

温州肯恩大学实验室废弃物安全管理办法

第一章 总 则

第一条 为加强学校实验室废弃物的安全管理，防止环境污染，保障师生身体健康和校园公共安全，根据《中华人民共和国环境保护法》《中华人民共和国固体废物污染环境防治法》《危险化学品安全管理条例》《浙江省高等学校实验室安全管理办法》等国家有关法律法规，结合我校实际情况，制定本办法。

第二条 本办法适用于全校范围内所有教学、科研实验活动中产生的各类废弃物的相关管理，包括化学品、生物制品及其他危险废弃物的分类、收集、暂存、运输和处置等环节。

第三条 实验室废弃物管理坚持“谁产生、谁负责，分类收集、安全暂存、专业处置”的原则，实行全过程管理。

第二章 管理职责

第四条 教学部（实验室管理中心）是学校实验室管理的归口职能部门，主要负责完善学校实验室废弃物管理的规章制度；指导和监督全校危险废弃物的全程管理。

第五条 各学院、部门主要负责人是本单位实验室废弃物管理的第一责任人，负责建立健全学院、部门实验室废弃物管理责任制；指定专人负责实验室废弃物的日常管理工作；监督各实验室落实废弃物分类收集和暂存要求，做好本学院、部门废弃物的清运和处置等工作。

第六条 实验室安全负责人是本实验室废弃物管理的直接责任人，应严格执行学校实验室废弃物管理规定；组织本实验室人员做好废弃物的分类收集和暂存；全流程负责本实验室废弃物管理台账的记录，同时及时报告任何异常情况。

第三章 分类与收集要求

第七条 实验室安全管理员负责配合本实验室安全责任人组织实施实验室危险废弃物的收集、暂存和包装。实验室危险废弃物的管理应严格遵守“分类贮存”的原则，对各类不同的实验废弃物进行分门别类包装和按类临时存放，不相容的物质分开存放，易碎包装物和容器按性质存放在木箱或牢固的纸箱中，并加装填充物，防止搬运过程中发生危险。

第八条 实验室危险废弃物实行分类收集、处理：

（一）气体废弃物：主要指实验过程中产生的容易引起环境污染或具有潜在危害的气体。产生少量危险气体的实验应在通风橱内进行，经常开窗，保持室内空气流通。产生大量废气或有异味气体的实验要安装专业的尾气吸收装置，符合国家排放标准。

（二）固体废弃物：主要指实验过程中使用的各种试剂、接触过有毒试剂的容器及废旧试剂等。对于固体实验废弃物，应用塑料袋、纸箱等进行包装，确保密闭，并贴上标签，注明废弃物的名称、重（数）量等。

（三）液体废弃物：主要指实验过程中产生的各种化学废液，分为一般化学废液和剧毒化学废液。

1.一般化学废液。

(1) 一般化学废液分三类废液收集桶收集和存放，即：含卤有机物废液、一般有机物废液、无机物废液。

(2) 盛装废液的容器应是专用收集桶，不得使用敞口容器存放。容器上应有清晰的标签，瓶口密封。容器不得渗漏，出现密封不严或破损将不予以收运。

(3) 废液收集桶应随时盖紧盖子，存放于实验室较阴凉并远离火源和热源的位置。

(4) 高浓度的无机废液需经中和、分解破坏等处理，确认安全、稳定后方可倒入废液桶。

(5) 盛装废液的收集桶外必须粘贴《温州肯恩大学危险废弃物标签》(附件1)，写明有毒有害成分的中文全称，不可写简称或缩写。装满后(不可过满，须保留1/5的空间)，待处置公司统一收运。

(6) 倒入废液桶前应仔细查看该废液桶的《温州肯恩大学危险废弃物标签》，确保倒入后不会与桶中已有的化学物质发生异常反应(如产生气体、迅速放热或其他剧烈反应等)，否则应单独暂存于其他容器中，并贴上标签。

