

Annexes

Laboratory Safety Checklist for Higher Education Institutions (2023)

Serial number	Inspection items	Inspection points	Situation Record
1	Responsibility System		
1.1	School-level safety responsibility system		
1.1.1	Laboratory safety is included in the school's decision-making research matters	(1) There are minutes of relevant school meetings (school affairs meetings, party committee standing committee meetings, etc.) that include laboratory safety work.	
1.1.2	There is a responsible person and leading organization for laboratory safety at the university level	(2) There is a formal document issued at the school level, making it clear that the main person in charge of the school party and government is the first responsible person; the school leader in charge of laboratory safety work is an important leader responsible for assisting the first responsible person in charge of laboratory safety work; other school leaders have the responsibility for supporting, supervising and guiding the work of laboratory safety within their respective areas of work; the establishment of school-level leadership agencies, the composition of their departments and work responsibilities are clearly defined, and the school leader in charge of laboratory The school leader in charge of laboratory safety work is the head of the institution.	
1.1.3	There is a clear laboratory safety management function	(3) Clearly lead functional department is responsible for laboratory safety work, and relevant functional departments effectively cooperate with the implementation of the work.	
1.1.4	The university and the faculty signed a laboratory safety responsibility letter	(4) A security responsibility letter signed and sealed by the current school director and department head is available in the file or information system.	
1.2	Faculty level security responsibility system		

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1.2.1	There are faculty laboratory safety work teams	(5) The faculty safety work team is composed of the party and government leaders, leaders in charge of laboratory safety, faculty laboratory safety assistants or safety supervisors, laboratory heads, and laboratory safety officers. (6) There are documents of the faculty with document numbers such as minutes, notices or systems of the joint party and government meetings/office meetings, etc. to clarify their contents.	
1.2.2	Faculties and departments sign a laboratory safety responsibility letter	(7) The faculty signed a responsibility letter to the person responsible for the safety of the laboratory room.	
1.3	Laboratory level safety responsibility system		
1.3.1	Define the responsible persons and their responsibilities at all levels at the laboratory level	(8) The person in charge of the laboratory is directly responsible for the safety work of this laboratory, and should strictly implement daily safety management work such as laboratory safety access, hidden danger rectification and personal protection, so as to effectively protect laboratory safety; the person in charge of the project (including the teacher of the teaching course) is the first person responsible for the project safety, and must carry out hazard identification and risk assessment of the project, and formulate preventive measures and on-site disposal plan; the laboratory The person in charge of the laboratory should designate a safety officer who is responsible for the daily safety management of the laboratory.	
1.3.2	Laboratory signs laboratory safety responsibility letter	(9) The person in charge of the laboratory signs a laboratory safety responsibility letter with relevant laboratory personnel.	
1.4	Safety work reward and punishment mechanism		
1.4.1	Reward and punishment mechanism implemented to the post or individual	(10) Whether there is a clear management method of reward and punishment, and the actual implementation.	
1.4.2	Accident investigation and accountability according to law and regulations	(11) Check the implementation of accident investigation.	

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1.5	Funding Guarantee		
1.5.1	The school has an annual budget for routine laboratory safety funding	(12) School functions have budget approval vouchers to prove that there is money earmarked for laboratory safety work.	
1.5.2	The school has special funds to invest in laboratory safety work, major safety hazards correction funds can be implemented	(13) The school function has expenditure vouchers to prove that there is money earmarked for laboratory safety work, especially for major safety hazard correction projects.	
1.5.3	Faculty have self-funded laboratory safety construction and management	(14) The faculty has expenditure vouchers to prove that there is money earmarked for laboratory safety work.	
1.6	Team Building		
1.6.1	Schools are equipped with full-time or part-time laboratory safety managers as needed	(15) There are important sources of danger, i.e. toxic and hazardous (highly toxic, explosive, easy to make, explosives, etc.) chemicals, dangerous (flammable, explosive, toxic, asphyxiating, high pressure, etc.) gases, animals and pathogenic microorganisms, radiation sources and radiation devices, isotopes and nuclear materials, dangerous mechanical processing devices, strong electrical and magnetic and laser equipment, special equipment and other colleges and universities should be equipped with school-level management agencies based on the workload Adequate full-time laboratory safety management personnel. (16) Departments with important sources of danger should be equipped with full-time laboratory safety managers according to their workload; departments related to arts, management, arts, mathematics and information should be equipped with part-time laboratory safety managers.	
1.6.2	There is a school-level laboratory safety inspection team, which can be composed of teachers, laboratory technicians, and can	(17) Documented evidence that the school has established an inspection team and has records of its work.	

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	also use social forces with relevant professional capabilities		
1.6.3	The person in charge of laboratory safety at all levels, managers and technical staff to receive laboratory safety training within one year of arrival	(18) There are training records (certificates, electronic files, written records) and other proof of training and qualification.	
1.7	Other		
1.7.1	Use of information technology to manage laboratory safety	(19) School construction information management and other systems for laboratory safety management.	
1.7.2	Establishment of laboratory safety work files	(20) including responsibility system, team building, safety system, rewards and punishments, education and training, safety inspection, hidden danger rectification, accident investigation and treatment, professional safety, other related routine or stage work, etc., and the file classification is scientific and reasonable, easy to find.	
2	Regulations		
2.1	Laboratory safety management system		
2.1.1	The university and the faculty should have a formal documented laboratory safety management system	(21) There is a formally issued laboratory safety management system, including the basis of the higher law, the scope of the laboratory, safety management principles, organizational structure, responsibility system, rewards and punishments, accident handling, responsibility and accountability, safety culture and other elements.	
2.2	Laboratory safety management methods or rules		
2.2.1	There are officially issued laboratory safety management methods or rules	(22) the development of laboratory classification and grading, access management, safety inspection, and various types of safety and other secondary management methods based on the situation of risk sources, the document should be operable or practical management utility, timely revision and update, and officially issued.	
2.3	Security emergency system		

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2.3.1	Schools, departments and laboratories have appropriate emergency plans	(23) schools, secondary units and laboratories should establish emergency plans and emergency drill system, regular emergency knowledge learning, emergency disposal training and emergency drills, to ensure that emergency personnel, materials, equipment and funding, to ensure that the emergency function is complete, personnel in place, well-equipped, timely response, to ensure the effectiveness of experimental protective supplies and equipment, emergency supplies.	
3	Education and Training		
3.1	Safety education and training activities		
3.1.1	Provide mandatory or elective laboratory safety courses	(24) For departments and majors with important sources of danger (see Item 15), they should offer mandatory safety education courses with credits or incorporate safety education courses into the mandatory sessions; other majors are encouraged to offer safety elective courses.	
3.1.2	Conducting safety education and training activities	(25) There is archival evidence at the school level that laboratory safety education and training has been conducted. (26) There is documented evidence of laboratory safety education and training at the faculty level, with a focus on outsiders and new graduate students.	
3.1.3	Conduct emergency drills that incorporate disciplinary characteristics	(27) There are laboratory safety accident emergency drills.	
3.1.4	Organization of laboratory safety knowledge examination	(28) The construction of an examination system or examination question bank and timely updates, students, faculty and staff engaged in experimental work and outsiders are required to take the examination, and those who pass are issued a certificate of eligibility or keep records.	
3.2	Safety Culture		
3.2.1	Building a safety culture with school characteristics	(29) The school has a webpage with a column for safety promotion.	

