國立臺灣大學化學系
實驗場所環保暨安全衛生管理工作守則(簡要版)
Department of Chemistry, National Taiwan University
Laboratory Safety Guidance (condensed version)

103 學年度第 5 次系務會議通過

106 學年度第 1 次系務會議修正通過

108 學年度第 6 次系務會議修正通過

一、 所有實驗場所工作人員(包括大學部專題生、碩博生、博士後、專任或兼任助理、教職員及助教等)必須完整接受相關教育訓練並取得證書或簽到退紀錄後，方能進入實驗場所參與操作，違反者將可處新台幣 3,000 元以下罰鍰(職業安全衛生法第 46 條)。

All laboratory staff (including undergraduate students, postgraduates, postdoctoral fellows, full-time or part-time assistants, faculty members, and teaching assistants, etc.) must undergo relevant education and training to obtain the proper certificates or training records before he/she is allowed to enter a laboratory. Those who violate the above article may be fined up to $ 3,000 NTD (Article 46 of the Occupational Safety and Health Act).

二、 所有實驗場所人員必須詳細閱讀本校「環安衛手冊」及本系「實驗場所環保暨安全衛生管理工作守則」(完整版及簡要版)，並切實執行本校/系環安衛相關規定及注意事項。

All laboratory personnel must read the *Environmental Safety and Health Manual* of NTU and the *Laboratory Safety Guidance* (both the full and condensed versions) of the Department of Chemistry (henceforth "the department"), and implement all relevant regulations and precautions of NTU / Department of Chemistry.

三、 本校實施實驗場所特殊作業人員之健康檢查，前開工作人員應按規定接受檢查。

All laboratory personnel must undergo occupational physical examination.

四、 實驗場所重要儀器應明訂標準作業程序、作業條件及安全衛生注意事項(包括危害鑑別、風險評估及控制)，並確實遵守；任何註明禁止行為，均不可違反。

Major equipment in a laboratory shall have standard operating procedures, operating conditions, and safety precautions (including hazard classification, risk assessment and control).

五、 從事任何實驗前，應確實做好安全評估，並採取適當的防護措施。

Safety assessment shall be performed prior to an experiment and the appropriate protective measures shall be adopted.

六、 本守則若與其他安全衛生守則產生疑義，以較嚴格者為考量。

If rules set herein conflict with those set in other safety or health codes, the stricter one will be adopted.

七、 本系所有老師均有權責督促本系學生及教職員工切實遵守守則，系務會議對守則具有最終解釋權。

All faculty have the authority to urge all laboratory staff of the department to abide by safety and health codes; the department meeting has the final interpretation of the code.

八、 實驗場所注意事項：

1. 絕不可在實驗場所進行未經指導教授許可之實驗與操作。

   Never carry out experiments and operations in the laboratory without permission of the advisor.

2. 具危險性之實驗或實習，應在正常辦公時間內進行，如需要在非辦公時間進行，則須先經指導教授或實驗場所負責人同意，操作時實驗場所需有 2 人(含)以上。

Risky experiment or practice should be conducted in regular working hours; any laboratory work during non-regular hours should obtain prior consent from the advisor / relevant authority. Never work alone in the laboratory.

3. 除非有實驗場所負責老師書面同意，嚴禁非相關人員(含外系所)於本系實驗場所進行實驗。

   Persons not directly related to the department, including personnel from other NTU departments, are strictly prohibited to work in the department without consent of the advisor / relevant authority.

4. 屬「處理化學品」之實驗場所，一律禁止穿著短褲、裙子、襪褲、絲襪、涼鞋或拖鞋等不具保護性之衣物，腰部以下不得有皮膚外露，嚴禁配戴隱性眼鏡。

   On the premises that handle chemicals, shorts, skirts, tights, stockings, sandals, or slippers are prohibited; no skin below the waist shall be exposed; contact lenses are strictly prohibited.

5. 所有實驗場所內必須時刻穿戴護目鏡，並正確穿戴本系認可之實驗衣，並依實驗特性穿戴手套及相關保護措施。

   In the all laboratories, lab coat, gloves, and safety goggles are always required; other protective equipment shall be used on an as-needed basis.

