

SOP KD00887799

Transport of biological agents and organism

1. General

This SOP is according to the specifications “transport biological agents and organisms” published in March 2018 from the authorities. This is a general SOP for the most common transports in the building F&L with UN 3373 biological agents. If you need more detail information please check the following link [Transport & Abfall | Kanton Zürich \(zh.ch\)](#) or ask the Biosafety Officer.

1.1 Differentiation between different transport situation and routes

Transport situation

Depending on the risk potential of the substance, the transportation distance and the public accessibility of the transportation routes, five different situations can be distinguished:

Internal laboratory: transportation within laboratories of the same security level according to ESV2.

Within a building: transportation within the building with crossing of zones of a lower security level³.

Internal company: Transportation within the company premises, including publicly accessible areas (e.g. at a university).

Domestic: External transport / transportation within Switzerland.

Abroad: External transport / transportation abroad.

Transportation within the laboratory and the building is covered by the ESV. The requirements for internal transportation are the same as for external transportation. Domestic transportation is regulated by the ESV and, depending on the mode of transport, by other legal provisions. International regulations apply to transportation abroad.

Transportation routes

Transportation in Switzerland and abroad is regulated differently depending on the chosen mode of transport. Specific regulations apply to road, air, rail and water transportation.

The transportation of infectious substances by water is not dealt with further in this transport brochure, as this is generally not permitted on Swiss lakes. However, this brochure provides practical information on the correct transportation of biological material by all other modes of transport.

Please refer to the «Arbeitsweisung KD00026210 Gefahrgut – Biologischer Stoff UN3373 Transportvorschriften».

1.2 Define transport category

Define your category of hazardous material.

Class 6.2: Infectious substances

- | | |
|--|---------|
| • Dangerous for human (Category A) | UN 2814 |
| • Infectious Substance, affecting animals only | UN 2900 |
| • Medical or clinical waste | UN 3291 |
| • Biological Substance (Category B) | UN 3373 |

Class 9: Various hazardous substances

- | | |
|---|---------|
| • Genetically modified, not pathogen organism | UN 3245 |
|---|---------|

The main category for the transport in our building is UN 3373.

1.3 Transport of pathogen Category B (UN3373)

These are pathogens that cannot cause permanent disability or life-threatening / fatal disease. As a rule, these are organisms of group 2 according to ESV as well as patient samples of groups 2 and 3 according to ESV for diagnostics (ADR 2.2.62.1.4.2).

Scheme next site.

Measures	Internal	Domestic	Abroad/Air
Packing	-2 times (sample tube in transport box) -Leak proofed	-3 times packing P650 -rigid, leak proofed -For liquid samples with sufficient absorbent material in the interstitial space	-3 times packing P650 -rigid, leak proofed -For liquid samples with sufficient absorbent material in the interstitial space
Labeling (outfront)	-name and phone number of shipper and recipient	-name and phone number of shipper and recipient -label: Biological substance Category B	-name and phone number of shipper and recipient -name of responsible person -label: Biological substance Category B
Hazard signs	Biohazard sign	UN 3373	UN 3373
Documentation	-info about organism -measures in case of an incident	-list of content -delivery sheet	-list of content -delivery sheet -airway bill -ev authorization or BLV/ SECO
Transport		-public: not commercial transport -post -courier	-public: not commercial transport -post -courier

General comments:

- ☐ No dangerous goods officer is required for the transportation of category B organisms. Correctly packaged substances can be transported under your own responsibility or sent by post or a courier service
- ☐ Infectious substances may not be transported as hand luggage on **public transportation**.
- ☐ Air transportation is only possible by courier services (infectious substances are not permitted in hand baggage or checked baggage).
- ☐ Maximum permitted quantities:
Unlimited for ground transportation
For air transportation: No primary container may hold more than 1 L. The total package must not contain more than 4 L or 4 kg.

