Request Form

Fill in basic information.

環境保全センター　行
To the Environmental Safety Center

20XX 年04 月01 日

容器番号 Container No.	区分 Category	総量 Total Volume
XX.00001	I-d-3	18 L

含有化学物質明細 Chemical Substance Contained
化学物質名、化学式、投入量、濃度などを記入してください。
Specify the chemical substance names, the chemical formulas, quantities put in the container, and concentrations.

A 群 Group A	
B 群 Group B	Copper Sulfate 50 g Ni standard solution 100 ppm 50 mL
C 群 Group C	Concentrated hydrochloric acid 2 L, 30% H_2O_2 0.5 L conc Sulfuric acid 2 L 10 M HNO_3 13.5 L
その他 Others	
pH	pH 1 (I-c, I-d-2, I-d-3, I-e-5, I-e-8, I-e-9)

実験系廃棄物処理依頼伝票 兼 化学物質管理票
Laboratory-Waste Disposal-Request / Chemicals-Management Form A票

学科・専修等 Department / Major	研究室・実験室名 Laboratory Name	号館・部屋番号 Building No. and Laboratory No.
Department of Applied Chemistry	Okuma Lab.	03C101

記入者氏名 Name	電話(内線) Telephone No.
Kankyo Taro	6203

XX.00001
I－d－3
20L
大隈研
1－d－1、1－d－2、1－d－4、1－e－5を除く一般重金属廃液
20XX年４月１日

代替容器 Container Replacement	環境保全センター受領印 Receipt Stamp of the Center	センター使用欄 For Center Use Only
要 Yes・不要 No 1 本		

・記入については「手引き」および「C票の裏面」を参考にしてください。
・「代表的な化学物質」以外の物質についてもできるかぎり詳細な情報を明記してください。
For details about how to fill in the form, refer to the Environmental Safety Center Guide and the reverse side of Form C.
Be sure to also provide as detailed information as possible on substances other than typical chemical substances.

List all the contents.

Specify the pH value for inorganic waste.

If you apply for container replacements here, you do not need to apply with designated form for containers.

<Example of typical chemical substances>

Group A	Organic waste liquids: Report the chemical substance names or chemical formulas, and their quantities (L).		
	· Acetone	· Chloroform	· Dichloromethane
	· Hexane	· Carbon tetrachloride	· Trichloroethylene
	· Toluene	· Methanol	· Isopropyl alcohol
	· Xylene	· Ethyl acetate	· Formaldehyde
	· Benzene	· Pyridine	
Group B	Inorganic waste liquids: Report the chemical substance names or chemical formulas, and their quantities (L).		
	· Chromium and its compounds		· Mercury compounds
	· Cadmium and its compounds		· Lead and its compounds
	· Selenium and its compounds		· Arsenic and its compounds
	· Manganese and its compounds		· Zinc and its compounds
	· Nickel and its compounds		· Copper and its compounds
	· Iodine and its compounds		· Inorganic fluorine compounds (Hydrogen fluoride is categorized into Group C.)
	· Boron and its compounds		
	· Inorganic cyanide		· Ammonium compounds (Ammonia water is categorized into Group C.)
Group C	Acids and alkalis: Report the chemical substance names or chemical formulas, and their concentrations and quantities (L).		
	· Ammonia water		· Hydrochloric acid
	· Hydrogen peroxide		· Nitric acid
	· Hydrogen fluoride (hydrofluoric acid)		· Sulfuric acid

You can find examples of how to fill out the form on the website linked from the QR code below.

Examples of Filled Out Laboratory Waste Disposal Request/Chemical Management Form(In Japanese)

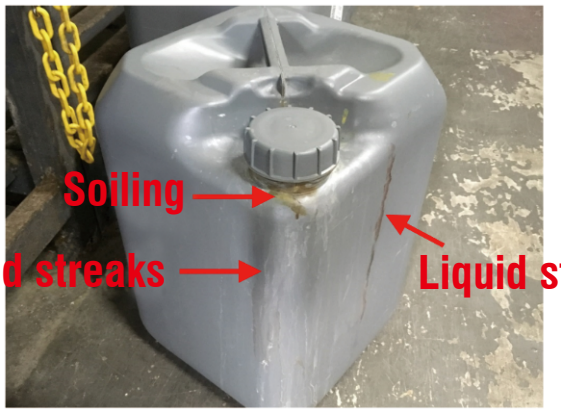
(5) Bringing waste containers to the ESC and submitting the disposal request/chemical management form

Bring the waste containers to the ESC or the management office together with the Laboratory Waste Disposal Request/Chemical Management Form within approximately 6 months of the waste being generated. When doing so, wear appropriate protective equipment and ensure that the containers are carried by two or more people in order to prevent accidents. **If waste containers are soiled, wipe off the soiling before bringing them to the management office**.

