

实验室安全指南

学校医院
82283120

校园报警
82291110

实验室管理处
82286687



紧急情况时请拨打以上电话

浙江师范大学实验室管理处

SAFETY / EMERGENCY GUIDE

**ZJNU
Hospital
82283120**

**ZJNU
Emergency
82291110**

**ZJNU Laboratory
Management Office
82286687**



EMERGENCY CALLS

ZJNU Laboratory Management Office

加强防护 减少事故



<实验前> 须评估安全风险，根据潜在危险因素制定防护方案，实验中采取严密有效的防护措施。



<实验时> 必须佩戴防护眼镜、穿长袖实验服、长裤和不露脚面的鞋子，长发束起。



<实验后> 离开实验室时需脱下实验服和手套，禁止戴手套按电梯或触摸其它公共设施。

实验室人身防护



MORE PROTECTION LESS ACCIDENT



<Before Experiment>

Evaluate security risks and make protection plan according to the potential risks.



<During Experiment>

Safety goggles, long sleeves lab coat and long pants. No sandals nor open toed shoes. Long hair must be tied.



<After Experiment>

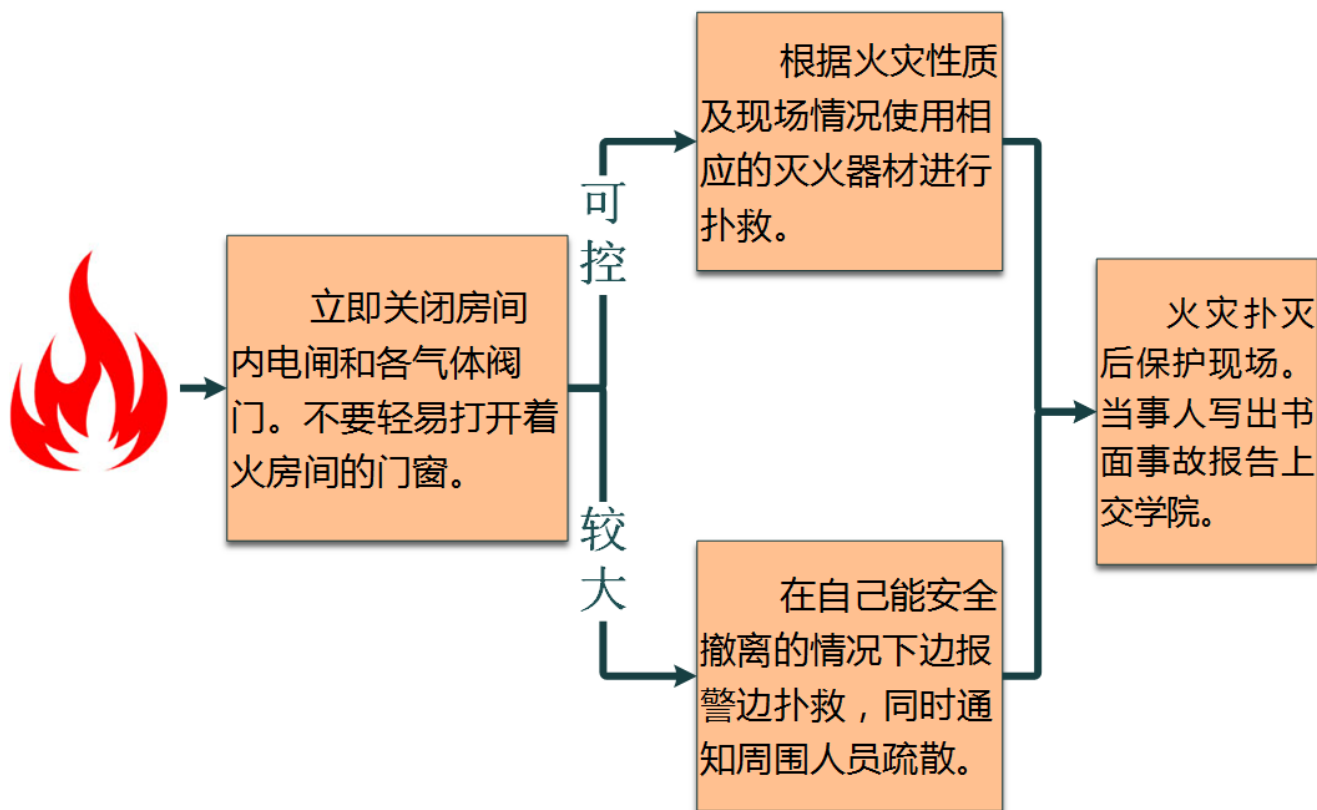
Take off lab coat and gloves when leave lab. Do NOT press elevator buttons with gloves.

