OPERATING RULES

of BSL1 and BSL2 KME Laboratories at the Faculty of Science, Building C

Ensuring safety during laboratory activities

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1 INTRODUCTION

This organisational directive sets out requirements to ensure safety in laboratory activities in accordance with the following legislation (as amended):

- Act No. 262/2006 Coll., the Labour Code,
- Act No. 350/2011 Coll., on Chemical Substances and Chemical Mixtures,
- Act No. 22/1997 Coll., on Technical Requirements for Products and on Amendments to Certain Acts,
- Decree No. 48/1982 Coll., laying down basic requirements to ensure occupational safety and the safety of technical equipment,
- Government Regulation No. 101/2005 Coll., on detailed requirements for workplaces and the working environment,
- Act No. 281/2002 Coll., on certain measures related to the prohibition of biological and toxin weapons,
- Government Regulation No. 378/2001 Coll., laying down detailed requirements for the safe operation and use of machines and technical equipment,
- Government Regulation No. 390/2021 Coll., laying down detailed conditions for the provision of personal protective equipment, washing, cleaning and disinfecting agents.

Related standards and guidance include:

- ČSN 01 8003 – Principles for safe work in chemical laboratories.
- ČSN 07 8304 – Gas cylinders – Operational rules.
- ČSN 07 8305 – Metal gas cylinders for transport of gases – Technical rules.
- ČSN 65 0201 – Flammable liquids – Premises for production, storage and handling.
- ČSN 42 3898 – Technical mercury.
- ČSN EN 50110-1 (ed. 2) – Operation of and work on electrical installations.
- ČSN EN 50110-2 (ed. 2) – Operation of and work on electrical installations – Part 2: National annexes.

For the purposes of this directive, “worker” means: an employee of USB performing work in BSL-1 or BSL-2 laboratories of the Faculty of Science; a student performing such work under supervision; or an external person permitted to perform activities in these laboratories under the supervision of an employee.

This directive lays down the conditions for ensuring occupational safety in the laboratory, including requirements for the use, maintenance, repairs, inspections and revisions of laboratory equipment and other laboratory fixtures.

This directive applies to the above activities and is binding on all faculty employees designated to perform them, and, to a reasonable extent, also on other persons performing related activities.

Manufacturers’ operating manuals for installed equipment form an integral part of this directive and are mandatory in training under this directive.

Workers must comply with the above regulations to the necessary extent and are not relieved of the duty to observe other generally applicable occupational safety provisions.

2 DEFINITIONS

Source: ČSN 01 8003 – Principles for safe work in chemical laboratories.

Laboratory

- A room equipped for expert or scientific experimental, control or development work in various scientific and technical fields (e.g., chemistry, physics, biology, food science, electrical engineering, physiology).

Laboratory unit

- An enclosed area typically comprising several laboratories and other facilities; it also includes sanitary facilities (changing rooms, washrooms, personal hygiene equipment, toilets), smoking room, canteen, offices and other rooms for laboratory staff; corridors within reach of laboratories may be included.

Direct heating of flammable liquids

- Heating a vessel containing a flammable liquid with a flame through a wire gauze, or by an uncovered resistance coil or resistance wire.

Indirect heating of flammable liquids

- Heating a vessel containing a flammable liquid using water, oil or salt baths, electric heating mantles or other electric heating elements with covered heating coils, or by steam or warm air.

Personal protective equipment (PPE) – Government Regulation No. 390/2021 Coll.

- PPE must be effective against the risks present during use and must not present further risks; it must be suitable for the workplace conditions, be adapted to the worker's physical characteristics, and respect ergonomic requirements and the worker's health.

3 ENSURING SAFE OPERATION (GENERAL)

The purpose of this safety regulation is to define working procedures for the use of laboratory equipment and the movement of persons in the laboratory to minimise the risk of occupational injuries and to highlight specific risks to life and health and ways to mitigate them.

3.1 TRAINING AND INSTRUCTION OF PERSONNEL

- Only personnel authorized by the responsible supervisor, who are professionally and medically qualified, may work in the laboratory and operate its equipment.
- The professional competence of personnel is determined by the responsible supervisor; their medical fitness is determined by a physician.
- A prerequisite for acquiring professional competence is the successful completion of training and instruction.
- During training, personnel must be demonstrably acquainted with:
    - this operational safety regulation,
    - manufacturers' instructions for the use of the relevant equipment,
    - the regulations listed in Chapter 1 – Introduction (in a limited scope).

- The scope of familiarization with the relevant provisions of the above regulations shall be determined by the instructor, who is also responsible for ensuring that the trainee is acquainted with all the listed regulations.
- Training of personnel in the full scope of the above shall be carried out by a person with appropriate qualifications, and a written record shall be made. Training is conducted as part of initial and recurrent occupational health and safety training.
- Personnel must subsequently be tested on their knowledge of the above regulations and must demonstrate satisfactory understanding. This training and testing must be repeated regularly.
- The responsible supervisor is accountable for proper instruction in the operation of equipment, including determining the necessary duration and focus of the instruction.
- During the instruction, the personnel operating equipment must particularly acquire skills in:
    - complying with safety regulations,
    - performing routine equipment operation,
    - safe handling of equipment,
    - correct use of prescribed personal protective equipment (PPE).
- The responsible supervisor maintains a list of personnel according to work categorization and, in cooperation with the Faculty of Science Personnel Department, ensures initial, periodic, and exit medical examinations of employees in accordance with applicable legal standards.

Specific Training Requirements for Work in BSL2 Laboratories

- The responsible staff member keeps a record of all persons trained for work in BSL2 facilities. This training must be repeated at least once per year.
- The following persons are required to complete this training:
    - students participating in practical courses conducted in BSL2 laboratories (the course supervisor is obliged to ensure that the relevant document is distributed to all students sufficiently in advance for review),
    - all bachelor's, master's, and doctoral students working in BSL2 laboratories,
    - all employees performing work in BSL2 laboratories,
    - all external persons who are permitted, for a limited period, to carry out activities in BSL2 laboratories under the supervision of an authorized employee of the University of South Bohemia.

3.2 SAFETY REQUIREMENTS FOR THE WORKPLACE

- Access to the laboratory must not be freely available; all the laboratories must be locked must be locked.
- Laboratory work may only be conducted in laboratories equipped for that specific purpose.
- The workplace must be kept clean and orderly, in a condition that does not endanger the safety and health of personnel.
- Laboratories must be equipped with:
    - PPE,
    - fire extinguishing equipment,
    - first aid supplies (first aid kits),
    - potable water supply,

- suitable portable flashlight (where emergency lighting is not installed),
- sanitation and neutralization agents according to the nature of the work.

- Laboratory entrances must be marked with warning signs according to the nature of the work (an overview of signs is provided in the annex of this document).
- Energy and utility lines (gas, air, water) must be labeled according to the type of conveyed substances (an overview of signs is provided in the annex of this document).
- Escape routes, working areas, and shut-offs for water, gas, and electricity must be kept permanently clear.
- The workplace must be adequately illuminated.
- Spilled liquids on the floor must be removed immediately.
- If there is a risk of explosive atmosphere formation in the laboratory, documentation on explosion protection must be prepared in accordance with Government Regulation No. 406/2004 Coll., on detailed requirements for ensuring safety and health protection at work in explosive environments, and appropriate technical and organizational measures must be implemented.

3.3 SAFETY REQUIREMENTS FOR EQUIPMENT AND INSTRUMENTS

- Safe access and sufficient handling space must be ensured around equipment to allow for their safe operation.
- Equipment operation must be carried out according to the operating instructions or other applicable safety and operational regulations.
- Equipment, instruments, and tools must be maintained in an operable and safe condition.
- The condition of instruments must be checked before starting work according to the instrument manual.
- All machines and equipment must have covered gear transmissions and moving parts. Shut-off controls must be easily accessible from the operator's position.
- Analytical instruments, laboratory centrifuges, and other devices must be installed and operated according to the manufacturer’s instructions or other approved recommendations in a manner that minimizes risks to the operator arising from high-voltage sources, smoke or vapor generation, radiation, flame, or explosion.
- Only carefully assembled apparatuses may be used in the laboratory. Glass apparatus, especially those for vacuum distillation, must be properly inspected for cracks and scratches before use. Defective glass must not be used.
- When working with vacuum or pressure in glass apparatus, appropriate containers must be used. Glass apparatus must be placed in a closed fume hood or protected by a shield (made of organic glass or metal mesh). In exceptional cases, a face shield or protective goggles with side shields may be used instead of a shield.
- Sealed glass tubes in which chemical reactions are performed must be protected with a metal cover. When handling them, especially when opening, personnel must wear a face shield and protective gloves.
- Equipment, instruments, tools, and laboratory glassware intended for repair must be handed over clean and dry, free of chemical residues.
- Damaged glassware must be discarded.

3.4 SAFETY REQUIREMENTS FOR WORK IN BSL-1 LABORATORIES

- Measures appropriate to the hazards reasonably anticipated based on the properties and quantities of substances and materials used must be taken during laboratory work.
- When work may result in the release of harmful chemical substances into the air, exhaust ventilation must be ensured.
- Oil baths may be heated only to a temperature below the flash point of the oil used. If water enters the heated bath, heating must be stopped and the oil replaced.
- When using electric heating mantles for heating or distilling substances, the possibility of local overheating (which can cause decomposition) and significant thermal afterglow must be considered. The bottom of the inserted flask must be protected by glass fiber cloth.
- When inserting glass tubing, thermometers, etc., into stoppers or hoses, hands must be protected, for example with textile gloves, or sufficiently thick fabric. The end of the glass object must not have sharp edges and must be lubricated or moistened.