After the ESC has accepted waste that you brought in, Form B will be returned to your laboratory. **Retain this form at your laboratory for 5 years**.

Good example

Bad example

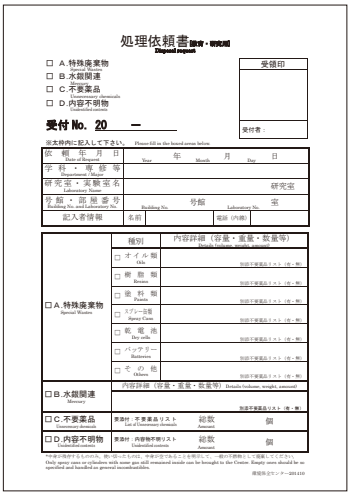


The staff collect waste containers especially from some laboratories and experiment facilities. In the case of such a collection, you should place the completed Laboratory Waste Disposal Request/Chemical Management Form and collection containers in front of the room you use. If the Laboratory Waste Disposal Request/Chemical Management Form is found to have errors or omissions, then our staff may not collect the corresponding waste containers.

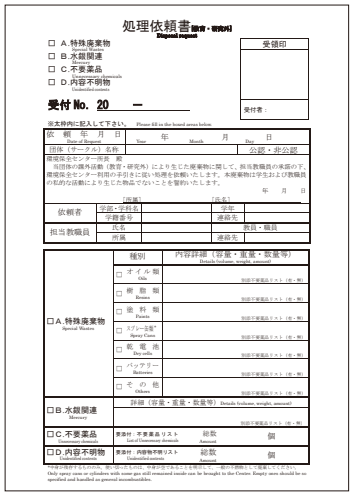
3 Disposal Procedure for Wastes that Does Not Fall Under a Collection Category (Non-designated Wastes Including Unnecessary Chemicals, Spray Cans, etc.)

(1) Filling out the Disposal Request

To dispose of waste that does not fall under a collection category, fill out a Disposal Request (処理依頼書). Scan the QR code below to download this form.


処理依頼書

Disposal Request (for education/research)
Form and examples


処理依頼書

Disposal Request (for purposes other than education/research)
Form only

(2) Preparing lists of unnecessary chemicals and wastes with unidentified contents

* Only in case of Unnecessary chemicals or wastes with unidentified contents

(2)-1 Unnecessary chemicals[*1]

Do not put bottled chemicals that are no longer necessary into a collection container, but bring them to the management office in their original containers[*2]. Download the List of Unnecessary Chemicals, fill out the form, and submit it together with the Disposal Request referred to on the previous page. Scan the QR code below to download the list and see examples of how to it fill out.

When you bring[*3] unnecessary chemicals to the management office, separate organic from inorganic chemicals, put identification numbers on the bottles, and insert the same numbers into the No. column on the list.

*1 We do not accept chemicals in beakers or flasks, containers with no lid, or containers that may leak.

*2 **Do not mix or allow contact between unnecessary chemicals**, as this would be dangerous.

*3 When transporting chemicals, use boxes with dividers to prevent chemical bottles from being damaged or leaking. Please ask the ESC for cardboard boxes with dividers, if necessary.

Example packing of unnecessary chemicals

List of Unnecessary Chemicals (Form and examples)

List of Unidentified Contents (Form and examples)

(2)-2 Wastes with unidentified contents

As a general rule, the management office cannot accept wastes with unidentified contents. Because it is quite costly to dispose of such wastes, we request that you strictly manage chemicals and wastes on a daily basis to avoid producing wastes with unidentified contents.

If disposal of such wastes are unavoidable, examine research papers and management records related to your laboratory for as much information as possible about the contents and properties of the wastes—whether it is liquid or solid, inorganic or organic, its combustibility, flame-resistance properties, toxicity, and harmfulness—present this information on a List of Unidentified Contents and a Disposal Request, and bring them with the wastes to the management office. Scan the QR code below to download the relevant form and see examples of how to fill it out.

