



*Strict Controlled Chemicals Management*





# *Relevant laws and regulations for the management of controlled chemicals*

No.	Regulation name
1	Hazardous chemicals catalog (including highly toxic chemicals) 危险化学品目录 (2018版)
2	List of explosive chemicals 易制爆危险化学品名录2017
3	Classification and variety catalogue of precursor chemicals 2017 易制毒化学品的分类和品种目录
4	Regulation on the Administration of Precursor Chemicals 易制毒化学品管理条例 (2018年修订)
5	General rule for classification and hazard communication of chemicals 化学品分类和危险性公示通则 (gb13690-2009)
6	Specifications for storage and preservation of combustible and explosive goods 易燃易爆性商品储存养护技术条件 (GB 17914-2013)
7	Specifications for storage and preservation of toxic goods 毒害性商品储存养护技术条件 (GB 17916-2013)
8	Specifications for storage and preservation of corrosive goods 腐蚀性商品储存养护技术条件 (GB 17915-2013)
9	Safety management technical rules for dangerous chemicals used in labs 实验室危险化学品安全管理规范第2部分: 普通高等学校
10	Safety data sheet for chemical products-Content and order of sections 化学品安全技术说明书 内容和项目顺序 GB T 16483-2008
11	Measures for the Implementation of the Permits for the Safe Use of Hazardous Chemicals 危险化学品安全使用许可实施办法 (2017年修订)
12	Catalogue of Industries Applicable to Safe Use of Hazardous Chemicals 危险化学品安全使用许可适用行业目录2013-02-21
13	Safety code for construction and storage of dangerous chemicals warehouse 危险化学品仓库建设及储存安全规范 (DB 11755-2010)
14	Measures for the Safety Supervision and Administration of Hazardous Chemical Construction Projects 危险化学品建设项目安全监督管理办法 (2015年修订)
15	Personal acceptable risk standards and social acceptable risk standards for hazardous chemical production and storage devices (for trial implementation) 危险化学品生产、储存装置个人可接受风险标准和社会可接受风险标准(试行)
16	Measures for the Administration of Safety Licensing for Radioisotopes and Radiation Devices 放射性同位素与射线装置安全许可管理办法 (2017年修订)
17	Regulations on the Safety and Protection of Radioisotopes and Radiation Devices (2019 Revision PKULAW Version) 放射性同位素与射线装置安全和防护条例 (2019年修订)
18	.....

# *Controlled chemicals management process*

**1**

## *Front end*

- *Site Selection*
- *Functional layout*
- *Functional design of each element*

*Intrinsically safe design*

**2**

## *Process*

- *System management and maintenance*
- *Element life cycle management*

*Full life cycle management*

**3**

## *Extremity*

- *Emergency Response*
- *Continuous new improvement*

*Continuous improvement*

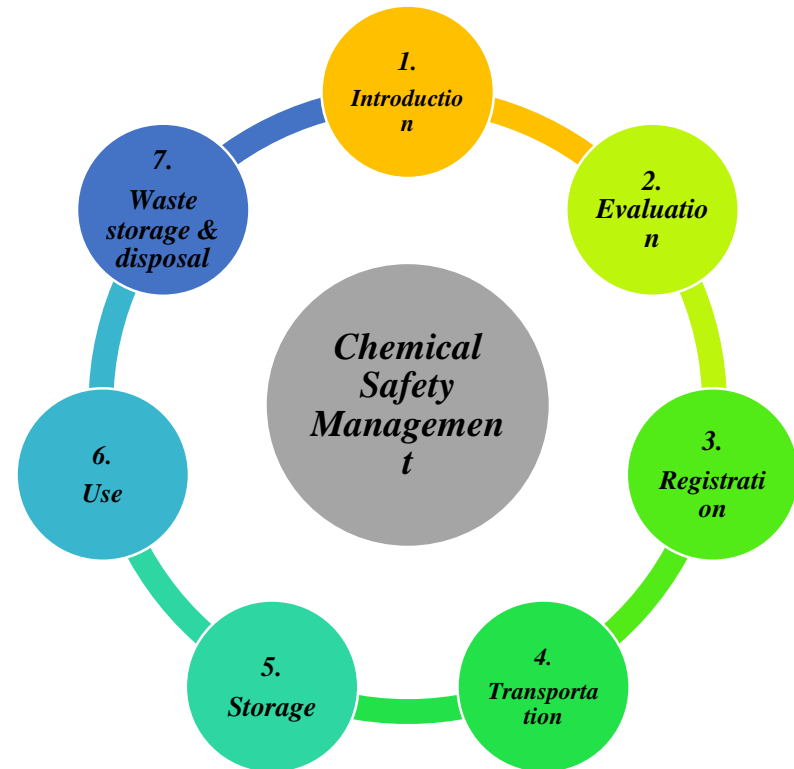
# Strict Chemical Safety Management

## **Full lifecycle management:**

*Use the life cycle of chemicals management process to prevent or minimize potential exposure of humans and the environment to toxic and hazardous chemicals*

Same as Chemical managers, they all need to assess the potential hazards of this chemical throughout the life of the unit;

Manage potential risks and develop appropriate controls.





# Controlled chemicals management process

## Classification and Definition of Strict Control Chemicals 管制类化学品分类及定义:

### 1. Precursor Chemicals 易制毒化学品:

Classification and variety catalogue of precursor chemicals 2017  
易制毒化学品的分类和品种目录 2017

### 2. Explosive Chemicals 易制爆化学品:

List of explosive chemicals 2017  
易制爆危险化学品名录2017

### 3. Highly Toxic Chemicals 剧毒化学品:

Hazardous chemicals catalog (Version 2015 including highly toxic chemicals)  
危险化学品目录 (2015版内标注为剧毒化学品的内容)



# *Precursor Chemical Safety Management*

---

**Precursor chemicals** - refers to the substances regulated by the state can be used to manufacture drugs, raw materials and chemical additives.