6. 實驗場所大門必須經常保持關閉，地面應徹底清潔，無垃圾、廢棄物等；天花板與牆角無灰塵及蜘蛛網；垃圾桶應加蓋，並每日清理，實驗場所內無不良氣味；實驗室內無食物或飲料，無雜物阻擋通道。

   Laboratory doors must be kept closed. The floor shall be clean and free of trash and obstacles. Trash cans shall have lids, be cleaned daily, and not generate foul odor. No food or drink is allowed in the laboratory.

7. 在實驗場所以外之公眾地方不得穿著實驗衣，或配戴任何保護手套，同一樓層間不同實驗場所之進出不在此限。

   Do not wear lab coats or gloves in public spaces other than the laboratory unless entering and exiting laboratories on the same floor.

8. 不得有障礙物影響配電盤(箱)之開啟，配電盤(箱)內應標示各迴路開關之用途。

   There shall be no obstacles to affect the opening of the switchboard (box); the purpose of each circuit switch should be marked clearly.

9. 除網路線外其餘電線不得綑綁或捲曲，插頭應完全插入插座中，無鬆脫現象。選用延長線時，應選擇具有自動過載跳脫裝置及有接地端並具「商品檢驗標識」之延長線，切勿過載及串接延長線使用，多孔插座之延長線有過負荷保護裝置；近水潮濕處(如水槽周圍)之電氣設備應有漏電斷路器。

   Except for network cable, wires shall not be bundled or crimped, and all plugs shall be inserted firmly into the electric socket. Extension cords used in the laboratory shall be equipped with automatic overload trip. Do not overload or use extension cords in series. Electrical equipment near wet places (such as the sink) should be equipped with a leakage circuit break.

10. 儀器應妥為保管並定期維護，並隨附使用說明書(電子檔或紙本)，依標準作業流程(SOP)操作。

    Instrument shall be maintained regularly and operated in accordance to the standard operating procedure (SOP) as outlined by the accompanying instruction manual.

11. 烘箱、蒸餾器等加熱設備附近嚴禁放置易燃物及易爆炸化學藥品，操作時需有人在現場，避免過熱或超時加熱，造成危險。

    Inflammables and explosive substance / chemicals shall not be placed near heat sources, such as oven, hot plate, distiller, etc. Personnel shall by on during the operation of heat sources to prevent

overheating.

12. 實驗場所內禁止吸煙、吃喝食物、喧鬧、嬉戲或進行無關的實驗，冷藏化學藥品之冰箱不得放置食品、飲料。

    Smoking, drinking, eating, racketing, playing, or conducting irrelevant experiments are prohibited in the laboratory. Food and drink not are allowed in refrigerators for the storage of chemicals.

13. 氣體鋼瓶應直立並以鐵鍊等固定不使動搖，防止地震及碰撞倒下，其壓力錶也應明顯標示出最高使用壓力位置，鋼瓶外須明顯標示其內容物。

    Gas cylinders shall be fixed and kept upright to prevent free moving or falling due to earthquakes. The contents and maximum working pressure shall be indicated clearly on each gas cylinder and its pressure gage.

14. 氣體鋼瓶應定期檢查其鋼瓶安全期限，及鋼瓶外觀是否有受損腐蝕現象。未使用的氣體鋼瓶應使用鋼瓶蓋保護開關與氣閥。

    Gas cylinders shall be inspected regularly to ensure that there is no apparent damage or corrosion and is within the expiration date. Gas cylinders not in operation shall have a protective cap to shield the switch and valve.

15. 實驗場所廢棄物不應貯存於走道等公共空間、放置過高或未妥善管理，或未設有防止遭他人取用之措施。

    Laboratory waste shall not be stored in public spaces, such as the walkway, placed too high, without proper management, or without measures to prevent public access.

16. 最後離開實驗場所的人員，尤其是停電、週末及放長假前，必須確實檢查所有化學用品是否擺放正確位置、所有電器、氣體鋼瓶、實驗設備之開關、水龍頭、及實驗場所門窗等是否確實關閉。

    Any personnel who is the last one to leave the laboratory, especially before weekends and long holidays, shall ensure that all electrical devices, lab equipment, gas cylinder, and water faucets are switched / shut off.

17. 實驗場所各人員應熟記實驗場所配置及應變設備使用方式(如電氣箱位置、水電總開關、儀器、藥品櫃、排氣櫃、毒化物、氣體鋼瓶、安全資料表、個人防護具及逃生口等等)、緊急應變設備(如急救箱、滅火器、吸液棉及個人防護具等)、最近之緊急沖淋設備及逃生路線。

    All laboratory staff shall be familiar with the location and the operative methods of various safety and health equipment (*e.g.*, first aid kit, fire extinguisher, leakage absorbing cotton, emergency shower device, personal protective equipment, electricity switchboard, master water / electricity switch, major equipment, chemical cabinets, fume hoods, toxic chemicals, gas cylinders, material safety datasheet, emergency exit, etc.).

