

Das Fachmagazin für Krankenhaus- und Praxishygiene

Schutzgebühr 6,- €

aseptica

Besuchen Sie www.aseptica.com und nutzen Sie das umfangreiche Archiv!

32. Jahrgang 2026 | Heft 2



Bilingual

Neue Anlage 8 der KRINKO-/BfArM-Empfehlung
Was ändert sich?

New Annex 8 to the KRINKO/BfArM recommendation
What is changing?

Editorial

Summer, Open Spaces, and New Perspectives

Summer is here. With it come longer days, vacation time, little breaks from everyday life, and the opportunity to take a moment to consciously breathe deeply. However, especially in healthcare facilities, the warm season means far more than just relaxation. It reminds us that vigilance, responsibility, and hygiene never take a break. At the same time, summer offers the chance to question the status quo, take in new ideas, and start the second half of the year with renewed energy.

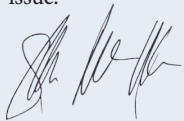
The topics in this issue also reflect this idea. They show how our field is constantly evolving and how important it is to remain open to change. In particular, the new Appendix 8 of the KRINKO/BfArM recommendation makes it clear that modern hygiene has long been about more than just monitoring individual results. The focus is increasingly on controlling and ensuring the integrity of processes—in a traceable, risk-based, and quality-oriented manner.

At the same time, we are celebrating impressive anniversaries and success stories. The DGSV celebrates its 30th anniversary and thus serves as a model of continuity, professional expertise, and volunteer commitment in medical device reprocessing. For five decades now, the AKI has also demonstrated how valuable interdisciplinary collaboration can be for developing practical solutions.

Another topic in this issue looks squarely toward the future: Digitalization is also transforming communication about hygiene. Social media is increasingly becoming a platform where knowledge can be conveyed in a way that is understandable, accessible, and tailored to specific audiences. While it does not replace training or professional literature, it does raise awareness and fosters dialogue on hygiene topics in new ways.

Use the coming weeks to relax, come up with new ideas, and have inspiring encounters. Perhaps the somewhat quieter summer months offer the perfect opportunity to review processes, launch new projects, or explore topics that often get overlooked in the hustle and bustle of everyday life.

We wish you a pleasant summer, a relaxing vacation, and hope you enjoy reading this issue.



Stella Nehr-Werner

Contents

News

30 years of DGSV 20

Arbeitskreis Instrumenten-Aufbereitung (AKI) e.V. – The origin of an interdisciplinary model of success 21

From skepticism to impact – How social media can help to make hygiene in healthcare settings understandable, effective, and measurable 23

Hospital & Hygiene

New Annex 8 to the KRINKO/BfArM recommendation – What is changing? 26

Validation of manual cleaning and high-level disinfection of semi-critical ultrasound probes 29

Disinfection of nitrile gloves in a patient room with contact isolation 31

News from the Industry 33

Events 35

Legal notice 25

Interesting news

Summertime, holiday season – risk of infection?!

Professor Martin Exner, President of the German Society for General and Hospital Hygiene, warns of the risk of infection from the water mains – anyone wishing to protect themselves from infections caused by waterborne pathogens should flush out rarely used pipes regularly.

The concern is *Legionella*. These bacteria can multiply in water pipes and reach the human respiratory tract via shower mist. In extreme cases, they can cause life-threatening pneumonia. The risk is particularly high when travelling, says Exner; he also urges caution in hotels: “You often don’t know how long the room has been unoccupied before your arrival.” His advice: “Turn the tap on as soon as you check into your accommodation. Let the water run for a minute. Only then should you get in the shower.” This recommendation applies not only to holiday accommodation but also to your own home: “Please flush out the pipes at home too as soon as you return from a trip – water can go off anywhere.”

In an interview given by Professor Exner at the ninth International Hagleitner Hygiene Forum, “From a Safe Source: Water and Hygiene in Healthcare”, in June 2026, he explained: “Water hygiene affects us all. Whilst most people naturally and quite rightly assume that our tap water is safe, However, as scientists, we must continually ask ourselves: how reliable are our monitoring procedures? New risks are constantly emerging, such as those posed by *Legionella*, *Pseudomonas* and *Cryptosporidium*. These pathogens can cause serious illnesses if appropriate protective measures are not taken. Parasites such as *Cryptosporidium* cannot be reliably killed by chlorine. That is why we must constantly refine water treatment processes to protect the public and raise awareness of these issues.”

The full interview is available at https://bit.ly/exner_interview (in German).

www.aseptica.com
Download a digital copy of the latest edition now and browse through the extensive archive.



30 years of DGSV: A commitment that supports the medical device reprocessing industry



For three decades now, the German Society for Sterile Supply (DGSV e.V.) stands for quality, expertise, and reliability in the reprocessing of medical devices. This 30th anniversary is far more than just a milestone. It is a testament to a continuous, impressive commitment to patient safety, standardization, and professionalization in a highly sensitive area of health care.

The editorial board of *aseptica* extends its warmest congratulations to the DGSV e.V. on this special occasion!