**Identification basis:** *Catalogue of Classification and Varieties of Precursor Chemicals* and Supplementary Catalogue Announced by the State Council.

**Regulatory requirements:** *Regulations on the Administration of Precursor Chemicals* (Order No. 445 of the State Council, revised in 2018).

Common hazardous chemicals that are precursor chemicals are: toluene, acetone, methyl ethyl ketone, potassium permanganate, sulfuric acid, hydrochloric acid, and bromine.

# Precursor Chemical Safety Management

There are 38 substances in 3 categories of precursor chemicals

## Category I

1. 1-phenyl-2-propanone
2. 3,4-methylenedioxyphenyl-2-propanone
3. Piperonal
4. Jaundice
5. Astragalus oil
6. Isoflavone
7. N-acetylanthranilic acid
8. Anthranilic acid
9. Lycopene
10. Ergotamine
11. Ergometrine
12. Ephedrine, pseudoephedrine, racemic ephedrine and other ephedrine substances
13. Hydroxyimimine
14. 1-phenyl-2-bromo-1-propanone
15. 3-oxo-2-phenylbutyronitrile
16. O-chlorophenylcyclopentanone
17. N-phenethyl-4-piperidone
18. 4-anilino-N-phenethylpiperidine
19. N-methyl-1-phenyl-1-chloro-2-propylamine

## Category II

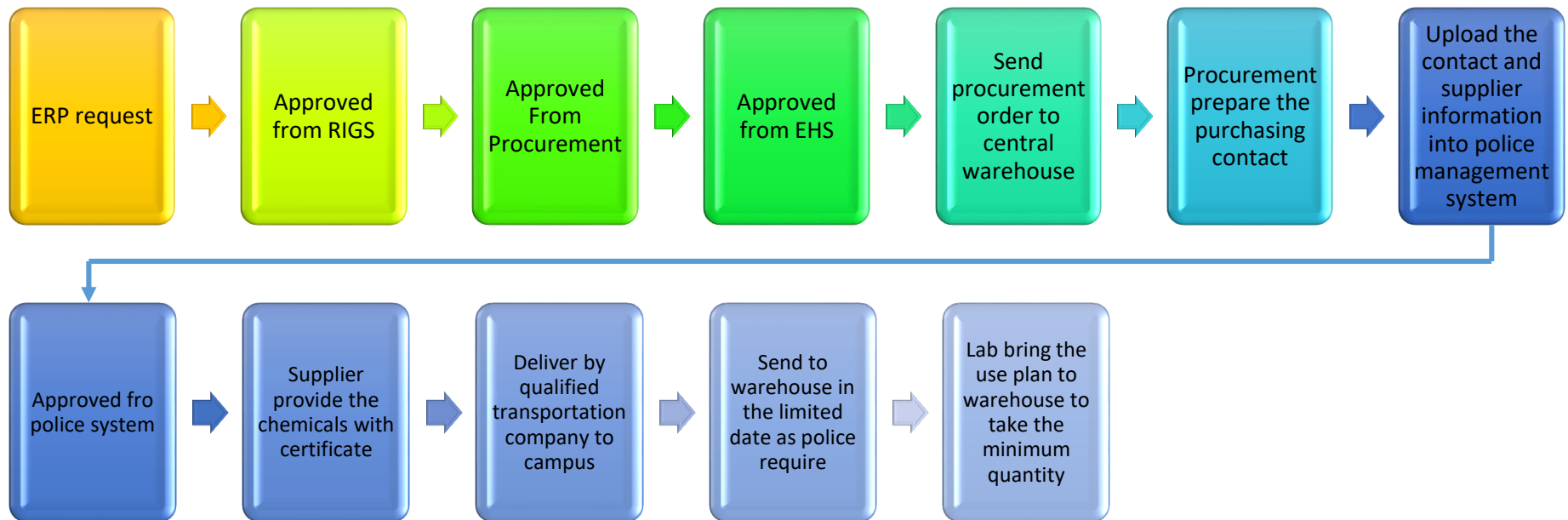
1. Phenylacetic acid
2. Acetic anhydride
3. Chloromethane
4. Ether
5. Piperidine
6. Bromine[ 3]
7. 1-phenyl-1-acetone
8.  $\alpha$ -Phenylacetoacetic acid methyl ester (Added in 2021)
9.  $\alpha$ -acetoacetanilide (Added in 2021)
10. 3,4-methylenedioxyphenyl-2-propanone glycidic acid (Added in 2021)
11. 3,4-Methylenedioxyphenyl-2-propanone glycidyl ester (Added in 2021)

## Category III

1. Toluene
2. acetone
3. Methyl ethyl ketone
4. potassium permanganate
5. sulfuric acid
6. hydrochloric acid
7. Phenylacetoneitrile (Added in 2021)
8.  $\gamma$ -Butyrolactone (Added in 2021)



