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Advanced Infection prevention Management Solutions

Is **disinfection** or **sterilization** required ?

Whether, and when, disinfection and sterilization should be performed during reprocessing relates to the **Spaulding** classification. Dr Earle Spaulding proposed three categories of medical devices that are based on a medical device's potential for transmitting infections, linked to the level of decontamination required e.g. disinfection (high, medium and low level). This is a rational approach to disinfection and sterilization of patient-care items and equipment. The contamination results from various residues which are listed in the following.

Risks can occur as a result of e.g.:

- Residues from previous applications (e.g. blood, blood components, secretions, excretions and other body parts, medications);
- Residues from previous reprocessing (e.g. detergents, disinfectants, sterilization agents and other agents, including their reaction products);
- Changes to the physical, chemical or functional properties of the medical device or
- Changes to the condition of the material (e.g. accelerated material wear, embrittlement and altered surface properties, changes to contact points and connections, e.g. from bonding, welding, pressing).

W&H recommends:

- to always apply sterilization and
- to pouch or wrap any instruments which will come in touch with the patient.

W&H recommends this in order to reduce the risk of infection and to simplify the process. When all the instruments follow the same procedure, safer conditions for the patient are provided. Human errors in terms of logistics could e.g. lead to an incident, that one instrument that was reprocessed for an application (semicritical or non-critical) is used for a critical application (mirrors, probes handpieces, etc. …). In such a case the advantage of avoiding sterilization reprocessing is much more irrelevant than the possible risk of a cross-infection.

Important note:

To protect medical products and instruments from potential damage and to ensure that their functionality is maintained, please ensure you always observe the manufacturer's instructions for processing. Manufacturers of medical devices and instruments are obliged to provide instructions for use that comply with EN ISO 17664. These instructions must contain validated preparation processes for the respective medical device.

All dental handpieces and accessories should always be heat sterilized between patients and should not be subjected to high-grade or surface disinfection. This is because although these devices are classified as semi-critical and their sterilization is therefore not mandatory, studies have shown that their internal surfaces can be contaminated. If such devices are only disinfected, patients can become contaminated with the potentially infectious materials inside the instrument. The easiest way and to be on the safe side would be to sterilize the dental instruments in a **steam sterilizer**.

The table below provides a rough division of the classification of reprocessable instruments with the associated recommended decontamination level required. In some countries, the Spaulding classification has been refined in more sophisticated classes. Therefore please refer to your national classification guide.

Table 1: Classification from Spaulding

Classification	Type of procedure	Level of decontamination required
Critical	Invasive devices that enter tissue or enters the vascular system, e.g. extraction forceps	Sterilization
Semi-critical	Device contacts intact mucous membrane but does not penetrate tissue, e.g. dental mirrors	High level disinfection* (sterilization preferred where practicable)
Non-critical	Device only contacts intact skin	Can be processed by cleaning (& low level disinfection where necessary)

* High level disinfection is a process designed to kill vegetative microorganisms, mycobacteria, viruses, fungal spores and some but not all bacterial spores. An example of a high level disinfectant is peracetic acid, these groups of compounds are unsuitable for use in dental practice because of their highly toxic nature and health and safety control required to use them.