PERSONAL PROTECTION



火灾处置

发生火灾时请按照如下顺序操作



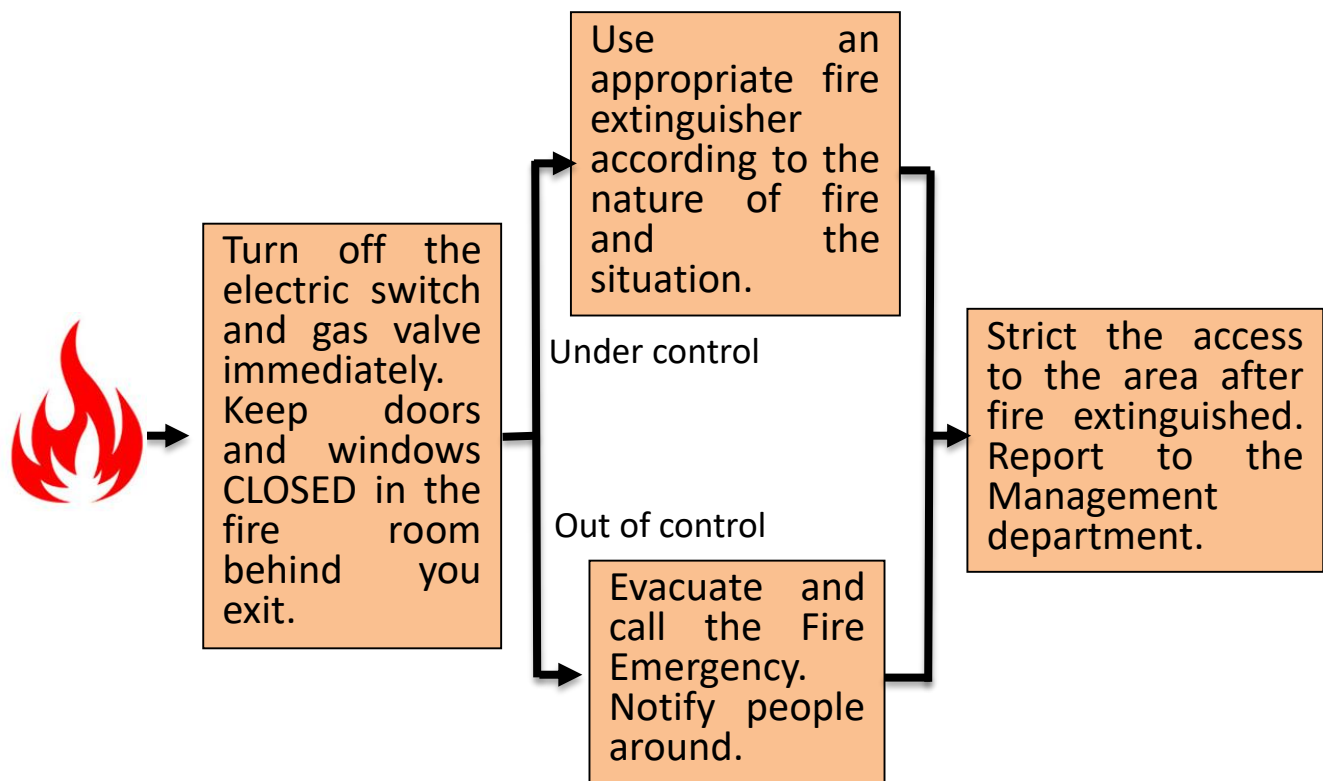
报警电话：119 82291110

火灾处置



FIRE RESPONSE

In case of fire, follow these steps:



Emergency calls : **119 82291110**

FIRE RESPONSE



事故报警

任何人发现火灾都应当立即报警，不得阻拦报警。严禁谎报火警。

一、火灾报警电话

学校火警：**82291110**；公安消防队：**119**。

二、人身伤害及其他突发事件报警电话

学校医院值班室：**82283120**；学校保卫处值班室报警电话：**82291110**；急救中心：**120**；公安部门：**110**。

三、火灾报警方法及内容

1.可以使用电话、手动报警按钮、喇叭或直接到办公室向相邻实验室人员、大楼值班室、学校保卫处及公安消防部门报警。

2.向公安消防部门报警时，确认对方是火警受理台后，准确报出起火的详细地址，简要说明火灾性质，火势大小，人员财产受损状况；留下姓名、联系方式并保持手机畅通。报警后，到大门或路口迎接消防车到来。

事故报警



EMERGENCY REPORTING

Call emergency number IMMEDIATELY when discover a fire.
Be ware that making FALSE reporting of fire is PROHIBITED.

