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<b>Document Name</b> 文件名称	<b>Lab Waste Liquid Handle and Storage Procedure</b> 实验室废液处理及暂存规定	

### Approval process

#### 审批过程

	Name 姓名	Title 职务
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### Reversion records

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### Relevant departments (select relevant departments with a “√”)

#### 相关部门 (用√勾选相关部门)

Construction Dept. 校园建设部	√	Operation Dept. 校园运营部	√	H.R. Dept. 人力资源部	√
RIGS 研究创新和研究生部	√	U.G. Dept. 本科教学部	√	I.T.Dept. 电脑信息部	√

### Relevant documents

#### 相关文件

《Waste Management Procedure 废弃物管理程序》

《Leak Management Regulations 泄漏管理规定》

### Distribution mode (black)

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## 1. Purpose目的

This procedure stipulates the requirements for the generation, classification, storage, and treatment of all solid waste and waste liquid in Guangdong Technion Israel Institute of Technology (hereinafter referred to as GTIIT), and complies with the requirements of national and regional laws and regulations to regulate the safety management and operation requirements of the laboratory of the college. Reduce the impact on the environment and avoid incidents of human injury and property damage.

本程序规定了对广东以色列理工学院（以下简称 GTIIT）校内所有固废和废液的产生、分类、存放、处理要求进行了规范，符合国家及地区的法律法规的要求下，规范学院实验室安全管理和操作要求，减少对环境的影响及避免发生人员伤害和财产损失事故的发生。

## 2. Scope范围

This standard operating procedure applies to waste management and related operations in all laboratories and campuses within Guangdong Technion Israel Institute of Technology (GTIIT).

本标准操作规程适用于广东以色列理工学院(GTIIT)内所有实验室和校园内的废弃物管理及相应操作活动。

## 3. Responsibility职责

### 3.1. Lab Manager (Waste Production Sector)实验室负责人(产废部门):

- Responsible for the development of laboratory waste collection and temporary storage equipment selection and operation safety guidelines;  
负责实验室废液收集和暂存设备的选型和操作安全指引的制定;
- Responsible for the work arrangement of the laboratories and laboratory management personnel;  
负责各实验室及实验室管理人员的工作安排;
- Regularly assess the waste management capacity and knowledge level of laboratory management personnel, and provide corresponding assistance and training;  
定期评估实验室管理人员废弃物处理能力、知识水平，并提供相应的协助和培训;
- Supervise the orderly development of all work, and report the corresponding management personnel in time when there are abnormal situations.  
监督各项工作的有序开展，存在异常情况时及时汇报相应的管理层人员。

### 3.2. Laboratory Manager (Campus Operations Department) 实验室管理人员（校园运营部）:

- Manage its responsibility for all waste collection and storage facilities in the laboratory, as well as the

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corresponding operational safety work;

管理其负责实验室内所有废液收集和存储设施设备、以及相应的操作安全工作；

- Responsible for the safety management of waste liquids in the laboratory, such as: checking the status of various waste liquid containers, timely transporting waste liquids, registering waste liquid production and transfer volume registration work, etc.;
- 负责按照实验室各项废液安全管理工作，如：检查各类废液容器状态、及时转运废液、登记废液产生和转移量登记工作等等；
- Comply with the management provisions of this document and complete the assigned work;
- 遵守本文的管理规定，并完成受指派的工作；
- Complete the waste management capability training that the laboratory administrator should have;
- 完成实验室管理员所应具备的废液管理能力培训；
- Report abnormalities to the appropriate laboratory management personnel in a timely manner;
- 及时汇报异常情况至相应的实验室管理层人员；
- Responsible for external personnel to enter the laboratory supervision and accompanying work and their behavioral safety.
- 负责外部人员进入实验室监督和陪同工作及其行为安全。

### 3.3. EHS office EHS办公室：

- Establish and maintain a database and inventory of laboratory wastes in schools;
- 建立并维护校内实验室废物分类数据库及清单；
- Responsible for the development of this procedure, as well as supervising the effective implementation of waste control measures by the respective departments or laboratories;
- 负责制定本程序，以及监督各相应部门或实验室对废弃物控制措施的有效落实；
- Assist laboratory management personnel in laboratory waste disposal and storage training;
- 协助实验室管理人员进行实验室废弃物处理及储存培训工作；
- Supervise the state maintenance and periodic inspection and inspection requirements of laboratory waste disposal and temporary storage facilities;
- 监督实验室废弃物处理及暂存设施设备的状态维护和定期检查、检验要求；
- Assist the school's waste management department in scientific management of waste and rational optimization.
- 协助校内废弃物管理部门对废物进行科学管理，合理优化。