(7) 重金属(如镉、汞)含量较高的实验废液应单独收集，不得与其他废液混合。

(8) 不可将剧毒物质倒入上述三类一般化学废液收集桶中。

2.剧毒化学废液。

实验室产生的剧毒废液，实行“一液一存”，不可将几种剧毒物质废液混在一个容器中，容器外粘贴《温州肯恩大学危险废弃物标签》，按剧毒试剂管理的规定进行妥善保管。拟处理时，填写《剧毒化学废液登记表》（附件2），待统一处理危险化学品废物时进行收运。

（四）生物废弃物：主要指实验过程中使用动物产生的尸体以及带菌、带毒器械等。

生物废弃物（锐器类除外）需用黄色专用塑料袋进行包装，其中被病原微生物污染过的废弃物，必须先先在实验室采用高压蒸汽灭菌或放入2000mg/L有效氯消毒液浸泡消毒1小时的方法进行灭活消毒；动物尸体暂存低温冰箱中。锐器类废弃物需用利器盒或其他牢固、厚实的容器妥善包装，避免外露伤人。塑料袋或容器外粘贴《温州肯恩大学危险废弃物标签》，及时联系有资质的处置单位进行处置。

（五）放射性废弃物：产生放射性废弃物的实验室应将废弃物收集密封，明显标示其名称、主要成分、性质和数量，并予以屏蔽和隔离。

（六）化学气体：瓶装化学气体主要是钢瓶中的压缩化学气体，拟废弃时需单独与学校气体钢瓶定点供应商联系。

第九条 实验室危险废弃物收集过程中要做到：

（一）不将无毒无害的废液、废旧试剂、试剂空瓶等包装物当作危险废弃物处理。

(二) 尽可能对大量使用的有机溶剂自行回收提纯再利用。

(三) 尽可能对某些有毒有害废液进行无害化处理。

第四章 暂存与处置管理

第十条 实验室分类收集实验室废弃物须按照相关规章制度委托具有相应资质的签约公司转运及处理。

第十一条 原则上每学期不少于 1 次集中统一回收处置实验室危险废弃物，如有特殊需求另作安排。

第十二条 实验室危险废弃物转运处理前，各单位须预先统计上报需处理的危险废弃物种类和数量，未上报的实验室危险废弃物顺延至下一次处置。

第五章 应急管理与责任追究

第十三条 对违反本办法规定的学院、部门，学校将视情节轻重给予通报批评或行政处分；造成环境污染事故或人身伤害的，依法追究相关责任人的法律责任。

第六章 附 则

第十四条 本办法由教学部（实验室管理中心）负责解释。

第十五条 本办法自发布之日起施行。

附件：1.温州肯恩大学危险废弃物标签
2.温州肯恩大学剧毒化学废液登记表
3.温州肯恩大学实验室危险废弃物暂行分类标准

附件 1

温州肯恩大学危险废弃物标签

_____ 废弃物	
主要成分（化学名称）：	危险类别
主要特性：	   
安全措施：	
废弃物产生实验室： _____	
日期： _____	
联系人： _____	
电话： _____	

附件 2

温州肯恩大学剧毒化学废液登记表

院系单位		实验室/ 课题组	
实验室/ 课题组负责人		联系电话	
剧毒化学 废液名称		总重量	
有毒有害成分		数量	备注
移交人	(签名) (日期)	联系电话	
收储人	(签名) (日期)	联系电话	

- 注：1.收储人指实验室废弃物暂存站相关管理人员。
2.移交日期、总重量（现场称重）现场核对无误后填写。
3.本表一式三份，教学部（实验室管理中心）、送储单位、实验室废弃物暂存站管理员各持 1 份留存。
4.移交的剧毒品若需在废弃物暂存站存放的，由实验室废弃物暂存站管理员邮件报送后勤部（党委安全保卫部）备案。

