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Institute of Basic Medical Sciences, Section of Comparative Medicine

Standard operation procedure: Importation of goods and KPM equipment to the MDU
SOP nbr: 7-06
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IMPORTATION OF GOODS AND KPM EQUIPMENT TO THE MDU

1.0 PURPOSE

1.1 To ensure that equipment imported to the MDU does not present a contamination hazard for the MDU.
1.2 To ensure that the equipment withstands the disinfection/sterilisation process.
1.3 To ensure that all equipment imported to KPM is handled in a way that safeguards employees, animals and the environment.

2.0 DISTRIBUTION OF RESPONSIBILITY

2.1 Everyone who imports goods and equipment to the MDU must have undergone thorough training.
2.2 Everyone who imports goods and equipment must follow the current routines for importation.
2.3 The room manager at KPMe is responsible for disinfecting the outside of dirty equipment before it is moved to the equipment storeroom at KPM.
2.4 The laundry personnel are responsible for receiving consumables at the laundry, dirty equipment from KPMe and other equipment from the equipment storeroom outside the MDU.
2.5 The storeroom manager is responsible for receiving consumables that he/she has ordered.
2.6 The equipment manager is responsible for receiving equipment that he/she has ordered.

3.0 PROCEDURE

Personal protective equipment (PPE) when handling Virkon, Prochlor, Hydrogen peroxide (H_2O_2) and ethanol: lab coat, personal facemask with an A2 and particle filter (full mask or half mask with safety glasses) and chemical tolerant gloves that cover the sleeves.

Importation of dirty equipment from KPMe to the equipment storeroom at KPM (see the flow chart, attachment 1)

3.1 All dirty cages, transportation racks, trolleys and other equipment from KPMe must be sprayed with Virkon in the sluice in KPMe. Virkon must be left to work for 30 minutes before the equipment is moved to the equipment storeroom outside the MDU. Use PPE!

3.2 Cages must be emptied in the equipment storeroom outside the MDU. Change your shoes before entering the room. Put on a hairnet, P3 mask, protective glasses, lab coat and two pairs of gloves, with a longer pair inside to cover the sleeves. Water is emptied into a separate bucket and then emptied into a sink. Discard the hairnet before leaving the room. You can reuse the same facemask for up to 8 hours (place it in a sealed, labelled bag). Disinfect the safety glasses (if they are not your own pair) with 70% ethanol. Hang up the lab coat in the room or turn it inside out and deliver it to the laundry. Discard the gloves and change your shoes on your way out.

3.3 All equipment in the equipment storeroom outside the MDU must be autoclaved before it is taken into the MDU. Prepared equipment must be sprayed with Virkon and marked with autoclaving tape. Use PPE!

3.4 All cardboard rolls used as enrichment must be transferred to paper sacks in the equipment storeroom. The paper sacks must be labelled with autoclaving tape and sprayed with Virkon. Use PPE!

Importation of equipment from the equipment storeroom (dirty side) to the MDU

3.5 This work should be carried out at the end of the working day. The person from the clean side (person 1) must leave the MDU immediately after the task is completed and must shower and change all his/her clothes before the next working day.

3.6 The person in the equipment storeroom outside the MDU (person 2) must not enter the MDU on the same day and must shower and change all his/her clothes before the next working day.

3.7 Person 1 prepares the autoclaving room in the MDU before dirty equipment is taken in. Person 1 must use a personal full facemask with an A2P3 filter, a lab coat, two pairs of gloves and shoes appropriate for the task.

3.8 The mat for rolling the dirty equipment on is laid between the door and the autoclave by person 1. Make sure the door between the autoclave room and the rest of the MDU is closed.

3.9 Person 2 stands ready to send in dirty equipment from the equipment storeroom.

3.10 Person 2 turns the key to override the door between the autoclave room and the rest of the MDU. The card reader for the door between the autoclave room and the rest of the MDU is deactivated while the card reader between the autoclave room and the equipment storeroom is activated.

