



Hazardous Waste Management

危險废物管理

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Definition and Policy of Hazardous Waste

危险废物的定义及相关政策

◆ Legal Definition of Hazardous Waste 危险废物法律定义

- Hazardous waste refers to solid waste that is included in the National Catalogue of Hazardous Wastes or identified as having hazardous characteristics in accordance with the national standards and methods for identifying hazardous waste.

危险废物是指列入国家**危险废物名录**或者根据国家规定的**危险废物鉴别标准和鉴别方法**认定的具有危险特性的固体废物。

- According to 《National Catalogue of Hazardous Wastes》 (2025), solid wastes (including liquid wastes) under one of the following circumstances shall be included in this list:

根据《国家危险废物名录》（2025年版），具有下列情形之一的固体废物（含液体废物）列入本名录：

- ★ Having one or more dangerous characteristics such as corrosiveness, toxicity, flammability, reactivity or infectivity;

具有**腐蚀性**、**毒性**、**易燃性**、**反应性**或者**感染性**等一种或者多种危险特性的；

- ★ Those with hazardous characteristics that may cause harmful effects on the environment or human health and need to be managed as hazardous wastes are not excluded.

不排除具有危险特性，可能对环境或者人体健康造成有害影响，需要按照危险废物进行管理的。



Definition and Policy of Hazardous Waste

危险废物的定义及相关政策

◆ Penalties for Hazardous Waste Violations 违法处罚规定



- No unit or individual shall mix hazardous waste with domestic waste or other general waste for storage; nor shall they arbitrarily dump, pile, discard, or spill hazardous waste. Waste-generating units are responsible for classifying and collecting the hazardous waste they produce
任何单位及个人不得将危险废弃物混入生活垃圾和其他一般废弃物中存放;也不得随意倾倒/堆放、丢弃、遗撒危险废弃物。产废单位应对其产生的危险废弃物进行分类和收集。对所造成的环境污染依法承担责任。
- 《Law of the People's Republic of China on the Prevention and Control of Environmental Pollution by Solid Waste》(2020) increases the penalties for enterprises that violate the law on solid waste management, raising the maximum fine to 5 million yuan, and increasing the types of daily continuous punishment, administrative detention, seizure and seizure.
《中华人民共和国固体废物污染环境防治法》(2020年修订版)加大了对固体废物管理违法行为的处罚力度，最高罚款金额提升至500万元人民币，并增加了按日连续处罚、行政拘留、查封扣押等处罚种类。

Definition and Policy of Hazardous Waste

危险废物的定义及相关政策

◆ HKUST(GZ) Safety and Environmental Policy 安全与环境政策

- The University will assume all reasonable directives possible to protect its appointees, students, facilities, and the environment.
学校将采取一切合理可行的措施，保护其工作人员、学生、设施及环境
- Placing priority emphasis towards proper and safe procedures for the use, handling, storage, transport, and disposal of articles, hazardous materials and waste
重点关注危险物品、材料及废物的安全使用、处理、储存、运输及处置流程。
- [Safety Manual Chapter 16: Management of Hazardous Waste](#)
安全手册 第十六章：危险废物的管理
- [Interim Measures for the Management of Hazardous Waste at HKUST\(GZ\)](#)
香港科技大学（广州）危险废物管理暂行办法
- [OLFS-LSMD-SG-02 Guidelines for Hazardous Waste Collection and Transportation at HKUST\(GZ\) \(Trial\)](#)
OLFS-LSMD-SG-02香港科技大学（广州）危险废物回收指引(试行)

Definition and Policy of Hazardous Waste

危险废物的定义及相关政策

◆ Hazardous Waste Management at HKUST(GZ)

香港科技大学（广州）危险废物管理

Waste Generators are responsible for:

危险废物产生者职责：

- Ensure proper management of hazardous waste generated by the department or laboratory. For example, the volume of waste liquid in containers shall not exceed the safety level, and preventing the mixing of hazardous and non-hazardous waste.
按要求做好本部门或实验室产生的危险废物管理工作，如废液桶内的废液量不应超过安全液位线，危险废物不应与非危险废物混存等。
- Ensure all pre-transportation preparations are completed. This includes properly packaging hazardous waste, affixing labels as required, and placing it at the the confirmed handover point ahead of the scheduled pickup time.
做好收运前的准备，如正确打包危险废物，按要求张贴危险废物物标签，在回收时间内提前放置于指定回收点等。
- Use the hazardous waste collection containers provided by LHSD for hazardous waste collection. Should special circumstances arise, coordinate with LHSD in advance of transport.
需使用由LHSD提供的危险废物收集容器承装危险废物，如有特殊情况，需在回收前提前沟通。
- Newly established laboratories shall promptly communicate with LHSD to confirm the designated waste handover point.
新增的实验室需要与LHSD及时沟通，确认收运地点。
- Medical waste is not collected door-to-door. Users are required to transfer of it independently. After disposal, fill in the relevant information in accordance with the requirements of the Medical Waste Warehousing Account.
医疗废物不设上门回收，由用户自行投放，投放后需要根据《医疗废物入库台账》的要求填写。

Definition and Policy of Hazardous Waste

危险废物的定义及相关政策

◆ Hazardous Waste Management at HKUST(GZ)

香港科技大学（广州）危险废物管理

LHSD is responsible for:

LHSD职责:

- Responsible for the daily management of the school's hazardous waste temporary storage room, the statistics, supervision, and management of hazardous waste collection and transportation.
负责学校危险废物暂存间的日常管理，危险废物收运的统计、监督与管理。
- Determine the types of hazardous waste collection containers and distribute them.
确定危险废物收集容器的类型并发放。
- Formulate and update the guidelines for hazardous waste collection and transportation.
制定和更新危险废物回收指引文件。
- Develop on-site transportation routes for hazardous waste and schedule regular pickups.
制定危险废物上门回收路线并定期安排人员上门回收危险废物。
- Arranging for waste disposal contractor pick-ups.
联系收运公司定期收运处置危险废物。
- Responsible for the bidding process and contract signing of hazardous waste disposal company.
负责危险废物处置公司的招标及合同签订。
- Responsible for the maintenance of the government's waste management information system.
负责政府部门废物管理信息系统的维护。
- Assist in the maintenance and secondary development of the laboratory hazardous waste module in the Laboratory Safety Management System.
协助实验室安全综合管理平台实验室危险废物模块的维护及二次开发。

Definition and Policy of Hazardous Waste

危险废物的定义及相关政策

◆ Hazardous Waste Management at HKUST(GZ) 香港科技大学（广州）危险废物管理

LHSD is responsible for:

LHSD 职责:

- Edit and update hazardous waste management documentation requirements in accordance with relevant laws and regulations.
根据危险废物相关法律法规，编辑且更新危险废物管理相关文件要求。
- Provide guidance on the classification and management of laboratory hazardous waste.
对实验室危险废物的分类和管理给予指导意见。
- Review compliance with the entire hazardous waste management process.
检查危险废物全过程管理的合规情况。

Definition and Policy of Hazardous Waste

危险废物的定义及相关政策

◆ Hazardous Waste Management at HKUST(GZ) 香港科技大学（广州）危险废物管理



- Collection by category
分类收集
- Temporarily store as regulated
按规定暂存
- Package according to requirements
按要求打包
- Label clearly and accurately.
做好标志标识

- Consolidated supply of containers
供应收集容器
- On-site collection and transportation
上门收运

Classification of Hazardous Waste

危险废物的分类

- According to 《National Catalogue of Hazardous Wastes》 (2025), hazardous waste is categorized into 46 major categories and 470 subcategories in total.

根据《国家危险废物名录》（2025年版），危险废物共分为46大类，470小类

 生态环境部规章

国家危险废物名录

废物类别	行业来源	废物代码	危险废物	危险特性
HW01 医疗废物	卫生	841-001-01	感染性废物	In
		841-002-01	损伤性废物	In
		841-003-01	病理性废物	In
		841-004-01	化学性废物	T/C/I/R
		841-005-01	药物性废物	T
HW02 医药废物	化学药品原料药制造	271-001-02	化学合成原料药生产过程中产生的蒸馏及反应残余物	T
		271-002-02	化学合成原料药生产过程中产生的废母液及反应基废物	T
		271-003-02	化学合成原料药生产过程中产生的废脱色过滤介质	T
		271-004-02	化学合成原料药生产过程中产生的废吸附剂	T
		271-005-02	化学合成原料药及中间体生产过程中的废弃的产品及中间体	T
	化学药品制剂制造	272-001-02	化学药品制剂生产过程中原料药提纯精制、再加工产生的蒸馏及反应残余物	T
		272-003-02	化学药品制剂生产过程中产生的废脱色过滤介质及吸附剂	T

废物类别	行业来源	废物代码	危险废物	危险特性
		900-046-49	离子交换装置（不包括饮用水、工业纯水和锅炉软化水制备装置以及废水处理成套工艺中的离子交换装置）再生过程中产生的废水处理污泥	T
HW10 其他废物	非特定行业	900-047-49	生产、研究、开发、教学、环境检测（监测）活动中，化学和生物实验室（不包含感染性医学实验室及医疗机构化验室）产生的含氰、氟、重金属无机废液及无机废液处理产生的残渣、残液，含矿物油、有机溶剂、甲醛有机废液，废酸、废碱，具有危险特性的残留样品，以及沾染上述物质的一次性实验用品（不包括按实验室管理要求进行清洗后的废弃的烧杯、量器、漏斗等实验室用品）、包装物（不包括按实验室管理要求进行清洗后的试剂包装物、容器）、过滤吸附介质等	T/C/I/R
		900-053-49	已禁止使用的，所有者申报废弃的，以及有关部门依法收缴或者接收且需要销毁的《关于持久性有机污染物的斯德哥尔摩公约》管控的化学物质（不包括本名录HW04、HW05、HW10类别的危险废物）	T
		900-999-49	被所有者申报废弃的，或者未申报废弃但被非法排放、倾倒、利用、处置的，以及有关部门依法收缴或者接收且需要销毁的列入《危险化学品目录》的危险化学品（不含该目录中仅具有“加压气体”物理危险性的危险化学品）	T/C/I/R

Classification of Hazardous Waste

危险废物的分类

- According to 《National Catalogue of Hazardous Wastes》 and in light of the university's specific circumstances, hazardous waste at HKUST (GZ) is categorized into 5 major classes and 13 subcategories.