(3) Making a reservation through the reservation site

Reservation site for the Nishi-Waseda Campus

To dispose of wastes that does not fall under a collection category, make a reservation* through the following reservation site before bringing it to the ESC:

https://reserva.be/wesc1/aikotoba

"合言葉" is "正しく分別、詳しく記録" (in Japanese).

* You do not need to make a reservation before bringing alkaline or manganese batteries to the ESC.

(4) Bringing wastes to the ESC and submitting the Disposal Request, etc.

Bring the wastes with the Disposal Request, etc., to the management office.

Table 4. Classification of Laboratory Wastes that Does Not Fall Under a Collection Category, and Precautions When Handling

○: Accepted by the Environmental Safety Center ×: Not accepted by the Environmental Safety Center

Classification	Precautions when handling
○ Waste containing mercury	When disposing of damaged mercury thermometers or manometers, or tools used to collect mercury (mercury-contaminated materials), take measures to prevent the mercury from scattering. Not only mercury itself, but also compounds containing mercury, materials contaminated with such compounds, unnecessary metallic mercury, and mercury amalgams should all be handled in the same manner.
○ Experimental instruments, etc., used with hazardous substances other than mercury	Contact the ESC beforehand, and follow the instructions given in order to perform disposal correctly.
○ Waste soil	Contact the ESC beforehand, and follow the instructions given in order to perform disposal correctly.
○ Waste not suitable for collection in designated collection containers	Some types of liquid and other wastes may catch fire if they come into contact with water or air (oxygen), or may ignite when dry. Such waste is not suitable for collection in collection containers, so please collect it separately in a safe manner, bring it to the ESC, and clearly state the type and degree of hazard it presents on the Disposal Request.
○ Carcasses and internal organs of laboratory animals	To dispose of and store the carcasses or internal organs of animals used in animal experiments, contact the laboratory waste management office and follow the its instructions.
○ Waste containing PCBs	**We are required by law to dispose of all wastes containing PCBs by the end of March 2027**. For more details, check the following: https://www.waseda.jp/inst/esc/labwaste/pcb/.
○ Oils, resins, paints, etc.	Bring unnecessary oils, resins, and paints (mainly those in cans) to the management office in their original containers.
○ Spray cans and small fuel gas cylinders	Bring spray cans (containing paints, adhesives, or combustible gas) and small fuel gas cylinders to the management office without making holes in them. You should put them in a box with dividers when bringing them.
○ Laboratory wastes containing asbestos	Old mantle heaters and electrical furnaces, etc., may contain asbestos, so prior to disposal, please ask the manufacturer or store where they were purchased whether it contains asbestos or not. If a laboratory instrument or device for disposal is found to contain asbestos, contact the ESC and follow its instructions.
○ Used dry cell and other electrical batteries	Sort used dry cell and other electrical batteries into the relevant detailed categories by type, and bring them directly to the ESC. If not on the Nishi-Waseda Campus, bring them to the designated location. For recyclable, special, or large batteries, etc., directly contact the store where they were purchased for recycling or disposal. - Alkaline and manganese cells: These types may be mixed together. No reservation is necessary before bringing them to the ESC or designated location. - Primary lithium batteries (CR): To prevent short circuits, discharge and insulate batteries of this type before bringing them to the ESC. - Button-type batteries (alkaline (LR), silver oxide (SR), air-zinc (PR), lithium (CR), etc.): **Insulate button-type batteries by putting adhesive tape on both surfaces to prevent short circuits**. **If storing these batteries in a small bag for disposal, insulate them by attaching adhesive tape, etc**. - Small secondary batteries (Ni-Cd, Ni-MH, Li-ion, Pb, etc. (used in digital cameras, cell phones, tools, etc.)): Small secondary batteries with a “Three arrows" recyclable mark should be returned to the store where they were purchased.