3.5 SAFETY REQUIREMENTS FOR WORK IN BSL-2 LABORATORIES

- Entry into BSL-2 area is permitted only to trained personnel who meet all safety requirements. Bachelor's degree students may work with infectious agents only under supervision.
- Entry to BSL-2 laboratories after 5:00 PM and on weekends must be recorded, and students are required to have a permission from their supervisor.
- Complete laboratory clothing (shirt, pants, lab coat, indoor shoes) is mandatory. Entry in civilian clothing is prohibited.
- Handling of infectious materials (TBEV, SARS-CoV-2) requires authorization and recording in the list of persons permitted to handle hazardous biological agents and toxins (HATs), highly hazardous biological agents and toxins (HHATs), or samples containing SARS-CoV-2 virus. Handling HHAT is allowed only within the scope specified by the permit issued by the State Office for Nuclear Safety (SUJB). Handling of HHAT and HAT must be documented in the respective Register Book.
- Valid vaccination against Tick-Borne Encephalitis Virus (TBEV), with at least two of three doses administered, is required for entry and work in BSL-2 laboratories. Personnel are obliged to complete the vaccination schedule. Exceptions apply only to personnel authorized to enter BSL-2 areas exclusively for liquid nitrogen handling in the cold room and students attending laboratory practicals. During these practicals, work with HAT and HHAT pathogens is prohibited.
- Strict adherence to aseptic technique is required, including disinfection of work surfaces before and after work (70% ethanol, 1.2–5% Persteril-15). Transfer of materials or equipment between laboratories without approval of the supervisor is prohibited. After work in laminar flow cabinets, UV light must be activated to complete the sterilization cycle.
- A detailed description of the decontamination process is provided in the Disinfection Regulations, which is an annex to this document.
- Every day between 2:00 and 3:00 AM, ceiling UV lights are automatically activated for space sterilization. Entry to the laboratory during this time is strictly forbidden. If needed, UV lights may be manually activated after completion of work with infectious samples.

3.6 SAFETY REQUIREMENTS FOR HANDLING AND STORAGE OF CHEMICALS

- Each chemical substance must be labeled (name, and if applicable, code or chemical formula). Each hazardous chemical substance or mixture must also be labeled with the appropriate hazard symbol (an overview of symbols is provided in the annex to this document).
- Highly toxic substances must be locked away to prevent access by unauthorized persons. Highly toxic substances may be stored together with toxic substances in one area, but they must be clearly separated from each other. They may be stored with other chemicals in the same room only if separated from other substances, for example by placing them in a separate cabinet, on a separate shelf or rack.
- The storage of flammable liquids and liquefied gases in the laboratory must comply with the provisions of CSN 65 0201.
- Substances that react with glass (e.g., hydrofluoric acid) or decompose upon contact with it (e.g., hydrogen peroxide) must be stored in containers made of plastic, metal, or glass containers internally coated with a paraffin layer.
- Substances that decompose upon exposure to light must be stored in containers made of dark glass or opaque material. Containers holding liquids that have curved surfaces acting as a lens must be protected from sunlight.
- Alkali metals must be stored under a layer of inert high-boiling liquid (kerosene, paraffin oil), and white phosphorus must be stored under water. Loss of liquid must be continuously compensated.
- For storage of alkali metals and alkali metal hydrides, a metal cabinet located in a fire-safe place outside the laboratory must be designated. The cabinet must be labeled with a permanent sign "Do not extinguish with water."
- Glass containers holding pyrophoric substances must be stored in unbreakable outer containers of such size that in case of breakage of the glass container, the pyrophoric substance remains under the protective liquid.
- Explosive substances and substances that dangerously react with each other must be stored separately according to their chemical nature. Examples of unsuitable combinations of chemical storage are provided in the annex to this document.
- Containers with corrosive liquids must be stored so that they are safely accessible to all laboratory personnel.
- When storing bromine, measures must be taken to prevent the escape of its vapors into the surrounding environment.

3.7 PROHIBITED ACTIVITIES

- It is prohibited for unauthorized persons to work in the laboratory.
- Eating, drinking, and smoking are prohibited in laboratories.
- The use of unsuitable or damaged instruments, tools, and laboratory glassware is prohibited.
- The use of defective glassware is prohibited.
- It is prohibited to touch mobile communication devices (mobile phones, tablets) with gloves used for laboratory work.
- It is prohibited to wash glassware contaminated with strong acids or alkalis, toxic or irritating substances, or substances that violently decompose in water.

- Laboratory glassware must not be used for eating, drinking, or storing food.
- Food and drinks intended for consumption must not be stored in refrigerators or freezers designated for chemical substances or biological materials.
- It is prohibited to move open containers with toxic, highly toxic substances, or corrosives.
- Pipetting of any substances or solutions by mouth is prohibited.
- Spilled mercury must not be flushed into drain pipes.
- It is forbidden to leave apparatus unattended during the distillation of flammable liquids.
- It is prohibited to spread spilled nonpolar solvents (e.g., benzene, hexane, toluene, chloroform, or ether) on the floor or plastic mats due to the risk of static electricity discharge.
- Heating solvent containers with heating mantles or direct flame is prohibited.
- Water or alcohol must not be used to cool reaction vessels containing alkali metals, hydrides, or organometallic compounds.
- Strong oxidizing agents must not be heated with an open flame or in an oil bath.
- It is prohibited to pour solvents immiscible with water, toxic and highly toxic substances, acids and hydroxides above specified concentrations, explosive substances, or substances releasing toxic or irritating gases upon contact with water, acids, or hydroxides into plumbing.
- Pouring or dumping chemicals or reaction waste into sanitary facilities is prohibited.
- Plastic containers must not be used for collecting waste solvents.
- It is prohibited to place substances that may cause fire into waste containers.
- When working with technical gases, the following are prohibited:
  - using bottles with expired periodic inspection or damaged bottles,
  - using unsuitable or damaged pressure regulators,
  - using excessive force or inappropriate tools, including pipe extensions, when opening or closing valves,
  - using gas bottles for purposes or gases other than those for which they are intended,
  - repairing bottles and valves or altering their labels,
  - accelerating gas release by heating,
  - releasing gases freely in enclosed spaces except as part of the work procedure (e.g., gas chromatography).
- It is prohibited to leave lit burners unattended.
- Electrical work must only be performed by personnel with appropriate electrical qualifications.
- Any operations or interventions in laboratory technical equipment without proper qualifications or authorization are prohibited.
- Working without assigned personal protective equipment is prohibited.

4 SPECIAL REQUIREMENTS

4.1 WORK WITH SUBSTANCES HAZARDOUS TO HUMAN HEALTH

- All work with substances that may endanger human health, including toxic and highly toxic substances, corrosives, flammable liquids, chemical carcinogens, explosives, etc., must be technically secured to ensure that permissible exposure limits (PEL) and maximum allowable concentrations for the working environment are not exceeded.
- During work with the above substances, technical measures must prevent direct contact of personnel with these substances.
- Personal protective equipment appropriate to the nature of the work must be used.
- When working with substances that corrode or irritate the skin (e.g., corrosives) or degrease it (organic solvents), personnel must be equipped with protective ointments (e.g., Indulona).
- § Work with substances that pose health hazards must be limited to the minimum necessary.
- Before any handling of health-hazardous substances, technical and organizational health protection measures must be carefully checked, and emergency neutralization agents must be prepared in case of an accident.
- Highly toxic substances must be stored to prevent misuse, must be locked, and their inventory must be maintained.
- Containers with toxic, highly toxic substances, or corrosives must not be moved open.
- When pouring or transferring toxic, highly toxic substances, and corrosives, containers must be positioned to prevent tipping or breakage.
- Toxic and highly toxic substances and corrosives in solid form must be handled with scoops, laboratory spoons, or spatulas made of material that does not react with the substance.
- Pipetting of any liquids by mouth is forbidden. Pipetting must be performed using bulbs or suction by vacuum (e.g., electronic pipette).
- Corrosives that release heat upon dilution or dissolution must be dissolved in portions with continuous stirring and cooling.
- Spilled acids must be flushed immediately with water or neutralized with powdered soda (sodium carbonate) and then rinsed again with water.
- Spilled bases must be flushed immediately with water or neutralized with a weak acid (e.g., diluted acetic acid) and then rinsed again with water.
- Spilled nitric acid and other strong oxidizing mixtures (e.g., chromic acid) must not be removed using sawdust, textiles, or other organic materials.
- The provisions of CSN 42 3898 apply to work with mercury. It is recommended to work with mercury on tables with raised edges and smooth surfaces without joints, or to use catch trays. Stable mercury-containing instruments should also be equipped with catch trays. Spilled mercury must not be flushed into the drainage system; it must be carefully collected and residues properly disposed of.

Additional requirements for handling hazardous chemicals are provided in the annex to this document.

4.2 WORK WITH FLAMMABLE LIQUIDS

- A maximum of 250 liters of flammable liquids of all hazard classes may be stored in one fire section, of which a maximum of 50 liters may be flammable liquids of hazard class 1, and a maximum of 20 liters may be low-boiling flammable liquids.
- When working with nonpolar solvents, the generation of static electricity must be prevented.
- When heating flammable liquids, the specific properties of the heated system must always be assessed, and measures must be taken to prevent fire. Special attention should be given to working with ether and carbon disulfide.
- When heating flammable liquids in flasks, hidden boiling must be prevented. As a minimum measure, either a boiling stone or a boiling glass tube must be used. During vacuum work, hidden boiling is prevented by using a distillation capillary reaching almost to the bottom of the distillation flask.
- When heating flammable liquids in liquid bath heaters, the bath medium must be miscible with the heated flammable liquid. This provision does not apply to evaporation of small volumes of low-boiling flammable liquids or to evaporation in bench-top rotary evaporators under vacuum, where water baths may be used.
- Distillation apparatus for flammable liquids must never be left unattended. When water cooling is used, water supply to the condenser must be monitored.
- During separation processes such as filtration, extraction, sublimation, adsorption, evaporation, and centrifugation, if flammable liquids are involved, the formation of explosive mixtures in the laboratory must be prevented and sources of ignition excluded.
- Mixing, grinding, and stirring involving flammable liquids or substances with low flash points require similar precautions as separation processes. Local overheating, which may occur during grinding or mixing of solids, must be avoided. Measures must be taken to prevent explosion or fire caused by dust or vapors of flammable liquids.
- In case of flammable liquid spills, gas appliances in the room must be immediately extinguished, electricity outside the room must be switched off, unauthorized persons must be banned from entering, and good ventilation must be ensured (not blowing into corridors). The spilled flammable liquid should be absorbed with an appropriate porous material, which must then be removed into a metal container with a lid and disposed of according to applicable waste regulations.
- It is prohibited to spread spilled nonpolar solvents on the floor or plastic mats due to the risk of static electricity discharge.
- Personnel performing clean-up must protect themselves against harmful effects of spilled liquids. Others not involved in the clean-up must not remain in the room.

4.3 WORK WITH PEROXIDE-FORMING SOLVENTS

- Prolonged exposure to atmospheric oxygen leads to peroxide formation, especially in the following solvents: dialkyl ethers, dioxane, furan, tetrahydrofuran, glycol ethers, 2-propanol, and unsaturated hydrocarbons.
- Work with these solvents must be conducted in a fume hood with protective glass shields lowered. Where it is not possible to work in a fume hood for operational reasons, a protective face shield or safety goggles must be worn during work.