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		(30) Compile and print the school laboratory safety manual, and distribute the laboratory safety manual to every teacher and student engaged in laboratory activities. (31) Innovative forms of publicity and education, through the public WeChat, microblogging, work briefings, culture month, special rectification activities, safety assessment, knowledge competitions, microfilm and other ways to strengthen safety publicity.	
3.2.2	Establishment of laboratory safety hazard reporting system	(32) the establishment of laboratory safety hazards reporting system, the publication of laboratory safety hazards reporting e-mail, telephone, mailbox, etc..	
4	Security Access		
4.1	Project security access		
4.1.1	Conduct laboratory safety risk assessments for projects to ensure that the laboratory meets the safety conditions for conducting project activities	(33) The project leader is responsible for the identification of experimental projects, risk assessment and control of hazardous sources, the development of on-site disposal programs, and guidance to the relevant personnel to do a good job of safety protection.	
4.2	Personnel security access		
4.2.1	Laboratory personnel must undergo safety training and assessment to obtain laboratory safety access	(34) Laboratory personnel should obtain laboratory access and strictly comply with the management system.	
4.3	Security Risk Analysis		
4.3.1	Conducting security risk analysis on the selected research topic and preparing for prevention, control and emergency response	(35) should be carried out before the experiment security risk analysis, and through the audit.	
5	Security Check		
5.1	Hazard identification		

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5.1.1	Establishment of hazard distribution lists at the school and faculty levels	(36) The content of the list shall include information such as units, rooms, categories, quantities, and responsible persons.	
5.1.2	Experimental sites involving hazardous sources, there must be clear warning signs	(37) involving important sources of danger (see Item 15) of the premises, there are prominent warning signs.	
5.1.3	Establish risk assessment and contingency plans for important sources of danger	(38) to establish a risk classification and control program. (39) Faculties and laboratories should establish emergency plans for important sources of danger.	
5.2	Security Check		
5.2.1	School and departmental level safety inspection and laboratory self-inspection	(40) Inspections at the school level should be conducted at least four times a year, at the departmental level at least once a month, and laboratories should be inspected frequently. Safety inspections and corrections should be kept as a record.	
5.2.2	Special inspection for high-risk experimental items and experimental process	(41) for important sources of risk (see Item 15), to carry out regular special inspections.	
5.2.3	Security inspectors should be equipped with professional protective and measuring gear	(42) safety inspectors to wear signs, equipped with photographic apparatus. Access to laboratories involving hazardous chemicals, biological, radiation, etc. to wear the necessary protective gear; inspection of radiation sites to wear a personal radiation dosimeter; equipped with the necessary measurement, measurement appliances (handheld VOC detector, sound level meter, anemometer, electric pen, multimeter, etc.).	
5.3	Safety hazard rectification		
5.3.1	Problems found during the inspection should be officially notified to the person in charge	(43) Notification can be made in the form of online announcements, laboratory safety briefings, written or electronic correction notices.	
5.3.2	Faculties must organize timely correction of potential problems	(44) The correction report should be submitted to the school management within the specified time.	

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		(45) such as the existence of major hazards, the laboratory should immediately stop experimental activities, rectification is completed or take appropriate protective measures before resuming the experiment.	
5.4	Security Report		
5.4.1	The university has regular/unscheduled safety inspection notifications; the faculty has safety inspection and correction records	(46) There are relevant information or electronic files.	
6	Experimental site		
6.1	Location Environment		
6.1.1	Experimental sites should be posted safety information signs	(47) Each room has a safety information board hanging at the entrance, with information including: warning signs for safety risk points, the person responsible for safety, the category of hazards involved, protective measures and effective emergency contact numbers, etc., which are updated in a timely manner.	
6.1.2	Experimental sites should have a reasonable layout of safe space	(48) more than 200 square meters of laboratory floors with at least two security exits, more than 75 square meters of laboratories to have two entrances and exits. (49) The laboratory building corridor to ensure that there is more than 1.5 meters net width of the fire escape. (50) laboratory operation area floor height of not less than 2 meters. (51) science, technology, agriculture and medicine laboratories for multiple experiments at the same time, the operating area per capita is not less than 2.5 square meters.	
6.1.3	The laboratory fire escape is clear, and there are no instruments and objects stacked in public places	(52) Keep fire escapes clear.	
6.1.4	Laboratory construction and decoration should meet fire safety requirements	(53) experimental operating table should be selected from qualified fire, corrosion-resistant materials.	

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		(54) The installation of instruments and equipment in accordance with the load-bearing load of the building. (55) The laboratory with combustible gases does not have a suspended ceiling. (56) unused distribution boxes, sockets, water taps, network cables, gas lines, etc., should be removed or closed in a timely manner. (57) Laboratory doors with observation windows and external doors do not block the escape route.	
6.1.5	All rooms in the laboratory must be equipped with emergency spare keys	(58) Emergency spare keys must be stored centrally, unified management, easy to access in case of emergency.	
6.1.6	Experimental equipment shall be well vibration damping, electromagnetic shielding and noise reduction	(59) prone to vibration of the equipment, shall consider taking reasonable vibration damping measures. (60) easy to generate external magnetic fields or susceptible to magnetic interference equipment, magnetic shielding must be done. (61) laboratory noise is generally not higher than 55 decibels (mechanical equipment is not higher than 70 decibels).	
6.1.7	Laboratory water, electricity, gas pipeline layout is reasonable, installation and construction specifications	(62) the use of pipeline gas supply laboratory, gas pipelines and valves without gas leakage, and there are clear signs. Gas supply pipeline with name and gas flow identification, no breakage. (63) high temperature, open flame equipment placement and gas piping with a safe separation distance. (64) Laboratory renovation projects should be approved and implemented.	
6.2	Hygiene and daily management		
6.2.1	Laboratory partitions should be relatively independent and reasonably laid out	(65) toxic and hazardous experimental areas are clearly separated from the study area, reasonable layout, focusing on chemical, biological, radiation, laser and other categories of laboratories. If some areas are not clearly partitioned, on-site view of toxic and	

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		hazardous substances management shall be no health hazards to the working environment.	
6.2.2	The laboratory environment should be neat, hygienic and orderly	(66) The laboratory items are arranged in an orderly manner, with good hygiene, and the items are returned to their places after the experiments, and no discarded items or irrelevant items are placed. (67) Do not sleep in the laboratory, do not store and cook food, food and drink, prohibit smoking, do not use combustible mosquito coils.	
6.2.3	The laboratory has a health and safety system	(68) Records were kept during the experiment.	
6.3	Other security of the premises		
6.3.1	Each laboratory is numbered and registered	(69) on-site inspection of door signs, access to the archives.	
6.3.2	Hazardous laboratories should be equipped with first aid items	(70) equipped with a medicine box shall not be locked, and regularly check whether the drug is within the shelf life.	
6.3.3	Decommissioned laboratories have safety precautions and clear signs	(71) View the site.	
7	Security Facilities		
7.1	Fire Fighting Facilities		
7.1.1	Laboratories should be equipped with appropriate fire-fighting equipment and regular training in its use	(72) smoke alarms, fire extinguishers, fire blankets, fire sand, fire sprinklers, etc., should be normal and effective, easy to access. (73) the type of fire extinguisher configuration is correct, and within the expiration date (pressure pointer position is normal, etc.), the insurance pin is normal, the bottle is not broken, corrosion.	
7.1.2	Emergency evacuation routes are open	(74) prominently posted in the emergency evacuation roadmap, evacuation roadmap escape routes should be two (inclusive) or more, the route and the site conditions. (75) the main escape route (indoor, stairs, passageways and exits) have sufficient	