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#### 4.0 Terms and definitions 术语及定义

**PPE:** Personal Protective Equipment 个人防护设备

**MSDS:** Material Safety Data Sheet 化学品安全说明书

**Chemicals:** Refers to reagents, test solutions and samples used in the laboratory. The management procedures of chemicals in the college should be implemented in accordance with the requirements of the Chemical Safety Management System.

**化学品:** 指实验室内使用的试剂、试液和样品，化学品在学院内的管理流程请参照《化学品安全管理制度》要求落实。

**GHS:** Globally Harmonized System of Classification and Labelling of Chemicals，即全球化学品统一分类和标签制度

**NFPA Code:** National Fire Protection Association Code 美国消防协会对有害物料标签辨识要求；

**Laboratory liquid waste:** referred to as experimental waste liquid, including general waste water, chemical test waste liquid, radioactive waste liquid and infectious waste liquid.

**实验室液体废弃物:** 简称实验废液，包括一般废水、化学性实验废液、放射性废液及感染性废液。

**General wastewater:** mainly from the laboratory cleaning laboratory equipment water, need to be discharged into the school wastewater collection system, and then enter the school wastewater treatment station treatment, after the standard is discharged into the urban sewage treatment system;

**一般废水:** 主要来源于实验室清洁实验仪器用水，需排入校内废水收集系统，然后进入校内废水处理站处理，达标后排入城市污水处理系统；

Including but not limited to the following:

包括但不限于以下内容：

- Waste liquid from the cleaning of various laboratory appliances and equipment(glass containers, injection bottles, sample preparation equipment, etc.);  
清洗各种实验室器具和设备时产生的废液（各种玻璃容器、注射瓶、样品制备设备等）；
- Waste liquid generated by the equipment cooling device (such as various distillation cooling devices, equipment cooling devices, etc.).  
设备冷却装置产生的废液（如各种蒸馏冷却装置、设备冷却装置等）。

**Chemical experiment waste liquid:** refers to the organic and inorganic waste liquid produced during the experimental process, such as teaching and research. It must be classified and collected in the school and entrusted to the external professional waste disposal company for processing; including but not limited to the following contents: produced during the experimental operation Various strong acids, strong bases, organic

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solutions, etc..

**化学实验废液:** 是指教学、研究等实验过程中所产生的有机、无机废液，校内须分类收集，委托外部专业废弃物处理公司处理；包括但不限于以下内容：实验操作过程中产生的各种强酸、强碱、有机溶液等；

**Biological Infectious Waste Liquid:** refers to an experimental waste liquid that carries pathogenic microorganisms and has a risk of causing the spread of infectious diseases.

**生物感染性废液:** 是指携带病原微生物，具有引发感染性疾病传播危险的实验废液。

**Radioactive waste liquid:** refers to waste liquid containing radionuclides or contaminated by radionuclides, whose concentration or activity is greater than the cleansing and control level specified by the national environmental protection department, and is not expected to be used.

**放射性废液:** 是指含有放射性核素或被放射性核素污染，其浓度或活度大于国家环保部门规定的清洁解控水平，并且预计不再利用的废液。

## 5.0 Process流程

### 5.1 Classification of laboratory waste fluids实验室废液分类

The first category: chemical experiment waste liquid according to its chemical properties, generally can be divided into two categories: organic chemical experimental waste liquid and inorganic chemical experimental waste liquid.

The organic chemical experimental waste liquid generally includes oils and fats, halogen-containing organic solvents, halogen-free organic solvents, and formaldehyde-containing organic solvents.

The inorganic chemical experimental waste liquid generally includes a heavy metal waste liquid, an acidic waste liquid, an alkaline waste liquid, a hexavalent chromium waste liquid, a mercury containing waste liquid, a fluorine-containing waste liquid, a cyanide-containing waste liquid, and the like.