Packing P650

Resistant, suitable 3-fold packaging

- ☐ The packaging must consist of at least three components:

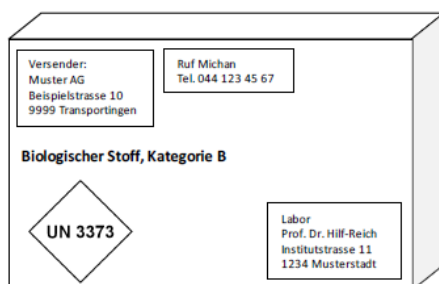
Primary container (e.g. sample tubes, small bottles), Secondary packaging (e.g. box, plastic bottle), Outer packaging (e.g. cardboard box): (a surface area of at least 10 x 10 cm)

- ☐ In the case of liquid or powdery substances, the primary and secondary packaging must be leakproof.
- ☐ Either the secondary packaging or the outer packaging must be rigid.
- ☐ The packaging does not have to be UN-certified. Exception: UN-certified packaging is required for shipment by Swiss Post.
- ☐ In the case of liquid substances, there must be sufficient absorbent material between the primary container and the secondary packaging.
- ☐ If several primary containers are placed in secondary packaging, they must be packed in such a way that they cannot break or come into contact with each other (e.g. individually wrapped).
- ☐ Cushioning material between secondary and outer packaging
- ☐ Drop test: The complete package must survive a drop from a height of 1.2 m without damage.
- ☐ Other dangerous goods must not be packed together with these infectious substances (hazard class 6.2) in the same packaging. Exception: A maximum of 30 ml of classes 3 (flammable liquids, e.g. ethanol), 8 (corrosive substances, e.g. sulphuric acid) and 9 (e.g. dry ice) may be packed together.
- ☐ For air transport: Packaging suitable for temperature range from -40 °C to +55 °C and pressure differences of at least 95 kPa).



Labeling outer package

- name and address of shipper and recipient
- label: Biological Substance, Category B (height of letters 6 mm)
- UN 3373 (size 50 mm x 50 mm)
- only for air transport : name and telephone number of responsible person