根据《国家危险废物名录》，结合学校实际情况，香港科技大学（广州）的危险废物分为**5大类，13小类**

Waste Category 废物类别	Waste Code 废物代码	Name filed on the platform 备案名称	Site classification name 现场分类名称
HW49 Other Wastes 其他废物	900-047-49	Laboratory liquid waste 科研废液	Organic waste liquid 有机废液
			Inorganic waste liquid 无机废液
			Waste acid (Inorganic) 废酸（无机）
			Waste alkali (Inorganic) 废碱（无机）
			Oxidizing waste liquid (Organic) 氧化性废液（有机）
	900-039-49	Laboratory solid waste 科研固废	Broken Glass 破碎玻璃
			Waste Empty Containers 废空容器
			Other Laboratory Solid Waste 其它实验固废
	900-039-49	Waste chemical agent 废化学试剂	Waste chemical agent 废化学试剂
			Waste activated carbon 废活性炭
HW01 Medical Waste 医疗废物	841-001-01	Medical Waste 医疗废物	Infectious Waste 感染性废物
	841-002-01		Sharps Waste 损伤性废物
	841-003-01		Pathological Waste 病理性废物

Classification of Hazardous Waste

危险废物的分类

◆ Hazardous Waste Classification List at HKUST(GZ)
香港科技大学（广州）危险废物分类一览表

Name filed on the platform 备案名称	Site classification name 现场分类名称	Physical state 物理状态	Name of hazardous substance 有害物质	Packaging picture 包装图片
Laboratory liquid waste 科研废液	Organic waste liquid 有机废液	Liquid 液态	Organic Waste Liquids, including Benzene, Esters, Ketones, Alkanes, Alcohols, etc 有机废液, 苯类、酯类、酮类、烷烃类、醇类等	
	Inorganic waste liquid 无机废液	Liquid 液态	Containing heavy metal or other inorganic waste liquid 含重金属或其它的无机废液、无机过氧化物等	
	Waste acid (Inorganic) 废酸 (无机)	Liquid 液态	Waste Acid Liquids, including waste hydrochloric acid, waste sulfuric acid, oxidizing acids, etc 废酸液, 如废盐酸、废硫酸、氧化性酸等	
	Waste alkali (Inorganic) 废碱 (无机)	Liquid 液态	Waste Alkaline Liquids: including waste sodium hydroxide, oxidizing alkalis, etc 废碱液, 如废氢氧化钠、氧化性碱等	
	Oxidizing waste liquid (Organic) 氧化性废液 (有机)	Liquid 液态	Including benzoyl peroxide, cyclohexanone peroxide, peracetic acid, tert-Butyl hydroperoxide, etc 如过氧化二苯甲酰、过氧化环己酮、过乙酸、叔丁基过氧化氢等	

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Name filed on the platform 备案名称	Site classification name 现场分类名称	Physical state 物理状态	Name of hazardous substance 有害物质	Packaging picture 包装图片
Laboratory solid waste 科研固废	Broken Glass 破碎玻璃	Solid 固态	Broken laboratory glassware 实验玻璃容器被打破后的破碎玻璃	
	Waste Empty Containers 废空容器	Solid 固态	Empty containers that held or are contaminated with hazardous chemicals, such as waste glass bottles, plastic drums, or steel drums 沾染或盛装过危险化学品的空容器，如废空玻璃瓶、废塑料桶、废铁桶等	
	Other Laboratory Solid Waste 其它实验固废	Solid 固态	Lab consumables contaminated with chemicals, such as gloves, wipes, pipette tips, or other disposable items. 沾染化学品的实验耗材，如手套、擦拭纸、移液枪头或其它一次性用品 Particulate matter generated from the sludge of laboratory wastewater treatment facilities 实验室污水处理设施污泥产生的颗粒物 Waste containing heavy metals or other hazardous substances generated from experimental reactions 实验反应产生含重金属或其他有害物质的废物	

Classification of Hazardous Waste

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◆ Hazardous Waste Classification List at HKUST(GZ)
香港科技大学（广州）危险废物分类一览表

Name filed on the platform 备案名称	Site classification name 现场分类名称	Physical state 物理状态	Name of hazardous substance 有害物质	Packaging picture 包装图片
Waste chemical agent 废化学试剂	Waste chemical agent 废化学试剂	Liquid/Solid 液态/固态	Waste chemical agent 废化学试剂	
Waste activated carbon 废活性炭	Waste activated carbon 废活性炭	Solid 固态	Organic waste gas 有机废气	

Classification of Hazardous Waste

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◆ Hazardous Waste Classification List at HKUST(GZ)
香港科技大学（广州）危险废物分类一览表

Name filed on the platform 备案名称	Site classification name 现场分类名称	Physical state 物理状态	Name of hazardous substance 有害物质	Packaging picture 包装图片
Medical Waste 医疗废物	Infectious Waste 感染性废物	Solid 固态	<p>All bacterial/viral strains and related biological products 所有菌（毒）株及其相关生物制品</p> <p>Genetic recombinant waste, such as plasmids 基因重组废弃物，如质粒等</p> <p>Samples and containers contaminated with blood, serum, secretions, etc 沾染血液、血清、分泌物等样本及容器</p> <p>Lab consumables (excluding sharps) that have come into contact with the above substances, other biohazardous materials, or organisms, such as gloves, masks, plastic test tubes, cell culture flasks, petri dishes, centrifuge tubes, pipette tips, syringes (without needles). 接触过上述物质、其他具有生物危害因素生物制品或生物体的实验耗材（不包括锐器），如手套、口罩、塑料试管、细胞培养瓶、培养皿、离心管、移液枪头、注射器（无针头）等</p>	 