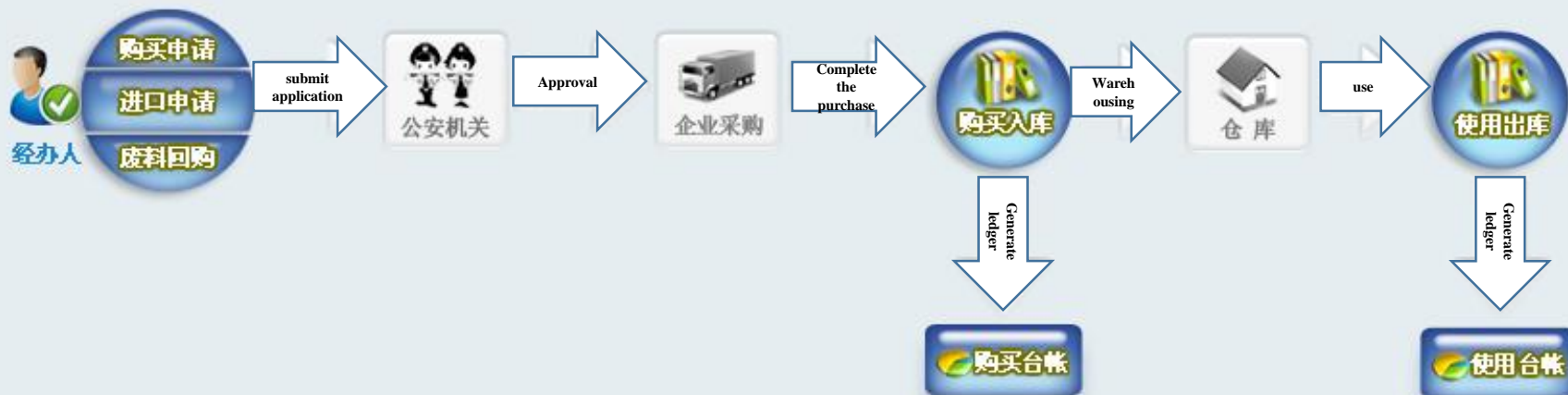
# Procurement process of controlled chemicals:





## *Schematic diagram of the purchase process of precursor chemicals:*

Business process of purchasing precursor chemicals



Applications for the purchase of pharmaceutical precursor chemicals in the first category shall be examined and approved by the drug supervision and administration department of the people's government of the province, autonomous region, or municipality directly under the Central Government where they are located; applications for the purchase of non-pharmaceutical precursor chemicals in the first category shall be approved by Approval by the public security organ of the people's government of the province, autonomous region, and municipality where it is located.

Those who purchase the second and third categories of precursor chemicals shall file the required variety and quantity with the public security organ of the local county-level people's government before purchasing.

# Schematic diagram of the purchase process of precursor chemicals:



## 非药品类易制毒化学品经营备案证明

**编 号：** (蒙) 3J15010300004      **品 种 类 别：** 非药品类易制毒第三类

**单 位 名 称：** 内蒙古亚欣环境工程技术有限公司      **经 营 品 种：** 硫酸、盐酸\*\*\*

**经 济 类 型：** 有限公司

**主 要 负 责 人：** 兰桂荣      **主 要 流 向：** 省内、省外

**单 位 地 址：** 内蒙古自治区呼和浩特市新城区成吉思汗大街大学生创业园8号楼四层4016号

**发 证 机 关：** 呼和浩特市新城区安全生产监督管理局

**有 效 期：** 自二〇一六年十二月七日至二〇一九年十二月六日

二〇一六年十二月七日  
 国家安全生产监督管理总局监制

## 第二类、第三类易制毒化学品购买备案证明

证书号：450722GB18000048      校验码：2T30603120011374618000048  
 公文号：钦浦公禁易[2018]年第200048号

购买单位 或 个人	名称/姓名 (单位公章)	浦北县官垌镇卫生院	住所/地址	广西浦北县官垌街解放路	
	法定代表人	陈巨远	电 话	07778858760	
销售单位	名 称	南宁科析仪器成套有限公司	住 所	南宁市星洲路32-4号	
	法定代表人	戴兴伟	电 话	13807713746	
品 名		盐酸	用 途		污水处理系统用
数 量		壹佰贰拾千克 (120kg)	有效次数	多次有效	
有效日期		自 2018年11月12日 至 2019年01月11日			
公安机关:浦北县公安局禁毒大队 经办人:王世联 联系电话:0777-8312363			备注 		
第 ( ) 批 次	购买单位 或 个人	购买数量			销售单位 签注盖章  年 月 日
		经办人	电 话		
第 ( ) 批 次	销售单位	经办人	电 话		
	购买单位 或 个人	购买数量			销售单位 签注盖章  年 月 日
	经办人	电 话			
第 ( ) 批 次	销售单位	经办人	电 话		
	购买单位 或 个人	购买数量			销售单位 签注盖章  年 月 日
	经办人	电 话			
第 ( ) 批 次	销售单位	经办人	电 话		

1. 系统用户可在信息核查模块中按证书号查询      查询码:1451850010111  
 2. 互联网查询地址: <http://www.8007117238.com> (查询码查询)      第1次打印  
 3. 公安网查询地址: <http://10.118.2.175/cf/> (证书号或查询码查询)

# Chemical Safety Management

**Potential Explosive by Chemosynthesis-** can be used as raw materials or accessories to make explosive properties, Strictly controlled by the explosion-proof department of the public security organ.