3.11 Person 1 opens the autoclave. The door between the autoclave room and the equipment room is then opened.

3.12 The equipment is rolled on the mat into the autoclave. When the autoclave is full, person 1 rolls the mat up and places it in the autoclave. The floor and his/her shoes must be disinfected with Virkon and a fresh pair of shoes put on. NB! Do not handle the spray bottle with contaminated gloves! The dirty lab coat and gloves are then sent out to person 2.

3.13 Person 2 shuts the door and turns the key to override the door between the autoclave room and the rest of the MDU. The card reader for the door between the autoclave room and the rest of the MDU is activated while the card reader between the autoclave room and the equipment storeroom is deactivated.

3.14 Person 1 puts on fresh gloves before starting the autoclave and labels the autoclave with “Equipment from the dirty storeroom”.

3.15 Ensure that the autoclaving process was properly carried out and that the autoclave tape is black before the equipment is moved into the MDU.

3.16 The sacks containing the cardboard rolls are placed in the clean corridor. Cages and other equipment that need washing are taken in via the air shower corridor and place on the dirty side of the laundry.

Importation of equipment and consumables

3.17 After delivery, goods are placed in the corridor, in the main reception or in the office of the purchasing and invoice officer and are fetched from these locations by KPM. Goods may also be placed on the dirty side of DU-007 by the purchasing and invoice officer. Goods and equipment must be put on the bench top or shelf and never directly on the step-over.

3.18 Goods and equipment that are to be imported must be autoclaved, gassed with H_2O_2 or disinfected with Virkon, Prochlor or 70% ethanol. Staff must first check that the goods and equipment can withstand the sterilisation/disinfection process.

3.19 The importation of goods and equipment is carried out via DU-007. Goods and equipment that are to be disinfected with Virkon, Prochlor or 70% ethanol are sprayed on the dirty side of DU-007 and then placed on the step-over. Use PPE!

3.20 Litter sawdust and food are placed in DU-006. Because the storeroom is dirty, goods must be disinfected before they are taken into the MDU. Use PPE! Store the spray bottle containing disinfectant in the storeroom and handle this as dirty equipment. One member of staff from the dirty side and one from the clean side work together to import goods.

3.21 Virkon and Prochlor can be used on non-sensitive items that tolerate these disinfectants and can withstand moisture. Prochlor and Virkon have corrosive properties and should, if possible, be rinsed away after the disinfection process. Virkon (NB! must be pink!) must be left to work for 30 minutes on dirty items and for 10 minutes on clean items. Prochlor must be left to work for at least one minute.

3.22 Unopened cartons containing clean equipment that will not come into direct contact with animals can be disinfected thoroughly on the outside and then imported in their entirety. Alternatively, the goods can be unpacked in DU-007. The goods must be handled with clean gloves which must not come into contact with the outside of the cartons.

3.23 The empty cartons are then removed by the member of staff responsible for the importation of equipment on the dirty side. Any spillage of Virkon on the step-over or floor is then cleaned up with water/soapy water.

3.24 The contents of opened cartons must be disinfected/sterilised.

3.25 Goods are placed in the storeroom for consumables (DU-004) or in the laundry. The goods are unpacked following the principle “first in-first out”, so that the oldest goods are used first. The shelves have labels for the various types of goods. When the shelves are full, any extra cartons must be placed in a single layer on top of the rack/shelf.

3.26 Equipment that can withstand high temperatures, moisture and pressure can be sterilised in the autoclave. Equipment that is to be moved to the autoclave must be covered and the cover must be disinfected before transport.

3.27 Gassing with H_2O_2 is used to sterilise the surfaces of larger items/large volumes of equipment and items that cannot be autoclaved or disinfected with Virkon, Prochlor or ethanol. Electronic items must be sterilised with H_2O_2-gas, using either the gas sluice or DU-007. Equipment must be covered and the cover must be disinfected before transport to the gas sluice.

3.28 Only specially trained personnel may use DU-007 for gassing with H_2O_2.

3.29 70% ethanol must be used when other methods are not possible, since ethanol does not have the ability to neutralise certain microorganisms. New/completely clean equipment that tolerates ethanol can be disinfected with 70% ethanol.