Classification of Hazardous Waste

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Name filed on the platform 备案名称	Site classification name 现场分类名称	Physical state 物理状态	Name of hazardous substance 有害物质	Packaging picture 包装图片
Medical Waste 医疗废物	Sharps Waste 损伤性废物	Solid 固态	Discarded metal sharps, such as needles, scalpels, suture needles. 废弃的金属类锐器，如针头、解剖刀、缝合针等 Discarded glass sharps, such as cover slips, glass slides, glass ampoules. 废弃的玻璃类锐器，如盖玻片、载玻片、玻璃安瓿等 Discarded sharps made of other materials. 废弃的其他材质类锐器	
	Pathological Waste 病理性废物	Solid 固态	Discarded tissues and carcasses of laboratory animals. 废弃的实验动物的组织和尸体 Human anatomical tissues or specimens. 人体解剖组织或标本	

Collection and Temporary Storage of Hazardous Waste

危险废物的收集和暂存

◆ Requirements for the Collection of Hazardous Waste

危险废物的收集要求

- Hazardous waste must be collected and temporarily stored according to the university's classification requirements. Do not place mutually reactive chemicals or substances with incompatible fire-fighting needs in the same container.
按学校分类要求收集和暂存危险废物，化学性质不相容或灭火方式不同的物品不得混装；
- Solid and liquid wastes shall be stored separately; the mixing of hazardous waste with domestic or other general waste is prohibited, as is any arbitrary dumping, stockpiling, discarding, or scattering of hazardous waste. Any illegal disposal of hazardous waste that reaches a specified quantity may lead to prosecution under the Criminal Law.
固液分离存放；不得将危险废物混入生活垃圾和其他一般废弃物中存放；也不得随意倾倒、堆放、丢弃、遗撒危险废物，“违法处置危险废物到达一定量会触犯刑法”；
- All liquid hazardous waste must be stored with secondary container. (The construction materials must be compatible with the waste being stored. The minimum capacity of the secondary container device must be 10% of the total volume of all waste containers inside it, or no less than 110% of the volume of the largest single waste container, whichever is greater.)
所有液态危险废物的存放都需要有二次防泄漏措施（材质应与盛放的废液相容，二次防泄漏装置的最小容量应为装置内所有废液桶体积之和的10%，或不低于最大单个废液收集桶体积的110%，以较大者为准）。



Collection and Temporary Storage of Hazardous Waste

危险废物的收集和暂存

◆ Containers for Hazardous Waste Collection

危险废物收集容器

- The university centrally supplies hazardous waste containers, users can request for appropriate waste containers through the Laboratory Safety Management System (LSMS) at: <https://lsms.hkust-gz.edu.cn/#/login>
学校统一供应危险废物收集容器，可根据需要在实验室安全综合管理平台 (<https://lsms.hkust-gz.edu.cn/#/login>)上进行申请获得合适的废物容器。

实验室安全管理平台 常用业务 运维支撑 雷静 登出

待办事项

常用业务 / 待办事项

查询条件

业务筛选 申请单号 查询 重置 发起业务 悦兑商城

序号	业务	申请单号	描述	状态
暂无数据				

共 0 条 10条/页 1 前往 1 页

物资领取申请

化学品相关

Placard申请

安全考试申请

外访人员申请

业务功能需求开发申请

问题反馈 联系我们

物资选择

查询条件: 名称 危险废物 / 废液桶 查询

序号	详情	物资类别	名称	标识
1	详情	废液桶	无	应急物资
2	详情	废液桶	有	急救箱物资
3	详情	废液桶	废	个人防护物资
4	详情	废液桶	废	危险废物
5	详情	废液桶	氧	其它

共 5 条 10条/页 1 前往 1 页

Collection and Temporary Storage of Hazardous Waste 危险废物的收集和暂存

◆ Containers for Hazardous Waste Collection 危险废物收集容器

Organic Waste Liquid
Container
有机废液收集容器



Inorganic Waste Liquid
Container
无机废液收集容器



Waste Acid (Inorganic)
Container
废酸 (无机) 收集容器



Waste alkali (Inorganic)
Container
废碱 (无机) 收集容器



Oxidizing waste liquid(Organic)
Container
氧化性废液 (有机) 收集容器



Secondary Container
二次收集容器



Solid Hazardous Waste
Container
固态危险废物收集容器



Broken Glass Container
碎玻璃收集盒



Sharp Container
锐器盒



Medical Waste
Garbage Bag
医疗废物垃圾袋



Collection and Temporary Storage of Hazardous Waste 危险废物的收集和暂存

◆ Containers for Hazardous Waste Collection 危险废物收集容器

- Radioactive waste collection containers must be customized according to the characteristics of the radioactive materials. If needed, please contact LHSD.
放射性废物收集容器需根据放射性物质的特征定制，如有相关需求，请与LHSD联系



Collection and Temporary Storage of Hazardous Waste

危险废物的收集和暂存

◆ Hazardous Waste Collection Safety Precautions

危险废物收集的安全预防措施

- Carefully inspect each container for broken or leaks before use
使用前仔细检查容器是否存在破损或泄漏
- Use appropriate personal protective equipment: splash-proof goggles, face shield, gloves, lab coat, respirator, etc
佩戴适当的个人防护装备：防溅护目镜、面罩、手套、实验服、呼吸器等
- Use a fume cupboard for waste with hazardous or odorous vapors
收集具有危险或异味蒸气的废物时，需在排风柜内操作
- Close container tightly after placement
收集废液后，需将容器盖紧
- Be careful handling full containers
搬运装满废物的容器时需格外小心



Collection and Temporary Storage of Hazardous Waste

危险废物的收集和暂存

◆ Hazardous Waste Collection Procedures

危险废物收集流程

- Prior to collection, scan the QR code to bind it to the container. Subsequently, each time waste liquid is poured in, scanning the code for registration is required. (This step is not required for other types of hazardous wastes besides liquid waste.)