**Identification basis:** *List of Explosive Dangerous Chemicals* (2017 Edition)

**Regulatory requirements:** *Administrative Measures for the Safety of Explosive Hazardous Chemicals* (Order No. 154 of the Ministry of Public Safety)

Public security requirements for storage sites of potential explosives by chemosynthesis (GA 1511—2018)



## *Potential Explosive by Chemosynthesis:*

---

1. Acids--3
2. Nitrates--11
3. Chlorates--3
4. Perchlorates--4
5. Dichromates--4
6. Peroxides and superoxides--15
7. Flammables reducing agent--16
8. Nitro compounds--11
9. Others--7

## Highly Toxic Chemicals

**Highly toxic chemicals - generally chemicals with severe toxic hazards, including synthetic chemicals and their mixtures and natural toxins, as well as chemicals that are acutely toxic and pose a public safety hazard.**

**There are 148 kinds of highly toxic chemicals listed in the *Catalogue of Hazardous Chemicals* (2015 edition).**



**Note:** Labs must take the following actions before applying for highly toxic chemicals.

- Whether the experimental design can be replaced by other less toxic substances.
- If necessary, please complete the corresponding experimental hazard analysis EHA and pass the EHS office review before purchasing.
- Determine the properties and types of experimental waste, and EHS office to determine the waste disposal method.



# Highly Toxic Chemicals

## Highly Toxic Chemicals

- User of toxic chemicals must pass the training of "operators of toxic substances" organized by the national public security department and obtain the corresponding qualification certificate.
- Toxic chemical management personnel must pass the training of "toxic substance management personnel" organized by the national public security department and obtained the corresponding qualification certificate.



# Controlled chemicals (school) requirements:

**The purchasing unit must have a purchase license for controlled chemicals authorized by the Public Security Bureau**

Before applying for a purchase certificate, the following registration must be completed:

- Unit filing management registration
- Personnel filing management registration
- Storage location management registration
- Purchased goods management registration

Before purchasing, the purchaser must complete the following registration:

- Purchase and sale contract declaration
- Obtain the procurement approval from the public security agency and obtain the corresponding chemical procurement certificate

**Controlled chemicals must be provided by suppliers who are qualified to sell such chemicals**

**Strict controlled chemicals purchasing must be conducted by central chemicals warehouse after applying in ERP.**



# Controlled chemicals (school) requirements:

广东省智慧新危管信息平台 剧毒化学品

危险化学品种

导出

中文名称 填写中文名称 CAS号 填写CAS号 危险性类别 填写危险性类别 查询 重置

序号	中文名称	英文名称	CAS号	危险性类别	分子式	熔点(°C)	沸点(°C)	操作项
<input type="checkbox"/> 1	1,1,1-三氯乙烷	1,1,1-trichloroethane	71-55-6	第6.1类 毒害品		-32.5	74.1	<a href="#">查看</a>
<input type="checkbox"/> 2	1,1,2-三氯三氟乙烷	1,1,2-trifluorotrichloroethane	76-13-1	第6.1类 毒害品		-35	47.6	<a href="#">查看</a>
<input type="checkbox"/> 3	1,1,2-三氯乙烷	1,1,2-trichloroethane	79-00-5	第6.1类 毒害品		-35	114	<a href="#">查看</a>
<input type="checkbox"/> 4	1,1,3-三氯-1,3,3-三氟丙酮	trichlorotrifluoroacetone	79-52-7	第6.1类 毒害品		<-78	84.5	<a href="#">查看</a>
<input type="checkbox"/> 5	1,1-二氧基乙烷	1,1-dioxyethane	105-57-7	第3.1类 低闪点易燃液体		-100	102.7	<a href="#">查看</a>
<input type="checkbox"/> 6	1,1-二氟乙烷	1,1-difluoroethylene	75-38-7	第2.1类 易燃气体		-144	<-70	<a href="#">查看</a>
<input type="checkbox"/> 7	1,1-二氟乙烷	1,1-difluoroethane	75-37-6	第2.1类 易燃气体		-117	-25.7	<a href="#">查看</a>
<input type="checkbox"/> 8	1,1-二氯-1-硝基乙烷	1,1-dichloro-1-nitroethane	594-72-9	第6.1类 毒害品		无资料	124	<a href="#">查看</a>
<input type="checkbox"/> 9	1,1-二氯乙烷	1,1-dichloroethylene	75-35-4	第3.2类 中闪点易燃液体		-122.6	31.6	<a href="#">查看</a>
<input type="checkbox"/> 10	1,1-二氯乙烷	1,1-dichloroethane	75-34-3	第3.2类 中闪点易燃液体		-96.7	57.3	<a href="#">查看</a>

当前为第1 - 10 条记录,共 2,306 条

首页 上一页 1 2 3 4 5 ... 231 下一页 尾页

- In every January, the unit of strict chemicals using must to submit the copies (with the official seal of the Institute) of the use, management records and the transaction records of these chemicals to the police department for documentation and renew the purchasing certificate.

管制类化学品使用单位每年一月份需将上一年度所有易制毒、易制爆、剧毒化学品使用管理台帐和交易记录台帐复印件加盖学校公章后提交至去公安主管部门审查备案，并更新购买许可证；



# Controlled chemicals (school) requirements:

gdzyb.wxhp.cn:5500/churuku/listCrk

广东省智慧新危管信息平台 易制爆危险化学品

台账管理

- 物品台账管理
- 物品标识管理

业务办理

- 合法用途说明
- 单位锁定管理

查询统计

- 治安防范
- 预警监控
- 基础信息

入库登记

- 购买入库
- 归还入库
- 其他入库
- 进口入库

出库登记

- 领取出库
- 其他出库
- 销毁出库

物品台账管理

台账查询 流向明细

台账类型: 全部 对方单位: 选择对方单位 涉及物品: 请选择物品 查询 重置

序号	登记单位	对方单位	台账类型	涉及物品及数量	出入库时间	登记时间
未找到任何记录						

记录数为0

When purchasing controlled chemicals, it is required to provide the below information to the public security department which is controlling chemical purchasing system, such as

- Purchase license of controlled chemicals
- Instructions for the use of controlled chemicals
- Purchasing contract of controlled chemicals
- The company's certificate of qualification for transportation should also be provided for cross-city transfer.