3.30 Chemicals must not come into contact with animals. Rinse away any chemical remains with clean water and disinfect with 70% ethanol.

Using the autoclave

From the dirty side:

3.31 Make sure that the equipment tolerates gassing with H_2O_2. Cages and bottles used in cages must not be gassed, since the gas gets into the plastic and can be harmful to the animals.

3.32 Label the equipment with autoclaving tape.

3.33 Equipment (apart from equipment from KPMe etc. which is already autoclaved) must be covered/placed in a bag which must be disinfected before transport. Use PPE!

From the clean side:

3.34 Put on a lab coat and two pairs of gloves (long gloves inside to cover the sleeves of the coat).

3.35 The equipment is moved to the autoclave on a trolley.

3.36 Put the trolley in the autoclave.

3.37 Remove the covering/bag and discard this + the outer gloves. Take off your coat and turn it inside out (for delivery to the laundry). Discard the inner pair of gloves. Put on fresh gloves before closing the door.

3.38 Select the correct cycle and start the programme.

3.39 Make sure that the cycle has been completed without error and that black stripes are now showing on the tape before taking the equipment out of the autoclave.

Use of the gas sluice

From the dirty side:

3.40 Make sure that the equipment tolerates gassing with H_2O_2. Cages and bottles used in cages must not be gassed, since the gas gets into the plastic and can be harmful to the animals.

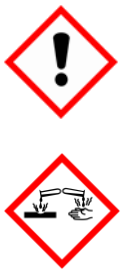
3.41 Equipment must be covered/placed in a bag which must be disinfected before transport. Use PPE!

From the clean side:

3.42 Put on a lab coat and two pairs of gloves (long gloves inside to cover the sleeves of the coat).
3.43 The equipment is moved to the gas sluice on a trolley.
3.44 Make sure that there is sufficient H_2O_2 in the container. If not, mix H_2O_2 30% with filtered water from the laundry. Use PPE! Mix the amount, following the instructions on the extra 5-litre jug. H_2O_2 30% is stored in the chemicals cupboard.
3.45 Place the equipment on the shelf in the gas sluice. The items must be placed in one layer with plenty of space in between them.
3.46 Remove the covering/bag and discard this + the outer gloves. Take off your coat and turn it inside out (for delivery to the laundry). Discard the inner pair of gloves. Put on fresh gloves before closing the door.
3.47 Close the door and start programme 1. Make sure that gas is emitted from both nozzles - this is important in order to ensure that the equipment is properly disinfected/sterilised.
3.48 Make sure that the programme has been completed without error before taking the equipment out of the gas sluice.

4.0 HEALTH, SAFETY AND THE ENVIRONMENT (HSE)

4.1 Everyone who imports equipment must have undergone thorough training in the use of chemicals, equipment and PPE.
4.2 Personal protective equipment (PPE) when handling Virkon, Prochlor, Hydrogen peroxide (H_2O_2) and ethanol: lab coat, personal facemask with an A2 and particle filter (full mask or half mask combined with protective glasses) and chemical tolerant gloves covering the sleeves.
4.3 If disinfectant gets into the eyes, rinse them thoroughly and contact a doctor.
4.4 Remove your clothes and shoes if disinfectant is spilt onto them. Rinse the skin thoroughly with water. Contact a doctor if necessary.
4.5 In the case of major spillages: mop up the spillage with paper and put this into a double bag. Tie the bags with a double knot and dispose of them as hazardous waste.
4.6 Ring 113 in an emergency.
4.7 A risk assessment for the procedures must be carried out.
4.8 Chemicals must be stored in accordance with the regulations. All chemical remains and empty containers must be discarded as hazardous waste.