收集前先扫码将二维码与桶绑定，随后每次倒入废液前需扫码登记。（除废液外的其他危险废物无需此操作）

- Always check liquid level before adding new liquids. The waste liquid volume must not exceed 3/4 (75%) of the container's capacity.

添加新液体前，务必检查容器内液位，废液量不得超过容器容积的3/4（75%）

- Perform compatibility test before adding new liquids

添加新液体前，需进行兼容性测试

- For large volume transfers, use funnel

大量转移时需使用漏斗



Collection and Temporary Storage of Hazardous Waste

危险废物的收集和暂存

◆ Why is scanning and registration required 为什么需要扫码登记

- To comply with 《Technical specifications for collection, storage, transportation of hazardous waste》 (HJ 2025-2012)
遵守《危险废物收集贮存运输技术规范》（HJ 2025-2012）；
- To provide information to Hazardous Waste Disposal Company on the treatment of received waste containers.
为危险废物处置公司提供废物处理所需信息；
- To provide clues about the compatibility of chemical wastes in container.
为判断容器内化学废物的兼容性提供依据。

Collection and Temporary Storage of Hazardous Waste

危险废物的收集和暂存

◆ Compatibility Test Procedures 兼容性测试流程

- Performed inside a fume cupboard, by an experienced person, fume cupboard must be functioning properly
由经验丰富的人员在功能正常的排风柜内进行;
- Transfer 50 mL existing waste from target container to beaker, place thermometer into beaker
从目标容器中转移 50 毫升现有废物至烧杯中, 放入温度计;
- Slowly mix in new chemical waste, to the estimated volumetric ratio.
按预估体积比缓慢加入新的化学废物;
- If bubbling, fuming, or a temperature increase of $>10^{\circ}\text{C}$ occurs, stop mixing, the wastes are INCOMPATIBLE.
若出现冒泡、冒烟或温度升高超过 10°C , 立即停止混合, 表明废物不兼容;
- If no observable reaction occurs within 5 minutes, the wastes are COMPATIBLE.
5 分钟内无明显反应, 表明废物兼容。

Collection and Temporary Storage of Hazardous Waste

危险废物的收集和暂存

◆ Medical Waste Collection Procedures

医疗废物收集流程

Biological waste generated in the laboratory must be collected and stored according to requirements for medical waste:
实验室产生的生物废弃物应按照医疗废物的要求进行收集与存放：

- All experimental animal carcasses, limbs, and tissues must be disinfected and sterilized, sealed in specialized plastic bags, clearly labeled with relevant information, and finally stored frozen in a dedicated freezer.
所有实验动物尸体、肢体和组织，须先进行消毒灭菌处理后，用专用塑料袋密封，做好相关信息标识，再放置在专用冰柜冷冻保存。
- All used biological laboratory equipment and consumables (excluding sharps) that have been in contact with biohazards during experiments must be disinfected and then collected as infectious waste.
所有经过生物实验且接触过生物危害因素的废弃生物实验器材和耗材（除了锐器）须进行消毒灭菌后按感染性废物的管理要求收集。

Collection and Temporary Storage of Hazardous Waste

危险废物的收集和暂存

◆ Medical Waste Collection Procedures

医疗废物收集流程

Biological waste generated in the laboratory must be collected and stored according to requirements for medical waste:
实验室产生的生物废弃物应按照医疗废物的要求进行收集与存放:

- Discarded sharps (e.g., needles, knives/surgical blades/scalpels, other surgical instruments) shall be collected using specialized sharps containers.

废弃的锐器（针头、小刀等手术用具）应使用医疗废物专用利器盒收集。

- Biological wastes generated from Biosafety Level 2 (BSL-2) and above laboratories, as well as high-risk infectious materials (such as pathogen-containing culture media, specimens, and stocks of bacterial or viral strains), must be sterilized and inactivated by autoclaving or chemical disinfectants before being collected as infectious waste.

从生物安全等级二级及以上的病原微生物实验室产生的生物废弃物和涉及感染性的高危险废物（含有病原体的培养基、标本和菌种、毒种保存液等）都应当经高压蒸汽灭菌或化学消毒剂灭菌灭活处理后，再按感染性废物的管理要求收集。

Collection and Temporary Storage of Hazardous Waste 危险废物的收集和暂存

◆ The use of sharps container 利器盒的使用



Sharps containers shall only be used for needles, blades, and other sharp objects.

利器盒内仅存放针头、刀片等尖锐物

Remove the needle by using the sharp box drip hole or the pincer, it is prohibited to remove the needle by hand. The contents of the sharps container must not exceed 75% of the marked capacity.