*For internal use only*

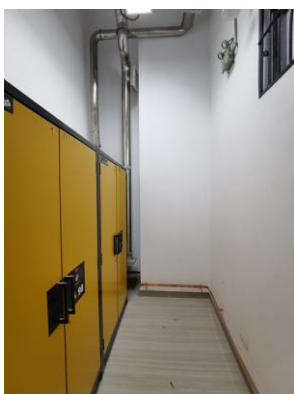
# Controlled chemical safety management



## Maximum temporary storage (warehouse)

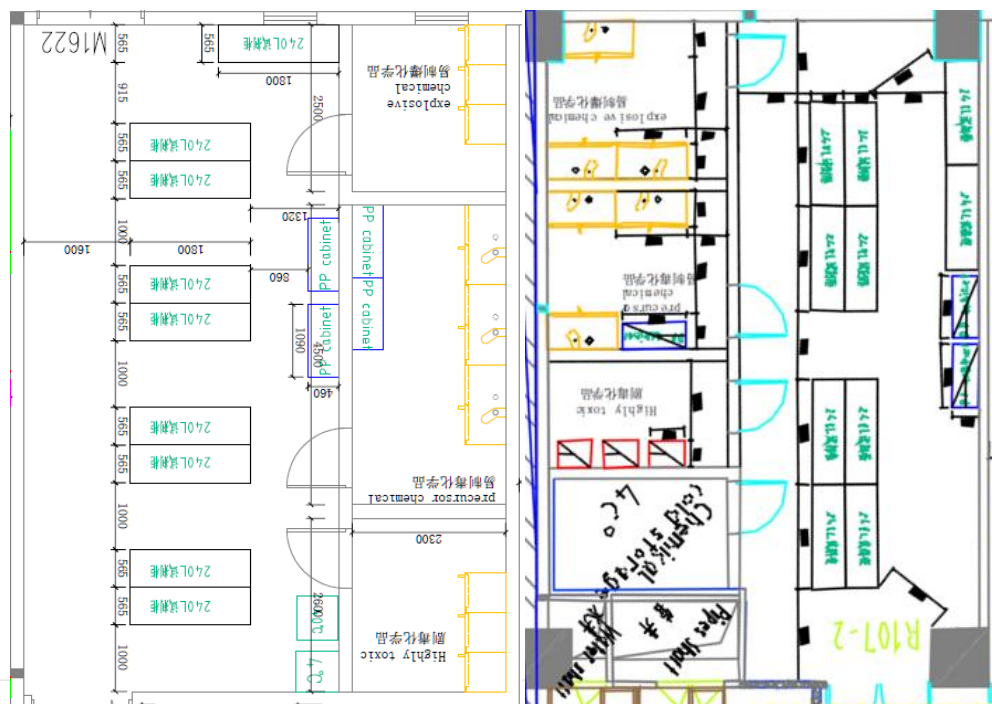
The quantity of controlled chemicals purchased each time must be less than or equal to the maximum storage capacity of a single controlled chemical warehouse, such as:

- Precursor 450kg/warehouse;
- Potential Explosive 150Kg / warehouse;
- Highly toxic 50Kg / warehouse;
- A single package shall not exceed 25Kg.



T102

R107





## Requirements for the use site (laboratory) of controlled chemicals:

**Hazard notification:** The hazardous chemicals used in the school must have a material hazard known card, that is, an occupational health hazard known card must be posted at the site of use;

Both warehouse and lab temporary storage areas need to be set up as required.

At present, the maximum temporary storage capacity of precursor chemicals, explosive chemicals and highly toxic chemicals in a single lab is **30Kg/20Kg/500g** each.



危险化学品安全周知卡		
危险类别	品名	危险性标志
第3类 易燃液体	丙酮 乙醇 甲苯 三氯乙烷	
理化特性		危险性
pH 值：无资料 沸点、初沸点和馏程（°C）： 56700/760760mmHg(0.1) 闪点（°C）：11° 爆炸极限【%（体积分数）】：无资料 饱和蒸气压（kPa）：184 mm Hg (20 °C) 相对密度(水以 1 计)：0.7917g/mL at 25°C(0.8) 气味阈值（mg/m <sup>3</sup> ）：无资料 溶解性：水溶性：soluble.		高度易燃液体和蒸气，造成严重眼刺激，可引起昏睡或窒息。 H225 高度易燃液体和蒸气。 H319 造成严重眼刺激。 H336 可引起昏昏或窒息。
急救措施		消防措施
吸入：如果吸入，请将患者移到新鲜空气处。 皮肤接触：脱去污染的衣着，用肥皂水和清水彻底冲洗皮肤。就医。 眼睛接触：分开眼睑，用流动清水或生理盐水彻底冲洗。并立即就医。 食入：漱口，禁止催吐，立即就医。 将患者转移到安全的场所，咨询医生。 注意：将化学品安全技术说明书随时置于作业场所。		火灾时： 用水雾、干粉、泡沫或二氧化碳灭火剂灭火。避免使用直流水灭火，直流水可能导致可燃性液体的飞溅，使火势扩散。
安全及防护措		
泄漏应急处理		
疏散：迅速撤离危险区人员至上风处，并立即隔离，严禁无关人员进入。 PPE：建议应急处理人员戴过滤式防毒面具，戴防化手套，穿防化服及防化靴。 处置：尽可能切断泄漏源，合理通风，加速扩散。用气筒等妥善收集，移装、抽后处理。		
应急救援机构		救援联系电话
消防救援机构：学校应急响小组		119/8807 7119
医疗救援机构：学校医务室		120/8807 7120