- Before operations that may concentrate peroxides contained in the solvent (a serious explosion hazard), solvents containing peroxides must be freed of peroxides prior to use or prior to distillation of these peroxides. The effectiveness of the treatment must be verified.
- When heating containers with these solvents, neither heating mantles nor direct flames may be used (risk of local overheating). Baths with suitable liquids (e.g., paraffin, silicone, or mineral oil) heated by an electric stove with a covered coil must be used.
- For distillations on columns, working under an inert atmosphere (e.g., nitrogen) is recommended. During distillation, a sufficiently large distillation residue, at least 10%, must be left in the distillation flask.
- For storage of distilled solvents, the addition of phenolic antioxidants is recommended.

4.4 WORK WITH ALKALI METALS, HYDRIDES, ORGANOMETALLICS AND STRONG OXIDIZERS

- Before starting work with alkali metals, hydrides, and solutions of organometallic compounds, appropriate firefighting equipment must be prepared in case of an accident.
- All operations with alkali metals, hydrides, solutions of organometallic compounds, and strong oxidizing agents must be conducted using eye and face protection.
- Before beginning work with these substances, the condition of the apparatus must be checked, especially the integrity of the equipment.
- Water or alcohol must not be used to cool reaction vessels containing alkali metals, hydrides, or organometallic compounds.
- When opening cans containing hydrides, increased caution is required, and hydrogen overpressure must be anticipated. It is recommended to open containers placed inside a polyethylene bag filled with nitrogen.
- Strong oxidizing agents must not be heated with an open flame or in an oil bath.

4.5 WORK WITH TECHNICAL GASES

- The transport, handling, and storage of steel cylinders containing compressed, liquefied, or pressure-dissolved technical gases must comply with the technical standards specified in the Introduction chapter.
- Only cylinders with technical gases essential for laboratory operations may be stored in the laboratory. Permanently unnecessary or empty cylinders must be stored in designated areas.
- Cylinders must be secured against falling by clamps or chains around their upper half, or placed in stable or mobile stands.
- Doors of rooms containing cylinders with compressed and other gases must be labelled with a sign indicating the relevant gas name.
- Before starting work with technical gases, proper ventilation must be ensured, appropriate protective, firefighting, and neutralization equipment must be prepared, and seals and functionality of pressure regulators and equipment seals must be checked.
- The following are prohibited when working with technical gases:
    - using cylinders with expired periodic inspection or damaged cylinders,
    - using unsuitable or damaged pressure regulators,

- using excessive force or inappropriate tools, including pipe extensions, when opening or closing valves,
- using cylinders for purposes or gases other than those intended,
- repairing cylinders and valves or altering their labels,
- accelerating gas release by heating,
- releasing gases freely in enclosed spaces, except when part of the work process (e.g., gas chromatography).

- Metal cylinders with technical gases must be color-coded according to prescribed standards.
- Personal protective equipment must be used when working with liquefied gases (air, nitrogen, ammonia).
- When sampling liquefied gases into pressure cylinders, adherence to the maximum allowed fill weight must be checked.
- WARNING: When working with flammable substances, explosions may occur if liquid nitrogen is mistaken for liquid oxygen or air. Glass Dewar vessels must be equipped with a metal protective cover. Metal Dewar vessels must have a neck cover during transport and handling that allows vapor release but prevents liquid splashing.
- Relevant technical standards apply to the installation of gas pipelines and connections, distribution of propane-butane, and to the design, construction, testing, and operation of gas withdrawal installations.
- In case of a leaking gaseous fuel (e.g., natural gas), the gas supply must be shut off, electricity must be turned off inside and outside the endangered area, smoking must be prohibited, unauthorized persons prevented from entering, and the contaminated workspace ventilated.
- Lit burners must not be left unattended. If the flame flashes back into the burner or the flame blows out, the gas supply must be immediately closed and the burner adjusted.
- The distance of cylinders from heating elements and radiant surfaces must ensure that the surface temperature of cylinders does not exceed 25 °C for methyl chloride and 50 °C for other gases. Cylinders must be kept at least 3 m from open flame sources.

4.6 WORK WITH ELECTRICAL EQUIPMENT

- Electrical equipment must be maintained in a condition that complies with applicable electrical regulations and standards.
- Electrical equipment must be inspected and tested within the scope and intervals specified by the relevant standards and manufacturer’s guidelines.
- Operation of specialized laboratory electrical equipment is permitted only after training by authorized personnel. In the case of autoclaves, operation is allowed only by professionally trained staff.
- Operation and maintenance of electrical equipment are governed by the provisions of:
  - ČSN EN 50110-1 ed.2 Operation and maintenance of electrical installations,
  - ČSN EN 50110-2 Operation and maintenance of electrical installations (national annexes).

4.7 WORK WITH EXPLOSIVES

- The conditions for the operation of explosive laboratories apply to work with explosives.

4.8 WORK WITH RADIOACTIVE SUBSTANCES

- Special regulations apply to work with radioactive substances and in environments with ionizing radiation risk.

4.9 WORK WITH BIOLOGICAL MATERIAL

- All work with cell cultures and sterile media/chemicals must be conducted in class II laminar biohazard cabinets. After completing work in the cabinet, each worker is required to sterilize the cabinet space by activating the UV-C lamp for 20 minutes.
- When handling biological material, the use of personal protective equipment is mandatory (dedicated laboratory clothing, indoor shoes, gloves, and optionally protective goggles or face shield, and optionally a cap).
- Work surfaces must be disinfected before and after handling with 70% ethanol; solid and liquid waste must be decontaminated with 1.2% Persteril-15.
- Unneeded biological material must be inactivated in 1.2% Persteril-15.
- All samples must be clearly and comprehensibly labelled. Unlabelled or poorly labelled samples must be treated as infectious material.
- All samples containing human biological material must always be considered potentially infectious and handled accordingly.

4.10 ASEPTIC WORK WITH INFECTIOUS BIOLOGICAL MATERIAL (HAT/HHAT)

- Access to areas designated for work with infectious material is allowed only to trained personnel registered in the HAT/HHAT list. HAT/HHAT agents are securely stored in designated lockable facilities.
- Work with TBEV is only allowed after administration of at least two doses of vaccination against tick-borne encephalitis.
- Use of personal protective equipment (dedicated laboratory clothing, indoor shoes, gloves) is mandatory when handling infectious biological material.
- All samples containing infectious material must be clearly and comprehensibly labelled. Unlabelled or poorly labelled samples must be treated as infectious material.
- All work with infectious agents must be performed in laminar biohazard cabinets. After handling, surfaces are first cleaned with 5% Persteril-15 (spray) followed by 70% ethanol (spray). After finishing work in the cabinet, each worker must sterilize the cabinet by turning on the UV-C lamp for 20 minutes.
- Solid and liquid waste and dissection tools contaminated with infectious material must be sterilized overnight in 1.2% Persteril-15 or 1.5% Sekusept. All waste is subsequently autoclaved.
- Infectious material is transported between laboratories in closable plastic boxes labelled with the “biohazard/infectious material” pictogram.

- For work with HHAT (such as SARS-CoV-2 or MRSA), the laboratory must be locked and visibly marked, and access strictly forbidden. Handling HHAT requires, in addition to standard PPE, disposable protective suits, respirators, hairnets, and double layers of gloves.
- All culture vessels containing HHAT must be properly labelled and airtight sealed—for example, culture plates must be sealed with parafilm inside the biohazard cabinet.
- Bodies of dead laboratory animals must be wrapped in paper towels soaked in 5% Persteril-15, placed in sealed autoclave bags, and autoclaved prior to transportation for incineration.

4.11 WASTE DISPOSAL

- Toxic and highly toxic substances and their containers may only be disposed of in accordance with the applicable waste legislation.
- Only sufficiently diluted solvents (at least 1:10) that mix completely with water, up to a volume of 0.5 liters (single dose), and aqueous solutions (diluted at least 1:30) of acids and hydroxides may be poured into laboratory sinks, troughs, and other laboratory drains.
- Solvents that do not mix completely with water, toxic and highly toxic substances, acids and hydroxides above the specified concentrations, explosive substances, and substances releasing toxic or irritating gases upon contact with water, acids or hydroxides must not be poured into drainage systems.
- Pouring or dumping chemicals or reaction waste into sanitary facilities (toilets, sinks, etc.) is prohibited.
- Waste solvents, after removal of pyrophoric residues and neutralization, must be collected in clearly labelled containers. The use of plastic containers for collecting waste solvents is prohibited. Containers may only be stored in designated areas subject to increased preventive supervision and must be regularly emptied (handed over to authorized disposal companies).
- Residues of alkali metals, alkali metal hydrides, and solutions of organometallic compounds after reactions or drying of solvents must be removed immediately. Alkali metals must be removed in a fume hood with 96% ethanol; potassium with ethanol in an inert gas atmosphere. Alkali metal hydrides are removed depending on their reactivity by sodium ethylate or acetone.
- Substances that may cause fire or spontaneous combustion must not be disposed of in waste bins. Flammable materials must not be disposed of in glass waste containers placed near glass blowtorches. Waste bins must be metal with lids.
- Glass shards and waste with sharp edges must be collected in a separate container.
- Waste contaminated with oils (textiles, sawdust, etc.) or flammable substances must be stored in closed metal containers. It is recommended that these containers be elevated on legs. Their contents must be regularly delivered for disposal in accordance with applicable waste legislation.

5 PERSONAL PROTECTIVE EQUIPMENT (PPE)

- The methods, conditions, and duration of personal protective equipment (PPE) use are determined in the organizational guideline for PPE provision based on assessed risks and further detailed in individual chapters of this guideline.
- Workers must be familiarized with the assigned personal protective equipment and its proper use. The relevant workplace supervisor provides this training, and the employee confirms the training by signing the PPE record sheet upon assignment.

- All workers are obligated to properly use the prescribed personal protective equipment.
- When working with substances that corrode or irritate the skin (e.g., corrosives) or degrease it (organic solvents), workers must be equipped with protective ointments (e.g., Indulona).

