

**Dear Central Service Readers,**

The Quality Committee published a total of 126 recommendations between 1998 and 2022. While some of these recommendations continue to be valid, others are no longer fully applicable due to new developments in science, regulations or standards.

So far, all recommendations are available on the website of the German Society of Sterile Supply (DGSV) and perhaps it is not always easy for the reader to evaluate the content of older recommendations.

The Quality Task Group has therefore begun revising the recommendations. Topics that are no longer of relevance will gradually be placed in an archive, so that they can still be consulted for research purposes but will be clearly separated from currently valid recommendations.

If you have any suggestions about the hitherto recommendations or about new topics, you can send them to us at any time at qualitaet@dgsv-ev.de.

Ulrike Zimmermann and Dr. Gerhard Kirmse
Coordinators for the Quality Task Group

Recommendations by the Quality Task Group (AK Q) (33:2023)

Mesh trays (and storage aids) and their implications for the success of the cleaning and disinfection process

Authors: T. Appel, D. Diedrich, A. Hartwig, A. Jones, G. Kirmse, M. Pohl, U. Zimmermann

E-mail: qualitaet@dgsv-ev.de

The most important success criteria for the automated cleaning and disinfection process are

- cleanliness
- disinfection
- degree of drying.

MULTIPLE FACTORS can influence the cleaning process.

In addition to the process control of the machine (temperature, process chemicals,...), **FACTORS INFLUENCING** the process are the type and intensity of soiling, the transport time and the load configuration.

Apart from the quantity of medical devices, their design and positioning, storage aids and mesh trays must also be considered in the loading process. Important criteria are:

- Functionality when storing the instruments
- Handling when loading the washer-disinfector
- Influence on cleaning (perforations, rinsability)
- Influence on drying
- Protection of the instruments
- Protection against slipping/loss.

Meeting all of these **CRITERIA** optimally at the same time can be difficult.

It should be noted that it can sometimes be difficult to optimally meet all these **CRITERIA** at the same time. Depending on the specific requirements of the instruments and the cleaning process, compromises may have to be made.

■ Mesh trays

“General” mesh trays (see pictures) are medical devices that are specifically intended by the manufacturer for storage, transport, cleaning, disinfection, and sterilization of medical devices and are described in instructions for use. If this is not the case, correct utilisation according to the intended use should be requested from the manufacturer.

Mesh trays are available in a variety of designs. While mesh trays made of perforated sheet metal generally offer better protection of the instruments and are more durable, for a long time the opinion prevailed that cleaning, disinfection and drying properties of wire mesh trays were fundamentally better [1]. Problems that can be incurred here are a risk of injury from detached wires or instruments protruding through the mesh (occupational safety). However, the poorer drying properties could not be generally confirmed under

standardized laboratory conditions. There were no **SIGNIFICANT DIFFERENCES** between wire mesh trays and some perforated plate tray models in both cleaning/disinfection and drying (different times and temperatures, with/without rinse aid) [2].

Other design features must be determined according to the particular process cycle. This refers to specific requirements and conditions relevant to the cleaning and disinfection process for medical devices:

- Size: Depending on the content, load carrier, aseptic removal from the container where applicable.
- Height: Depending on the content, load carrier, transport and type of disposal
- Feet (also for stacking): Depending on the choice of sterile barrier system
- In the case of soft packaging, pay particular attention to possible damage caused by sharp edges.

The success of cleaning/disinfection and drying is proven in the individual process (device, program, loading, ..) in the **VALIDATION**.

■ Prefabricated storage trays for special instrument systems

These trays are developed by the manufacturer as accessories for specific medical devices and are also medical devices. It must be checked in each case for which parts of the processing cycle these trays are intended according to the manufacturer's instructions!

- In some cases, these systems are not approved for cleaning and disinfection with instruments/implants.
- In some cases, connectors and similar parts are only to be attached for cleaning and disinfection and must be removed again before sterilization.

Even if the systems are generally intended for cleaning and disinfection, instruments may have to be removed (e.g. for disassembled cleaning or for connecting lumens). The **MANUFACTURER'S INSTRUCTIONS** must always be carefully checked and observed.

SIGNIFICANT DIFFERENCES with respect to cleaning/disinfection and drying between wire mesh trays and perforated plate tray models could not be confirmed.

VALIDATION demonstrates the success of cleaning/disinfection and drying.

THE MANUFACTURER'S INSTRUCTIONS must always be observed.

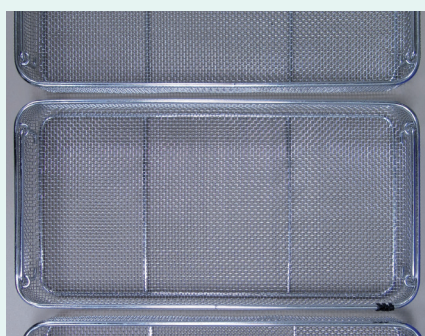


Fig. 1: Example wire mesh tray

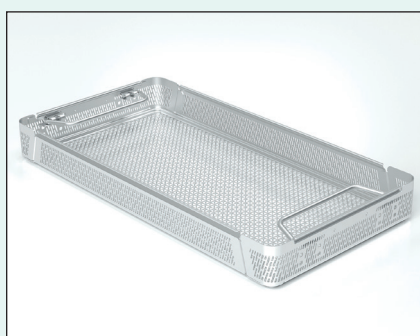


Fig. 2: Example perforated plate tray

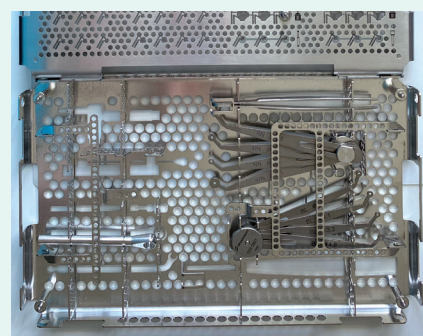


Fig. 3: System-Tray



Fig. 4: Plastic tray with lid (little flushing)