针头与注射器针筒分离时，应在盖子上的楔形槽内分离，不得徒手拆卸或分离使用过的或暴露的针头。锐器盒内容物盛装不应超过标记容量的75%，

Collection and Temporary Storage of Hazardous Waste

危险废物的收集和暂存

◆ Hazardous Waste Temporary Storage Area 危险废物暂存区

- Laboratories shall provide designated temporary storage areas for different categories of hazardous waste. These temporary holding locations shall be well-ventilated and situated away from heat sources, electrical outlets, and emergency exits.
实验室内为不同类型的危险废物计划有专门的暂存地点。通常来说暂存位置应远离热源、电插座、安全出口，并且有良好通风。
- A 3 cm wide solid yellow line or alternating yellow and black line shall be marked on the floor along the outer perimeter of the storage area, and every storage area must have a proper hazardous waste sign.
储存区域外边界地面应施划3 cm宽的黄色实线或黄黑相间实线，并张贴规范的危险废物标识。 [Warning Signage - LHSD HKUST GZ EN \(hkust-gz.edu.cn\)](#)
- Expired chemical reagents must be stored in their original containers with their original labels kept legible and intact, and be clearly marked as expired waste chemicals.
过期化学试剂须在原瓶内存放，保持原有标签清晰完整，并标注为过期废弃化学试剂。

Collection and Temporary Storage of Hazardous Waste 危险废物的收集和暂存

◆ Hazardous Waste Temporary Storage Area 危险废物暂存区



Transportation of Hazardous Waste

危险废物的转运

◆ Hazardous Waste Transportation Procedures 危险废物转运流程



Transportation of Hazardous Waste

危险废物的转运

◆ Hazardous Waste Disposal Request 危险废物回收申请

- When the hazardous waste temporarily stored in the laboratory requires disposal. Applicants should go to the "Laboratory Safety Management System-Initiate Services - Chemical-Related - Hazardous Waste Disposal Application" module, click "Add Item", and fill in the information for hazardous waste requiring transfer; (If collection containers need replenishment, they can also be requested within this application).

需要申请回收实验室内暂存的危险废物时，申请人需在“实验室综合管理平台-发起业务-化学品相关-危险废物回收申请模块”中，点击“增加事项”，填写需要转移的危险废物信息；（如需补给废液收集容器，也可在此事项中申请）。



Transportation of Hazardous Waste

危险废物的转运

◆ Packaging Requirements for Hazardous Waste prior to transport 危险废物转运前的打包要求



Laboratory liquid waste
科研废液

- The waste liquid volume must not exceed 3/4 (75%) of the container's capacity.
废液量不得超过容器容积的3/4 (75%)
- Tighten the barrel cover
拧紧桶盖
- Affix the hazardous waste label uniformly designed by HKUST(GZ) and complete all required information.
粘贴学校统一制定的危险废弃物标签，并完善相应信息



Broken Glass Container
碎玻璃收集盒

- Line a cardboard box with a garbage bag
在纸箱内套入垃圾袋
- Before transfer, seal the container using the sealing cardboard
转移前，使用容器自带的封口纸板进行封口
- During transfer, affix the hazardous waste label uniformly designed by HKUST(GZ) and complete all required information. (Applicable to glass containers that have been contaminated with hazardous chemicals.)
转移时，应粘贴学校统一制定的危险废物标签，并完善相应信息（适用于沾染过危险化学品的玻璃容器）

Transportation of Hazardous Waste

危险废物的转运

◆ Packaging Requirements for Hazardous Waste prior to transport 危险废物转运前的打包要求



Other Laboratory Solid Waste
其它实验固废



Waste Empty Containers
废空容器

- Tie trash bags securely and seal cardboard boxes
扎紧垃圾袋或封好纸箱
- Affix the hazardous waste label uniformly designed by HKUST(GZ) and complete all required information.
粘贴学校统一制定的危险废弃物标签，并完善相应信息



Infectious Waste
感染性废物

- The packaging shall be in a light yellow color. The warning symbol and the phrase "Warning! Biohazard Waste" as shown in the illustration must be prominently printed (or sprayed) on the package.
包装整体为淡黄，包装明显处应印（喷）如图所示的警示标志和警告语：“警告！感染性废物”
- The package shall be sealed with cable ties.
使用扎带封口
- It must be sterilized or disinfected prior to transfer to the temporary storage room
转移至暂存间前须先进行消毒灭菌

Transportation of Hazardous Waste

危险废物的转运

◆ Packaging Requirements for Hazardous Waste prior to transport 危险废物转运前的打包要求



Sharp Container
锐器盒

- The contents of the sharps container must not exceed 75% of the marked capacity.
锐器盒内容物盛装不应超过标记容量的75%
- An effective sealing method should be used to ensure that the packaging or container is tightly and securely sealed.
使用有效的封口方式，使包装物或者容器封口紧实、严密。



Pathological Waste
病理性废物

- After disinfection/sterilization, the waste must be sealed in specialized plastic bags, labeled with relevant information, and then stored frozen in a dedicated freezer.
须先进行消毒灭菌处理后，用专用塑料袋密封，做好相关信息标识，再放置在专用冰柜冷冻保存
- The volume of each yellow medical waste plastic bag must not exceed 40cm x 40cm x 40cm
黄色医疗废物胶袋,每袋的体积，需控制在40*40*40cm以内

Transportation of Hazardous Waste

危险废物的转运

◆ Hazardous Waste Label 危险废物标签

- Obtain from LHSD directly; no platform application is required

领用方式：直接向LHSD领取，无需在平台申请。

- Content can be printed or handwritten

内容填写：可自行打印或手写。

- Places the dedicated "Hazardous Waste" sticker into the printer, clicks "Print Label" (refer to the system printing guide).