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		<p>emergency lighting, normal function, and set effective signs indicating the direction of escape.</p> <p>(76) personnel should be familiar with emergency evacuation routes and fire escape precautions (on-site investigation of the familiarity of personnel).</p>	
7.2	Emergency spraying and eyewash device		
7.2.1	There are risks of combustion, corrosion and other experimental areas, shall be configured with emergency sprinklers and eyewash devices	(77) Emergency sprinklers and eyewash devices are prominently marked in the area.	
7.2.2	Emergency spraying and eye wash devices are reasonably installed and can be used normally	<p>(78) Emergency sprinkler installation site and the work area between the unobstructed, the distance does not exceed 30 meters. Emergency sprinkler installation position is appropriate, the tie rod position is appropriate, the direction is correct. Emergency sprinkler water main valve is normally open, and there is no obstacle within 410mm below the sprinkler head.</p> <p>(79) You cannot replace emergency sprinklers with ordinary shower units.</p> <p>(80) eyewash device into the domestic water pipeline, should be at least 1.5L / min flow of water supply, water pressure is moderate, smooth and stable water flow.</p>	
7.2.3	Regular maintenance of emergency sprinklers and eyewash devices	(81) frequent maintenance of emergency sprinklers and eyewash devices, no rusty water dirty water, there are inspection records.	
7.3	Ventilation System		
7.3.1	There is a need for experimental sites equipped with ventilation systems that meet design specifications	<p>(82) The duct fan shall be anti-corrosion, using combustible gas places should use explosion-proof fans.</p> <p>(83) The laboratory ventilation system operates normally, with a wind speed of 0.35~0.75 m/s at the face of the cabinet, and regular maintenance and overhaul.</p> <p>(84) The roof fan is fixed without looseness and abnormal noise.</p>	

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7.3.2	Ventilation cabinet is reasonably configured, properly used and operationally compliant	<p>(85) laboratory emissions of harmful substances in excess of the concentration of the national standards in force to allow the emission standards, must take purification measures to achieve compliance with the emission standards.</p> <p>(86) Any experiments that may produce toxic or hazardous gases resulting in personal exposure, or combustible or explosive gases or vapors resulting in accumulation, shall be conducted in a fume hood.</p> <p>(87) When conducting experiments, the adjustable glass window of the fume hood is opened to 10-15 cm from the table surface to maintain the ventilation effect and to protect the operator above the chest. When experimenting in the fume hood, avoid sticking the head into the adjustable door. Do not leave disposable gloves or lighter plastic bags in the fume hood to avoid blocking the air vent. Items placed in the fume hood should be more than 15 cm from the inside of the regulating door to avoid dropping. The fume hood should not be used as a storage place for chemical reagents. The glass window material should be tempered glass.</p>	
7.4	Access Control Monitoring		
7.4.1	Key places must be installed access control and monitoring facilities, and dedicated management	(88) Focus on the management of key sites, such as highly toxic materials, pathogenic microorganisms, radioactive source storage sites, nuclear materials and other hazardous sources.	
7.4.2	Access control and monitoring systems are functioning properly and match the lab access system	<p>(89) monitoring does not leave dead ends, clear images, personnel access records can be checked, video records storage time of not less than 30 days.</p> <p>(90) power failure, the electronic access control system should be open or have a backup mechanical key.</p>	
7.5	Laboratory explosion-proof		
7.5.1	Laboratories with explosion-proof requirements must meet explosion-proof	(91) Installation of explosion-proof switches, explosion-proof lights, etc., installation of the necessary gas alarm systems, monitoring systems, emergency systems, etc.	

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	design requirements	(92) combustible gas piping, the scientific selection and installation of flame arrestors. (93) Take effective measures to avoid or reduce the occurrence of hazardous explosive atmospheres and avoid any potentially effective ignition sources.	
7.5.2	Apparatus and equipment with explosive hazards should be properly protected	(94) Use suitable safety cover protection.	
8	Basic Security		
8.1	Electricity and water base safety		
8.1.1	Laboratory electrical safety should comply with national standards (guidelines) and industry standards	(95) laboratory power distribution capacity, plugs and sockets and the power of electrical equipment must be matched, no private modification. (96) Power outlets shall be effectively fixed. (97) Electrical equipment should be equipped with air switches and leakage protectors. (98) do not pull and connect wires and cables, prohibit multiple terminal blocks in series power supply, terminal blocks should not be placed directly on the ground. (99) prohibit the use of aging cables, flower wire, wooden distribution boards, damaged terminal blocks, wire joints with reliable insulation, no exposed connection lines, cables crossing the channel should be covered or sheathed, do not use the old national standard terminal blocks, sockets. (100) Use special sockets for high-powered instruments (including air conditioners, etc.). (101) appliances should be disconnected when not in use for a long time. (102) power distribution box should not be shielded by items in front and easy to operate, should not be placed around the oven, electric furnace, flammable and explosive gas cylinders, flammable and explosive chemical reagents, waste liquid barrels, etc.; the metal box of the distribution box should be reliably connected to the protective zero line or protective earth line inside the box.	

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8.1.2	Water supply and drainage systems are reasonably arranged and operate normally	(103) Sinks, floor drains and sewers are clear, and faucets and water and sewage pipes are not broken. (104) All kinds of connection tubes are not aging and broken (especially the rubber tube interface of the cooling condensing system). (105) The main valves of water pipes at all levels on each floor and laboratory shall be clearly marked.	
8.2	Individual Protection		
8.2.1	Lab personnel must be equipped with appropriate personal protective equipment	(106) Personnel entering the laboratory must wear laboratory clothes or protective clothing of suitable texture. (107) Wear protective glasses, protective gloves, helmets, protective caps, respirators or masks (respirators or masks within the expiration date, must be sealed when not in use), etc. as needed. (108) Wear contact lenses with caution when conducting chemical, biosafety and high-temperature experiments. (109) When operating machine tools and other rotating equipment, do not wear long scarves, scarves, ties, etc., long hair must be coiled in the work cap. (110) Wear chemical and biological lab coats or lab gloves, and do not enter non-laboratory areas at will.	
8.2.2	Reasonable storage of personal protective equipment, storage locations are clearly marked	(111) In an emergency shall be used personal protective equipment should be stored in a safe place for easy access.	
8.2.3	Training and regular inspection and maintenance records for the use of various types of personal protective equipment	(112) Check the training and maintenance records.	
8.3	Other		

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8.3.1	Dangerous experiments (such as high temperature, high pressure, high-speed operation, etc.) must have two people present	(113) experiments can not be off duty, overnight experiments must be two people present and have prior approval system.	
8.3.2	Neat and tidy laboratory table and standardized laboratory records	(114) Check the experimental bench top and experimental records.	
9	Chemical Safety		
9.1	Hazardous chemical storage area		
9.1.1	The school has built a hazardous chemical storage area and standardized management	<p>(115) Hazardous chemical storage area shall have ventilation, heat insulation, light avoidance, anti-theft, explosion-proof, anti-static, leakage alarm, emergency sprinkler, safety warning signs and other measures, in accordance with relevant regulations, and dedicated management.</p> <p>(116) The fire-fighting facilities in the storage area of hazardous chemicals comply with the relevant national regulations and are correctly equipped with fire-fighting equipment (such as fire extinguishers, fire blankets, sand boxes, automatic sprinklers, etc.).</p> <p>(117) Storage area for hazardous chemicals cannot be built underground or semi-underground, and shall not be built inside the laboratory building. If it can only be stored in the laboratory building, it should be in accordance with the standard requirements of the laboratory (see 9.3 Storage of Laboratory Chemicals).</p> <p>(118) The reagents in the storage area of dangerous chemicals are not mixed, and the stacked height of the whole box of reagents is not more than 1.5 meters.</p>	
9.2	Hazardous chemical acquisition		
9.2.1	Procurement of hazardous chemicals must meet the requirements	(119) Hazardous chemicals must be purchased from units with production and operation licenses, check the copy of the relevant supplier's operation license qualification certificate.	