Fire emergency number:

ZJNU Fire Emergency: **82291110**, Public Fire Emergency: **119**.

Personal injury / threats and other reporting call:

ZJNU Hospital: **82283120**; ZJNU Security Department: **82291110**;
Emergency Center: **120**; Police: **110**.

Fire alarm:

- Call Laboratory building duty room, ZJNU security department or public fire emergency; Activate the fire alarm and notify others around.
- When call the public Fire Department, provide them with the detailed address , and briefly explain the situation. Keep your phone on, and then wait for fire-fighting trucks.

EMERGENCY REPORTING



疏散逃生

在楼内人员应熟知实验楼的逃生通道和各种逃生指示标志

发生火灾时，应保持镇定，避免盲目慌乱而做出错误的判断和选择，导致受到不应有的伤害。当身处火场时，可以靠下列几种方法来疏散逃生。

毛巾捂鼻法 棉被护身法 匍匐前进法 攀爬避火法
毛毯隔火法 卫生间避难法 寻求救助法 结绳自救法

疏散逃生过程中应注意的问题

1.禁止使用电梯

电梯的供电系统在火灾时随时会断电或因高温变形而使人被困在电梯内，同时由于电梯井犹如贯通的烟囱，有毒的烟雾进入会直接威胁被困人员的生命。

2.不要贪恋财物

身处险境，应尽快撤离，不要因害羞或顾及贵重物品浪费逃生时间。已经逃离险境的人员，切莫重返险地。

3.不要轻易跳楼

只有在烟火紧逼、实在无计可施的情况下，才选择跳楼逃生。三层以上或高层建筑，在没有任何安全保护措施的情况下，最好不要采取跳楼的方法。

疏散逃生



EVACUATION

Follow the EXIT signs and routes in the building

In case of fire, Be calm and immediately evacuate to the designated Assembly Area. If possible, use the following methods:

Wear FIRE MASK or WET TOWEL

CRAWL LOW to proceed

Stay in the TOILET

Cover with fire BLANKET

ASK for help

Escape by a long ROPE

Remember:

- **DO NOT USE ELEVATORS!**

People might be trapped in the elevator due to failure of the power supply caused by high temperature. Besides, the toxic smoke will pose a direct threat to the trapped people.

- **Do NOT re-enter the building**

Evacuate as soon as possible. Do NOT delay for picking up properties.

- **Do NOT jump off the building**

If fail to evacuate, stay at safe place with doors closed. Place a wet towel under the door.

EVACUATION



停电应急

一、突发性停电

1.单独有应急电源的通风柜就需要将所有的操作尽快完成，再及时关闭通风；如果没有应急电源，向后勤水电管理部（**82282278**）问清原因及来电的时间。

2. 需要立即停止实验，关好正在使用的仪器。

3.离开前需要关好所有的仪器（除需要长期保持通风的药品柜等有特殊要求的设备）。时常要注意各种停电通知和各类仪器的使用手册和说明书。

二、预先通知的停电

1.提前关好所有的用电设备（除开有特殊要求的设备如冰箱和通风柜或者可能的手套箱）。

2.提前停止手头的工作，妥善关好、盖好或保存好你正在使用的药品试剂等。拉下通风柜或超净台的移动门。

3.确保通风柜、超净台和冰箱、手套箱及冻干机、冷却泵、空调、烘箱、马弗炉等设备的安全后方可离开。

4.不要使用电梯。

停电应急



POWER OUTAGES

During a sudden, unplanned power outage:

- If the hood has an emergency power supply, finish the experiment safely as soon as possible and then turn the hood off. If no emergency power supply, call Logistics Office (**82282278**) .
- Shut down experiments safely and turn off ALL the electrical instruments.
- Make sure all the equipment are closed before leaving the lab (except for special equipment, such as reagent cabinet). Be aware of notice or instructions.

During a power outage warning:

- Turn off ALL the electrical equipment (except for special equipment, such as refrigerator, fume hood and glovebox).
- Stop work and secure the reagent you were using.
- Shut the doors of fume hoods and clean benches.
- Make sure fume hoods, super-clean benches, refrigerators, glove boxes, pumps, ovens, air-conditions and muffle furnaces are safe before leaving.
- Do not use elevators.

