

# Checklist for Self-Inspection

## Biosafety: Greenhouses and Plant Chambers

Based on the „Checklisten für Inspektionen gemäss der Einschliessungsverordnung (ESV)“ of the FOEN

Information on self-inspection	
Date	
participants (names)	
inspected laboratories (buildings, room numbers, safety levels)	

**relevant colors:**

BSL1: white and green cases

BSL2: white, green and yellow cases

BSL3: white, green, yellow and orange cases

## 1. General Information

Nr.	Information on lab / group / institute	
1.1	department institute group	
1.2	BSO (name) Deputy-BSO (name)	
1.3	project leader (name)	
1.4	announced activities (ECOGEN-Nr., BSL)  not yet announced activities	
1.5	ensuring 3rd party liability (only BSL 3)	
1.6	External users	

## 2. General Safety Measures

Nr.	safety measures	fulfilled		
		yes	no	?
2.1	Are standard operating procedures (SOPs) and rules of conduct available?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.2	Is there at least one nominated BSO?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.3	Are there washing and decontaminating facilities available for the employees?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.4	Are eyewash facilities available?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.5	Are the monitoring measures and the equipment adequately controlled and maintained?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.6	If required, is the presence of viable process organisms outside the primary physical barriers been tested?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.7	Are suitable storage facilities for potentially contaminated equipment and materials used?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2.8	In case of leak / spill of organisms, are effective disinfectants and procedures provided?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

### 3. Good microbiological practice

Nr.	safety measures	fulfilled		
		yes	no	?
3.1	Are the doors and windows of the premises closed during work?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.2	Is eating, drinking, smoking, storage of food, snuffing or applying make-up in work areas banned?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.3	Is mouth-pipetting forbidden?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.4	Are syringes and needles use only when absolutely necessary?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.5	Are syringes and needles safely disposed of in a "sharps container"?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.6	Is ensured that no preventable aerosols are formed during work?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.7	Are hands carefully washed after each operation and when leaving the premises? Are hands disinfected after any contamination?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.8	Are the work areas tidy and clean?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.9	Are only the required materials and equipment kept in the lab?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.10	Are the work surfaces cleaned after work?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.11	Are stock materials stored in designated spaces or cabinets?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.12	Is the identity of the used microorganisms checked regularly?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.13	Does the interval of checking the organisms correlate with their hazard potential?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.14	Are the results of these checks evaluated?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.15	Are all employees working with GMO and pathogenic organisms instructed (before starting the work and at least once per year hereafter)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.16	Are inexperienced employees working in microbiology informed of possible dangers, guided and monitored?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.17	Will pests be dealt with (e.g. rodents, insects)?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.18	Are animals forbidden in the lab?	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## 4. Additional safety measures (plant chambers, greenhouses)

### 4.1. Building

Nr.	safety measure	safety level			fulfilled		
		1	2	3	yes	no	?
4.1.1	Is the building a permanent one, with a water-proof roof and self-closing doors?	No	Yes	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.1.2	Are all window glasses shatter-proof?	No	No	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.1.3	Are the paths made of a solid / stable material (e.g. concrete) (in case if the ground consists of porous material)?	Yes	Yes	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.1.4	Is the floor waterproof? <sup>(a)</sup>	No	Yes	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.1.5	Is the work area separated?	No	No	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.1.6	Is the work area sealed so that it can be fumigated?	No	No	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.1.7	Are there biohazard warning signs at the entrance to the controlled area?	No	Yes	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.1.8	Are devices that are outside the lab or in a BSL 1 area, but in which BSL 2 organisms with are handled (e.g. freezers) labeled with a biohazard warning sign?	Yes	Yes	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.1.9	Is access to the work area restricted (by: access only with key / control card / authorized persons access list)?	No	Yes	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.1.10	Is the entrance to the area only possible via a separated room with two lockable doors?	No	No	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.1.11	Is there a (contact-free) hand-wash station and disinfectant in the airlock room?	No	No	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.1.12	Is there an observation window or other viewing point into the working area available?	No	No	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.1.13	Are alarm systems for people working alone installed?	No	No	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(a) BSL 1 und 2: flint and soil allowed if the contamination of reproducible biological material through the floor is unlikely

Nr.	safety measure	safety level			fulfilled		
		1	2	3	yes	no	?
4.1.14	Are there devices available to facilitate communication with people outside the work area?	No	No	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.1.15	Is the work area (and airlock room) kept under constant negative pressure?	No	No	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.1.16	Is a separate ventilation system installed?	No	No	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.1.17	Is the working area ventilated with directed air?	No	Yes	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.1.18	Is air circulation into other areas of the building prevented?	No	Yes	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.1.19	In case of an incident, is an overpressure in the work area prevented by the special construction of the ventilation system?	No	No	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.1.20	In the event of a failure in the negative pressure system is there an alarm system in place?	No	No	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.1.21	Is the ventilation system connected to an emergency power supply?	No	No	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.1.22	Can the ventilation system be operated externally (in case of fumigation)?	No	No	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.1.23	Is the exhaust air HEPA filtered?	No	No	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.1.24	Can the used HEPA filters be sterilized before being replaced, or can they be demounted without touching them, and afterwards being packed airtight and sterilized?	No	Yes	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.1.25	Is the greenhouse protected by a fence (or similar)?	No	No	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.1.26	Are all other facilities that need power and are important for the safety of others connected to an emergency power supply?	No	No	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