第一类：化学实验废液按其化学性质，一般可分为有机化学类实验废液和无机化学类实验废液两大类。

有机化学类实验废液一般包括油脂类、含卤素有机溶剂类、不含卤素有机溶剂类、含甲醛有机溶剂类等。

无机化学类实验废液一般包括含重金属废液、酸性废液、碱性废液、含六价铬废液、含汞废液、含氟废液、含氰废液等。

The second category: biological infectious waste liquid produced by biological laboratories, carrying

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pathogenic microorganisms.

第二类：由生物实验室产生的生物感染性废液，携带病原微生物。

The third category: waste liquids containing radionuclides or contaminated with radionuclides and expected to be unrecyclable.

第三类：含有放射性核素或被放射性核素污染，且预计不可再利用的废液。

## 5.2 Storage container and identification of waste liquid 废液的贮存容器及标识

### 5.2.1. Selection of storage containers 贮存容器的选择

#### Container material 容器材质

Any part of the container (including the cover) that is in contact with the waste liquid shall be able to withstand the various chemistry of the waste liquid. The material shall not cause dangerous substances with the waste liquid or weaken the firmness of the container (eg acid-proof iron container Packed, lye disabled glass containers).

For example: use a dedicated waste tank or a high-density polyethylene waste tank resistant to strong acids and alkalis.

容器（包括封盖）上任何与废液接触的部分，需能承受废液的化学等各类作用，材料不能因与废液产生危险物或减弱容器的牢固性（如酸液禁用铁容器承装，碱液禁用玻璃容器承装）。

例如：使用专用的废液桶或耐酸碱的高密度聚乙烯废液桶。

#### Size of container 容器大小

Considering that a 15L container is generally convenient for transport and temporary storage, the volume should not be too large.

If necessary, the container containing the chemical waste liquid can be placed in a larger other container.

考虑到一般用15L的容器便于转运和暂存，体积不宜过大。

必要时，可将装有化学废液的容器放置在较大的其他容器内。

#### Container integrity 容器完好性

Before each use containers, check the inside and outside of the container, in order to ensure that the container is intact.

在每次使用容器前，应先检查容器内外，以确保容器完好无损。

All containers containing chemical waste liquid should be properly covered or sealed, placed smoothly and kept clean.

所有承装化学废液的容器都应妥当的盖好或者密封，平稳放置及保持容器清洁。



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### 5.2.2. Identification of waste liquid 废液的标识

A special waste mark shall be attached to the container containing the waste liquid, indicating the name, weight, composition, date and dangerous characteristics of the loaded waste liquid, and the contents indicated shall be clearly and legible.

The waste mark must be affixed to the eye-catching position of the container for easy observation.

Waste labels must use special labels that are not susceptible to exposure to sunlight, moisture, and meet national waste label design requirements.

装载废液的容器外须贴上专用废弃物标识，表明所装载废液的名称、重量、成分、日期及危险特性等，所标明的内容应清晰易读；

废弃物标识必须粘贴在容器的醒目位置，便于观察；

废弃物标签必须使用不易因暴晒褪色，防潮，且符合国家废弃物标签设计要求的专用标签。

### 5.3 Requirements for Waste Liquid Storage 废液收贮的要求

In the process of collecting and transferring waste liquid, the operator should properly wear and use the necessary PPE (usually use protective screen / laboratory clothing / chemical resistant gloves / if handling special chemicals, increase personal protection configuration according to specific requirements).

收集、转运废液过程，作业人员应正确佩戴和使用必要的 PPE（一般情况下使用防护面屏/实验服/防化手套/如处理特殊化学品则根据具体要求增加个人防护配置）；

The waste liquid tank is a small-mouth collection container, which must be collected by a funnel during collection to prevent the occurrence of waste liquid; it is recommended to place a leak-proof disk under the barrel during collection.

废液桶为小口收集容器，在收集时须使用漏斗帮助收集，以防止发生废液遗洒；建议收集时在桶的下方摆放防漏盘；

After the waste liquid is poured into the waste liquid tank, the main components of the waste liquid are written on the “classification label” as required.

废液倒入废液桶后，按要求在“分类标签”上写明倒入废液的主要成份；

The waste liquid should be cleaned up in time to avoid a large amount of hoarding. When it exceeds the temporary storage quantity of the laboratory, it will be immediately transferred to the waste temporary storage room of the experimental floor.