POWER OUTAGES



危险废弃物处理

**危险废弃物必须按照有关规定分类处理
严禁向下水道排放或当作生活垃圾丢弃**

一、危险化学品废弃物

1.分类方法

将危险化学品废弃物分为8类：一般有毒有害化学废液（包括一般有机物、含卤有机物和一般无机物）；剧毒化学废液；废旧化学试剂；化学固体废物；瓶装化学气体；空化学试剂瓶；碎玻璃；利器。

2.处理流程

- 1) 按规定分类收集并合理存放各类危险化学品废弃物，外部贴上学校统一印制的危险废弃物标签，注明名称、主要成分、危险类别、责任人等信息。
- 2) 在化学品管理系统中提交废物处理申请，并填写废物清单。
- 3) 准备好危险化学品废弃物成分登记表一式两份，等待学院收集，定期处置。

二、生物废弃物

1) 用黄色专用塑料袋进行包装，分类收集，做好标识。其中锐器类废弃物用牢固、厚实纸板箱等妥善包装。对于被病原微生物污染过的废弃物，须先在实验室进行有效灭菌（灭活）后方可送储。

- 2) 在化学品管理系统中提交生物废物处理申请，并等待收集，定期处置。

危险废弃物处理



DISPOSE OF CHEMICAL WASTE

Chemical waste must be classified and disposed according to the REGULATIONS. Discharge into the sewer and disposal as general waste are strictly PROHIBITED.

Chemical Waste

Classification

Chemical wastes can be classified into eight types: (1) general toxic liquid waste (including general organics, halogen organics and general inorganics); (2) highly toxic liquid waste; (3) old or waste reagents; (4) solid chemical waste; (5) bottled chemical gas; (6) empty reagent bottles; (7) broken glasses; and (8) sharp tools.

General Process

- Collect and store chemical waste separately according to the regulations and paste the waste label on the collector.
- Submit waste disposal application at the ZJNU reagent management system and fill the Disposal Form with the list of waste.
- Prepare “Chemical Waste Ingredients List” in duplicate and wait for collection.

Bio-waste

- Collect bio-waste with yellow plastic bag, sharp tools must be packed in a cardboard box. contaminated bio-waste must be inactivated.
- Submit bio-waste disposal application at the ZJNU reagent management system and wait for collection.

CHEMICAL WASTE



放射性事故与防护

当发生放射性物质遗洒或沾污时，按以下步骤进行：

停止工作	立即停止工作；在安全的情况下，阻止放射性物质继续遗洒。 思考以下几个问题：是否造成人身伤害、是小范围遗洒或大范围遗洒？
警示他人	警示附近的人。 如果没有造成人身伤害或严重污染，拨打辐射防护小组和环保办电话。
隔离场所	限制人员出入、封闭实验室门窗。 用胶布或绳子划出被污染的区域。
自身检测	检测手、脸、头、袖子、身体、鞋帮和鞋底等区域是否被污染。 限制自身活动。
等待救援	报告熟知各种救援方式及联系电话的人。 报告导师。
辐射防护	操作 γ 射线的同位素采用铅板、铅衣、铅眼镜等进行防护。 操作 β 射线的同位素采用有机玻璃进行防护。

RADIATION SPILL AND PROTECTION

When a radiological spill happens, follow these steps:

Stop Working	STOP WORKING immediately; STOP THE SPILL when it is safe to do so. THINK about: if it caused personal injuries, it was a small or wide range spill.
Warn Others	WARN people nearby. If there is no personal injury or severe contamination, CALL the Radiation Protection Group and Office of Environmental Protection (list below).
Isolate the Area	RESTRICT the access to the area. Keep doors and windows CLOSED. MARK the contaminated area with tape or rope.
Monitor Yourself	MONITOR hands, face, head, sleeves, body, and shoes (top and bottom). MINIMIZE your movements.
Stay until help	REPORT to the personnel who is knowledge about the radiation incident assist. REPORT to your supervisor.
Radiation Protection	Use lead plates, lead coats, lead goggles as protection when working with γ -ray. Use plexiglass as protection when working with β -ray.