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9.2.2	Highly toxic substances, explosives, explosive substances, explosives purchase procedures for compliance	(120) must be approved by the school before purchase, reported to the public security department for approval or record, to purchase from the unit with business license qualification, and keep the report and approval records. (121) to establish the purchase, acceptance, use and other accounting information. (122) Shall not privately obtain controlled chemicals from outside units, nor shall they provide controlled chemicals to outside units or individuals.	
9.2.3	Narcotic drugs, psychotropic substances, etc. must be applied to the food and drug supervision and management department before purchase	(123) approved by the designated suppliers or designated manufacturers to purchase.	
9.2.4	Transportation safety of hazardous chemicals on campus	(124) On-site spot checks, transport vehicles, delivery personnel and delivery methods on campus comply with relevant specifications.	
9.3	Laboratory chemical storage		
9.3.1	The laboratory has a dynamic account of hazardous chemicals	(125) Establish a dynamic account of hazardous chemicals in the laboratory and have safety technical instructions (SDS) or safety notification cards for hazardous chemicals for easy access. (126) Clean up waste reagents regularly without accumulation.	
9.3.2	Chemicals have a dedicated storage space and scientific and orderly storage	(127) Storage rooms, storage areas, storage cabinets, etc. should be ventilated, insulated, and protected from direct sunlight. (128) Easily leaking, volatile reagent storage equipment and locations should ensure adequate ventilation. (129) The reagent cabinet should not have power outlets or terminal blocks. (130) Chemicals should be stored in an orderly manner, solids and liquids should not be placed in confusion, chemicals that are forbidden to each other should not be mixed, and reagents should not be stacked. The storage area of organic solvents should be far away	

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		<p>from heat source and fire source. The reagent bottles with reagents shall not be placed open. No chemical reagents shall be stored in the laboratory shelf without baffle.</p> <p>(131) equipped with the necessary secondary leakage protection, adsorption or overflow prevention features.</p>	
9.3.3	The total amount of hazardous chemicals stored in the laboratory meets the requirements of the regulations	<p>(132) Dangerous chemicals (excluding compressed gases and liquefied gases) in principle should not exceed 100 liters or 100 kg, of which the total storage of flammable and explosive chemicals should not exceed 50 liters or 50 kg, and the single packaging container should not be larger than 20 liters or 20 kg (according to the standard of 50 square meters, the storage volume is considered by the ratio of laboratory area).</p> <p>(133) the use of flammable and explosive solvents or gases in large quantities throughout the year shall be installed with leak alarms; storage sites should be installed with constant exhaust, or with the detection of the alarm linkage exhaust device.</p>	
9.3.4	Chemical labeling should be significantly complete and clear	<p>(134) Chemical packaging must have chemical labels that meet the requirements.</p> <p>(135) When the chemicals are transferred or sub-packaged from the original packaging to other packaging, the transferred or sub-packaged packaging should be re-labeled in time. The chemical label should be replaced in time after falling off, blurring or corrosion. If it cannot be confirmed, it should be disposed of with unknown waste chemicals.</p>	
9.3.5	Other chemical storage issues	<p>(136) Containers with prepared reagents, synthetic products, samples, etc. on the label information is clear, label information including name or number, the person using, date, etc.</p> <p>(137) No use of beverage bottles to store reagents and samples, if you do need to use them, you must tear off the original wrapping paper and affix the reagent label.</p> <p>(138) Do not use broken measuring cylinders, test tubes, pipettes and other glassware.</p>	
9.4	Safety of experimental operations		

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9.4.1	Develop hazardous experiments, hazardous chemical process instructions, various standard operating procedures (SOPs), and emergency plans	(139) instructions and plans on the wall or easy to access, the experimental staff familiar with the hazards involved and emergency response measures, in accordance with the instructions for the experiment.	
9.4.2	Hazardous chemical processes and installations should be equipped with automatic control and power redundancy design	(140) involving dangerous chemical processes, key regulatory hazardous chemicals reaction devices should be set up with automated control systems. (141) involving exothermic reactions in the production of hazardous chemical processes should be set up double power supply or control system should be configured with uninterruptible power supply.	
9.4.3	Do the treatment and protection of toxic and harmful exhaust gas	(142) For experiments that produce toxic and harmful exhaust gases, they must be conducted in fume hoods and equipped with gas absorption devices at the end of the experimental device, and the operator wears suitable and effective respiratory protection gear.	
9.5 Management of controlled chemicals			
9.5.1	Execution of "five double" management of toxic chemicals (i.e. double acceptance, double storage, double delivery, double lock, double accounts), and technical security measures meet control requirements	(143) separate storage, not with flammable, explosive, corrosive substances and other storage. (144) have a person to manage and do a good job of storage, collection, distribution of registration, registration information is kept for at least 1 year. (145) anti-theft security doors should meet the requirements of GB 17565, anti-theft security level B (including) or more, anti-theft locks should meet the requirements of GA/T 73, anti-theft safes should meet the requirements of "anti-theft safes" GB 10409, monitoring and control of the implementation of public security requirements.	
9.5.2	Standardized storage of precursor chemicals, clear ledger	(146) should be set up a special storage area or special cabinet storage and anti-theft measures.	

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		(147) the first category of precursor chemicals, drugs, precursor chemicals to implement double-locked management, bookkeeping period of not less than 2 years.	
9.5.3	Stock of explosive chemicals compliance, double locks storage	(148) compliance with the stock of explosive chemicals. (149) storage place entrances and exits should be set up security doors, or stored in special storage cabinets, storage places anti-theft security level should be B (including) or more, special storage cabinets should have anti-theft function, in line with the double locks management requirements, ledger book keeping period of not less than 1 year.	
9.5.4	Narcotic drugs and Class I psychotropic substances are managed in accordance with the "double lock", with special books	(150) set up a special library or special cabinet storage, special library should be equipped with anti-theft facilities and installed alarm devices, special cabinets should use the safe, special library and special cabinets should be double-locked management. (151) with dedicated management and the establishment of special books, special books should be kept for a period of not less than 5 years from the date of expiry of the drug.	
9.5.5	Separate isolation of explosives, limited storage, use, destruction in accordance with the requirements of the public security department	(152) the receipt and issuance of civilian explosives must be registered, so that the accounts are clear, the accounts match.	
9.6	Experimental Gas Management		
9.6.1	Purchase experimental gases from qualified suppliers and establish a gas (cylinder) ledger	(153) View records.	
9.6.2	Storage and use of gas (cylinders) in accordance with relevant requirements	(154) Gas (cylinders) storage points must be ventilated, away from heat sources, avoid exposure to the sun, and the ground is flat and dry. (155) Gas cylinders should be reasonably fixed. (156) Dangerous gas cylinders should be placed outdoors as far as possible, and cylinder cabinets with constant exhaust and monitoring and alarm devices should be used for	