Rely+On Virkon Tablets	**CAS no.**	**Pictogram**	**Hazard statements**	**Precautionary statements**
Pentakalium-bis(peroksymonosulphate)-bis(sulphate) Malic acid Sulphamidic acid Sodium dodecylbenzensulphonate Dipotassium peroxodisulphate	70693-62-8 6915-15-7 5329-14-6 25155-30-0 7727-21-1		H315: Skin irritant. H318: Causes serious eye damage. H335: May cause respiratory irritation. H412: Harmful to aquatic life with long-lasting effects. EUH 208: Contains Dipotassium peroxodisulphate, which may produce an allergic reaction.	P102: Keep out of the reach of children. P273: Avoid escape into the environment. P280: Use protective gloves/clothing/eye and face protection. P305+P351+P338: IF IN CONTACT WITH EYES: Rinse carefully with water for several minutes. Remove contact lenses if used and easy to do. Continue rinsing. P310: Contact a POISON CENTRE immediately or a doctor. P501: Dispose of contents/container in accordance with local, regional and national regulations.

Contec Prochlor	**CAS no.**	**Hazard statements**	**First aid measures**
Calcium Hypochlorite	7778-54-3	H272: Flammable oxidant. H302: Dangerous if swallowed. H314: Causes serious skin burns and eye damage. H400: Extremely poisonous for aquatic life. EUH031: Releases poisonous gas in contact with acids	If in contact with skin: wash immediately with plenty of soap and water. If in contact with the eyes: rinse the eye(s) under running water for 15 minutes. Contact a doctor. If swallowed: rinse the mouth with water. If fumes are inhaled: go out into fresh air. Contact a doctor.

Ethanol	CAS no.	Pictogram	Hazard statements	Precautionary statements
Ethanol	64-17-5		H225: Highly flammable liquid and vapour. H319: Causes severe eye irritation.	P210: Keep away from heat sources, hot surfaces, sparks, open flames and other sources of ignition. Smoking forbidden. P280: Use protective gloves/clothing/eye protection/face shield. P305+P351+P338: IF IN CONTACT WITH THE EYES: Rinse carefully with water for several minutes. Remove contact lenses if used and easy to do. Continue rinsing. P370+P378: In case of fire, extinguish using foam, carbon dioxide, dry powder or water spray. P403+P235: Store in a cool, well-ventilated place. P501: Dispose of contents/container in accordance with national regulations.

Hydrogen peroxide 30% (Perhydrol®) for analysis EMSURE® ISO	CAS no.	Pictogram	Hazard statements	Precautionary statements
Hydrogen peroxide	7722-84-1		H271: Can cause fire or explosions. Highly oxidising. H302: Dangerous if swallowed. H314: Causes severe burns to skin and eyes. H318: Causes serious eye damage.	P280: Use protective glasses. P305 + P351 + P338: IF IN CONTACT WITH THE EYES: Rinse carefully with water for several minutes. Remove contact lenses if used and easy to do. Continue rinsing. P313: Seek medical help.

			H332: Dangerous if inhaled.	

5.0 EQUIPMENT AND MAINTENANCE

5.1 Protective equipment: chemical tolerant gloves, lab coat, protective glasses, facemask with vapour (A2) and particle filter. The mask must be cleaned and the filter changed as shown in the instructions.
5.2 Virkon: any remains of Virkon past its expiry date must be collected in a container in DU-007/DU-004 and discarded as hazardous waste.
5.3 Prochlor: must not be stored in a spray bottle over time because this will damage the bottle.
5.4 70% ethanol
5.5 Hydrogen peroxide 30%
5.6 Soapy water
5.7 Paper towelling
5.8 Gas sluice
5.9 Autoclave

6.0 EDITING AND HISTORY

6.1 Written 31.01.2019 by Frøydis Kilmer
6.2 06.14.2021: Frøydis Kilmer and Jorge Rodas Foeller

7.0 REFERENCES

7.1 Ethanol: 19816703_286_ba063dea62ad9ce95db07907f92038e7.pdf (ecoonline.com)
7.2 Contc Prochlor 18423235_286_ab299121bd649bf5b66f93cabc7e3290.pdf (ecoonline.com)
7.3 Rely+On Virkon Tabletter - EcoOnline
7.4 Hydrogen peroxide 30% (Perhydrol®) for analysis EMSURE® ISO: 1 (ecoonline.com)

Attachment 1: Flow sheet for the return of equipment to the MDU.