18. 若聽聞警報聲響，所有人員必需立刻經安全梯疏散至指定疏散地點(目前為博雅館靠系館廣場)，並向各實驗場所的安全官報到。

    Use stairs for evacuation immediately upon hearing the fire alarm and report to the laboratory safety officer at the designated meeting area, *i.e.*, the plaza in front of Liberal Education Classroom Building.

九、 化學藥品注意事項：

1. 化學藥品應依「危害性化學品標示及通識規則」張貼菱形危害圖式並標示出其中文名稱，並備有製表日期在近 3 年之安全資料表(SDS)(第二項標題應為『危害辨識資料』)。

   Chemicals shall be labeled clearly with the hazard rating diamond and names in Chinese in accordance with *Regulation of Labeling and Hazard Communication of Dangerous and Harmful Materials*.

2. 毒性化學物質運作場所各出入地點應依規定張貼中、英文標示字樣(Handling Premises of Toxic Chemicals)。

   "Premises of Toxic Chemicals" shall be posted at all entrances and exits in both Chinese and English.

3. 毒化物應分類集中儲存，並上鎖管理。

   Toxic chemicals shall be stored separately in a locked compartment.

4. 化學藥品/氣體鋼瓶應注意其相容性並分類貯存。

   Chemicals/gas cylinders stored in the same compartment shall be compatible, otherwise stored separately.

5. 揮發性藥品應貯存於抽氣式藥品櫃內，嚴禁將排氣櫃當藥品櫃使用。

   Volatile chemicals shall be stored in aspirating cabinets; storage in fume hoods is strictly prohibited.

6. 使用化學藥品場所，應於現場明顯處備置：

   (1)化學藥品清單 (2)安全資料表(SDS) (3)緊急應變(含洩漏處理)設備。

   並於實驗前詳細閱讀有關藥品之安全資料表。

   The following documents shall be kept at hand: (1) List of Chemicals; (2) Safety Data Sheet (SDS); (3) Emergency Response (including procedures for handling spills processing). Read the relevant SDS before conducting an experiment.

7. 液體試藥/廢液桶應張貼分類標籤應有盛盤乘載(大小應較容器容量為大)，以免洩漏時隨處流動，甚至與不相容藥品接觸反應。廢液桶儲存時不可讓陽光直射，並遠離電力設備及火源。嚴禁將廢液直接排放水槽

   Liquid waste container shall be marked clearly and placed within a secondary container that is larger than the waster container. The purpose of having a secondary container is, the event of a leaky liquid waste container, to prevent spills or reaction between incompatible wastes. Liquid waste containers should avoid direct sunlight, electric equipment, and heat source. Disposal of liquid waste into the sink is strictly prohibited.

8. 排氣櫃之風速應定期予以測定，若無法達到 0.5 m/sec，需通知製造商維修。

   Fume hoods should be inspected regularly; notify the manufacturer for maintenance if the measured airflow is less than 0.5 m/sec.

9. 從事會產生毒性、腐蝕性蒸氣之作業時，應全程在排氣櫃內進行。

   Any operation that may generate toxic or corrosive gas shall be conducted in fume hoods.

10. 使用排氣櫃前須先將抽風裝置打開 3 分鐘，使用中之玻璃拉門高度，應低於人員操作時之口鼻呼吸帶高度。

    Turn on the ventilation system and wait for at least three minutes before using fume hoods. The sash shall be lower than that of the operator's nose.

11. 運送化學藥物、廢液或其他大型物品時必須使用 B 棟之運貨電梯，嚴禁使用 A 棟之電梯作非載客用途。

    Transportation of chemicals, liquid waste or large items is only allowed in building B elevator.

    It is strictly forbidden to use building A elevator for non-passenger use.

12. 任何人士不得在無防溢容器下與液氮或任何化學液體同處電梯內。

    One shall not ride in the same elevator with liquid nitrogen or any other liquid chemical without secondary container.