Serial number	Inspection items	Inspection points	Situation Record
		<p>indoor placement.</p> <p>(157) The storage of gas cylinders should be controlled to the minimum demand.</p> <p>(158) involving toxic and combustible gases in the premises, with ventilation facilities and the corresponding gas monitoring and alarm devices, etc., posting the necessary safety warning signs.</p> <p>(159) Combustible gases and oxygen and other combustion gas cylinders should not be mixed.</p> <p>(160) Independent gas cylinder room should be ventilated, not mixed, monitored, with dedicated management and records.</p> <p>(161) there are suppliers of gas cylinders regularly inspected and qualified logo, no more than the inspection period of the cylinder, no more than the design life of the cylinder.</p> <p>(162) gas cylinder color in line with the requirements of GB/T 7144 "gas cylinder color mark", to confirm the "full, in use, empty cylinders" three states.</p> <p>(163) After use, the cylinder main valve should be closed in a timely manner.</p> <p>(164) gas cylinder accessories are complete.</p>	
9.6.3	The use of small sealed spaces can cause asphyxiation gas, shall be installed with oxygen content monitoring, set the necessary gas alarm device	(165) There are a large number of non-toxic asphyxiating compressed gases or liquefied gases (liquid nitrogen, liquid argon) of the smaller confined space, in order to prevent a large number of leaks or evaporation resulting in oxygen deficiency, shall be installed to monitor the oxygen content alarm device.	
9.6.4	Gas lines and cylinders are properly connected and clearly marked	(166) The pipeline material is selected appropriately, without damage or aging, and the gas tightness is checked regularly; a detailed pipeline diagram must be posted in the room where multiple gas pipelines exist, and the pipelines are correctly identified.	
9.7	Collection, sorting and transfer of laboratory chemical waste		

Serial number	Inspection items	Inspection points	Situation Record
9.7.1	The laboratory should set up a temporary storage area for chemical waste	<p>(167) temporary storage area should be away from fire, heat sources and incompatible substances, avoid sun, rain, storage of two or more incompatible laboratory hazardous waste, should be divided into different areas.</p> <p>(168) temporary storage area should have warning signs and anti-spill, anti-leakage facilities or measures.</p>	
9.7.2	Chemical waste collection must be regulated in the laboratory	<p>(169) hazardous wastes should be collected and stored temporarily according to the chemical and hazardous properties, classification.</p> <p>(170) Discarded chemical reagents should be stored in the original reagent bottles, retain the original labels, and put the bottles into special solid waste bins with the mouths facing upward.</p> <p>(171) Needles and other sharps must be collected in a sharps box.</p> <p>(172) The waste liquid should be sorted into special waste liquid drums, with the liquid level not exceeding 3/4 of the capacity. waste liquid drums should meet the requirements of corrosion resistance, solvent resistance, extrusion resistance and impact resistance.</p> <p>(173) laboratory hazardous waste collection containers should be attached to the hazardous waste information labels, warning signs.</p> <p>(174) It is strictly forbidden to discharge laboratory hazardous waste directly into the sewer, and to mix it with domestic waste, infectious waste or radioactive waste, etc.</p>	
9.7.3	Schools should build chemical waste storage stations and regulate management	<p>(175) storage facilities, places should be set up in accordance with the provisions of hazardous waste identification signs, storage devices in line with GB / T 41962 "Technical specifications for laboratory waste storage devices" requirements, flammable waste outdoor storage devices of a single set of internal area should not be greater than 30m², high should not be greater than 3m (size error should not be greater than 10%), and set up at the vent fire valve, nominal action temperature of 70°C.</p>	

Serial number	Inspection items	Inspection points	Situation Record
		<p>(176) storage station should have specific management practices and the safe operation of the storage station, laboratory hazardous waste out of the station transfer and other day-to-day management of the implementation of the relevant personnel in the job responsibilities.</p> <p>(177) the development of accident prevention measures and emergency response plans, and to the local ecological and environmental authorities for the record.</p>	
9.7.4	The transfer of chemical waste must be compliant	<p>(178) entrusted with hazardous waste disposal qualification of professional manufacturers to centralize the disposal of chemical waste, view the agreement.</p> <p>(179) the establishment of hazardous waste management ledger, a factual record of relevant information, including types, generation, flow, storage, disposal and other relevant information.</p> <p>(180) off-campus transfer before the storage station must be properly managed laboratory hazardous waste, take effective measures to prevent waste dispersion, loss, leakage or other environmental pollution.</p> <p>(181) transfer personnel should use special transport, transport waste according to the hazardous characteristics of the former, should carry the necessary emergency supplies and individual protective gear, such as collection tools, gloves, masks, etc..</p> <p>(182) off-campus transfer of laboratory hazardous waste must be filled out in accordance with the relevant state regulations of electronic or paper transfer of hazardous waste, any unit or individual without permission may not be illegal transfer.</p>	
10	Biosecurity		
10.1	Laboratory biosafety level		
10.1.1	Laboratories conducting experimental research on pathogenic microorganisms	(183) BSL-3/ABSL-3 and BSL-4/ABSL-4 laboratories must be approved by government departments for construction, and BSL-1/ABSL-1 and BSL-2/ABSL-2 laboratories are	

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	must have the appropriate security level qualification	constructed by the university and then reported to the health or agriculture department for record.	
10.1.2	Experimental activities involving pathogenic biological factors in laboratories of the appropriate grade	(184) Based on national laws, regulations, standards and norms, as well as guidelines and data issued by authoritative institutions, risk assessment of the pathogenic biological factors involved, and selection of the corresponding laboratory safety level for pathogenic microbial research, with emphasis on: conducting experiments and research related to non-inactivated highly pathogenic microorganisms (included in Class I and II), which must be conducted in BSL-3/ ABSL-3, BSL-4/ABSL-4 laboratories; to conduct experiments and research related to low pathogenic pathogenic microorganisms (included in Class III and Class IV), or inactivated highly pathogenic infectious materials, must be conducted in BSL-1/ABSL-1, BSL-2/ABSL-2 or higher class laboratories.	
10.2	Locations and Facilities		
10.2.1	Laboratory safety precautions to meet the requirements of the corresponding biosafety laboratory, the distribution of each area is reasonable, normal air pressure	(185) laboratory access management and access system shall be set up, storage of pathogenic microorganisms or storage cabinets equipped with anti-theft facilities, BSL-3/ABSL-3 and above security level laboratory shall be installed to monitor the alarm device.	
10.2.2	With the corresponding requirements of biosafety facilities	(186) BSL-2 or higher safety level laboratories shall be equipped with Class II biosafety cabinets, ABSL-2 when applicable, and regular testing, B-type biosafety cabinets shall have normal ventilation systems. (187) pathogenic microbiology laboratory should have a reliable and adequate power supply, equipped with applicable fire-fighting equipment, eyewash devices and the necessary emergency sprinklers. (188) Laboratories that have been equipped with transfer windows should ensure that the transfer windows function properly and that no items are stored inside; outdoor air vents should be designed to prevent wind, rain, rodents and insects, but not to affect the	