6 MAINTENANCE AND REPAIRS

- Regular maintenance and adjustment of laboratory equipment, instruments, and work aids are performed by a designated person according to the manufacturer's instructions specified in the operating manual.
- Routine maintenance and adjustment of equipment are carried out continuously by the staff responsible for the respective laboratory. Routine maintenance includes cleaning individual parts of the equipment, smoothing sharp edges, removing chips, and lubrication if necessary.
- Cleaning of equipment from contaminants is performed or ensured by the responsible staff after each use (upon completion of work).
- Maintenance, repairs, and cleaning of equipment may generally be performed only when the equipment is disconnected from the electrical power supply.
- Repairing, adjusting, maintaining, or cleaning moving parts of equipment is only permitted when the equipment is not in operation.
- Equipment, instruments, tools, and laboratory glassware intended for repair must be handed over clean and dry, free of chemical residues.
- If maintenance or repair of equipment must be performed while energized, the relevant supervisor must grant permission.
- Only personnel with appropriate electrical qualifications may perform any work on electrical equipment.
- Only personnel with appropriate qualifications may perform any work on gas equipment.
- Maintenance and repair of mechanical parts of equipment are handled by the responsible supervisor. Operators may not perform repairs on their own initiative.
- Repairs of more serious equipment issues may only be performed by professional service.
- If special qualifications according to specific regulations are required for a task or repair and the person does not have them, the task must not be performed.
- Comprehensive maintenance of the laboratory, laboratory equipment, instruments, and work aids is performed annually. The scope of this maintenance is determined by the staff responsible for laboratory operations.

7 INSPECTIONS AND REVISIONS

- Before starting work, the worker is required to check the safety and functionality of laboratory equipment, instruments, and work aids by visual inspection in accordance with the manufacturer's instructions. If any defects are found that threaten life, health, or safe operation of the equipment, the worker must immediately remove the equipment from use and visibly mark it.
- During operation of laboratory equipment or instruments, the worker must continuously monitor the equipment's operation and the function of individual control and safety devices.

- Requirements for performing inspections are also specified in the respective chapters of this guideline.
- Any detected defects or deficiencies must be reported immediately to the management of the institution.
- A full or partial inspection of equipment must be conducted whenever a failure or breach occurs in any part of the equipment important for operational safety.
- The person responsible for laboratory operations must conduct at least monthly inspections focusing on:
    - maintaining orderliness of the workplace,
    - technical condition of laboratory equipment, instruments, and work aids,
    - functionality of safety devices,
    - use of personal protective equipment.
- The person responsible for laboratory operations must ensure that regular expert inspections and revisions are carried out within prescribed intervals and scope according to applicable regulations and standards (especially electrical, gas, and pressure equipment).
- Expert inspections and revisions must be performed according to valid standards and regulations by authorized companies or personnel qualified for the relevant activity.
- Additional periodic inspections and revisions must be performed according to manufacturer instructions in the operating manual or the provisions of other generally applicable regulations.
- Documentation of performed expert inspections or revisions must be kept by the appropriate supervisor (person responsible for laboratory operations) until the documentation of the subsequent inspection is prepared. Revision documentation must be accessible to state regulatory authorities.
- Defects found during expert inspections or revisions must be corrected. The responsible supervisor (person in charge of laboratory operations) is accountable for their resolution.
- The institution is obliged to conduct at least one annual audit of occupational health and safety at the equipment and workplace where the equipment is located.

8 OCCUPATIONAL RISKS AND PREVENTIVE MEASURES

- The institution is obliged to ensure the safety and health protection of workers considering the risks of possible threats to their life and health. Therefore, it must primarily identify:
- What specific risks occur at the workplace (arising from hazards related to used machinery and equipment, hazardous substances or infectious agents, and the workspace where persons move),
- The nature of the identified risks occurrence:
    - expressing the exposure duration, i.e., how often the identified risk occurs (e.g., permanently, during handling or activity, exceptionally, etc.),
    - expressing the exposure related to the performed activity (e.g., operation, maintenance, repair, etc.),

- The risk source, specifying the closest identification possible (e.g., mechanical parts, tools, electrical current, uneven floor, etc.),
- The cause of the risk, indicating the hazardous condition or hazardous effect of the risk source (e.g., removal of protective equipment, etc.),
- The danger threatening workers' life and health exposed to the risks (e.g., electric shock injury, tripping, slipping, cutting, scalding, burns, etc.).

The most common risks include:

- unskilled or careless operation,
- non-compliance with issued prohibitions,
- electrical injury,
- tool injury,
- falling loads,
- poor visibility, untidiness in the workplace,
- failure to perform prescribed inspections, revisions, maintenance, repairs,
- using damaged machines, instruments, or equipment,
- using machines, instruments, or equipment missing safety guards or covers,
- tripping, slipping, falling,
- not using prescribed personal protective equipment (PPE),
- fire or explosion occurrence,
- direct contact with hazardous substances, e.g., acid splashes.

Risk analysis and determination of measures to reduce hazards are conducted in a separate document – Risk Management and Prevention System.

9 FIRST AID AND EMERGENCY PROCEDURES

9.1 PRINCIPLES OF FIRST AID TO OTHERS

- Everyone has the duty to provide first aid according to their knowledge and abilities in compliance with the law.
- First, assess the situation, severity of injury, and threat, and evaluate the necessary form of first aid. Provide aid only if it does not put your own safety at risk, as you would then also need first aid.
- In any situation you cannot manage alone, call for help loudly from nearby persons and call emergency services (tel. 112) or ambulance service (tel. 155).
- In case cardiopulmonary resuscitation (CPR) is needed (person unresponsive, not breathing normally), Buildings A, B, and C of the Faculty of Science are equipped with automated external defibrillators (AED). The AED will provide voice instructions for first aid steps. Its location is clearly marked:

- **In case of cardiopulmonary resuscitation** (mouth-to-mouth breathing and heart massage) without the aid of an automated defibrillator, perform chest compressions on the adult at the center of the chest to a depth of 5-6 cm at a rate of at least 100-120 compressions per minute. After 30 compressions, quickly give two rescue breaths within less than 10 seconds.
- **For cuts and puncture wounds** – rinse the wound, disinfect it, and cover it with a sterile dressing. In case of deep injury, call emergency services (tel. 155).
- **In case of electric shock**, first turn off the electrical power. Never touch a person who is still in contact with the electrical current.

9.2 FIRST AID IN EXPOSURES TO HAZARDOUS SUBSTANCES

- **Skin contact –** immediately rinse the affected area with plenty of water for at least 15 minutes. In case of chemical burns, neutralize according to the safety data sheet instructions, typically by applying a weak alkaline solution (e.g., sodium bicarbonate) for acid burns, or a weak acid solution (e.g., highly diluted citric or acetic acid) for alkali burns. Seek medical help for severe or extensive chemical burns.
- **Eye contact –** immediately rinse with an eye wash or sterile saline solution for at least 15 minutes and seek medical attention. If wearing contact lenses, remove them and do not reuse.
- **Ingestion of chemicals –** never induce vomiting. Rinse the mouth with water and immediately call emergency services (tel. 155).
- **Inhalation of hazardous vapors –** leave the laboratory immediately, ensure fresh air, and call emergency services (tel. 155) if experiencing shortness of breath.

9.3 EMERGENCY PROCEDURES IN THE LABORATORY

9.3.1 Release of hazardous substance

- Immediately mark the contaminated area and prevent unauthorized persons from entering.
- Use neutralizing and absorbent materials according to the safety data sheet for the specific substance.
- Inform the responsible person (e.g., laboratory manager, safety officer) about the incident.

9.3.2 Fire

- Use an appropriate fire extinguisher (CO_2 for electrical equipment, foam or dry powder extinguisher for flammable liquids, fire blankets).
- In case of a larger fire, immediately activate the fire alarm and call 150 (fire brigade) – the locations of fire alarms are shown in Annex 2.
- Do not enter smoke-filled areas and use emergency exits.
- When the fire alarm sounds, every worker must immediately leave the workplace by the nearest emergency exit, gather at the designated assembly point, and follow the instructions of the fire evacuation plan. Do not leave the assembly point or the faculty premises until you have reported to the supervisor that you have safely left the affected area. If a worker is handling infectious material at the moment the alarm is announced, they must first ensure safe termination of work: close the biohazard box, decontaminate gloves, dispose of them in the designated infectious waste container, and then promptly leave the workplace via the nearest escape route.

9.3.3 Breakage of a container with infectious material

- Do not touch the spilled material.
- Protect your respiratory tract by putting on a respirator.
- Use a disinfectant (1.2% Persteril-15, or 5% Persteril-15 for infectious laboratories) and mark the contaminated area. After 15 minutes, wipe the affected and now decontaminated area with paper towels, which must be disposed of in infectious waste.
- Remove broken materials into infectious waste.
- Inform the supervisor and safety officer about the incident.

9.3.4 Exposure to infectious material

- In case of skin contamination, immediately wash the affected area with water and disinfect it.
- If the eyes are contaminated, rinse them with sterile saline solution for at least 15 minutes.
- In case of skin injury contaminated with biological material, such as a needle stick injury, immediately wash the injury site with water, disinfect it, and promptly contact the Infectious Diseases Department of České Budějovice Hospital and inform the supervisor.
- In case of inhalation of contaminated air, immediately contact the Infectious Diseases Department of České Budějovice Hospital and inform the supervisor.

9.3.5 Gas leak (natural or LPG)

- Immediately shut off the gas supply (if it is safe to do so).
- Ensure ventilation (NOT ventilation into enclosed corridors), if safe.
- If it is not possible to safely shut off the gas supply and ventilate the room, prevent people from entering and being present in the affected area, and immediately inform the supervisor and safety officer. If necessary, alert people nearby by loud shouting. In case of a large leak, activate the fire alarm.
- Do not operate electrical equipment; ensure the electrical power is switched off in the affected area and adjoining areas (the locations of circuit breakers for individual laboratories are shown in Annex 2).
- Ensure that no one enters the affected area until it has been ventilated.
- Inform the supervisor and safety officer, and call emergency services (112) if necessary.

9.4 OBLIGATIONS AFTER INJURY, EXPOSURE OR ACCIDENT

- Every accident, hazardous substance spill, or injury must be reported to the responsible person.
- Complete the accident report form and ensure its entry in the injury logbook.
- Check that all emergency equipment (eye wash stations, fire extinguishers, absorbent materials, fire blankets) are in operational condition.

10 RESPONSIBILITIES

Responsibility for compliance with and control of the provisions of this directive lies with all workers within the scope of their duties arising from their job classification.