打印方式：将专用的“危险废物”贴纸放入打印机中，点击“打印标签”（参考系统打印指引）。

危险废物		
废物名称：有机废液		危险特性：  <input type="checkbox"/> 易燃性  <input type="checkbox"/> 毒性  <input type="checkbox"/> 反应性  <input type="checkbox"/> 腐蚀性
废物类别：HW49		
废物代码：900-047-49	废物形态：液态	
主要成分：甲苯、丙酮…		
有害成分：甲苯、丙酮…		
注意事项： 1、放在阴凉地方，容器必须盖紧 2、切勿近火及靠近热源，禁止吸烟 3、切勿倒入水渠 4、防止静电火灾		
数字识别码：		
产生/收集单位：	香港科技大学（广州）+学域+楼栋-楼层-房间号	
联系人和联系方式：	申请人及电话	
产生日期：实际	废物重量：实际	
备注：		

Transportation of Hazardous Waste

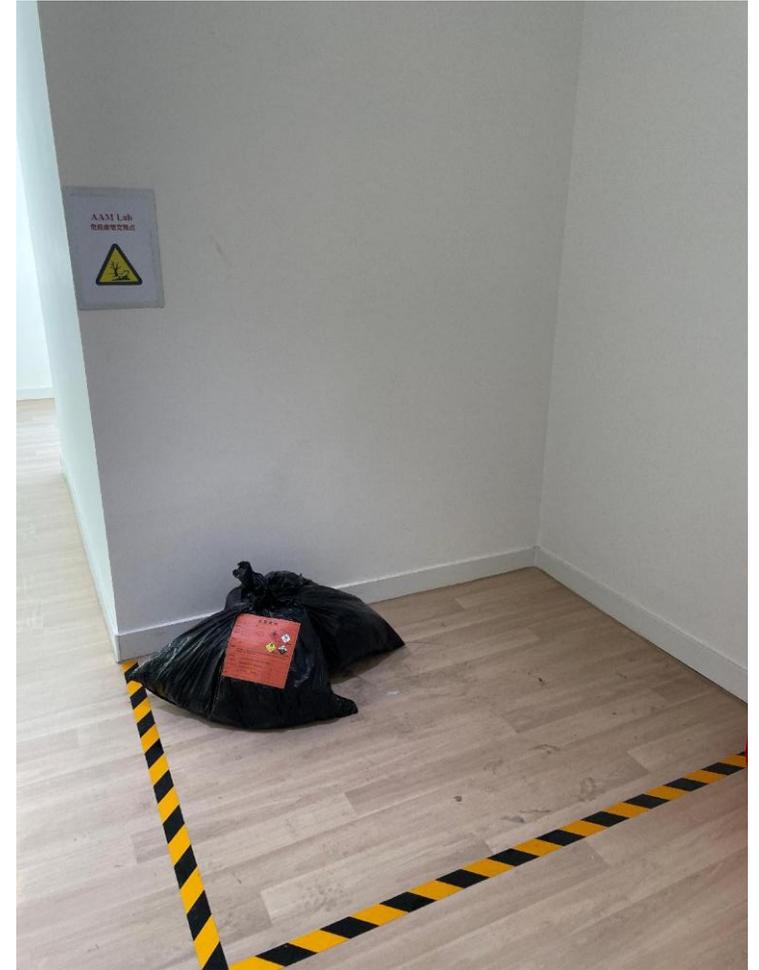
危险废物的转运

◆ Handover Point for Hazardous Waste Transportation

危险废物转运交接点

- Placed the packaged hazardous waste at the handover point confirmed with the LHSD
将打包好的危险废物放置于与LHSD确认好的收运地点
- A 3 cm wide solid yellow line or alternating yellow and black line shall be marked on the floor along the outer perimeter of the handover point, and every handover point must have a proper hazardous waste sign.

收运点外边界地面应施划3 cm宽的黄色实线或黄黑相间实线，并张贴规范的危险废物标识



Transportation of Hazardous Waste

危险废物的转运

- LHSD conducts door-to-door collection of hazardous waste in Zone W and Zone E daily from **14:00 to 15:00**.
LHSD在**每天下午14:00-15:00**对W区、E区的危险废物进行上门回收。
- LHSD prints the collection list based on request forms received before 10:00 on the morning of the collection day. Request forms received after the specified time will be postponed to the next collection cycle.
LHSD根据回收当天**上午10点前**收到的申请单进行回收清单的打印，超过规定时间收到的申请单顺延至下一次回收。
- Before the door-to-door collection, LHSD compiles statistics on the hazardous waste collection containers that need to be replenished for users. During the collection, replenishment is carried out based on the corresponding hazardous waste collection request forms.
LHSD上门回收前统计用户需要补给的危险废物收集容器，上门回收时根据对应的危险废物回收申请单进行补给。
- Collection will be temporarily withheld under the following circumstances: failure to submit the hazardous waste collection request form on time, waste liquid exceeding the fill line, absence of hazardous waste labels on the packaging, incorrect formatting of hazardous waste labels, or any other issues affecting collection. In such cases, LHSD will attach a "Temporarily Not Collected" label to the hazardous waste (see Figure 3). Users must rectify the issues accordingly, after which LHSD will reschedule the door-to-door collection.
如回收过程中出现以下情况暂不回收，如出现未按时提交危险废物回收申请单、废液超过液位线、危险废物的包装上未张贴危险废物标签、未按照格式正确打印危险废物标签及其他影响回收的情况等，遇到上述情况LHSD会在危险废物上张贴危险废物暂不回收标签，见图3；用户按照要求重新整理后，LHSD再安排上门回收。
- After the door-to-door collection, LHSD returns to the hazardous waste temporary storage room to weigh the hazardous waste and registers the information in the Laboratory Safety Comprehensive Management Platform.
LHSD上门回收后回到危险废物暂存间对危险废物进行称量，并在实验室安全综合管理平台上进行登记。