Serial number	Inspection items	Inspection points	Situation Record
		<p>emission of gases overhead. Relevant laboratories take effective measures to prevent insects and rodents from entering or escaping, such as installing insect screens and rodent-proof panels.</p> <p>(189) Biosafety laboratories are equipped with pressure steam sterilizers, and the sterilization effect is monitored according to the specified requirements.</p>	
10.2.3	Disinfection of premises to ensure the safety of personnel	<p>(190) the use of ultraviolet lamps in biosafety laboratories should be set up with safety warning signs, especially for ultraviolet lamp switches to post warning signs.</p> <p>(191) The use of ultraviolet lamps in biosafety laboratories during the disinfection process is prohibited to enter the personnel. The use of purple plus ozone disinfection should have a certain amount of exhaust time after the end of the disinfection time, ozone dissipation before personnel can enter.</p>	
10.3	Acquisition and storage of pathogenic microorganisms		
10.3.1	The use of highly pathogenic microorganisms (virulent) strains, subject to the appropriate application and approval procedures	<p>(192) Obtain pathogenic microbial strains (virulent) from formal sources, the school should have an approval process.</p> <p>(193) transfer and transport of highly pathogenic microorganisms shall be reported to the competent health and agricultural departments for approval in accordance with the provisions of the corresponding transport packaging requirements after the transfer and transport.</p>	
10.3.2	Highly pathogenic microorganisms (virulent) strains should be properly preserved and strictly managed	(194) pathogenic microbial strains (virulent) are kept in locked refrigerators or cabinets, and highly pathogenic microorganisms are managed in double locks. There are records of pathogenic microbial strains (virulent) preservation, experimental use, destruction.	
10.4	People Management		
10.4.1	Personnel conducting experiments and research related to pathogenic microorganisms are professionally trained	(195) personnel have passed the test and obtained a certificate.	

Serial number	Inspection items	Inspection points	Situation Record
10.4.2	Provide appropriate medical evaluation for staff working with highly pathogenic microorganisms	(196) Implement monitoring and treatment programs and properly maintain appropriate medical records. There are pre-service medical examinations and off-duty medical examinations, and regular medical examinations for long-term work.	
10.4.3	Develop appropriate personnel access system	(197) The entry of foreign personnel into the biosafety laboratory must be approved by the person in charge, and there are relevant education and training, safety prevention and control measures. No pathogenic microbial experiments shall be conducted when symptoms such as cold and fever appear.	
10.5	Operation and Management		
10.5.1	Develop and adopt a biosafety manual with relevant standard operating practices	(198) have engaged in pathogenic microbiology-related experimental activities of standard operating practices.	
10.5.2	Carry out risk assessment of relevant experimental activities and develop corresponding emergency plans	(199) to carry out experimental activities related to pathogenic microorganisms should have risk assessment and contingency plans, including written procedures for the disposal of pathogenic microorganisms and spills of infectious materials and accidents.	
10.5.3	Experimental operation compliance and reasonable safety protection measures	(200) Conduct experimental operations in a suitable biosafety cabinet; do not conduct pathogenic microbial experiments in the ultra-clean bench. (201) Operate the high-speed centrifuge safely, taking care to prevent spillage or aerosol spreading caused by broken centrifuge tubes or broken caps. (202) There are appropriate individual protective measures, and it is prohibited to wear protective gloves to operate facilities and equipment other than the relevant experiments.	
10.6	Laboratory Animal Safety		
10.6.1	The purchase, feeding and dissection of laboratory animals must comply with relevant regulations	(203) the premises where experimental animals are kept should be qualified, experimental animals shall be purchased from qualified units, with a certificate of conformity, for dissection of experimental animals shall be inspected and quarantined qualified.	

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		(204) when dissecting experimental animals, must do a good job of personal safety protection. (205) Organize regular health checks.	
10.6.2	Animal experiments are ethically reviewed in accordance with relevant regulations to protect the rights and interests of animals	(206) The school has an ethical review body to check the ethical review records.	
10.7	Biological experimental waste disposal		
10.7.1	Biological waste transfer and disposal specifications	(207) The school contracts with a qualified unit to dispose of infectious waste, with handover records, forming electronic or paper ledgers. (208) The school has a biological waste transfer station or collection point, and biological waste is collected and transferred in a timely manner.	
10.7.2	Separate biological waste from other types of waste, and do a good job of protection and disinfection	(209) biological waste should be stored separately from chemical waste, household waste, etc. (210) The laboratory is equipped with bio-waste bins (built-in plastic bags for bio-waste) with special label markings. (211) Sharp objects such as razor blades and pipette tips should be placed in sharps boxes or tie-resistant cardboard boxes, and then placed in special plastic bags for biological waste and labeled when sent to storage. (212) after the end of animal experiments, animal carcasses and tissues should be done harmlessly, waste thoroughly sterilized before disposal. (213) Biological waste involving pathogenic microorganisms or other bacterial species must be autoclaved or chemically soaked and then disposed of by a qualified company for final disposal. (214) highly pathogenic biological material waste disposal to achieve traceability.	

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11	Radiation Safety and Nuclear Material Control		
11.1	Qualification and personnel requirements		
11.1.1	Radiation work units must obtain a radiation safety license	(215) in accordance with the provisions of the type and number of radionuclides and the type of radiation within the scope of the license to conduct experiments. In addition to have been exempted from the management, radiation devices, radioactive sources or non-sealed radioactive material should be included in the scope of the license.	
11.1.2	Radiation staff must undergo special training and attend regular occupational medical examinations	(216) radiation staff with "radiation safety and protection training certificate", or "Ministry of Ecology and Environment radiation safety and protection assessment through the achievement report card » . (217) radiation staff on time to participate in radioactive occupational medical examinations (1 in 2 years), with a health file. (218) radiation staff to enter the experimental site must wear a personal dosimeter, dosimeter commissioned by a qualified unit to monitor the dose on time (once every 3 months).	
11.1.3	Nuclear material licensee shall establish a full-time institution or designate a person responsible for the custody of nuclear materials, the implementation of national laws and regulations requirements. There are accounts and reporting system to ensure that the accounts match the material	(219) the number of nuclear materials held to meet the legal requirements of the unit must obtain a nuclear material license, responsible agency or designated personnel responsible for nuclear material control work, nuclear material accounting and nuclear security work to implement national laws and regulations requirements.	
11.2	Venue facilities and procurement transportation		
11.2.1	Radiation facilities and sites should be equipped with warning, interlock and alarm devices	(220) radioactive source storage should be set up "double lock", and have a security alarm system and video surveillance system.	

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		(221) irradiation facilities and equipment and radiation devices with a functioning safety interlock device and alarm device, with obvious safety warning signs, warning lines and dose alarm meter.	
11.2.2	Radiation experimental sites have a qualified annual test report of the experimental site	(222) View the site radiation environmental monitoring report.	
11.2.3	The transfer, transfer and transport of radioactive materials should be approved in accordance with the provisions	(223) The transfer of radioactive sources and radioactive materials have the approval of the school and the ecological environment department for the record, and the environmental impact assessment must be done before the transfer of the transfer. (224) The transfer and transport of radioactive materials have the approval of the school and the public security department for the record. (225) radioactive materials and radiation device storage and use site changes should be re-initiated environmental impact assessment.	
11.3	Radioactive laboratory safety and waste disposal		
11.3.1	All types of radioactive devices have operating procedures, security programs and emergency plans in accordance with the relevant national regulations, and follow the implementation	(226) focus on γ irradiation, electron gas pedal, radiation flaw detector, non-sealed radioactive experimental operations, sealed radioactive experimental operations above category V. (227) Check the radiation accident emergency plan and emergency drill records (no less than one drill per year).	
11.3.2	Radioactive sources and equipment at the end of life have a disposal program or recycling agreement in line with the relevant national regulations	(228) medium and long half-life nuclide solids waste disposal program or recycling agreement in line with relevant national regulations, short half-life nuclide solids waste placed 10 half-life tested and approved by the audit and management department can be treated as ordinary waste, and there are records of disposal. (229) scrapped equipment containing radioactive sources or can produce radioactivity, must be reported to the university administration for approval, and in accordance with	