The person responsible for laboratory operations is particularly accountable for:

- Ensuring that work in the laboratory is performed by personnel who meet the prescribed qualification requirements,

- Assigning prescribed personal protective equipment (PPE) to personnel, equipping the laboratory with specified PPE, and ensuring familiarization with the use of these protective means,
- Ensuring the laboratory's safe condition, including its prescribed equipment,
- Maintaining the technical condition of laboratory equipment and fixtures,
- Safe storage of materials, chemicals, compressed gas cylinders, etc.,
- Compliance with prescribed working procedures,
- Observance of established prohibitions,
- Removing equipment from use if defects are found that pose an immediate threat to life or health,
- Conducting prescribed inspections, professional examinations, revisions, and maintenance of laboratory equipment and fixtures,
- Timely rectification of defects identified during inspections and revisions,
- Determining the specific risks of injury or health hazards occurring during laboratory work.

The worker performing activities in the laboratory is particularly responsible for:

- Adhering to this directive, established safety rules, discipline, and order,
- Performing safety and functionality checks of laboratory equipment, instruments, and work aids (before starting work); if defects threatening life or health are detected, immediately remove the equipment from use and inform the person responsible for laboratory operations,
- Safe storage of materials, chemicals, compressed gas cylinders, etc.,
- Compliance with prescribed working procedures,
- Following operating instructions for the relevant equipment,
- Observance of established prohibitions,
- Consistent use of the prescribed personal protective equipment.

11 CONCLUSIONS

All workers engaged in activities related to the operation, handling, inspections, controls, repairs, and maintenance of the laboratory, laboratory equipment, instruments, work aids, and other laboratory furnishings must be familiarized with the processed organizational directive as part of training. The institution is responsible for fulfilling this requirement.

The institution is obliged to ensure proper preparation, management, and storage of all documentation related to fulfilling occupational health and safety (OHS) and fire protection (FP) obligations, including records of training, inspection reports, operating manuals, etc. The institution must maintain the documentation up to date and ensure its revision by an authorized person in case of changes.

This directive becomes effective on the date of signing by the person authorized to approve the documentation.

In České Budějovice Date: October 8th, 2025

Helena Langhansová
Digitálně podepsal Helena Langhansová
Datum: 2025.10.08 09:15:30 +02'00'

Approved by: ……..

RNDr. Helena Langhansová, Ph.D.
Head of Dept. of Medical Biology

11 ANNEXES

ANNEX 1: AUTHORISATION TEMPLATE

Authorisation

**To ensure safety in the laboratory and related areas,
to perform prescribed inspections and regular maintenance,
the following personnel responsible for laboratory operation are appointed.**

Room (laboratory, etc.)	Name	Signature

The appointed persons have been trained in occupational health and safety regulations required for performing this work activity, acquainted with the developed directive – Ensuring Safety in Laboratory Activities, and with the operating manuals of individual devices, and their knowledge has been verified with a result of "passed."

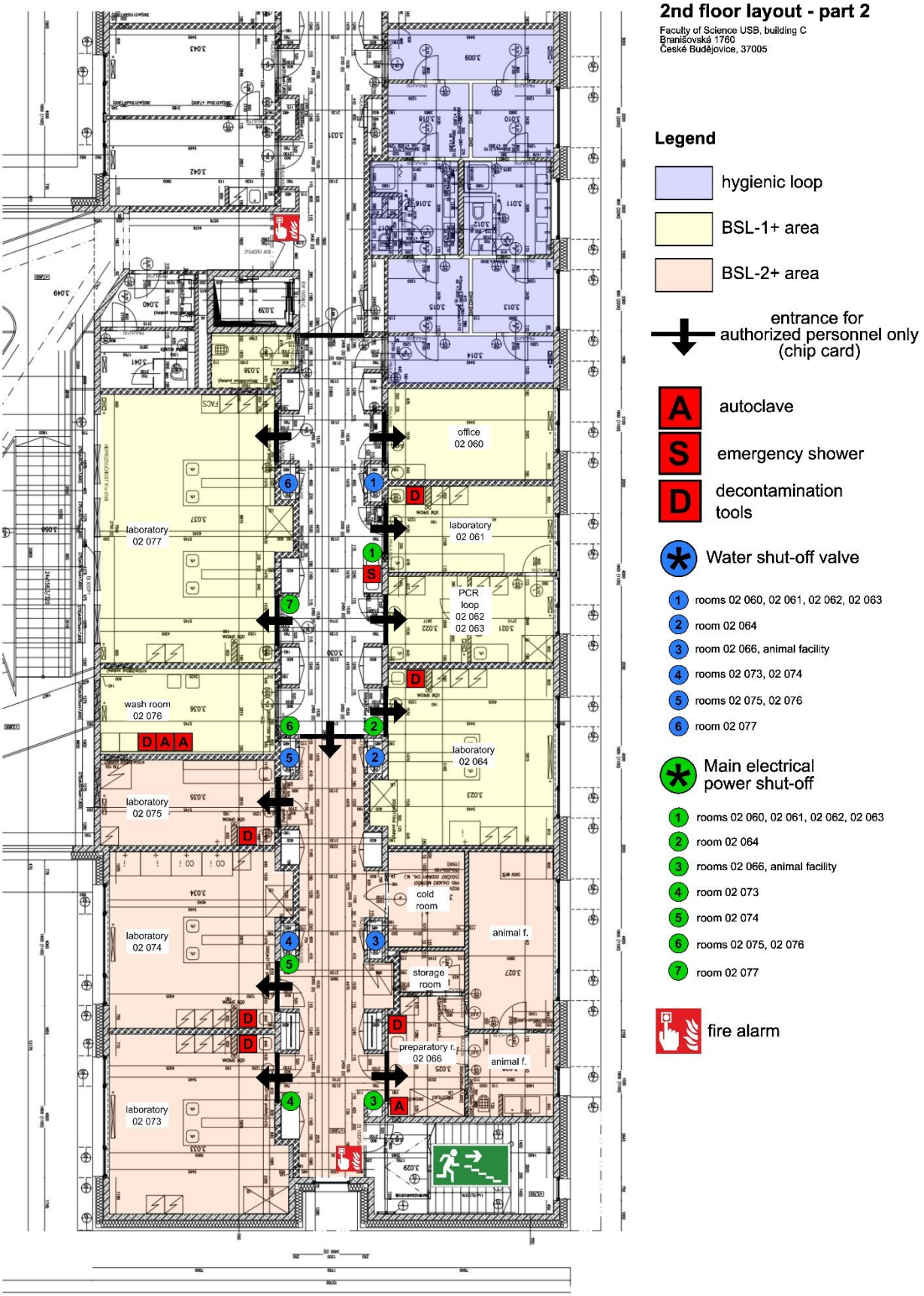
Failure to fulfil the obligations set forth in this organizational directive will be considered a breach of duties by the employee in accordance with § 106 of the Labor Code.

The familiarization with and verification of knowledge was conducted by:

……..…… ……
Name of the responsible person Signature

In …… Date ……..

ANNEX 2: SCHEMATIC LAYOUT OF BSL-1 AND BSL-2 AREAS



ANNEX 3: EXAMPLES OF INCOMPATIBLE CHEMICAL STORAGE COMBINATIONS (INFORMATIVE)

	Chemical Group	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
1	Inorganic Acids																								
2	Organic Acids	X																							
3	Caustics	X	X																						
4	Amines & Alkanolamines	X	X																						
5	Halogenated Compounds	X		X	X																				
6	Alcohols, Glycols, and Glycol Ethers	X																							
7	Aldehydes	X	X	X	X		X																		
8	Ketone	X		X	X			X																	
9	Saturated Hydrocarbons																								
10	Aromatic Hydrocarbons	X																							
11	Olefins	X			X																				
12	Petroleum Oils																								
13	Esters	X		X	X																				
14	Monomers and Polymerizable Compounds	X	X	X	X	X	X																		
15	Phenols			X	X			X							X	15									
16	Alkylene Oxides	X	X	X	X		X	X							X	X	16								
17	Cyanohydrins	X	X	X	X	X		X									X	17							
18	Nitriles	X	X	X	X												X		18						
19	Ammonia	X	X					X	X					X	X	X	X	X		19					
20	Halogens			X			X	X	X	X	X	X	X	X	X	X				X	20				
21	Ethers	X													X						X	21			
22	Phosphorus, Elemental	X	X	X																	X		22		
23	Sulfur, Molten									X	X	X	X				X						X	23	
24	Acid Anyhdrides	X		X	X		X	X							X		X	X	X	X					24
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24

Chemical Storage Compatibility Chart

X Represents Unsafe Storage Combinations

Represents Safe Storage Combinations

ANNEX 4: SAFETY SIGNS IN LABORATORIES

Label	Meaning& Label positioning	Note
	Warning of health hazard where there is a risk of contact with hazardous substances. At the entrance to the given area or workplace.	Examples of use: - Warehouses of hazardous substances capable of causing poisoning, e.g., by inhalation, ingestion, or skin penetration - Areas where hazardous substances are produced or otherwise handled
	Warning of burn hazard where there is a risk of contact with fire or hot surfaces. At the entrance to the given area or workplace.	Examples of use: - Areas with hot surfaces - Areas where hot materials or objects are handled - Areas where open flames are used
	Warning of corrosive hazard where there is a risk of contact with corrosive substances. At the entrance to the given area or workplace.	Examples of use: - Warehouses of hazardous corrosive substances capable of causing burns - Areas where hazardous substances are produced or otherwise handled
	Warning of health hazard where there is a risk of contact with poisonous, toxic substances. At the entrance to the given area or workplace.	Examples of use: - Warehouses of hazardous toxic substances capable of causing poisoning, e.g., by inhalation, ingestion, or skin penetration - Areas where hazardous substances are produced or otherwise handled
	Warning of health hazard where there is a risk of contact with hazardous biological material. At the entrance to the given area or workplace.	Examples of use: - Warehouses of hazardous biological material - Areas where hazardous biological materials are processed or otherwise handled

	Warning of laser radiation and health hazard. At entry to the area and in places where radiation exposure risk exists.	Examples of use: - In places where laser radiation is used.
	Warning of non-ionizing radiation and health hazard. At entry to the area and in places where radiation exposure risk exists.	Examples of use: - In places where non-ionizing radiation is used.
	Warning of oxidizing substances. At entry to the area, storage, or workplace storage location.	Examples of use: - Storage of oxygen cylinders or spaces with other oxidizers.
	Warning of fire hazard. At entry to the area, may only be posted temporarily depending on the risk occurrence.	Examples of use: - Workplaces handling flammable liquids or flammable/easily ignitable materials. - Storage of flammable liquids, pressure cylinders, chemicals, etc.
	Warning of flammable liquids of hazard class I. Similar signs apply for hazard classes II to IV. At entry to the area, storage, or workplace location.	Classification based on flash point (see safety data sheet): Class I: up to 21 °C Class II: above 21 °C up to 55 °C Class III: above 55 °C up to 100 °C Class IV: above 100 °C up to 250 °C