人身伤害事故的应急处理

一旦出现人身伤害的实验事故，首先应通过各种方式向外界寻求帮助，如向周围呼救，拨打**120**和**82283120**急救电话等。专业救护人员到来之前，在确知如何完成正确的急救操作前提下，对伤处进行恰当的应急处理可减缓伤势恶化。

烧伤

中小面积烧伤可用10℃-20℃的冷水对创伤面持续浸浴、冲洗或湿敷半小时以上。大面积严重烧伤必须尽快送入医院救治。

危险化学品中毒

1. 吸入中毒：迅速脱离现场，松开中毒者身上妨碍呼吸的衣物，保持呼吸道通畅并注意保暖。呼吸困难，给输氧。呼吸、心跳停止，立即进行心肺复苏。

2. 皮肤接触：立即脱去被污染衣物，用大量流动清水冲洗。若毒物与水能发生作用，先用干布或毛巾擦去，再用水冲洗。

3. 眼睛接触：立即提起眼睑，用大量流动清水冲洗。若毒物与水能发生作用，则先用沾植物油的棉签或干毛巾擦拭，再用水冲洗。

人身着火

身上着火时切勿奔跑，可利用紧急喷淋器向身上淋水，或就地卧倒滚动身体压灭火焰，或用灭火毯包裹人身以灭火。

冻伤

迅速把冻伤部位放入38℃-40℃左右（不宜超过42℃）的热水中浸泡复温，时间一般为20分钟以内。

触电

急救谨记先断电再救人！在做好绝缘防护前提下拉闸断电或切断电源线。

一般性外伤

若伤口没有异物，直接压迫损伤部位进行止血。如损伤四肢血管时，可用干净的手巾纱布将其捆扎止血。伤口嵌入较大异物（如刀子、玻璃片等）或采用直接压法无效时，可在伤口四周施加压力，置大量敷料于异物周围作固定。

人身伤害事故的应急处理



EMERGENCY RESPONSE TO PERSONAL INJURY

In case of a personal injury, seek help first, such as the surrounding for help, call **120** or **82283120**. Before a medical personnel arrives, proper first-aid treatment will be helpful to prevent further injury.

Burn

For a small area burn, use 10~20°C cold water to bath, wash or wet compress for more than 30 min. For a large area burn, go to hospital ASAP.

Cold Injury

Quickly put the damaged area into 38-40°C water (no higher than 42°C) for 20 min.

Chemical Poisoning

Inhalation poisoning:

- Evacuate immediately.
- Loose the clothing to keep smooth breathing for poisoned person and keep them warm.
- Use O2 therapy or CPR for severely poisoned person.

Skin exposure:

Take off the clothing immediately and wash the skin continually. If poison is water sensitive, wipe with dry towel first before wash.

Eye exposure:

Wash eyes Immediately using eyewasher. If poison is water sensitive, wipe with vegetable oil or dry towel first before wash.

Body on fire

DO NOT RUN!

Use emergency shower if possible, or

Lay down and sideward roll yourself, or

Cover yourself with a fire blanket.

Electric Shock

TURN OFF POWER

FIRST! Before contact the switch or cord, make sure under good insulation protection.

General Trauma

- If no foreign matter on the wound, directly pressure to stop the bleeding.
- Use clean gauze for vascular injury.
- If large foreign objects (such as knives, glass, etc.) embed into the wound, press nearby area and fix them by dressing.

PERSONAL INJURY



停水和跑水应急

一、突发性停水

1.突然停水以后，应立即停止实验，给学校后勤水电管理部**82282278**打电话问清楚停水的原因及恢复来水的时间。

2.靠水冷凝的溶剂处理装置应立即关掉加热设备以免过热引起事故，并在装置显眼位置作好警示标志，同时还应关闭正在使用自来水的仪器如洗衣机、制冰机等。离开实验室时确认关好所有的水龙头。

二、预先通知停水

1.提前关好所有的用水设备，使用冷凝水的无水溶剂处理装置更应该落实到人，确保关好水节门以免来水时水压大损坏蛇形冷凝管导致金属钠的体系进水引起安全事故，并在装置显眼位置作好警示标志。

2.平时应注意全楼的停水停电通知、一般停电时间稍长的话都会引起停水。

三、实验室跑水

1.本实验室发生跑水，应尽快查明原因。上水管跑水，关闭房间的上水总截门（关总截门前请确保其它用水冷凝装置的安全）。下水管跑水，需查看是否是管道被违规倾倒的有机溶剂或浓酸浓碱腐蚀，在水池边做好提示暂停使用上水。如是下水管腐蚀的还需查明当事人并提交情况说明给实验室管理处（**82286687**）。

2.发现跑水及时向学校后勤水电管理部报修（**82282278、82282483**）。

3.发现跑水后应仔细查看地面上是否有插线板、电吹风、热风枪等带电的物品、千万小心以防触电。

4.如是楼上或旁边实验室跑水，请通知相应房间的负责人，并同时向学校后勤水电管理部报告（**82282278**）。



WATER OUTAGES AND SPILL

During a sudden, unplanned water outage:

- Show down experiments safely and immediately.
- Contact Logistics Office (**82282278**) for any assists.
- If there is any water cooling equipment, turn it off and put a mark. Shut down water-using machines (for instance, laundry machine, ice maker) as well.
- Make sure all the faucets are CLOSED before leaving the lab.