Transport documents

-list of contents

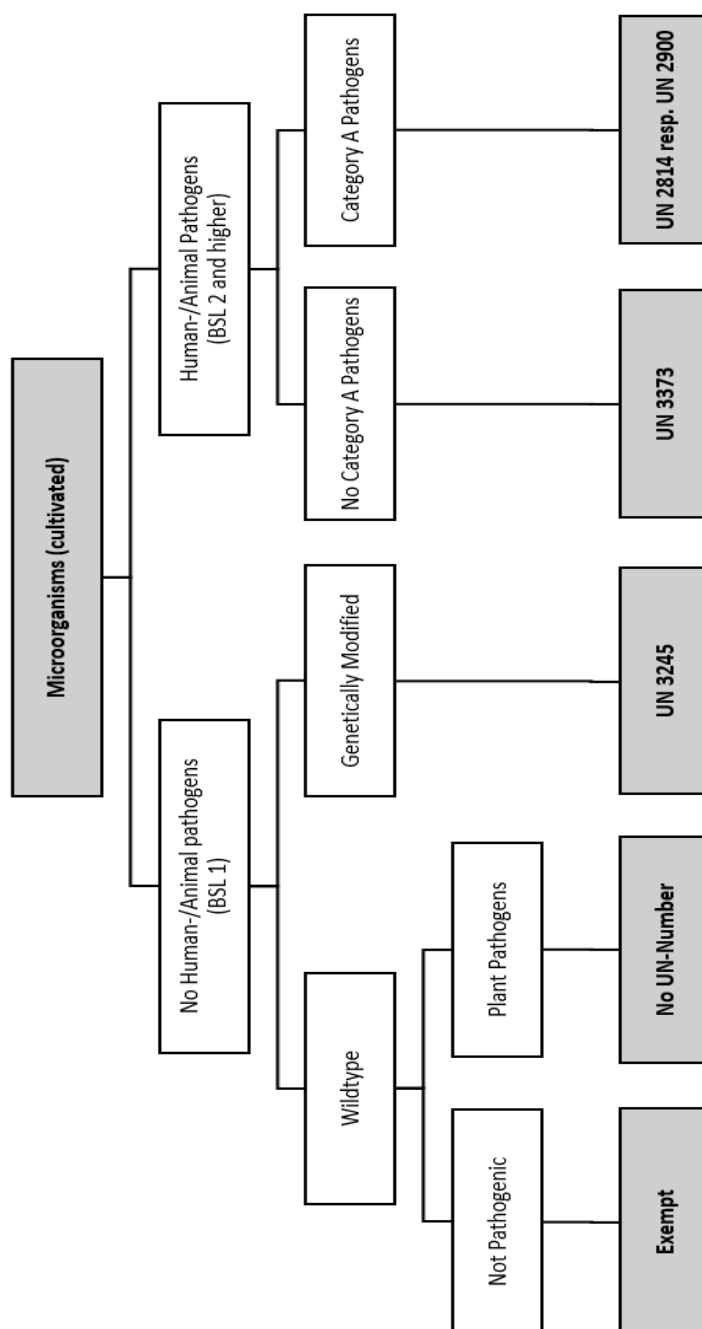
-delivery sheet with

- Name and address of shipper
- Name and address of recipient
- Name and phone number of responsible person
- UN number: UN 3378
- Number of hazard class: 6.2
- Exact clarification of content (name, amount, value)
- Amount and description of final packed Package

-if needed permit for import and export

-for air transport: airway bill

Decision tree for pathogen categorization





Pathogene Category A

UN 2814

Bacillus anthracis (culture)
Brucella abortus (culture))
Brucella melitensis (culture))
Brucella suis (culture))
Burkholderia mallei – *Pseudomonas mallei* – Rotz (culture)
Burkholderia pseudomallei – *Pseudomonas pseudomallei* (culture)
Chlamydia psittaci – aviäre Stämme (culture)
Clostridium botulinum (culture)
Coccidioides immitis (culture)
Coxiella burnetii (culture)
Virus des hämorrhagischen Krim-Kongo-Fiebers
Dengue-Virus (culture)
Virus der östlichen Pferde-Encephalitis (culture)
Escherichia coli, verotoxigen (culture)
Ebola-Virus
Flexal-Virus
Francisella tularensis (culture)
Guanarito-Virus
Hantaan-Virus
Hanta-Virus
Hendra-Virus
Hepatitis-B-Virus (culture)
Herpes-B-Virus (culture)
humanes Immundefizienz-Virus (culture)
Bird flue (culture)
japanese Encephalitis-Virus (culture)
Junin-Virus
Kyasanur-Waldkrankheit-Virus
Lassa-Virus
Machupo-Virus
Marburg-Virus
Affenpocken-Virus
Mycobacterium tuberculosis (culture)
Nipah-Virus
Virus of hemorrhagic Omsk-fever
Polio-Virus (culture)
Rabies-Virus (culture)
Rickettsia prowazekii (culture)
Rickettsia rickettsii (culture)
Riftal-Fiebevirus (culture)
Virus Russian tick-borne encephalitis (culture)
Sabia-Virus
Shigella dysenteriae type 1 (culture)
Thick-born-Encephalitis-Virus (culture)
Smallpox-Virus
West-Nile-Virus (culture)
Yellowfever-Virus (culture)



UN 2900

African swine fever virus (culture)
Aviäres Paramyxo-Virus Typ 1 – Virus of Newcastle-disease (culture)
Classic swine fever virus (culture)
Foot-and mouth disease virus (culture)
Virus of dermatitis nodularis (lumpy skin disease) (culture)
Mycoplasma mycoides – infectious bovine Pleuropneumonie (culture)
Small ruminant pest virus (culture)
Bovine plaque virus (culture)
Shep-pox-Virus (culture)
Goat-pox-Virus (culture)
Porcine vesicular disease virus (culture)
Vesicular stomatitis virus (culture)