附件 3

温州肯恩大学实验室危险废弃物暂行分类标准

一、有机废液类

1. 油脂类：如灯油、轻油、松节油、油漆、重油、杂酚油、钉子油、绝缘油（脂）（不含多氯联苯）、润滑油、切削油及动植物油（脂）等。

2. 含卤素有机溶剂类：含有脂肪族卤素类化合物，如氯仿、氯代甲烷，二氟甲烷、四氯化碳、甲基碘等或含芳香族卤素类化合物，如氯苯、苯甲氯等。

3. 不含卤素类有机溶剂类：不含脂肪族卤素类化合物或芳香族卤素类化合物。

二、无机废液类

1. 含重金属废液：含有任一类之重金属，如汞、钴、砷、镉、铅、镓、铬、镍、锌、银等。

2. 含氰废液：含有游离氰废液（需保存在 pH10.5 以上）或者含有氰化合物。

3. 含汞废液：含有汞类。

4. 含氟废液：含有氟酸或氟化合物类。

5. 酸性废液：含有酸类。

6. 碱性废液：含有碱类。

7. 含溴废液：含有溴化合物类。

三、固废类

- 1.废化学试剂：由实验室所产生的各类化学试剂。
- 2.破损或废弃玻璃类：如试管、烧杯、试玻片等。

四、生物类

由实验室所产生的生物废弃物。如：动物尸体或器官或组织，破损或废弃玻璃类（如注射器、培养皿）等。

Wenzhou-Kean University Laboratory Waste Management Regulations

Chapter I General Provisions

Article 1 To strengthen the safety management of laboratory waste, prevent environmental pollution, protect the health of faculty, staff, and students, and safeguard public safety on campus, these Regulations are formulated in accordance with the *Environmental Protection Law of the People's Republic of China*, the *Law of the People's Republic of China on the Prevention and Control of Environmental Pollution by Solid Waste*, the *Hazardous Chemicals Safety Management Regulations*, the *Zhejiang Province Higher Education Institution Laboratory Safety Management Regulations*, and other relevant national laws and regulations, in light of the actual conditions of Wenzhou-Kean University.

Article 2 These Regulations apply to the management of all types of waste generated during teaching and research activities across the University. This includes the classification, collection, temporary storage, transportation, and disposal of chemical, biological, and other hazardous wastes.

Article 3 Management of laboratory waste shall follow the principle of “the generator is responsible, classified collection, safe temporary storage, and professional disposal,” and shall be subject to the whole-process management.

Chapter II Management Responsibilities

Article 4 The Office of Academic Affairs (Laboratory Management Center) is the

University's functional department responsible for laboratory management. It is mainly responsible for improving rules and regulations for laboratory waste management and for guiding and supervising the University-wide, whole-process management of hazardous waste.

Article 5 The head of each college or department is the primary person responsible for laboratory waste management within their unit. Their responsibilities include establishing and maintaining the unit's laboratory-waste management accountability system, designating personnel for daily waste management, supervising laboratories in implementing classified collection and temporary storage, and ensuring the proper clearance and disposal of the unit's laboratory waste.

Article 6 The laboratory safety supervisor is directly responsible for laboratory waste management within their laboratory. They shall strictly implement the University's laboratory waste management regulations, organize personnel to carry out classified collection and temporary storage, maintain a complete laboratory waste management ledger throughout the whole process, and promptly report any abnormal situations.

Chapter III Classification & Collection Requirements

Article 7 The laboratory safety administrator shall assist the laboratory safety supervisor in organizing the collection, temporary storage, and packaging of hazardous laboratory waste. Management shall strictly follow the principle of classified storage: different types of laboratory waste must be packaged by category and temporarily stored by category; incompatible substances must be stored separately. Fragile packages and containers should

be placed in wooden boxes or sturdy cartons with padding to prevent accidents during handling.

Article 8 Hazardous laboratory waste shall be collected and treated according to its classification:

8.1 Gaseous waste.

Gaseous waste mainly refers to gases produced during experiments that may cause environmental pollution or pose potential hazards. Experiments producing small amounts of hazardous gas shall be conducted inside a fume hood, with windows opened frequently to maintain adequate ventilation. Experiments producing large amounts of waste gas or odorous gases must use professional tail-gas absorption devices that meet national emission standards.