## Storage requirements for controlled chemicals:

1. It shall be stored in a closed, semi-closed or open-air special storage place for hazardous chemicals in accordance with relevant national standards and specifications, and shall be stored in zones, classifications, and warehouses according to the performance of hazardous materials.
2. When using storage rooms or storage cabinets to store explosive hazardous chemicals, the storage capacity of a single storage room or storage cabinet should be less than 50 kg.
3. It is necessary to store explosive chemicals, precursor chemicals and highly toxic chemicals in separate warehouses and not store them in the same warehouse.
4. The storage site shall be in accordance with the relevant national standards and norms and requirements, and set up corresponding security guard facilities such as staffing, warehouse entities, technical management, etc., to prevent the loss, theft, and robbing of controlled hazardous chemicals.
5. Establish an inspection and registration system for the entry and exit of controlled hazardous chemicals, and regularly check the inventory of precursor hazardous chemicals and the storage environment.
6. If controlled hazardous chemicals are lost, stolen, or robbed, they shall immediately report to the public security organ.
7. The public security precautions of controlled hazardous chemicals storage places (except storage rooms and storage cabinets) shall be included in the content of the unit's safety evaluation, and can only be used after passing the safety evaluation.
8. Controlled hazardous chemicals that constitute a major source of danger should be stored separately in a dedicated warehouse, and a "five-double" management system such as a two-person sending and receiving system and a two-person storage system shall be implemented.

# "Five Double Rules" for Controlled Chemicals:

- Precursor, explosive, and highly toxic chemicals should strictly follow the five-pair rule:

Stored separately in a special double-locked storage cabinet, implementing "double storage, double handle locks, double pick-up and double use, double book accounts (laboratory entry and exit, laboratory use registration) "

Precursor chemicals 易制毒 explosive chemicals 易制爆 Highly Toxic Chemicals 剧毒化学 品		Chemical S Inventory Records 化学品库 存表		Lab Name实验室名称:													
General Chemicals一般化学 品		Every semester, the records need to be confirmed with the chemicals warehouse (can be sent by mail or signed documents) 每半年需将记录与仓库进行核销 (可通过邮件或签字文件进行核对) *the data included pick up from central warehouse and self-purchase *数据包括从中央仓库领取的以及实验室自购的															
No. 序号	English name of Chemicals	Chinese Name 化学品(中文)	Chemical Type 化学品种类	Size规格	Cas.No.	Brand 品牌	Storage cabinet in lab 实验室存放柜	Inbound Date* 实验 室入库日期*	Received Quantity * 实验室入库 数量/瓶、罐 *	Use Date 使用日期	use quantity 使用数量	unit of measureme nt 计量单位	Experiment Name 实验名称	Use Date 使用日期	use quantity 使用数量	unit of measureme nt 计量单位	Experiment Name 实验名称
1	sodium borohydride	硼氢化钠	explosive chemicals 易制爆	500 g	16940- 66-2	Merck	special-basement	10/08/2020	10	10/08/2020	1	g	analytic chemical experiment 1	20/08/20 20	1	g	analytic chemical experiment 2
2	Magnesium	镁	explosive chemicals 易制爆	500 g	7439- 95-4	Merck	special-garbage	11/08/2020	11	11/08/2020	2	g	analytic chemical experiment 2	21/08/20 20	2	g	analytic chemical experiment 3
3	Potassium nitrate	硝酸钾(硝石)	explosive chemicals 易制爆	500 g	7757- 79-1	Merck	special-garbage	12/08/2020	12	12/08/2020	3	g	analytic chemical experiment 3	22/08/20 20	3	g	analytic chemical experiment 4
4	Hydrogen peroxide	双氧水	explosive chemicals 易制爆	500 ml	7722- 84-1	Merck	special-garbage	13/08/2020	13	13/08/2020	4	g	analytic chemical experiment 4	23/08/20 20	4	g	analytic chemical experiment 5
5	Potassium permanganate (0.02mol/L)	高锰酸钾	Precursor chemicals 易制毒	1L	7722- 64-7	Merck	special-basement	14/08/2020	14	14/08/2020	5	g	analytic chemical experiment 5	24/08/20 20	5	g	analytic chemical experiment 6
6	Potassium permanganate	高锰酸钾	Precursor chemicals 易制毒	500 g	7722- 64-7	Merck	special-basement	15/08/2020	15	15/08/2020	6	g	analytic chemical experiment 6	25/08/20 20	6	g	analytic chemical experiment 7
7	Silver nitrate	硝酸银	explosive chemicals 易制爆	100 g	7761- 88-8	Merck	special-garbage	16/08/2020	16	16/08/2020	7	g	analytic chemical experiment 7	26/08/20 20	7	g	analytic chemical experiment 8

## Requirements for the use site (laboratory) of controlled chemicals:





### Storage requirements:

- The handling, loading and unloading equipment and tools for combustible and explosive chemicals shall comply with the explosion-proof requirements.

### Specifications for storage and preservation of combustible and explosive goods

- Explosive chemicals that need to be refrigerated should be placed in fire-proof refrigerators, e.g.: hydrogen peroxide.
- Explosive chemicals should be placed in fire-proof cabinets, e.g.: zinc powder, aluminum powder
- reductive and oxidizing explosive chemicals should be stored separately or segregated



<p>^ Forced air cooling</p>  <p>Highly efficient fans cool freshly stored produce quickly and maintain an even refrigeration temperature throughout the interior.</p>	<p>^ Digital temperature display</p>  <p>The digital temperature display indicates the refrigerator's interior temperature to the exact degree. This can be easily read from the outside to give users immediate information and without the need to open the appliance.</p>
<p>^ Explosion protection: ATEX 95</p>  <p>The ATEX 95 certification confirms that Liebherr laboratory fridges and freezers with explosion protection are appropriate for the storage of explosive and highly flammable materials within the meaning of EU Directive 2014/34/EU (ATEX).</p>	<p>^ Alarm test function</p>  <p>This test function can be used to check whether an internally or externally connected alarm system is functioning correctly. The appliance's refrigeration performance is not affected by this test.</p>

## Requirements for the use site (laboratory) of controlled chemicals:

- Strict Controlled Chemicals in lab should not exceed the amount of two days' usage.