	Warning of presence of compressed gas cylinders. At entry to the area, storage room, or in the storage or handling location in the workplace.	Examples of use: - In warehouses for compressed gas cylinders - In places where compressed gas cylinders are present
	Information on storage of compressed oxygen cylinders. Similar table for other types of gases. At entry to the area and in a visible place in the storage or handling area.	Examples of use: - In warehouses for compressed gas cylinders - In places where compressed gas cylinders with the specified gas are present
	Information on maximum number of stored cylinders with possibility to specify exact count. At entry to the area or in a visible place in the storage area.	Examples of use: - In warehouses for compressed gas cylinders - In places where compressed gas cylinders are present
	Marking of entry prohibition for unauthorized persons due to safety. At entry to the given area.	Examples of use: - In places with increased risk of injury, - e.g., chemical warehouses, flammable liquids, etc.
	Marking of no smoking and open flame prohibition in areas where such activities could initiate fire or explosion. At entry to the area, warehouse, or in a visible place on the workplace.	Examples of use: - In places handling flammable liquids, compressed gas cylinders, and flammable materials - In areas with explosive atmospheres - In chemical warehouses, storage of flammable liquids, compressed gas cylinders, etc.
	Marking of cigarette smoking and food consumption prohibition for safety reasons. At entry to the area or in a visible place on the workplace.	Examples of use: - In areas where, due to safety or fire risk, prohibition of smoking and also food consumption applies, e.g., due to risk of contamination or confusion of liquids

	Marking prohibition to touch the respective hazardous place, surface, material, or machine part due to safety reasons. In a visible place near the hazardous area, may be posted only temporarily as required by the prohibition.	Examples of use: - In areas where there is a risk of injury or health damage caused by contact with hazardous places, surfaces, or materials, e.g., burns, cuts, corrosion, etc. - For example, sharp objects, chemicals, etc.
	Mandatory use of protective goggles or face shield during work activity to eliminate or reduce the risk of injury to the face, eyes, or vision damage. In a visible place at the workplace, near machines or equipment, or at the entry to the given area.	Examples of use: - In areas with risk of eye or facial injury caused by chemical substances, e.g., laboratories, acid handling areas, caustics, disinfectants, corrosives, etc.
	Mandatory use of protective gloves during work activity to eliminate or reduce the risk of hand injury. In a visible place at the workplace, near machines or equipment, or at the entry to the given area.	Examples of use: - In areas with risk of hand injury caused by chemical or biological agents - In areas with risk of skin damage to hands caused by wet, moist, or heavily soiled environments
	Instruction or permission for operation of a machine or device only by authorized personnel. In a visible place at the machine or equipment.	Examples of use: - At machines and equipment whose operation poses a high risk to the life and health of the operator or persons nearby
	Identification of infirmary or first aid station. At the entry to the area or another visible place.	Examples of use: - Rooms designated for first aid provision, first aid kits

	Marking of place designated for eye wash. At entry to the area or another visible location.	Examples of use: - Areas where eye washing can be performed - Specific equipment designated for eye wash
	Marking of the main water shutoff valve. At a visible location near the main water shutoff or on the route to it.	Examples of use: - At entry to the area where the main water shutoff is located - On the relevant valve or control with main water shutoff function
	Marking of the main gas shutoff valve. At a visible location near the main gas shutoff or on the route to it.	Examples of use: - At entry to the area where the main gas shutoff is located - On the relevant valve or control with main gas shutoff function
	Marking of the main switch of a machine, device, or system, with optional specification of the controlled device type. At a visible location near the main switch or on the route to it.	Examples of use: - At entry to the area where the main switch is located, e.g., material storage - On the relevant control with the main switch function for the device
	Warning of presence of electrical equipment and prohibition of use of water, water- or foam-type fire extinguisher or hydrant as extinguishing agent when needed to fight fire under electrical voltage. At a visible location near the electrical equipment.	Examples of use: - In places where electrical equipment is located or on the cover of such equipment - In places or at equipment locations where fighting fire under electrical voltage poses a risk of electric shock - For example, electrical distribution boards, fuse boxes, etc.

	Marking of electrical equipment with main electrical power switch, instruction to turn off in case of danger, and prohibition of use of water, water- or foam-type fire extinguisher or hydrant as extinguishing agent when needed to fight fire under electrical voltage. At a visible location near electrical equipment with a main power switch.	Examples of use: - On the doors of the main electrical distribution board or distribution cabinets, etc.

	Marking the location where a fire extinguisher or extinguishers are present. At entry to the area or in a visible place at the fire extinguisher station.	Examples of use: - Always used when orientation to fire extinguisher locations is limited or difficult, e.g., in visually complex, large, or hidden areas such as in a fire cabinet.
	Marking the location where a fire hose or wall hydrant is situated. At entry to the area or in a visible place where the fire hose is stored.	Examples of use: - On the door of the cabinet where the fire hose or wall hydrant is located.

ANNEX 5: PIPING MARKINGS

Identification of piping according to the operating fluid in accordance with ČSN 13 0072:

Piping is marked by the operating fluid with color coding by:

- full-length color paint on the entire pipe; or
- colored stripes or bands.

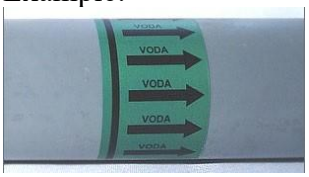
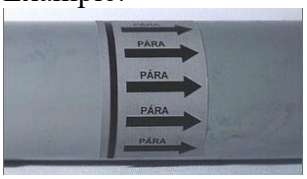
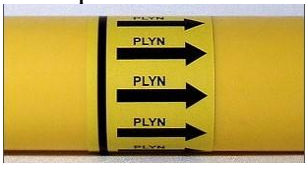
Stripes and bands are applied on the piping as follows:

- at a distance of 150 to 500 mm from machinery, pipe junctions, pipe bridges, valves, and before and after obstacles or walls penetrated by the pipe,
- on straight sections of piping, markings are applied at essential points or regularly spaced at intervals of 5 to 10 meters.

Color marking of piping is supplemented by inscriptions, labels, and safety signs, which specify:

- the name of the operating fluid, e.g., feedwater,
- identification by letter and number combinations, e.g., NaOH 30%,
- chemical formulas of the operating fluid, e.g., H2O,
- other necessary information.

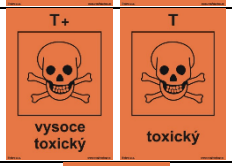
It is recommended to indicate the direction of fluid flow by an arrow.

Label	Meaning & Label positioning	Note
	Pipe labeling for water, Including the direction of flow of the operating fluid. Color of stripe and label: green - water	Example: 
	Pipe labeling for steam, including the direction of flow of the operating fluid. Color of stripe and label: gray - steam	Example: 
	Pipe labeling for air, including the direction of flow of the operating fluid. Color of stripe and label: blue: air	Example: 
	Pipe labeling for gases, including the direction of flow of the operating fluid. Color of stripe and label: yellow: flammable and non-flammable gases	Example: 

ANNEX 6: CHEMICAL SUBSTANCE LABELLING

Every hazardous chemical substance or mixture must be labeled with a hazard warning symbol. The labeling must be on the container, such as a drum, transport vessel, bottle, can, etc., and is performed by the manufacturer or importer who places the hazardous substance on the market. In cases where chemicals are transferred in the laboratory into smaller containers, the labeling of those containers is ensured by the person responsible for laboratory operations.

	CHEMICALS	MIXTURES
	**until 1. 12. 2010** according to 67/548/EHS	**until 1. 6. 2015** according to 1999/45/ES
	**since 1. 12. 2010** according to ES 1272/2008	**since 1. 6. 2015** according to ES 1272/2008

Old label		New label	
	E: explosive		explosive
	O: oxidizing		oxidizing
	F+: extremely flammable F: highly flammable		flammable
	T+: highly toxic T: toxic		toxic
	Xn: harmful to health		hazardous to health
	C: corrosive		corrosive
	Xi: irritant		irritant
	N: dangerous to the environment		dangerous to the environment

ANNEX 7: HANDLING OF HAZARDOUS CHEMICAL SUBSTANCES

Act No. 258/2000 Coll., on the Protection of Public Health and on Amendments to Certain Related Acts, as amended

(Excerpt)

§ 44a – Handling of Hazardous Chemical Substances and Preparations

1. Handling hazardous chemical substances and mixtures means their manufacture, import, distribution, sale, use, storage, packaging, labeling, and intra-company transport.
2. When handling hazardous chemical substances and mixtures, everyone must protect the health of individuals and the environment and comply with hazard warning symbols, standardized hazard statements, and safety instructions according to Regulation (EC) No. 1272/2008 of the European Parliament and of the Council on classification, labeling, and packaging of substances and mixtures, amending and repealing Directives 67/548/EHS and 1999/45/ES and amending Regulation (ES) No. 1907/2006, as amended (hereinafter referred to as "Regulation (EC) No. 1272/2008").
3. No one may offer, donate, sell, or otherwise supply or transfer hazardous chemical substances or mixtures classified as acute toxicity category 1 or 2 according to Regulation (EC) No. 1272/2008 to persons other than legal entities or self-employed individuals.
4. No one may offer, donate, sell, or otherwise supply, transfer, or procure for any physical person under 18 years of age or persons whose legal capacity has been restricted by court, hazardous chemical substances or mixtures classified as acute toxicity category 3 or specific target organ toxicity (single or repeated exposure) category 1 according to Regulation (EC) No. 1272/2008, or chemical substances or mixtures classified as corrosivity category 1 with hazard statement H314 according to that Regulation.
5. Legal entities and self-employed individuals must not sell hazardous chemical substances or mixtures classified as acute toxicity categories 1, 2, or 3 or specific target organ toxicity category 1 or corrosivity category 1 with hazard statement H314 according to Regulation (EC) No. 1272/2008 in vending machines or into brought containers.
6. Legal entities and self-employed individuals may handle hazardous chemical substances or mixtures classified as acute toxicity category 1 or 2 according to Regulation (EC) No. 1272/2008 only if such handling is secured by a physically competent person as per § 44b paragraph 1 of this Act, unless special legislation provides otherwise. Individual tasks within the handling of these substances can be performed by employees who have been reliably trained by the competent person. Retraining must be conducted at least once every two years. Records of training and retraining must be kept in writing and preserved for at least 3 years. This paragraph does not apply to special protective disinfection, disinsection, and deratization (§ 58).
7. Legal entities and self-employed individuals are obliged to store hazardous chemical substances or mixtures classified as acute toxicity category 1 or 2 according to Regulation (EC) No. 1272/2008 in lockable, burglary-proof premises secured against unauthorized persons. Storage must prevent mixing and harmful interactions of stored chemical substances and mixtures and prevent their release into the environment or harm to human health.
8. Legal entities and self-employed individuals handling hazardous chemical substances or mixtures classified as acute toxicity category 1 or 2 according to Regulation (EC) No. 1272/2008 must keep records of these substances and mixtures. Records must be kept separately for each hazardous chemical substance and mixture and must include the quantities received and issued, stock levels, names and surnames of persons, and the designation of the department for which the substances or mixtures were issued. Records must be retained for at least 5 years after the hazardous chemical substance or mixture stock reaches zero. This paragraph does not apply to special protective disinfection, disinsection, deratization, or record-keeping for explosives.