废液应及时清理，避免大量囤积，超过实验室暂存数量时，立即转运至该实验楼层的废弃物暂存



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间;

Before transferring to the waste temporary storage room or warehouse, you must communicate with the waste management person to determine the mode and time of the transfer. The waste management person in charge coordinates and completes the operation. If there is a problem with the packaging or label, the waste must be in the laboratory. After completing the reprocessing requirements, it can be transferred to the temporary storage room.

转运至废物暂存间或仓库前, 必须和废弃物管理负责人沟通确定转运的方式和时间, 由废弃物管理负责人协调配合完成操作, 如包装或标识存在问题, 则该废弃物必须在实验室完成重新处理达要求后方可转入暂存间;

When the waste temporary storage tray is fully loaded, immediately contact the waste management department to ship to the school waste temporary storage warehouse.

废弃物暂存间托盘满载时, 则立即联系废弃物管理部门装运至校内废弃物暂存仓库;

The intra-transportation and storage of all waste liquids should be recorded and used to calculate the total amount of waste liquid produced in each laboratory.

所有废液的校内转运和入库都应被记录, 用于统计各实验室废液产生总量;

The transfer of hazardous waste liquids should be carried out by a special person, and must be trained in waste treatment before passing the job and passed the assessment.

危险废液的校内转运应由专人负责, 且必须在上岗前接受废物处理培训, 并通过考核;

Hazardous waste should be stored in a container that can safely and permanently store waste, and there should be strict entry and exit restrictions for waste storage areas; empty the temporary storage space as soon as possible, otherwise it is on a first-in, first-out basis.

危险废物应保存在可以安全持久保存废物的容器中, 而且对于废物储存地区应该有严格的进出限制; 尽可能一次性将暂存间清空, 否则按先入先出原则;

When storing waste-liquid drums, tighten the lids securely and arrange the drums upright in neat rows.

存放废液桶时, 须拧紧瓶盖, 整齐直立摆放;

Containers transported to the waste storage room must be placed on the corresponding leak-proof trays according to classification, and it is prohibited to place them anywhere.

转运至废液储存间的容器必须按分类放置在相应的防泄漏托盘上, 禁止随地摆放;

Every Containers Every container holding hazardous waste must bear a label that meets the requirements specified in the appendix to this standard, clearly indicating the generation area, generation date, transfer date, person responsible, and any other required information.

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盛装危险废物的容器上必须粘贴符合本标准附录要求的所示的标签，并注明产生区域/产生日期/转运日期/负责人等信息；

Hazardous waste storage facilities must be provided with warning signs as required.

危险废物贮存设施都必须按要求规定设置警示标志。

### Classified collection 分类收集:

Collecting according to organic waste liquid, strong acid waste liquid, strong alkali waste liquid, and other inorganic waste liquid.

按有机废液、强酸废液、强碱废液、其它无机废液分类进行收集；

It is forbidden to mix waste liquids of different categories or abnormal reactions (refer to Appendix I<Laboratory Waste Liability Compatibility Chart>).

禁止把不同类别或会发生异常反应的废液混放（参阅附件一《实验室废液相容表》）；

The highly toxic waste liquid must be collected separately. It is forbidden to mix several highly toxic waste liquids in one container, and temporarily exist in the production laboratory to be treated by an external processor.

剧毒废液须单独收集，禁止把几种剧毒废液混放在一个容器中，且暂存在产生实验室待外部处理商处理；

Non-chemical waste liquid is strictly prohibited from being poured into the waste liquid tank.

非化学废液严禁倒入废液桶中。

### To collect and store, you should pay attention to the following points 收集和存储，应注意:

There are incompatible chemical waste liquids, or chemical waste liquids of different types or different sources, which are strictly prohibited from being stored in the same container to avoid accidents caused by severe chemical reactions.

存在不相适应性的化学废液，或不同类别，或不同来源的化学废液，严禁存放在同一容器内，以免发生剧烈化学反应而造成事故；

When handling chemical waste, operators must wear appropriate personal protective equipment (such as protective screens, chemical resistant gloves and lab coats).

处理化学废液时，操作人员必须穿戴合适的个人防护用品（如防护面屏、防化手套和实验服）；

When dumping large quantities of liquid waste into chemical waste containers, use a special funnel to prevent leakage; when handling chemicals or transferring chemicals to waste containers, they must be

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handled gently to avoid violent collisions.