8.2 Solid waste.

Solid waste mainly refers to various reagents used in experiments, containers that have been in contact with toxic reagents, and obsolete reagents. Such waste must be packed in plastic bags or cartons, sealed, and labelled with the name and weight (or quantity) of the waste.

8.3 Liquid waste.

Liquid waste mainly refers to various chemical liquid waste produced during experiments and is classified into general chemical waste and highly-toxic chemical waste.

8.3.1 General chemical waste.

8.3.1.1 General chemical liquid waste shall be collected and stored in three separate

types of collection drums: halogenated organic waste, non-halogenated organic waste, and inorganic waste.

8.3.1.2 Containers for liquid waste must be dedicated collection drums; open containers are prohibited. Each container must bear a clear label and be tightly sealed. Leaking, poor sealed, or damage containers will not be collected.

8.3.1.3 Collection drums must remain closed at all times and be stored in a cool place, away from fire and heat sources.

8.3.1.4 High-concentration inorganic waste must be neutralized or decomposed to ensure safety before being added to the collection drum.

8.3.1.5 Each collection drum must display the Wenzhou-Kean University Hazardous Waste Label (Appendix I), showing the full Chinese names of toxic or hazardous components; abbreviations are not allowed. Drums should not be overfilled—leave approximately 1/5 of the volume empty—and will be collected by the disposal company.

8.3.1.6 Before adding liquid waste to a drum, the label must be checked to ensure no abnormal reaction (e.g., gas generation, rapid heat release, or other violent reactions) occurs; if there is a risk, the waste must be stored separately in another labelled container.

8.3.1.7 Liquid waste containing high levels of heavy metals (e.g., cadmium, mercury) must be collected separately and not be mixed with other wastes.

8.3.1.8 Highly-toxic substances must not be added to the three general chemical waste drums.

8.3.2 Highly-toxic chemical waste.

Highly-toxic liquid waste generated in the laboratory shall be stored on a “one container per waste type” basis; mixing different types of highly-toxic liquid waste in a single container is prohibited. Containers must bear the *Wenzhou-Kean University Hazardous Waste Label* and be properly stored in accordance with the regulations for highly-toxic reagents. When disposal is required, the *Wenzhou-Kean University Highly-Toxic Chemical Liquid Waste Registration Form* (Appendix II) shall be completed, and the waste shall be collected through the University’s centralized hazardous chemical waste disposal process.

8.4 Biological waste.

Biological waste mainly refers to animal carcasses and contaminated instruments or materials.

Biological waste (excluding sharps) must be packed in yellow dedicated plastic bags. Waste contaminated with pathogenic microorganisms must be inactivated by autoclaving or by soaking in 2,000 mg/L available-chlorine disinfectant for 1 hour. Animal carcasses must be temporarily stored in a low-temperature refrigerator. Sharps must be placed in sharps boxes or other sturdy, thick containers to prevent injury. Plastic bags or containers must display the *Wenzhou-Kean University Hazardous Waste Label*, and a qualified disposal unit must be contacted promptly.

8.5 Radioactive waste.

Laboratories generating radioactive waste shall collect and seal it, clearly labeling its

name, main components, nature and quantity, and provide appropriate shielding and isolation.

8.6 Chemical gases.

For disposal of compressed chemical gas cylinders, laboratories must contact the University's designated cylinder supplier separately.

Article 9 During the collection of hazardous laboratory waste, the following requirements shall be observed:

9.1 Do not treat non-toxic and non-hazardous liquid waste, obsolete reagents, or empty reagent containers as hazardous waste.

9.2 Organic solvents used in large quantities, where feasible, be recovered, purified, and reused.

9.3 Toxic and hazardous liquid waste should, where feasible, be rendered harmless through appropriate treatment.

Chapter IV Temporary Storage & Disposal Management

Article 10 Laboratory waste that has been classified and collected shall be entrusted to a qualified and contracted company for transportation and disposal in accordance with relevant regulations.

Article 11 In principle, the University shall arrange at least one centralized collection and disposal of hazardous laboratory waste each semester. Additional arrangements may be made where necessary.

