



Technical Operations

Technical Marketing

Coronavirus SARS-CoV-2

Reuse of protective masks for technical activities during the corona pandemic

Summary

This technical newsletter informs how protective masks can be reused in technical activities in case of a bottleneck during the corona pandemic.

Departments affected:

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Appendix:

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1. Content

If there are supply shortages of disposable medical masks and filtering half-masks (disposable "filtering facepiece" FFP masks) during the corona pandemic, under certain conditions it is possible to reprocess and reuse them¹.

The reuse of FFP masks or medical masks requires safe handling. Non-compliance increases the risk of infection.

Please note that the reuse measures described below should therefore only be used in emergency situations and only during a corona pandemic, when FFP masks and/or medical masks are not available in sufficient numbers.

A. Decontamination of the masks

A.1 Medical masks (mouth and nose protection)

Objective: Protection of third parties

Decontamination before reuse e.g. heat inactivation by means of dry heat at 65°C-70°C for 30 minutes.

A.2 FFP2/3 or N95 Masks

Objective: protects the wearer as personal protective equipment by filtering function (required to protect medical staff from aerosols that may be generated during the treatment of COVID-19 patients).

Decontamination before reuse, e.g. heat inactivation by means of dry heat at 65°C-70°C for 30 minutes.

If the masks are CE marked, it can be assumed that the FFP2 and FFP3 masks will pass a treatment without any change in contour or material, as part of the test according to EN 149 is a temperature conditioning of 70°C for 24 hours.

Note:

FFP2 masks with a fake CE certificate have already been found on the market, so it is important to choose a trustworthy supplier.

However, masks that are marketable in the USA, Canada, Australia or Japan (e.g. N95 masks) are only conditioned at 38°C. It is therefore recommended to consult the manufacturer. As a rule, the filters are subjected to a quick test for temperature resistance at 70°C before reprocessing.

¹ Derived from a recommendation of the German Federal Institute for Drugs and Medical Devices (BfArM), which refers to a current paper on the use of protective masks in health care facilities, which was developed with the participation of the Robert Koch Institute (RKI) and the BfArM, among others.

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Notes:

- **FFP2/3, N95 or medical masks should be decontaminated a maximum of twice based on the data available to date and then no longer used.**
- Decontamination removes corona viruses, among other things - but this does not apply to all pathogens (viruses and bacteria). **Therefore only personalized reuse!**
- Immediate change of the medical or FFP masks in case of (suspected) contamination or moisture penetration.

A.3 Decontamination of non-medical masks in non-medical areas

These masks are usually made of cotton fabric, covering mouth and nose ("community masks").

There are various processing possibilities, e.g:

- **Washing machine**, at least 60 °C with heavy-duty detergent, possibly in laundry bags; then dry
- in a **pot**, with a pinch of detergent, boil for 5 minutes; then dry
- with at least 70 °C hot water from a **kettle** in a heat-resistant bowl, 5 min; then dry
- **Oven** at approx. 70 °C for 30 minutes (here only the viruses are inactivated, does not replace cleaning)
- **Ironing**: Put the mask between 2 towels and iron carefully (steam) at level 3; this method does not replace cleaning either

Notes:

- If the mask contains a "nose wire", this should be removed if possible before reprocessing
- Storage in the freezer is ineffective, as the viruses can survive cold
- Decontamination in the microwave: If the masks contain metal or plastic, they must not be placed in the microwave. Although there are reports that masks have been reprocessed in the microwave using water vessels, it is hardly possible to control the temperature using this method. It is therefore difficult to determine whether the temperature, wetting and contact time achieved is sufficient. This method is therefore not recommended currently. This procedure does not replace cleaning.
- Never spray the masks with disinfectant, as ingredients can be inhaled, which can lead to irritation of the nasal and oral mucosa (special risk: asthmatics)!

B. Reuse of the masks without prior decontamination

The outside of the used mask is potentially infectious and when putting it on again, contamination of the wearer, especially in the face (nose, mouth, eyes) must be avoided.

When reusing the mask, please note that

- the mask must be removed in such a way that contamination of the mask (especially the inside) or of the face is prevented, e.g. by previous glove disinfection
- After taking off the mask, it should be kept dry in the air (not in closed containers!) and stored temporarily so that contamination of the inside of the mask and carry-over to other surfaces is avoided

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- a demarcated area must be defined to provide a safe storage facility for the mask that is not accessible to third parties, so that it can be reused
- the gloves are to be disposed of properly and the hands disinfected after storage of the masks
- the used mask can be clearly assigned to a person in order to prevent other persons from wearing it (e.g. marking the masks on the retaining strap)
- Used disposable FFP masks/surgical masks cannot be cleaned or disinfected with disinfectant, as this can have a negative effect on the functionality of the mask
- when putting on the mask again, make sure that the pathogens are prevented from spreading from the contaminated outer surface to the inner surface. Touching the inside of the filter must therefore be avoided
- when putting on the gloves again, wear hygienically clean, unused gloves and dispose of afterwards
- Do not use masks whose inner surface may have been contaminated by handling errors
- the place of temporary storage must be properly disinfected immediately after removal of the mask

The use of reusable respiratory masks with replaceable particle filters is another alternative to resource protection.

C. Central processing

If masks for personnel are to be prepared centrally in a repair shop, e.g. in a drying cabinet, the following must also be observed:

1. a procedure shall be established to collect worn masks in a safe manner. Obviously dirty or defective masks must be disposed of immediately. Ensure that face masks can be stored without adversely affecting the quality of the masks or the decontamination process. Masks must not be stored temporarily in closed containers while still damp, as this can lead to a massive increase in bacteria and mould within a short time. In particular, hygienic hand disinfection must be observed when putting on and taking off the masks.
2. masks are to be personalised and after decontamination are only to be used by the same person
3. it must be checked, at least visually and physically, that the masks are not affected by the process after decontamination (shape and properties of the material)
4. the masks should be decontaminated no more than twice based on the data available to date and should not be used thereafter
5. a system should be set up to indicate that a mask has been decontaminated and to track the number of decontamination steps per mask (e.g. by appropriate marking on the mask)
6. the personnel carrying out collection (1), verification (4) or decontamination must be qualified and trained for this purpose
7. all procedural steps shall be documented in such a way that verification is possible

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