Highly toxic chemical must be controlled for the day's usage and used up the same day.

If only a very small amount is used each time, and only a small part of the minimum unit purchase amount, the remaining drugs are managed by two persons in the laboratory.





## Requirements for the use site (lab) of controlled chemicals:



Adobe Acrobat  
Document



Microsoft Word  
2003 Document



*For detail requirement about Chemical storage quantity please refer to the files*

8.2	Storage of Chemical Reagent in Laboratory
8.2.1	Check if dynamic account is established for the use of chemicals in laboratories
8.2.2	Check if reagent drugs are stored in specific space scientifically and orderly
8.2.3	Generally, total storage should not exceed 100L or 100kg, of which the total storage of flammable and explosive chemicals should not exceed 50L or 50kg, and a single package should not be larger than 20L or 20kg; a single experimental device exists more than 10L storage tanks of Class A substances, or more than 20L storage tanks of Class B substances, or more than 50L storage tanks of Class C substances, which need to be equipped with leak alarms and ventilation devices. (based on 75 m <sup>2</sup> as the standard, storage volume to examine the lab area)
8.2.4	Check if chemical labels are obvious, complete and clear
8.3	Operational Safety of Experiment
8.3.1	Check if process instructions and emergency plans are prepared for hazardous experiments and chemicals
8.3.2	Check if hazardous chemical processes and devices are provided with auto control and power redundancy
8.3.3	Check if gases with toxicity and peculiar smell are collected and protected
8.4	Management of Controlled Chemicals
8.4.1	Check if precursor chemicals and potential explosives are stored by category, kept by a specially-assigned person and provided with receiving, use and handling records
8.4.2	Check if explosives are isolated, stored at limited amount, used and destroyed as specified by public security department
8.4.3	Check if narcotic drugs and psychotropic drugs are stored in specific safe box and provided with standard accounts for receiving, use and handling

## Requirements for the use site (lab) of controlled chemicals:

For detail requirement about Chemical storage quantity please refer to the files



Adobe Acrobat  
Document



Microsoft Word  
2003 Document



## Summarized two keys points for labs

8.2.3	Check if total quantity of hazardous chemicals in laboratories conform to the requirements of specification	<p>In principle, the total quantity of hazardous chemicals should not exceed 100 L or 100 kg, among which, the total quantity of inflammable &amp; explosive chemicals should not exceed 50 L or 50 kg, and capacity of single packaged container should not exceed 20 L or 25 kg; leakage alarm and ventilation linkage device must be installed if single experiment device has Class A material tanks over 10 L, or Class B material tanks over 20 L or Class C material tanks over 50 L. The storage quantity of hazardous chemicals can be checked by laboratory area on basis of the standard laboratory area of 50 m<sup>2</sup>.</p>
8.4.1	Check if precursor chemicals and potential explosives are stored by category, kept by a specially-assigned person and provided with receiving, use and handling records	<p>The Class 1 precursor chemicals should be managed based on “<u>five doubles</u>” systems (double-person acceptance, double-person keeping, double-person receiving, double locks and double accounts); specific safe box should be used for storing the highly toxic products, firmly fixed and managed based on double persons and double locks; the highly toxic products with high volatility and low flash point should be stored in explosion-proof refrigerator and provided with two locks; monitoring and alarm device should be used; the highly toxic products should be used by at least two operators, and be handled in strict accordance with the SOP.</p>

# Requirements for the use site (lab) of controlled chemicals:



Adobe Acrobat  
Document



Microsoft Word  
2003 Document



*For detail requirement about Chemical storage quantity please refer to the files*