§ 44b – Competence

(1) Persons considered professionally competent to handle hazardous chemical substances or mixtures classified as acute toxicity category 1 or 2 according to Regulation (EC) No. 1272/2008 are:
a) university graduates who have obtained a higher education degree

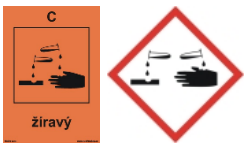
1. in a master's degree program in General Medicine and Dentistry, Pharmacy, or in Veterinary Medicine, veterinary hygiene, or in Medical fields focusing on training a professional worker in public health protection and promotion, or equivalent higher education obtained by studying at a university not included in these educational areas,
2. in the field of Chemistry, or equivalent higher education obtained by studying at a university not included in this educational area,
3. in the field of Teaching with focus on Chemistry, or equivalent higher education obtained by studying at a university not included in this educational area,
4. and who have a certificate of completion of a lifelong education program focused on toxicology, or
5. in a master's degree program in Biology, Ecology, and Environment with a focus on plant health and plant protection, or equivalent higher education obtained by studying at a university not included in this educational area, or have completed a lifelong education program focused on plant health and plant protection,

b) persons with education other than those listed in point a), who have passed an exam of professional competence and possess a certificate according to paragraph 4 of professional competence to handle hazardous chemical substances or mixtures classified as acute toxicity category 1 or 2 according to Regulation (EC) No. 1272/2008.

(2) A commission for the examination of professional competence for handling hazardous chemical substances and mixtures classified as acute toxicity category 1 or 2 according to Regulation (EC) No. 1272/2008 is established by the relevant public health authority. The Ministry of Health shall specify by implementing legal regulation the manner of commission establishment and its composition, the content and form of the application for the exam, basic content and conditions of the exam, and a specimen of the certificate of professional competence.

(3) The exam may be applied for at any exam location by a natural person over 18 years of age who has permanent residence in the Czech Republic, or residence if permanent residence is not held (hereinafter "applicant"). The exam venue shall deliver an invitation to the applicant at least 30 days before the exam date.

(4) The public health authority shall issue to a successful applicant a certificate of professional competence for handling hazardous chemical substances and mixtures classified as acute toxicity category 1 or 2 according to Regulation (EC) No. 1272/2008 no later than 30 days after the exam date. The issuance of the certificate is subject to an administrative fee. The certificate is valid for 5 years from the date of issue.

List of hazardous substances to which the specified requirements apply			
classification	**new/old label**	**R-sentences**	**H-sentences**
Highly toxic		**R26** Very toxic by inhalation **R27** Very toxic in contact with skin **R28** Very toxic if swallowed	**H300** **H310** **H330**
Toxic		**R23** Toxic by inhalation **R24** Toxic in contact with skin **R25** Toxic if swallowed	**H301** **H311** **H331**
Corrosive		**R34** Causes burns **R35** Causes severe burns	**H314** **H318**
Carcinogenic		**R45** May cause cancer **R49** May cause cancer by inhalation	**H350**
Mutagennic		**R46** May cause heritable genetic damage	**H340**
Toxic for reproduction		**R60** May impair fertility **R61** May cause harm to the unborn child	**H360**

ANNEX 8: REGULATION (EC) NO. 1272/2008 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL (CLP)

Standard hazard statement: a statement assigned to a given hazard class and category that describes the nature of the hazard of the hazardous substance or mixture, possibly including the degree of hazard;

Precautionary statement: a statement describing one or more recommended measures to minimize or prevent adverse effects caused by exposure to the hazardous substance or mixture due to its use or disposal;

STANDARD HAZARD STATEMENTS:

The label must include the appropriate standard hazard statements in accordance with the classification of the hazardous substance or mixture.

The wording of the standard hazard statements must comply with Annex III.

PRECAUTIONARY STATEMENTS:

The label must include the appropriate precautionary statements.

The wording of the precautionary statements must comply with Part 2 of Annex IV.

STANDARD HAZARD STATEMENTS (H-STATEMENTS)

H200 – Unstable explosive.
H201 – Explosive; hazard of mass explosion.
H202 – Explosive; severe projection hazard.
H203 – Explosive; fire, blast, or projection hazard.
H204 – Fire or projection hazard.
H205 – May mass explode in fire.
H220 – Extremely flammable gas.
H221 – Flammable gas.
H222 – Extremely flammable aerosol.
H223 – Flammable aerosol.
H224 – Extremely flammable liquid and vapor.
H225 – Highly flammable liquid and vapor.
H226 – Flammable liquid and vapor.
H228 – Flammable solid.
H240 – Heating may cause an explosion.
H241 – Heating may cause a fire or explosion.
H242 – Heating may cause a fire.
H250 – Catches fire spontaneously if exposed to air.
H251 – Self-heating; may catch fire.
H252 – Self-heating in large quantities; may catch fire.
H260 – In contact with water releases flammable gases which may ignite spontaneously.
H261 – In contact with water releases flammable gases.
H270 – May cause or intensify fire; oxidizer.
H271 – May cause fire or explosion; strong oxidizer.
H272 – May intensify fire; oxidizer.

H280 – Contains gas under pressure; may explode if heated.
H281 – Contains refrigerated gas; may cause cryogenic burns or injury.
H290 – May be corrosive to metals.
H300 – Fatal if swallowed.
H301 – Toxic if swallowed.
H302 – Harmful if swallowed.
H304 – May be fatal if swallowed and enters airways.
H310 – Fatal in contact with skin.
H311 – Toxic in contact with skin.
H312 – Harmful in contact with skin.
H314 – Causes severe skin burns and eye damage.
H315 – Causes skin irritation.
H317 – May cause an allergic skin reaction.
H318 – Causes serious eye damage.
H319 – Causes serious eye irritation.
H330 – Fatal if inhaled.
H331 – Toxic if inhaled.
H332 – Harmful if inhaled.
H334 – May cause allergy or asthma symptoms or breathing difficulties if inhaled.
H335 – May cause respiratory irritation.
H336 – May cause drowsiness or dizziness.
H340 – May cause genetic defects.
H341 – Suspected of causing genetic defects.
H350 – May cause cancer.
H351 – Suspected of causing cancer.
H360 – May damage fertility or the unborn child.
H361 – Suspected of damaging fertility or the unborn child.
H362 – May cause harm to breast-fed children.
H370 – Causes damage to organs.
H371 – May cause damage to organs.
H372 – Causes damage to organs through prolonged or repeated exposure.
H373 – May cause damage to organs through prolonged or repeated exposure.
H400 – Very toxic to aquatic life.
H410 – Very toxic to aquatic life with long lasting effects.
H411 – Toxic to aquatic life with long lasting effects.
H412 – Harmful to aquatic life with long lasting effects.
H413 – May cause long lasting harmful effects to aquatic life.

EUH STATEMENTS

EUH 001 – Explosive when dry.
EUH 006 – Explosive with or without contact with air.
EUH 014 – Reacts violently with water.
EUH 018 – In use may form flammable/explosive vapor-air mixture.
EUH 019 – May form explosive peroxides.
EUH 044 – Risk of explosion if heated under confinement.
EUH 029 – Releases toxic gas when in contact with water.
EUH 031 – Releases toxic gas when in contact with acids.
EUH 032 – Releases very toxic gas when in contact with acids.
EUH 066 – Repeated exposure may cause skin dryness or cracking.
EUH 070 – Toxic by eye contact.
EUH 071 – Corrosive to respiratory tract.
EUH 059 – Dangerous for the ozone layer.
EUH 201 – Contains lead. Do not use on surfaces that children may chew or lick.
EUH 201A – Warning! Contains lead.

EUH 202 – Cyanoacrylate. Danger. Bonds skin and eyes instantly. Keep out of reach of children.
EUH 203 – Contains chromium (VI). May cause allergic reaction.
EUH 204 – Contains isocyanates. May cause allergic reaction.
EUH 205 – Contains epoxides. May cause allergic reaction.
EUH 206 – Warning! Do not use with other products. May release dangerous gases (chlorine).
EUH 207 – Warning! Contains cadmium. Dangerous fumes may be released during use.
EUH 208 – Contains <name of sensitizing substance>. May cause allergic reaction.
EUH 209 – May become highly flammable in use.
EUH 209A – May become flammable in use.
EUH 210 – Safety data sheet available on request.
EUH 211 – Warning! Hazardous respirable droplets may be formed when sprayed. Do not breathe spray or mist.
EUH 401 – To avoid risks to human health and the environment, comply with the instructions for use.

PRECAUTIONARY STATEMENTS (P-STATEMENTS)

P101 – If medical advice is needed, have product container or label at hand.
P102 – Keep out of reach of children.
P103 – Read label before use.
P201 – Obtain special instructions before use.
P202 – Do not handle until all safety precautions have been read and understood.
P210 – Keep away from heat/sparks/open flames/hot surfaces. – No smoking.
P211 – Do not spray on an open flame or other ignition source.
P220 – Keep/store away from clothing/.../combustible materials.
P221 – Take any precaution to avoid mixing with combustibles.
P222 – Do not allow contact with air.
P223 – Keep away from any possible contact with water, because of violent reaction and possible flash fire.
P230 – Keep wetted.
P231 – Handle under inert gas.
P232 – Protect from moisture.
P233 – Keep container tightly closed.
P234 – Keep only in original container.
P235 – Keep cool.
P240 – Ground/bond container and receiving equipment.
P241 – Use explosion-proof electrical/ventilating/lighting/.../equipment.
P242 – Use only non-sparking tools.
P243 – Take precautionary measures against static discharge.
P244 – Keep valves and fittings free from oil and grease.
P250 – Do not subject to grinding/shock/.../friction.
P251 – Pressurized container: Do not pierce or burn, even after use.
P260 – Do not breathe dust/fume/gas/mist/vapors/spray.
P261 – Avoid breathing dust/fume/gas/mist/vapors/spray.
P262 – Do not get in eyes, on skin, or on clothing.
P263 – Avoid contact during pregnancy/breast-feeding.
P264 – Wash thoroughly after handling.
P270 – Do not eat, drink, or smoke when using this product.
P271 – Use only outdoors or in a well-ventilated area.
P272 – Contaminated work clothing should not be allowed out of the workplace.
P273 – Avoid release to the environment.
P280 – Wear protective gloves/protective clothing/eye protection/face protection.
P281 – Use personal protective equipment as required.
P282 – Wear cold insulating gloves/face shield/eye protection.
P283 – Wear fire-resistant/anti-static clothing.
P284 – Wear respiratory protection.
P285 – In case of inadequate ventilation wear respiratory protection.

