

Common containment and protective measures

Containment level 2 laboratory L2

This is a courtesy translation of a reference document used by the Service Biosafety and Biotechnology as an annex to the advices provided to competent authorities or to applicants in the framework of regional decrees on the contained use of genetically modified organisms and/or pathogens.

Design features and technical characteristics of the laboratories

1. The access doors into the laboratory are lockable when the corridor or the area does not have restricted access. The access doors into the laboratory are equipped with an automatic closing system when they directly give access to a public area.
2. Furniture designed to facilitate room cleaning and a control program for rodents and insects are recommended.
3. The laboratory has a sink for handwashing and decontamination.
4. The personnel has access to a change room or a coat rack for protective clothing. Protective and street clothing cannot be in contact.
5. Bench tops are easy to clean, impervious to water and resistant to acids, alkalis, organic solvents, and disinfectants and chemicals normally used in the laboratory for decontamination.

Safety equipment

6. If a class I or II biological safety cabinet is available, it is installed in order to avoid disturbing airflow equilibrium inside the work area. It is located away from doors, from windows, from room supply and exhaust air vents, and from heavily travelled laboratory areas. It is conform to European norm EN 12469. It is controlled and certified when placed, after each move and at least once a year.
7. If the inactivation of waste and/or residual biological waste matter is done by steam sterilization, an autoclave is available near the laboratory.
8. Biological material is centrifuged in centrifuges located in the contained area. It is placed in leak-proof tubes in rotors or cups with a hermetic closing system (“safety cups”) to contain aerosols in case of breaking or cracks of tubes.

Work practices and waste management

9. Access is restricted to personnel authorized by the supervisor, and informed about the potential risks.
10. The room access door is labelled with the following information:
 - Biohazard symbol,
 - Containment level,
 - Coordinates of the responsible person for the area.
11. Protective laboratory clothing is worn. Protective clothing is dedicated to the contained area and is not worn outside.
12. Gloves are available for the personnel.
13. Potential windows are closed during the experiments.
14. When not in use, viable pathogenic and/or genetically modified (micro)-organisms are contained within closed systems (tubes, flasks, etc).

15. The creation of splashes and the formation of aerosols is minimized. Their spreading is controlled by the use of appropriate equipment and practices.
16. Mechanical pipetting devices are used. Mouth pipetting is prohibited.
17. Eating, drinking, smoking, handling contact lenses, applying cosmetics, and storing food for human consumption are not permitted in the laboratory.
18. All the manipulated and stored pathogenic and/or genetically modified (micro)-organisms are recorded in a register.
19. Control measures and control equipment as well as protective equipment are adequately and regularly tested.
20. The workers wash their hands when they leave the contained area, before beginning another activity and each time it is necessary.
21. Work surfaces are decontaminated with an appropriate disinfectant after work is finished and after any spill of biological material.
22. Directions for use of disinfectants are available for the personnel. Depending on the purpose, instructions indicate the kind of disinfectant to use, its concentration, and contact time.
23. Training of the personnel on biosafety aspects is organized as well as follow-up and regular updates. The personnel is specifically trained to work in a containment level 2 area.
24. A biosafety manual is prepared and adopted. Personnel is advised of special risks it is exposed to and is required to read instructions on work practice. Procedures in case of accident are clearly posted in the laboratory.
25. The biohazard sign is applied on incubators, refrigerators, freezers, and liquid nitrogen cryopreservators containing biological material with a class of risk 2 (or higher).
26. An efficient control program for rodents and insects is in effect.
27. Presence of animals is prohibited.
28. The waste management and/or residual biological waste matter satisfies the following conditions:
 - Contaminated waste and/or residual biological material and contaminated disposal are inactivated by an appropriate and validated method before disposal, e.g. by autoclaving or incineration. Incineration is performed in a licenced installation. Bags and containers used for collection of infectious waste are resistant, sealable, labelled with the biohazard symbol and closed before leaving the contained area.
 - Before washing, reuse and/or destruction, contaminated material (glassware, slides etc.) is inactivated by appropriate and validated means.

This document has been established by the Service Biosafety and Biotechnology in the framework of its task as technical expert laid down by the cooperation agreement of 25 April 1997. It has been established on the basis of the provisions of Regional Decrees on the contained use of GMO and/or pathogens. It presents in a common language the minimal containment requirements that facilities covered by these decrees should have. These requirements should be considered without prejudice to additional specific measures that could be imposed case by case within the framework of authorizations delivered by competent authorities in application of the above-mentioned Decrees.