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		national regulations for decommissioning disposal. x-ray tube scrapping should be destroyed high-voltage equipment, photographed and retained. (230) source-related experimental sites decommissioned, subject to the relevant state regulations.	
11.3.3	Radioactive waste (source) should be strictly managed, not as ordinary waste treatment, not unauthorized disposal	(231) relevant laboratories should be configured with special radioactive waste collection buckets; radioactive waste streams should be cured and prepared before sending to storage. (232) Radioactive waste should be sent to qualified radioactive waste centralized storage unit for storage in a timely manner. (233) The discharge of gaseous or liquid radioactive effluents shall be carried out in strict accordance with the emissions and discharge methods approved by the EIA and local ecological environment departments.	
12	Electrical and mechanical safety		
12.1	Routine management of instruments and equipment		
12.1.1	Establish equipment ledgers with asset tags on equipment and clear management personnel	(234) View electronic or paper ledgers.	
12.1.2	The use of large, special equipment must comply with the relevant provisions	(235) Large instruments and equipment, high-powered equipment to match the capacity of the circuit, there are records of equipment operation and maintenance, and there are safety operating procedures or precautions.	
12.1.3	The grounding and electricity of instruments and equipment meet the relevant requirements	(236) instrumentation grounding system should be in accordance with the specification requirements, using copper materials, grounding resistance is not higher than 0.5 ohms. (237) Computers, air conditioners, electric heaters, etc. are not left on overnight at will. For special instruments and equipment that cannot be powered off, take necessary	

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		protective measures (such as dual power supply, uninterrupted power supply, monitoring and alarm, etc.).	
12.1.4	Special equipment should be equipped with appropriate safety precautions	(238) concern about high temperature, high pressure, high-speed movement, electromagnetic radiation and other special equipment, training requirements for users, safety warning signs and safety warning lines (yellow), equipment safety precautions intact. (239) non-standard equipment, homemade equipment should be qualified by the safety demonstration before use, and must be fully considered the safety factor, and safety measures.	
12.2	Mechanical Safety		
12.2.1	Machinery and equipment should be kept clean and tidy, reliable grounding	(240) machine tools should be kept clean and tidy, it is strictly forbidden to place items on the bed, bed surface, tool holder. (241) reliable grounding of machinery and equipment, the end of the experiment, the power should be cut off, organize the site and the experimental appliances and other neatly arranged, and timely clean up machinery and equipment generated by the waste residue, waste chips.	
12.2.2	Operation of machinery and equipment when the experimental personnel should do a good job of individual protection	(242) personal protective equipment should be fully dressed, such as work clothes, work caps, work shoes, protective glasses, etc. Operation of cold processing equipment must wear "three tight" work clothes, cannot leave long hair (long hair to be coiled in the work cap), prohibit the wearing of gloves. (243) into the high-speed cutting machinery operation workplace, wear good work clothes and shoes, wear protective glasses, fasten the cuffs, wear a good work cap (long-haired students must be long hair coiled in the work cap), prohibit the wearing of gloves, long scarves, ties, bracelets and other accessories, prohibit the wearing of slippers, high heels and so on. It is strictly forbidden to adjust the workpiece by hand when the	

Serial number	Inspection items	Inspection points	Situation Record
		equipment is running.	
12.2.3	Casting and forging and heat treatment experiments should meet the site and protection requirements	<p>(244) The casting experiment site is spacious, the passage is clear, before using the equipment, the operator should wear protective equipment as required.</p> <p>(245) salt bath heating parts must be pre-dried and tied with wire, slowly put into the furnace to prevent the salt liquid blowing collapse burns.</p> <p>(246) quenching oil tank must not have water; the amount of oil cannot be too little to avoid fire.</p> <p>(247) all tools in contact with the iron, must be heated before use, it is strictly prohibited to extend the cold tools into the iron, so as not to cause an explosion.</p> <p>(248) Forging equipment shall not be empty or vigorously beaten too thin forgings, forging should reach more than 850 °C when forging, forging hammer vacant should be padded with wooden blocks.</p>	
12.2.4	Work at height should comply with the relevant operating procedures	<p>(249) in the fall height reference surface 2 meters and above the possibility of falling high places to work, must wear non-slip shoes, helmets, the use of safety belts.</p> <p>(250) The edge of the work shall be set up in the air side of the protective railing, there are relevant safety procedures.</p>	
12.3	Electrical Safety		
12.3.1	The use of electrical equipment should be in line with electrical safety norms	<p>(251) All kinds of electrical equipment and wires should always be kept dry and prevented from getting wet to prevent short-circuiting and causing fire or burning of electrical equipment.</p> <p>(252) laboratory function room wall should be equipped with a special grounding busbar, and a multi-point grounding lead.</p> <p>(253) high-voltage, high-current and other strong power laboratory to set a safe distance, set up safety warning signs, safety signal lights, linked alarms, door locks, with safety</p>	

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		<p>isolation devices or shielding fences (made of metal, and reliable grounding, the height of not less than 2 meters).</p> <p>(254) The control room (console) should be paved with rubber, insulating mats, etc.</p> <p>(255) strong electricity laboratory is prohibited to store flammable, explosive, perishable goods, to maintain ventilation and heat dissipation.</p> <p>(256) should be equipped with equipment residual current discharge special grounding system.</p> <p>(257) Prohibit the use of power tools in an environment with the potential for combustible gas leaks; special shelves for electric soldering irons, and cut off the power immediately after use.</p> <p>(258) strong magnetic equipment should be equipped with a metal shielding network connected to the earth.</p>	
12.3.2	Operation of electrical equipment should be equipped with appropriate protective equipment	(259) strong electrical class high-voltage experiments must be two people (including) or more, the operation should wear insulating gloves; protective equipment in accordance with the provisions of the cycle test or regular replacement; static places, to keep the air moist, staff should wear anti-static clothing, gloves and shoes and boots.	
12.4	Laser Safety		
12.4.1	Laser labs are fully equipped with safety shielding facilities	(260) higher power lasers have interlocking devices, protective shields, laser irradiation direction will not cause harm to others, to prevent the laser emission port and reflector up.	
12.4.2	Appropriate PPE must be worn during laser experiments	(261) The operator wears protective glasses and other protective equipment, does not carry a watch and other reflective objects, forbids looking directly at the laser beam and its reverse beam, forbids doing any visual collimation operation on the laser device, forbids using the eyes to check the laser failure, and the laser must be checked under power failure.	