13. 於系上公共空間 NMR tube 均要使用不易破裂的非磁性容器乘裝，若有需要使用客貨梯在不

同樓層間移動，NMR tube 要使用密閉且不易破裂容器包裝，以免內部液體在電梯內因意外而洩漏。

In the public space of the building, NMR tubes must be packed in non-magnetic containers that are uneasy to break. If users have to ride in elevators to move between different floors, NMR tubes must be packaged in airtight and non-breakable containers to prevent accidental leakage inside the elevator.

14. 嚴禁手拿沒有保護器皿之 NMR tube 上下樓梯。

    Transportation of NMR tubes without a protective container is strictly prohibited.

15. 在實驗場所以外之公眾地方運送小量化學品時，必須把藥品適當封存後置於防漏之塑膠手提籃內。

    Small amounts of chemicals shall be sealed and placed in leak-proof plastic carrying baskets when transporting in public spaces outside the laboratory.

16. 在實驗場所以外之公眾地方運送廢液時，液體必需妥善封存在專用塑膠桶內，若有濺漏，必須立刻清理。

    Liquid waste shall be sealed in designated plastic containers when transporting in public spaces outside the laboratory. Any spill must be cleaned up immediately

十、 生物性安全衛生注意事項：

1. Laminar flow 或生物安全操作櫃內平台無堆放雜物或備品。

   Laminar flow or the biosafety operation cabinet shall be free of debris or spare parts.

2. 實驗操作區域及各種保存生物材料之設備不得存放食物及飲料。

   The experimental operation area and all equipment for biological materials storage shall not be used to store food and beverages.

3. 全新未使用之針頭針筒，如欲廢棄，仍為生物醫療廢棄物。

   Unused syringes, needles, if they are to be discarded, shall also be disposed of as biomedical waste.

4. 具感染性廢棄物請先以高溫高壓滅菌做處理，容器請標示貯存時間、溫度及生物醫療廢棄物標籤(紅色塑膠袋已標示除外)，且註明系所單位名稱及實驗場所負責人。

   Infectious waste should undergo high-temperature and high-pressure sterilization. Please indicate the date, storage temperature, name of the department, laboratory, and the principle investigator. Containers for infectious waste should have a biomedical waste label (except for pre-labeled red plastic biomedical wasted bags.

5. 尖銳廢棄物：如針頭、針筒、刀片及玻璃碎片等以堅固不易穿透之可燃性容器貯存(如厚紙箱、20 公升酒精桶等)，標示貯存時間(即日期)、溫度(即冷藏庫或冷凍庫溫度)及生物醫療廢棄物標誌，並於容器明顯處註明系所單位名稱及實驗場所負責人。

   Sharp waste such as needles, syringes, blades, and broken glass shall be stored in strong, non-penetrating combustible containers, e.g., cardboard boxes, 20 L alcohol buckets, etc. Please indicate the date, temperature, the name of the department, laboratory, and the principle investigator. Containers for sharp waste should have a biomedical waste label.

6. 其他感染性廢棄物：以紅色塑膠袋密閉貯存，袋子上並標示貯存時間(即日期)、溫度(即冷藏庫或冷凍庫溫度)，並於明顯處註明系所單位名稱及實驗場所負責人。

   All other infectious waste should be sealed in a red plastic bag and indicate the date, temperature, the name of the department, laboratory, and the principle investigator.

7. 感染性廢棄物之專用垃圾桶貼有「生物醫療廢棄物」標籤。

   Dedicated trash cans for infectious waste are labeled with "biomedical waste".

十一、 實驗場所火災發生處理：

What to do in case of fire:

實驗場所同學應大聲呼喊並立即以滅火器控制火勢，部份同學應隨即通報駐警隊及場所負責指導教授，以電話通報，並觸動火災警報裝置，若 3 分鐘內無法撲滅火勢，所有同學應立即關閉實驗場所（切勿鎖門），離開火警現場。

In case of fire, shout loudly and attempt to put out the fire using a fire extinguisher. Others at the scene shall immediately notify the campus security and the faculty member in charge of the premise. Report the incident by phone and switch-on the fire alarm. If the fire cannot be extinguished within 3 minutes, all personnel shall close off the premise (do not lock the door) and leave.