## 4.2. Equipment

Nr.	safety measure	safety level			fulfilled		
		1	2	3	yes	no	?
4.2.1	Are the surfaces of benches resistant to acids, alkalis, solvents and disinfectants?	Yes	Yes	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.2.2	Is the floor resistant to acids, alkalis, solvents and disinfectants?	No	No	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.2.3	Is the work area provided with its own equipment?	No	No	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.2.4	Is a microbiological safety cabinet available (if microorganisms are handled) and appropriately positioned and designed?	No	Yes	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.2.5	Are measures taken against aerosol formation? <sup>(a)</sup>	No	Yes	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.2.6	Is there an autoclave? Is the autoclave installed in the correct location? <sup>(b)</sup>	Yes	Yes	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.2.7	Are centrifuges with an aerosol-tight cover used (e.g. with O-ring)?	No	Yes	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.2.8	Does the autoclave record time and temperature of each run?	No	Yes	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.2.9	Are there shower facilities?	No	No	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(a) BSL 1: avoid aerosol formation; BSL 2: minimize aerosol formation; BSL 3: prevent aerosol formation

(b) BSL 1: available; BSL 2: in the same building; BSL 3: in the laboratory.

### 4.3. Organization

Nr.	safety measure	safety level			fulfilled		
		1	2	3	yes	no	?
4.3.1	Are inspection and maintenance of the autoclave and other equipment performed on a regular basis?	Yes	Yes	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3.2	Is the tightness of the centrifuge vessels checked?	Yes	Yes	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3.3	Are the centrifuge vessels closed while running?	Yes	Yes	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3.4	Are the people who enter the work area informed about the activities carried out in it?	Yes	Yes	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3.5	Is special clothing worn in the work area? <sup>(a)</sup>	Yes	Yes	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3.6	Will clothing and Personal Protection Equipment that may be contaminated by microorganisms be disinfected if necessary?	Yes	Yes	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3.7	Are protective and normal clothing kept separately in an appropriate facility?	Yes	Yes	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3.8	Are gloves worn during work? <sup>(b)</sup>	No	Yes	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3.9	Is skin contact with rDNA and microorganisms avoided?	Yes	Yes	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3.10	Are working areas disinfected regularly?	No	Yes	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3.11	Are working areas disinfected after a spill?	Yes	Yes	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3.12	Are the microorganisms in drains, sinks, tubings and shower facilities inactivated?	No	No	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3.13	Are the microorganisms in contaminated materials, waste and equipment inactivated? <sup>(c)</sup>	No	Yes	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3.14	Is the waste that contains microorganisms collected separately?	Yes	Yes	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3.15	Are syringes and needles safely disposed of in a "Sharps container"?	Yes	Yes	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3.16	Are the different types of waste labeled (type of waste, Biohazard signs at level 2, etc.)?	Yes	Yes	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(a) BSL 1 and 2: Laboratory clothing / lab coat; BSL 3: Wear suitable protective clothing and shoes if necessary

(b) BSL 2: required when skin contact with the organisms cannot be avoided

(c) BSL 1: harmless disposal

Nr.	safety measure	safety level			fulfilled		
		1	2	3	yes	no	?
4.3.17	Is the internal transport of organisms, material which contains organisms and waste properly performed (closed, leak- and shatter-proof container)?	Yes	Yes	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3.18	Is the external transport of organisms, material which contains organisms and waste performed according to the ADR / SDR regulations (closed, leak- and shatter-proof container)?	Yes	Yes	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3.19	Are the organisms stored safely in the laboratory?	Yes	Yes	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3.20	Can it be avoided that the stored organisms get into the waste water system (e.g. in case of a power failure)?	Yes	Yes	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3.21	Is there a rule stating that the project leader and the BSO must be notified immediately in case of an injury?	Yes	Yes	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3.22	Do all employees know this rule?	Yes	Yes	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3.23	Is the protective clothing worn only within the work area and removed before leaving said area?	Yes	Yes	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3.24	Is contaminated waste drain water minimized / avoided? <sup>(d)</sup>	No	Yes	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3.25	Is the waste drain water collected and sterilized?	No	No	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3.26	If the floor consists of flint: are measures to eliminate and inactivate organisms in the ground taken periodically?	No	Yes	---	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4.3.27	Are measures against pest plants, varmints and rodents taken, if necessary?	Yes	Yes	Yes	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

(d) BSL 1 und 2: minimized, BSL 3: avoided

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