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12.4.3	Warning signs	(262) Warning signs are posted in all laser areas.	
12.5	Dust Safety		
12.5.1	Dust explosion hazard places, should use explosion-proof electrical equipment	(263) explosion-proof lights, explosion-proof electrical switches, wire laying should be galvanized pipe, must meet the overall explosion-proof requirements. (264) dust processing to have dust removal devices, dust collectors to meet the safety requirements of anti-static, dust removal facilities should have explosion deterrent, explosion isolation, explosion relief devices, the use of tools with explosion-proof function or non-sparking.	
12.5.2	Wear appropriate personal protective equipment for dust-generating experimental sites	(265) dust explosion hazard places should wear anti-static clothing, prohibit the wearing of clothing made of chemical fiber materials, must wear dust masks and ear protection when working.	
12.5.3	Ensure that the concentration of dust in the laboratory is below the explosion limit and equipped with fire extinguishing devices	(266) places with high dust concentration, properly equipped with humidifying devices; equipped with suitable fire extinguishing devices.	
13	Special equipment and conventional hot and cold equipment		
13.1	Lifting equipment		
13.1.1	Reach the "special equipment catalog" in the lifting equipment indicators shall obtain "special equipment registration	(267) rated lifting capacity greater than or equal to 0.5t lift; rated lifting capacity greater than or equal to 3t (or rated lifting moment greater than or equal to 40t-m tower crane, or productivity greater than or equal to 300t / h loading bridge), and lifting height greater than or equal to 2m crane; layer greater than or equal to 2 layers of mechanical parking equipment, shall obtain the Special equipment use registration certificate.	
13.1.2	Lifting machinery operators, inspection units must have the relevant qualifications	(268) crane commanders, crane drivers must obtain the appropriate "special equipment safety management and operator certification," licensed to work, and every four years to review. (269) commissioned by qualified units for periodic inspection, and the periodic inspection	

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		certificate placed in a prominent position of special equipment.	
13.1.3	Lifting machinery shall be regularly maintained, set warning signs, installation of protective facilities	(270) in use lifting machinery at least once a month for routine maintenance and self-inspection, and make records. (271) to develop safe operating procedures and post warning signs in prominent locations around the necessary safety distances and protective measures. (272) lifting equipment sound and light alarm normal, indoor lifting equipment should be marked with the operating channel. (273) abandoned lifting machinery should be dismantled in a timely manner.	
13.2	Pressure vessels		
13.2.1	Pressure vessel use registration, related personnel qualifications	(274) containing gas or liquid, bearing a certain pressure of the closed equipment, the scope of the maximum working pressure is greater than or equal to 0.1MPa (gauge pressure) of the gas, liquefied gases and the maximum working temperature higher than or equal to the standard boiling point of the liquid, volume greater than or equal to 30L and the inner diameter (non-circular cross-section refers to the maximum geometry of the inner boundary of the section) greater than or equal to 150mm Fixed containers and mobile containers, as well as oxygen chambers, shall obtain "special equipment use registration certificate". Equipment nameplate labeled as a simple pressure vessel does not need to handle. (The main points of safety inspection of gas cylinders see 9.6). (275) fast-opening pressure vessel operators, mobile pressure vessel filling personnel, oxygen chamber maintenance personnel, special equipment safety manager should obtain the appropriate "special equipment safety management and operations personnel card", licensed to work, and every four years to review.	
13.2.2	Pressure vessel periodic inspection	(276) commissioned a qualified unit for periodic inspection, and the periodic inspection certificate placed in a prominent position of special equipment	

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		(277) safety valve or pressure gauge and other accessories shall be entrusted to qualified units for periodic calibration or verification.	
13.2.3	Pressure vessel use management	<p>(278) set up safety management institutions, equipped with safety management personnel, safety management personnel and operational personnel, the establishment of various safety management system, the development of operating procedures.</p> <p>(279) The laboratory should frequently tour inspection, find abnormalities in a timely manner, and make records.</p> <p>(280) the establishment of pressure vessel self-inspection system, the pressure vessel body and its safety accessories, loading and unloading accessories safety protection devices, measurement and control devices, subsidiary instruments and meters for regular maintenance, at least one monthly inspection, at least one annual inspection, and make records.</p> <p>(281) simple pressure vessels should also establish equipment safety management files.</p> <p>(282) pressure vessels containing flammable and explosive gases, their electrical facilities should be explosion-proof, electrical switches and fuses should be set in obvious locations. Large gas tanks placed outdoors should pay attention to lightning protection.</p>	
13.2.4	The service life of pressure vessels and scrapping	(283) to reach the design life of the pressure vessel should be promptly scrapped (not specified design life, but the use of more than 20 years of pressure vessels are considered to have reached their useful life), such as the use of overdue inspection and safety assessment must be carried out.	
13.3	Field (plant) special motor vehicles		
13.3.1	Field (plant) special motor vehicles must obtain "special equipment registration	(284) Special motor vehicles used on campus must obtain the "Special Equipment Use Registration Certificate".	

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13.3.2	Operators to obtain the appropriate "special equipment safety management and operators card", licensed to work	(285) operators to obtain the appropriate "special equipment safety management and operators card", the certificate is in effect.	
13.3.3	Entrust qualified units for periodic inspection	(286) Certificate of compliance in the validity period.	
13.4	Heating and cooling unit management		
13.4.1	Refrigerators for storing hazardous chemicals meet explosion-proof requirements	(287) The refrigerator for storing dangerous chemicals should be an explosion-proof refrigerator or a refrigerator modified by explosion-proof, and it should be indicated on the door of the refrigerator whether it is explosion-proof or not.	
13.4.2	Items stored in the refrigerator must be clearly marked and reagents must be reliably sealed	(288) The logo includes at least: name, user, date, etc., and often cleaned. (289) laboratory refrigerator reagent bottles screwed tightly, no open container, shall not be placed in non-laboratory food, drugs. Ultra-low temperature refrigerator door with storage partition mark, placed in the corridor and other areas of ultra-low temperature refrigerator shall be locked.	
13.4.3	The use of refrigerators, ovens and resistance ovens meet the requirements of the period of use and space, etc.	(290) refrigerators do not exceed the use period (general use period control for 10 years), such as the use of overdue subject to approval. (291) around the refrigerator to leave enough space, not around the stack of debris, does not affect the heat dissipation. (292) ovens, resistance furnaces do not overdue (general use period control for 12 years), such as overdue use subject to approval. (293) Heating equipment should be placed in a ventilated and dry place, not directly on wooden tables, boards and other flammable items, surrounded by a certain amount of space for heat dissipation, and flammable and explosive chemicals, gas cylinders, refrigerators, miscellaneous items, etc. should not be placed next to the equipment, and	

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		should be far away from distribution boxes, sockets, terminal blocks and other equipment.	
13.4.4	Ovens, resistance furnaces and other heating equipment shall develop safety operating procedures	<p>(294) heating equipment around a conspicuous location posted with high-temperature warning signs, and the necessary protective measures, posted with safety operating procedures, warning signs.</p> <p>(295) ovens and other heating equipment are not allowed to bake flammable and explosive reagents and flammable items.</p> <p>(296) shall not use plastic baskets and other flammable containers to hold experimental items in the oven and other heating equipment baking.</p> <p>(297) After using the oven, clean up the items, cut off the power, and confirm that it cools to a safe temperature before leaving</p> <p>(298) The use of open flame equipment such as resistance furnaces is manned.</p> <p>(299) the use of heating equipment, higher temperature experiments must be manned or have real-time monitoring measures.</p>	
13.4.5	The use of open flame electric stove or electric hair dryer must have safety precautions	<p>(300) Laboratories involving chemicals do not use open flame electric furnaces. If it must be used, there must be safety precautions.</p> <p>(301) Do not use open flame electric stove heating flammable and explosive reagents.</p> <p>(302) open flame electric stove, electric hair dryer, electric heat gun, etc. after use, must be promptly unplugged.</p> <p>(303) Do not use paper, wood and other materials to make your own infrared light oven.</p>	