通報詞(張貼於實驗場所電話上)： How to report an emergency (post this notice on the phone): **「化學館○樓○○實驗室，發生○○意外，已進行○○處理，(現在有○○人員受傷，傷勢○○，意識(清醒/模糊)，已進行○○急救)，請求通報救援。」** **"I am reporting ○○ (incident) has occurred in the Department of Chemistry on ○ floor in the ○○ laboratory. ○○ (procedure) has been attempted to contain the incident. ○○ (number) people are injured and are (un)conscious and given first aid. Please send help."**
通報流程： Notify the following: (1) 駐警隊 (campus security) 69110 (2) 系辦公室 (department office) 61140/61148 (3) 場所負責指導教授 (faculty member in charge of the premise)

十二、 其他實驗場所應變處理：

Other things to do:

1. 關閉電燈及進行中反應之電源、水源後離開實驗場所，關閉實驗場所但切勿鎖門。有秩序地經由所建議之疏散路線步行離開實驗場所，勿慌張奔跑。上下樓梯時靠邊走，手扶樓梯以免跌倒，不可搭乘電梯。

   Turn off the lights, heat, and water sources of any ongoing reaction, and leave the premise. Close the but do not lock the door. Evacuate in an orderly manner via designated routes and do not panic. Use stairs and hold onto the railing to avoid falling; do not take the elevator.

2. 人員疏散至指定集合處，向各實驗場所之安全官報到，安全官清點人數後，回報臨時指揮中心傷亡、失蹤資料。

   All personnel shall evacuate to the designated assembly are and reported to the laboratory safety officer. Once the safety officer has completed a head count, report missing or injured personnel (if any) to the command center.

十三、 緊急通報聯絡電話：

1. 駐警隊：69110
2. 系辦(日)：61140/61148
3. 系辦(夜)：施忠志先生 0919947314/張忠和先生 0919911472
4. 保健中心(救護車)：69595

5. 環安衛中心：62002
6. 消防隊：119

Department of Chemistry, National Taiwan University
Emergency Contact Information

Report the emergency by calling: (☀Day，🌙 Night/Weekend)

- ☀🌙Campus Security: 69110
- ☀Department office: 61140/61148
- ☀🌙PI (Principal Investigator) in charge of the accident location
- ☀🌙Fire Department: 119

Emergency Evacuation Procedures

(1) When the fire alarm signal sounds, please follow the Safety Crew's guidance to evacuate the building immediately.

(2) Please take extra care of your ongoing experiments to reduce the potential safety risk.

(3) Remember to bring your personal items with you and close (do not lock) the lab/office doors before leaving the building. Report to the designated meeting area: the plaza in front of Liberal Education Classroom Building.

(4) Please leave the building quickly, but in an orderly manner, following the work site's emergency evacuation plan.

(5) Report to the designated meeting place and ensure to make contact with the person charged with worker accountability (i.e. lab safety personnel).

(6) Do not re-enter the building until directed to do so by authorities.

環安衛小組之老師得在各實驗場所進行不定時檢查。第一次違規者本系將停止其使用系上所有共同儀器之權利 1 個月，第二次違規者將停止前述權利 2 個月，第三次(含)違規者將將停止前述權利 6 個月並送交系環安衛會議討論。有三次（含）以上違規紀錄者將被取消申請本系各獎項之權利。違規情節重大者，本系得立刻終止其於本系進行實驗或工作之權利。

Penalty for violation of rules stated in *Laboratory Safety Guidance* includes the suspension of access to all shared equipment and access-controlled doors within the department. The first, second, and third violation incurs one month, two months, and six months of public equipment access suspension, respectively. Those who have three or more violations are ineligible for departmental fellowships and awards. The department reserves the right to terminate immediately his or her access to all equipment, laboratories and offices for serious violations as judged by the Environmental Health and Safety Committee.

以下簽名表示：

1. 本人已完整接受相關教育訓練並取得證書或簽到退紀錄(一般安全衛生教育訓練、專業性教育訓練及職業安全衛生在職教育訓練)。
2. 本人已詳細閱讀臺大環安衛手冊與臺大化學系實驗場所環保暨安全衛生管理工作守則(完整版及簡要版)，並願意切實執行相關規定，若有違反規定或因而造成損失，願依相關規定處理並負賠償責任。
3. 場所負責人已提供護目鏡、實驗衣、手套等相關防護具並告知進入工作場所作業應注意事項。

I have read and fully understood the contents of the *Laboratory Safety Guidance* and will abide by its safety and health codes.

本人_____（安全官）已經確認實驗場所所有人員均已在上方簽名。

指導教授(場所負責人)簽章：_____ 日期：_____