P231 + P232 – Handle under inert gas. Protect from moisture.
P235 + P410 – Keep cool. Protect from sunlight.
P301 – IF SWALLOWED:
P302 – IF ON SKIN:
P303 – IF ON SKIN (or hair):
P304 – IF INHALED:
P305 – IF IN EYES:
P306 – IF ON CLOTHING:
P307 – IF exposed:
P308 – IF exposed or concerned:
P309 – IF exposed or if you feel unwell:
P310 – Immediately call a POISON CENTER or doctor.
P311 – Call a POISON CENTER or doctor.
P312 – Call a POISON CENTER or doctor if you feel unwell.
P313 – Get medical advice/attention.
P314 – Get medical advice/attention if you feel unwell.
P315 – Get immediate medical advice/attention.
P320 – Specific treatment is urgent (see ... on this label).
P321 – Specific treatment (see ... on this label).
P322 – Specific measures (see ... on this label).
P330 – Rinse mouth.
P331 – Do NOT induce vomiting.
P332 – If skin irritation occurs:
P333 – If skin irritation or rash occurs:
P334 – Immerse in cool water/wrap in wet bandages.
P335 – Remove contaminated clothing.
P336 – Thaw frostbite areas with lukewarm water. Do not rub affected area.
P337 – If eye irritation persists:
P338 – Remove contact lenses, if present and easy to do. Continue rinsing.
P340 – Remove person to fresh air and keep comfortable for breathing.
P341 – If breathing is difficult, remove person to fresh air and keep comfortable for breathing.
P342 – If experiencing respiratory symptoms:
P350 – Wash with plenty of water and soap gently.
P351 – Rinse cautiously with water for several minutes.
P352 – Wash with plenty of water and soap.
P353 – Rinse skin with water/shower.
P360 – Wash contaminated clothing and skin immediately with plenty of water, then remove clothing.
P361 – Remove contaminated clothing immediately.
P362 – Take off contaminated clothing and wash before reuse.
P363 – Wash contaminated clothing before reuse.
P370 – In case of fire:
P371 – In case of major fire and large quantities:
P372 – Explosion risk in case of fire.
P373 – DO NOT fight fire when fire reaches explosives.
P374 – Fight fire from a safe distance.
P375 – Fight fire remotely due to explosion hazard.
P376 – Stop leak if safe to do so.
P377 – Leaking gas fire: Do not extinguish unless leak can be stopped safely.
P378 – Use ... to extinguish.
P380 – Evacuate area.
P381 – Eliminate all ignition sources if safe to do so.
P390 – Absorb spilt material to prevent material damage.
P391 – Collect spillage.
P301 + P310 – IF SWALLOWED: Immediately call a POISON CENTER or doctor.

P301 + P312 – IF SWALLOWED: Call a POISON CENTER or doctor if you feel unwell.
P301 + P330 + P331 – IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.
P302 + P334 – IF ON SKIN: Immerse in cool water/wrap in wet bandages.
P302 + P350 – IF ON SKIN: Wash with plenty of water and soap gently.
P302 + P352 – IF ON SKIN: Wash with plenty of water and soap.
P303 + P361 + P353 – IF ON SKIN (or hair): Remove contaminated clothing immediately. Rinse skin with water/shower.
P304 + P340 – IF INHALED: Remove person to fresh air and keep comfortable for breathing.
P304 + P341 – IF INHALED: If breathing is difficult, remove person to fresh air and keep comfortable for breathing.
P305 + P351 + P338 – IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P306 + P360 – IF ON CLOTHING: Wash contaminated clothing and skin immediately with plenty of water, then remove clothing.
P307 + P311 – IF exposed: Call a POISON CENTER or doctor.
P308 + P313 – IF exposed or concerned: Get medical advice/attention.
P309 + P311 – IF exposed or if you feel unwell: Call a POISON CENTER or doctor.
P332 + P313 – If skin irritation occurs: Get medical advice/attention.
P333 + P313 – If skin irritation or rash occurs: Get medical advice/attention.
P335 + P334 – Remove contaminated clothing. Immerse in cool water/wrap in wet bandages.
P337 + P313 – If eye irritation persists: Get medical advice/attention.
P342 + P311 – If experiencing respiratory symptoms: Call a POISON CENTER or doctor.
P370 + P376 – In case of fire: Stop leak if safe to do so.
P370 + P378 – In case of fire: Use ... to extinguish.
P370 + P380 – In case of fire: Evacuate area.
P370 + P380 + P375 – In case of fire: Evacuate area. Due to explosion risk, fight fire from a safe distance.
P371 + P380 + P375 – In case of large fire and large quantities: Evacuate area. Due to explosion risk, fight fire from a safe distance.
P401 – Store …
P402 – Store in a dry place.
P403 – Store in a well-ventilated place.
P404 – Store in a closed container.
P405 – Store locked up.
P406 – Store in corrosive-resistant container / with resistant inner lining.
P407 – Keep air space between stacks/pallets.
P410 – Protect from sunlight.
P411 – Store at temperatures not exceeding ... °C/°F.
P412 – Do not expose to temperatures exceeding 50 °C/122 °F.
P413 – Store quantities greater than ... kg/lb at temperatures not exceeding ... °C/°F.
P420 – Store separately from other materials.
P422 – Store under ...
P402 + P404 – Store in a dry place. Store in a closed container.
P403 + P233 – Store in well-ventilated place. Keep container tightly closed.
P403 + P235 – Store in well-ventilated place. Keep cool.
P410 + P403 – Protect from sunlight. Store in a well-ventilated place.
P410 + P412 – Protect from sunlight. Do not expose to temperatures exceeding 50 °C/122 °F.
P411 + P235 – Store at temperatures not exceeding ... °C/°F. Keep cool.
P501 – Dispose of contents/container …

ANNEX 9: DISINFECTION SCHEDULE FOR LCD AND BSL-2

	APPLICATION	APPLICATION PROCEDURE	EXPOSITION TIME	DISINFECTANT	ACTIVE SUBSTANCES	DOSAGE - CONCENTRATION	PREPARTAION	FREQUENCY OF APPLICATION
HANDS	hands and gloves disinfection	rub 3 ml into dry hands or gloves	1 min	denatured ethanol	alcohol	70%	700 ml ethanol + 300 ml water	before and after contact with contaminated material
				Anti-COVID	alcohol, hydrogen peroxide	concentrate	no dilution	
				Meliseptol Rapid	alcohol	concentrate	no dilution	
	hands regeneration			Indulona cream				
TOOLS	tool decontamination and cleaning	immerse in the disinfectant solution	until the next day	Sekusept plus	glucoprotamine	1,5%	15 ml into 1 L of cold water	after use
	decontamination of plastics	immerse in the disinfectant solution	until the next day	Persteril 15	peroxyacetic acid	1,2%	60 ml into 5 l of cold water	after use
SURFACE AREAS	lab benches	apply to the surface with a spray bottle and let dry	until dry	denatured ethanol	alcohol	70%	700 ml ethanol + 300 ml water	everytime after work with the biologic material
	floors	wipe the surface until wet and let it dry	until dry	IG GCA D 401 BIOCID	amine, KAS, chlorides	1%	80 ml into 8 l of water	3x per week
				Inicidin Pro	amine, KAS, alcohol	0,5%	2x turns of the dispenser - (40 ml into 8 liters of cold water)	3x per week
				Savo Original	chlorine	15%	1,2 l into 8 l of water	3x per week
	disinfectant mat	carefully clean the soles of laboratory shoes		Inicidin Pro	amine, KAS, alcohol	1%	2x turns of the dispenser - (40 ml into 4 liters of cold water)	every time you pass over the mat
BIOLOGIC MATERIAL	biologic material decontamination		10 min	Persteril 15	peroxyacetic acid	1,2%	60 ml into 5 l of cold water	after contamination
	biologic material decontamination of working surface areas	apply to the surface with a spray bottle and let it work	30 min	Persteril 15	peroxyacetic acid	5%	30 ml into 0,6 l of cold water	after contamination
	biologic material decontamination of metal working surface areas	apply to the surface with a spray bottle, wipe off after 5 minutes and apply 70% ethanol until dry	5 min	Persteril 15	peroxyacetic acid	5%	30 ml into 0,6 l of cold water	after contamination
INFECTIOUS MATERIAL	infectious material decontamination	immerse in the solution in a flowbox, expose to UV-C radiation for 30 minutes, remove from the solution the next day, rinse and autoclave	until the next day	Persteril 15	peroxyacetic acid	1,2%	60 ml into 5 l of cold water	after contamination
MISC	WC, washbasins, sinks, siphons		until dry	Domestos	chlorine	concentrate	no dilution	daily as needed
				Savo WC	hydrogen peroxide			
	disinfection during an emergent epidemiological situation		until dry	Persteril 15	peroxyacetic acid	1,2%	60 ml into 5 l of cold water	

Use water at a temperature of 20 - 25°C for cleaning and disinfection, unless otherwise specified. The frequency of alternating active substances is one month. When alternating disinfectants (DP), surfaces must be washed with detergent. When preparing disinfection solutions based on Persteril 15, it is assumed that undiluted Persteril 15 represents a 100% solution.

Germicidal lamps with direct radiation – in the infectious disease laboratory (02073) are automatically turned on daily between 2 and 3 a.m., with the option to be switched on during the day for 30 minutes.

Germicidal lamps with indirect effect:

Portable: in the infectious disease laboratory (02073) and in the dark room (02075)

Non-portable: in the tissue laboratory (02074) and at the entrance to the animal facility (02086)