During a planned water outage:

- Turn off ALL the water-using equipment, especially for experiments in water-free condition.
- Pay attention to any water or power outage notice. Long-term power outages may cause water outages.

Water spill:

- CLOSE the inlet valve first (make sure all the water cooling equipment are safe before closing). If the pipes were eroded by organic solvents or acids or bases, mark it and report to the Laboratory Management Office (**82286687**).
- Contact Logistics Office at **82282287** or **82282483** for any assists.
- Make sure NO electrical appliances on the floor around the spill area.
- Notice the nearby lab.



危险化学品事故应急处理

爆炸品火灾

- ✓ 可用大量的水扑救。
- ✗ 不可用高压水。
- ✗ 不可用沙土压盖。

腐蚀品火灾

- ✓ 灭火人员穿防护服，戴防护面具。
- ✓ 灭火时使用低压水流或雾状水以防腐蚀品溅出。
- ✓ 腐蚀品容器泄漏时应及时堵漏。

危险化学品泄漏（液体）

- ✓ 向同室人员示警（情况不严重）。
- ✓ 向保卫处（**82291110**）报警（情况严重）。
- ✓ 通知邻近人员疏散。
- ✓ 及时用吸附棉处理或联系生化学院协助处理（**82283059**）。
- ✓ 如涉及易燃液体，应关闭一切热源和火源，开窗通风，关闭实验室门。

火场中有压力容器

- ✓ 及时转移到安全地带。
- ✓ 不能转移时可用水枪冷却保护。

气体钢瓶泄露

- ✓ 应关紧阀门。
- ✓ 打开窗户通风。
- ✓ 及时上报、并请专业人员检修。

易燃易爆气体钢瓶泄露：

- ✓ 要远离火源和热源。
- ✗ 附近不要有明火。
- ✗ 不要开灯和开通风橱等电器设备。

可燃气体钢瓶火灾

钢瓶外连接管道泄漏着火：

- ✓ 首先迅速关闭钢瓶阀门。
- ✓ 再进行灭火。

钢瓶阀门或瓶身泄露起火：

- ✓ 首先应采取措施堵漏。
- ✓ 堵漏工作做好后，可用水、干粉、二氧化碳灭火剂进行灭火。
- ✗ 在没有采取堵漏措施的情况下，切忌盲目灭火，可使其稳定燃烧。



EMERGENCY RESPONSE TO CHEMICAL ACCIDENTS

Fire of Explosives

- ✓ Use plenty of water
- ✗ Do NOT use high pressure water
- ✗ Do NOT cover fires with sand

Pressure Vessels in Fire

- ✓ Cool with water gun
- ✓ Move to safety location quickly

Fire of Corrosives

- ✓ Wear protective clothing and fire mask when fighting fire
- ✓ Use low pressure water or water spray to prevent corrosives spill
- ✓ Stop spill by plugging up the leak.

Leak of Gas Cylinder

- ✓ Close the valve first
- ✓ Open windows of the room
- ✓ Report to professionals for assists

When inflammable or explosive gas leaks :

- ✓ Stay away from fire
- ✗ No open flame nearby
- ✗ Do NOT turn on electrical equipment (lights ,fume hood etc.)

Liquid Chemical Spill

- ✓ Warn people in the same room (not serious)
- ✓ Report to security department (82291110) (serious)
- ✓ Notify people nearby to evacuate
- ✓ Use adsorption cotton or call the REAGENT LIBRARY for assists (82283059)
- ✓ In case of inflammable liquid, turn down all fire and heat sources, open windows, close doors of the lab behind you exit.

Fire of Flammable Gas

If external pipes on fire :

- ✓ Close the valve first
- ✓ Extinguish fire after that

If the valve or body on fire

- ✓ Plug up the leak first
- ✓ Use water, dry powder or carbon dioxide extinguisher after that
- ✗ Try to put out the fire without plugging the leak