Classification	Precautions when handling
○ Laboratory equipments containing CFCs (other than that for household use)	Some coolers and other laboratory equipments may use CFCs. If such equipment contains or is contaminated with a hazardous substance which cannot be removed, or if this cannot be determined, then contact the ESC and ask for instructions. If the equipment does not contain and is not contaminated with any hazardous substance, or the hazardous substance cannot easily be removed, then the equipment should be disposed of as bulky waste. In that case, contact the relevant office at your campus and ask for instructions. **Note: Disposal of equipment containing CFCs must be performed in accordance with the Act for Rationalized Use and Proper Management of Fluorocarbons.**
○ Wastes containing Be, Os, or Tl	**Since there are no established techniques for treating Be, Os, or Tl, do not mix them with other substances but collect them separately and bring them to the management office.**
× Printer toner	Have disposal performed by the equipment distributor or supplier.
× High-pressure gases	Return high-pressure gases to the manufacturer from which they were purchased or ask them to perform appropriate disposal.
× Laboratory wastes that contains radioisotopes, nuclear fuel materials, or nuclear source materials	The ESC does not accept such wastes for disposal. Contact the Radiation Safety Management Office (extension 73-8024) and ask for instructions.

Contact the ESC for details about any wastes that you are unsure about how to handle, collect, or transfer.

Key Contacts at Each Campus and the Environmental Safety Center (ESC)

	Chemical Management Offices	Laboratory Waste Management Offices
Waseda Campus (School of Education)	Natural Sciences Office (Building No. 6, Room 307)	
Nishi-Waseda Campus	Chemical Shop (Building No. 60, Room 115)	Environmental Safety Center (1st basement of Building No. 55N)
Kikui-cho Campus	Chemical Shop (Building No. 60, Room 115)	*1
Research and Development Center	Administrative Office of Research and Development Center (Building No. 121, Room 101)	
Toyama Campus	Chemical Shop (Building No. 60, Room 115)	*1
Tokorozawa Campus	Technical Management Office (Building No. 100, Room 208)	
Kagami Memorial Laboratory for Materials Science and Technology	Analytical Instrument Management Office (Building No. 42-1, Room 304)	Administration Office (Building No. 42-1, Room 106)
Kitakyushu Campus	Administrative Office of IPS (Building No. 201-46, N Building, Room 157)	Management Office of IPSRC (1st floor of Building No. 201-36)
Waseda University Senior High School	Chemistry Laboratory (Building No. 74-10, Room 303)	
Waseda University Honjo Senior High School	Chemistry Laboratory (Building No. 95, N Building, Room 318)	
Center for Advanced Biomedical Sciences	Office of Center for Advanced Biomedical Sciences (Building No. 50, Room 03C101)	
Honjo Campus	*1	

*1 If your laboratory is purchasing chemicals or disposing of wastes for the first time, please contact the ESC in advance.

Environmental Safety Center (ESC)

(1st basement in the North Building, Building No. 55, Nishi-Waseda Campus)

https://www.waseda.jp/inst/esc/

<Contact numbers>

Waste management	Extension No.: 73-6204	mail : laboratory-wastes@list.waseda.jp
Chemical management	Extension No.: 73-6203	mail : WCRIS@list.waseda.jp
Chemical Shop	Extension No.: 73-6214	
Analysis	Extension No.: 73-6218	mail : analytical-chemists@list.waseda.jp

Research support

As part of research support activities, the ESC makes its analysis equipment available to researchers both inside and outside the University based on the Core Facility Construction Support Program. The following systems and equipment are available for shared use.

Draft chamber (inorganic/organic)	ICP optical emission spectrometer
Pure water (production equipment)	ICP mass spectrometer
Ultrapure water (production equipment)	Spectrophotometer
pH meter	Mercury analyzer
Electrical furnace (muffle furnace)	Ion chromatograph
Constant temperature water tank	Gas chromatograph
Autoclave	Gas chromatography mass spectrometer
Shaker	Ultra-high-performance liquid chromatograph QToF mass spectrometer
Centrifugal separator	High-performance liquid chromatograph
Hot plate	Total organic carbon meter

For more details, refer to the Environmental Safety Center: Research Support website, and for information on how to make a reservation, refer the Waseda University Research Resources: Facilities & Instruments website (see below).

Environmental Safety Center:
Research Support website

https://www.waseda.jp/inst/esc/researchsupport/support/

Waseda University Research Resources:
Facilities and Instruments website

https://www.cf.waseda.ac.jp

The contents of this Guide, including various forms, can be downloaded from the ESC website:
https://www.waseda.jp/inst/esc/files

For more detailed descriptions of chemical substance management, and various corresponding seminars, please refer to “環境保全センター提供コース/Environmental Safety Center,” which can be accessed through Waseda Moodle.
https://wsdmoodle.waseda.jp/course/view.php?id=71883

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2024 ▶ 2025

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