8	Chemical safety	
8.1	Procurement, acceptance and distribution of hazardous chemicals	
8.1.1	Hazardous chemicals must be purchased from units with qualifications for the production and operation of hazardous chemicals	View the copy of the relevant supplier's administrative license qualification certificate
8.1.2	Compliance of purchase procedures for highly toxic, easy to manufacture drugs, easy to make explosives and explosives	The purchase of such hazardous chemicals must be approved by the school and submitted to the public security department for approval or filing, and then purchased from the unit with business license qualification; the functional department of the school shall keep data and establish files; it is not allowed to obtain controlled chemicals from other units without permission; the approval records and school approval records submitted to the superior competent department and the approval records of the school shall be checked; the purchase of hazardous chemicals shall have standardized acceptance records
8.1.3	Before purchasing narcotic drugs and psychotropic drugs, an application shall be made to the food and drug administration department	Purchase from designated suppliers or designated production enterprises after approval
8.1.4	Ensure the safety of chemical and gas transportation; the transportation vehicles, personnel and delivery methods in the campus meet the relevant specifications	Check data and spot check
8.2	Storage of Chemical Reagent in Laboratory	
8.2.1	Check if dynamic account is established for the use of chemicals in laboratories	Establish a list of hazardous chemicals in the laboratory, and have MSDS or safety weekly card for easy reference; regularly clean up expired drugs without accumulation
8.2.2	Check if reagent drugs are stored in specific space scientifically and orderly	The storage room, storage area and storage cabinet should be ventilated, insulated, dark and safe; the organic solvent storage area should be far away from heat sources and fire sources; the easy to leak and volatile reagents should be well ventilated; there should be no power socket or wiring board in the reagent cabinet; the chemicals should be stored in an orderly manner; necessary secondary leakage protection, adsorption or anti overflow functions should be provided; reagents should not be stacked or compatible Chemicals should not be mixed, solid liquid should not be placed disorderly, reagent bottles containing reagents should not be placed at the opening; chemical reagents should not be stored in the test bench without baffle
8.2.3	Check if total quantity of hazardous chemicals in laboratories conform to the requirements of specification	<b>In principle, it should not exceed 100L or 100kg, in which the total storage amount of flammable and explosive chemicals should not exceed 50L or 50kg, and the single packaging container should not be more than 20L or 20kg; if a single experimental device has a storage tank of more than 10L of class A substances, or a storage tank of more than 20L of class B substances, or a storage tank of more than 50L of class C substances, a leakage alarm and ventilation linkage device should be installed. 50 square meters can be used as the standard, and the storage capacity can be inspected according to the area ratio of the laboratory</b>
8.2.4	Check if chemical labels are obvious, complete and clear	The chemical packaging materials shall be provided with chemical labels that meet the requirements; when the chemicals are transferred or sub packed from the original packaging materials to other packaging materials, the packaging materials after transfer or sub packaging shall be re labeled in time. If the chemical label falls off, blurry and corroded, it should be filled in time. If it can not be confirmed, it should be disposed of as waste chemical

# Requirements for the use site (lab) of controlled chemicals:

*For detail requirement about Chemical storage quantity please refer to the files*



Adobe Acrobat  
Document



Microsoft Word  
2003 Document



## 8.3 Operational Safety of Experiment

8.3.1	Check if process instructions and emergency plans are prepared for hazardous experiments and chemicals	The instruction book and plan should be put on the wall or easy to read; the experiment should be carried out according to the instruction; the experimenter should be familiar with the involved danger and emergency treatment measures
8.3.2	Check if hazardous chemical processes and devices are provided with auto control and power redundancy	Automatic control system shall be set up for reaction devices involving hazardous chemical process and key supervision hazardous chemicals; double power supply shall be set for production equipment of hazardous chemical process involving exothermic reaction, or uninterrupted power supply shall be provided for control system
8.3.3	Check if gases with toxicity and peculiar smell are collected and protected	The experiment of producing toxic and peculiar smell exhaust gas is carried out in the fume hood, and the gas absorption device is equipped at the end of the experimental device, and the appropriate and effective respirator is equipped

## 8.4 Management of Controlled Chemicals

8.4.1	Check if precursor chemicals and potential explosives are stored by category, kept by a specially-assigned person and provided with receiving, use and handling records	Among them, the first type of easy-made drugs implements the "five double" management system; the highly toxic products are equipped with a special safe and fixed, and the double lock storage system is implemented; the highly volatile and low flash point highly toxic substances should be stored in the refrigerator with explosion-proof function and equipped with double locks; the monitoring and alarm devices should be equipped; two people must be present at the same time when using the highly toxic substances; there are regulations for the disposal of highly toxic substances Model flow
8.4.2	Check if explosives are isolated, stored at limited amount, used and destroyed as specified by public security department	Check the site and record book; the functional departments provide the annual list
8.4.3	Check if narcotic drugs and psychotropic drugs are stored in specific safe box and provided with standard accounts for receiving, use and handling	Check the site and record book; the functional departments provide the annual list

## Requirements for the use site (lab) of controlled chemicals:

### *Spill or Steal:*

- If occur any leakage spill or steal case, report to campus ERP team and EHS without any delay.

*By WeChat ERP Ground or*

*Cell Phone to Lab PI and EHS*



- Abnormal loss of precursor, explosive and highly toxic chemicals by leakage caused by the broken container in the transportation process shall be immediately reported to the chemical warehouse Manager or Lab PI. Besides, it also needs to write an accident report, and properly record and register the accident.



## Requirements for controlled chemicals (laboratories and schools):

### *Waste Disposal:*

- The chemicals abandoned by the laboratory or the warehouse must be collected by special container, covered and sealed.
- In the experiment, it needs to consider the disposal of precursor, explosive and highly toxic chemicals waste in advance. In case of disposal of precursor, explosive and highly toxic articles, a compatible company with corresponding qualification shall be found for treatment in strict accordance with relevant laws and regulations.
- For detail, please refer to GTIIT\_2020 lab waste management

GTIIT  
广东以色列理工学院

Label of Waste Liquid  
实验室废液标签

Vessel number 容器编号		
Waste Liquid Category 液体类别	<input type="checkbox"/> Organic waste liquid 有机废液 <input type="checkbox"/> Inorganic waste liquid 无机废液 <input type="checkbox"/> Other 其他	
Major Component 主要成分		
Hazardous Characteristics 危险特性	<input type="checkbox"/> Toxic 毒性; <input type="checkbox"/> Flammable 易燃性; <input type="checkbox"/> Explosive 爆炸性; <input type="checkbox"/> Corrosive 腐蚀性; <input type="checkbox"/> Infectious 传染性; <input type="checkbox"/> Other 其它	
Quantity (kg) 重量 (千克)		
Generated from Experiment 产生日期/实验项目名称		
Submit Unit (Program Name) 提交单位		
Lab Number 实验室名称/物料号		
Lab Manager 实验室负责人		
Waste submitted by 送废物者姓名		
Submit Date 日期		





*„Nothing we do is worth getting hurt for!“*

*没什么是值得以牺牲安全作为代价!*