倾倒大量液体废物到化学废物容器中时，应使用专用漏斗以防止泄露；搬运化学品或将化学品转移到废弃物容器中时，必须轻拿轻放，避免剧烈碰撞；

Wastes entering and leaving the temporary storage room and warehouse must be completed in strict accordance with the requirements.

废物出入暂存间及仓库必须严格按照要求完成登记手续；

In order to prevent the release of toxic and harmful steam and leakage, the container should be covered in time to ensure sealing.

为防止释放有毒有害蒸汽和泄露，应及时盖好容器，确保密封；

When using a container to store liquid chemical waste, a sufficient volume allowance should be left in the container to store only 70%~80% of the total capacity. It is strictly prohibited to exceed 80% of the volume of the container (or 15L waste container is required to be filled from the barrel mouth) There are about 10 CM).

在使用容器贮存液体化学废物时，容器内要留有足够容积余量，只可储存总容量的 70%~80%，严禁超过容器的 80% 容积(或 15L 废液桶盛装到离桶口还有 10CM 左右)。

#### 5.4 Laboratory waste liquid treatment requirements 实验室废液处理要求

All chemical waste liquids must be temporarily transferred to the designated chemical waste liquid storage warehouse in the school before they can be transferred to the designated professional waste liquid storage warehouse before being processed outside the project.

所有化学废液在委外处理前，必须达到外部专业处理商的转运要求后，方可暂存至校内指定的化学品废液暂存仓库；

For the presence of biological infectious waste liquid, it must be sterilized, and then treated according to the common experimental waste liquid. After reaching the standard, it can be discharged into the internal wastewater treatment tank for treatment. The specific sterilization method can be found in the biochemical solid waste. Waste disposal method.

对于存在生物感染性废液，须进行灭菌后，再按普通实验废液进行处理，达标后方可排入校内废水处理池内进行处理，具体灭菌方法可参见生物化学类固体废弃物中感染性废物的处置方法；

For waste liquids containing radionuclides or contaminated by radionuclides, they must be temporarily stored in a waste-generating laboratory and transported by a professional waste disposer.

对于含有放射性核素或被放射性核素污染废液，必须暂存于废物产生实验室，由专业废弃物处理商

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进行转运处理；

The laboratory should try to recover organic solvents for repeated use in experiments.

实验室应尽量回收有机溶剂，供实验重复使用；

The use of laboratory chemicals generally considers the experimental content of the entire semester during the experimental setup process and arranges the effective use of the waste liquid after the experiment in the next experiment. At the same time, the design of the experiment also needs to consider the harmlessness of the product, or weaken the subsequent treatment. Difficulty.

This series of experimental designs must be considered in detail in the subject experiment teaching.

实验室化学品的使用一般在实验设置过程中考虑整个学期的实验内容而安排有效利用实验后的废液于下一个实验，同时实验的设计也需要考虑产物的无害化，或弱化对后续处理的难度。

这一系列的实验设计在学科实验教学中必须详细考虑；

Since the organic solvent is volatile and toxic, if it needs to be poured into a container, the entire recycling process should be carried out in a fume hood, otherwise it is stored in a chemical waste liquid tank through a dedicated chemical waste liquid reflux device.

由于有机溶剂具有挥发性和有毒性，如果需要倾倒入容器，则整个回收过程应该在通风柜中进行，否则通过专用的化学废液倒流设备储存入化学废液桶；

Hazardous waste must be disposed of by a professional waste disposal company with appropriate waste disposal qualifications.

危险废弃物必须委托具备相应废弃物处理资质的专业废弃物处理公司进行处理；

The disposal of hazardous waste liquid should refer to the "Waste Management Procedures".

危险废弃物废液的处理需参照“废弃物管理规定程序”。

High-concentration acidic or alkaline waste liquids must be diluted before collection.

高浓度的酸性/碱性废液在进行收集前，必须完成稀释处理。

## 6.0 Attachment附件

附件 1: GTIIT\_EHS\_03\_01-A01 Laboratory Waste Liquid Compatibility Table 实验室废液相容表

附件 2: GTIIT\_EHS\_03\_01-A02 Waste classification table 废弃物分类表

附件 3: GTIIT\_EHS\_03\_01-A03 Brief description of waste liquid treatment methods 废液处理方法简述