Fig. 5: Storage also suitable for cleaning

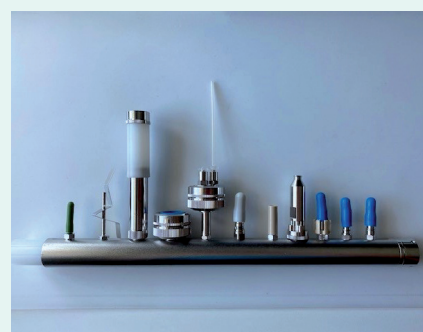


Fig. 6: Connector bar

STORAGE AIDS are themselves medical devices in some cases.

A REVIEW OF THE "WORST CASE" regarding the storage aids is required during validation.

■ Storage aids

Numerous **STORAGE AIDS** are offered, some of which are in turn classified as medical devices:

- Lids and covers: These prevent medical devices from being ejected from the tray by the spray jet. However, they interrupt the spray jet from above and impair the cleaning/disinfection result [3]. They should therefore only be used if they are really necessary.
- Silicone mats: They secure instruments against slipping. Their properties depend strongly on the geometry. While in laboratory tests mesh mats (Fig. 9) did not worsen cleaning/disinfection or drying [3], the knobbed mat (Fig. 10) showed the same cleaning/disinfection performance but impaired drying. Designs with less flow will possibly also lead to a deterioration of cleaning/disinfection performance. They should therefore only be used selectively (possibly for part of the tray).
- Clamps and retaining bars: These prevent slipping or damage, but to a certain extent make cleaning/rinsing and drying more difficult.

The individual configuration of storage aids requires a **REVIEW OF THE "WORST CASE"** during validation. This means that the configuration is tested under the most severe conditions to ensure that the process will also work effectively in extreme scenarios.



Fig. 7: Mesh tray with lid

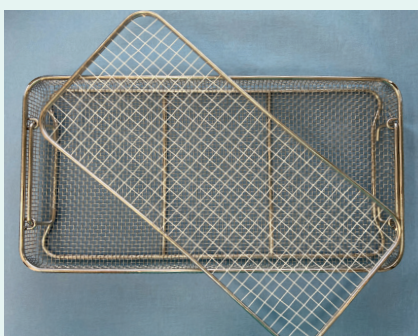


Fig. 8: Mesh tray with cover

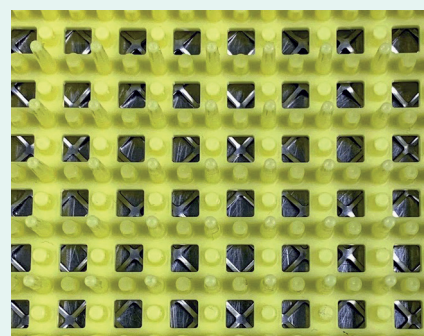


Fig. 9: Mesh mat

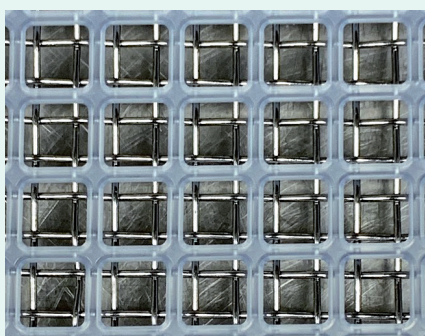


Fig. 10: Knobbed mat

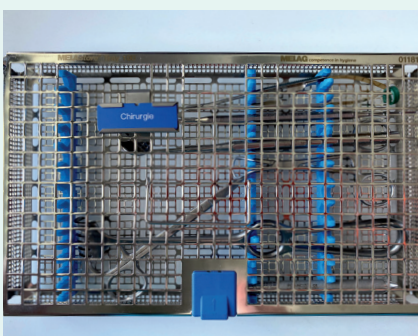


Fig. 11: Mesh tray with clamps and lids

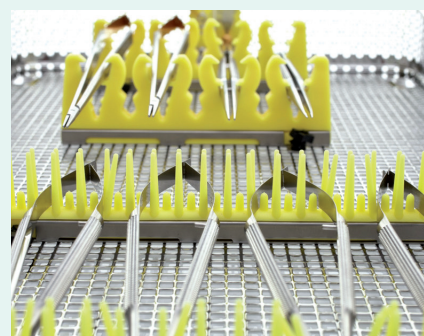


Fig. 12: Holding bars

■ References

1. Amman B., Fengler T. Eignung von Sieben für die Aufbereitung von Medizinprodukten – klinisch relevante Prüf-Kriterien am Beispiel von 4 Modellen Forum 2020_37 InfoPool: Übersicht FORUM Schriftenreihen von CLEANICAL® – www.cleanical.de/en/
2. Kirmse G., Graf M. Comparison of cleaning and drying performance of different designs of instrument baskets. Zentr Steril 2018; 26 (2): 94–99.
3. Kirmse G., Graf M. Comparison of the cleaning and drying performance of different instrument tray designs and accessories. Zentr Steril 2021; 29 (1): 42–47.