Transportation of Hazardous Waste

危险废物的转运

◆ Medical Waste Transfer Process

医疗废物转移流程

Medical waste is not collected door-to-door. Users are required to transfer of it independently

医疗废物不设上门回收，由用户自行投放

Medical waste is generated in the laboratory
实验室产生医疗废物



Users wear medical masks and latex gloves to the site. For waste bags that need to be tied, they are first sprayed with chlorine-based disinfectant, then secured with zip ties, and placed in a pushcart with a tray (infectious waste is sterilized before transfer).
用户佩戴医用口罩，乳胶手套前往现场，对于需要扎口的废物袋，先用含氯消毒水喷洒后，再使用扎带固定后，放入带托盘的推车内（感染性废物灭菌后进行转运）



Hazardous Waste Minimization

危险废物减量化

◆ Hazardous Waste Minimization 危险废物减量化

Waste disposal costs are increasing, the reduction of hazardous waste helps alleviate financial and environmental pressures.
危险废物处置成本持续上升，危险废物减量化处理有利于减少资金及环境压力：

- Estimate usage rate carefully
精确估算使用量
- Buy in container sizes appropriate to actual use. (Money savings from bulk purchases are easily consumed by the cost of waste disposal.)
购买与实际用量匹配的容器规格（批量采购节省的成本易被废物处置费用抵消）
- Reduce inventory to a minimum: (rotate old containers to front of shelf, review stock before purchase, etc.).
最小化库存（将旧容器移至货架前方、采购前核对库存等）
- Consider trading chemicals with other researchers before disposal
处置前可考虑与其他研究人员交换化学品

Hazardous Waste Minimization

危险废物减量化

◆ Hazardous Waste Minimization 危险废物减量化

- Substitute experimental protocols by replacing highly toxic or toxic reagents with low-toxicity or non-toxic alternatives.
实验方案替代，使用低毒或无毒试剂提到高毒或有毒试剂
- Solvent recovery
溶剂回收
- Implement strict categorized disposal, for example, placing only sharps like needles and blades in sharps containers, and only broken glass in designated broken glass containers.
严格分类投放，如利器盒内只装针头、刀片等利器，碎玻璃容器只装碎玻璃

Incidents & lessons learned

事故案例及经验教训

◆ Case 1: Serious Injury 案例1: 严重伤害

- Lab user wanted to dispose of several mL of conc nitric acid, an empty reagent bottle intended to be used as intermediate container for non-halogenated solvent was used, an explosion occurred several minutes after transfer and closing of the cap, serious injury to one hand of the user requiring surgery and hospitalization.

实验人员欲处置数毫升浓硝酸，使用了一个计划用于非含卤溶剂的空试剂瓶作为中间容器，转移并盖紧瓶盖数分钟后发生爆炸，导致实验人员手部严重受伤，需手术治疗及住院。



Incidents & lessons learned

事故案例及经验教训

◆ Case 2: Serious Damage 案例2：严重损坏

- IC is regularly etched with conc acid, then wash with excessive solvent. Mixed waste collected in a non-halogenated solvent, lab user added a large quantity of used acid into same container, container exploded causing extensive damage to cabinet and rest of the lab.

集成电路通常使用浓酸进行蚀刻，随后用过量溶剂清洗。混合废物收集在非含卤溶剂容器中，实验人员向同一容器中加入大量废酸，导致容器爆炸，造成防火柜及实验室其他区域严重损坏。



Incidents & lessons learned

事故案例及经验教训

◆ Case 3: Uncontrolled Release 案例 3: 失控泄漏

- Lab user macerate silicon plastic with conc sulfuric acid, waste was put into spent acid container with other acids, including nitric. Fume was observed, lab user capped the container and left, container later ruptured shooting waste onto ceiling and surrounding areas.
实验人员用浓硫酸浸渍硅塑料后，将废物倒入含硝酸等其他酸的废酸容器中。随后观察到容器内冒烟，后盖上盖子离开随后容器破裂，废物喷溅至天花板及周边区域。

Incidents & lessons learned

事故案例及经验教训

◆ Lessons Learned 经验教训

- Oxidizing (e.g. nitric) acid mixed with organics is the most common cause of chemical waste incidents
氧化性酸（如硝酸）与有机物混合是化学废物事故最常见原因
- Clean intermediate waste container thoroughly, if not sure, clean again
彻底清洗中间废物容器，若不确定是否清洁，需再次清洗
- Plan beforehand, especially for non-routine operation, may need to initiate a new waste stream
非常规操作需提前规划，必要时新增废物流；
- Dilute conc acid (10 times) before transfer into waste container
浓酸转移前需稀释 10 倍
- If fuming is observed after waste transfer, move the container into a running fume hood or open area
废物转移后若出现冒烟，立即将容器移至运行中的通风橱或开阔区域
- NEVER CAP container with ongoing gas generating reaction inside
禁止对正在产生气体反应的容器加盖
- Perform compatability test, NEVER mix incompatible waste!
必须进行兼容性测试，严禁混合不兼容废物！

Reference

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