Article 12 Prior to the transportation and disposal of hazardous laboratory waste, each

unit shall report in advance the types and quantities of hazardous waste to be disposed of. Waste that has not been reported shall be deferred to the next disposal cycle.

Chapter V Emergency Management & Accountability

Article 13 Colleges or departments that violate these Regulations shall, depending on the severity of the circumstances, be subject to a notice of criticism or administrative sanctions. Where environmental pollution incidents or personal injury are caused, the relevant responsible persons shall be held legally liable in accordance with the law.

Chapter VI Supplementary Provisions

Article 14 These Regulations shall be interpreted by the Office of Academic Affairs (Laboratory Management Center).

Article 15 These Regulations shall come into force on the date of issuance.





Appendices: 1. Wenzhou-Kean University Hazardous Waste Label

2. Wenzhou-Kean University Highly-Toxic Chemical Liquid Waste
Registration Form

3. Provisional Classification Standards for Laboratory Hazardous Waste of
Wenzhou-Kean University

Appendix 1

Wenzhou-Kean University Hazardous Waste Label

Type of Waste: _____	
Main Components (Chemical Names):	Hazard Classification    
Primary Characteristics:	
Safety Measures:	
Source Laboratory: _____	Date: _____
Contact Person: _____	Tel: _____

Appendix2

Wenzhou-Kean University Highly-Toxic Chemical Liquid Waste Registration Form

College		Laboratory/ Research Group	
Head of Laboratory/ Research Group		Contact Number	
Name of Highly-Toxic Chemical Liquid Waste		Total Weight	
Toxic and Hazardous Components		Quantity	Remarks
Transferred by	(Signature) (Date)	Contact Number	
Received and Stored by	(Signature) (Date)	Contact Number	

Notes:

1. "Received and Stored by" refers to the personnel responsible for the laboratory waste temporary storage station.
2. The transfer date and total weight (measured on-site) shall be filled in after on-site verification confirms accuracy.
3. This form is made in triplicate. One copy shall be retained by the Office of Academic Affairs (Laboratory Management Center), one by the transferring unit, and one by the administrator of the laboratory waste temporary storage station.
4. Where highly-toxic chemicals transferred require temporary storage at the waste temporary storage station, the station administrator shall file a report via email to the Office of Logistics and Assets Management (Security Center) for record filing.

Appendix 3

Provisional Classification Standards for Laboratory Hazardous Waste of Wenzhou-Kean University

I. Organic Liquid Waste

1.1 Oils and grease: including kerosene, light oil, turpentine, paint, heavy oil, creosote, nail polish, insulating oil/grease (excluding polychlorinated biphenyls, PCBs), lubricating oil, cutting oil, and animal and vegetable oils (greases).

1.2 Halogenated organic solvents: containing aliphatic halogenated compounds, such as chloroform, chloromethane, difluoromethane, carbon tetrachloride, and methyl iodide, or aromatic halogenated compounds, such as chlorobenzene and benzyl chloride.

3. Non-halogenated organic solvents: free of aliphatic or aromatic halogenated compounds.

II. Inorganic Liquid Waste

2.1 Heavy metal-containing liquid waste: containing any heavy metals such as mercury, cobalt, arsenic, cadmium, lead, gallium, chromium, nickel, zinc, or silver.

2.2 Cyanide-containing liquid waste: containing free cyanide (to be stored at $\text{pH} \geq 10.5$) or cyanide compounds.

2.3 Mercury-containing liquid waste: containing mercury or mercury compounds.

2.4 Fluoride-containing liquid waste: containing hydrofluoric acid or fluoride compounds.

2.5 Acid liquid waste: containing acids.

2.6 Alkaline liquid waste: containing alkalis.

2.7 Bromide-containing liquid waste: containing bromine compounds.

III. Solid Waste

3.1 Waste chemical reagents: various chemical reagents generated by laboratories.

3.2 Broken or discarded glassware: items including test tubes, beakers, and microscope slides.

IV. Biological Waste

Biological waste generated by laboratories, including animal carcasses, organs or tissues, and broken or discarded glassware (e.g., syringes, Petri dishes).