What has particularly distinguished the DGSV's development over the past 30 years is its consistent combination of in-depth expertise, a practical focus, and an extraordinary level of volunteer commitment. The numerous members, experts, and – in particular – the board members contribute, with great personal dedication, to shaping and further developing sterile supply services in Germany and on the international stage in a sustainable manner.

This volunteer work deserves the highest recognition. In an era of increasing regulatory requirements, technical complexity, and rising expectations regarding quality and traceability, it is anything but a given that professional associations would operate with such consistency and energy. The DGSV has succeeded in establishing itself as an indispensable voice in the industry – competent, engaging, and always keeping the big picture in mind. For many years, the DGSV Board of Directors has been actively involved in working groups with great dedication and has enriched conferences and RUMED meetings through its regular attendance, whether on weekends or during the week.

Particularly impressive is the Executive Board's ability to provide guidance, to present calm, expert arguments, to place a strong emphasis on user needs, and at the same time to spur innovation. The DGSV is not only a professional network but also a driving force for further development: through guidelines, continuing education programs, certifications, and intensive exchange between clinical practice, academia, and industry.

The strength and significance of this ongoing commitment are evident in daily practice. Whether in medical device reprocessing departments, in the surgical environment, or in quality assurance, the standards and recommendations established by the DGSV have become an integral part of professional workflows.

The DGSV's 30th anniversary thus represents not only a successful past but also a strong future. The challenges are not getting any easier. This makes the DGSV all the more important as an institution that provides guidance, pools knowledge, and fosters commitment. We would like to thank all of you who made this journey possible. In particular Klaus, Rainer, Frank, Dirk, and Johanna, for your consistent, responsible, and inspiring work!

Congratulations on your 30th anniversary, DGSV e.V.!

Iven Kruse, Stella Nehr-Werner, Aaron Papadopoulos, Ulrike Weber, Gudrun Westermann



Arbeitskreis Instrumenten-Aufbereitung (AKI) e.V. – The Origin of an Interdisciplinary Model of Success

Aaron Papadopoulos, Helmi Henn, Ulrike Weber

The Working Group on Instrument Reprocessing (AKI) has always been composed of leading representatives from key product groups in the medical technology sector. Participants have included – and continue to include – representatives from the fields of surgical instruments, process chemicals, as well as washer-/disinfectors and sterilization systems. Among the founding members in 1976 were:

Product Group: Instruments: Herbert Beuerle and Johannes Seibert (Aesculap-Werke AG), Volker Bühler and Karl Leibinger (Gebr. Martin)

Product Group: Process Chemicals: Dr. Theodor Altschöpfer and Dr. Karlheinz Disch (Henkel KGaA), Sigrid Krüger and Olaf Schreiber (Chemische Fabrik Dr. Weigert), Heinrich Schawacht (Diversey GmbH)

Product Group: Washer-/Disinfectors and Sterilization Systems: Hans-Jürgen Neitzert and Herbert Posmick (MMM), Rolf H. Uthmann (Miele & Cie KG), Klaus Vetter (Stierlen-Maquet).

A Historical Inspiration

A crucial foundation was laid at the first meeting in the summer of 1976. Leaders from well-known companies gathered at Stuttgart Airport – a location that symbolized new beginnings and globalization. The discussions focused on the reprocessing of surgical instruments in hospital settings.

In retrospect, this meeting marked a founding impetus of particular significance. Driven by a shared sense of responsibility, a determination emerged to pool existing knowledge, tackle technical challenges together, and create sustainable structures for the future of instrument reprocessing.

What emerged back then was more than just a collaboration. It was a paradigm shift. Despite being competitors, the parties involved recognized that they were facing the same fundamental challenges. Shared materials, comparable manufacturing technologies, and uniform quality standards led to a new form of collaboration: manufacturers became partners in finding solutions. The shared identity of “Made in Germany” served as both a unifying element and a promise of quality.

Technological Disruptions and the Challenges They Pose

The 1970s were marked by a profound transformation in the reprocessing of surgical instruments. The transition from manual processing to automated methods with thermal disinfection posed significant challenges for both hospitals and manufacturers. Companies that were planning central sterilization departments, supplying stainless steel instruments, or developing washer-/disinfectors and compatible process chemicals were confronted with new issues on an almost daily basis. Particular focus was placed on:

- Corrosion phenomena in stainless steel instruments, which often led to uncertainty among users
- The impact of water quality – particularly the calcium content – on process reliability
- The use of low-foaming cleaning agents, whose effectiveness could vary significantly at temperatures up to 93 °C
- Complex interactions between materials, chemistry, and process engineering.

In this context, users sometimes jumped to conclusions: It was not uncommon for signs of corrosion to be attributed across the board to supposedly inferior materials, even leading to accusations of “cheap steel.” The actual causes, however, often lay in a complex interaction of process parameters.

The “Red Brochure” as a Milestone

Against this backdrop, the AKI developed a manufacturer-neutral framework: the first “Red Brochure.” It served as a practical, scientifically sound guideline and was particularly well-suited to the needs of the time. Its success impressively confirmed the foresight of the founding members. Subsequently, the working group was continuously expanded. New subject areas were incorporated, including:

- Minimally Invasive Instruments
- Dental Instruments
- Anesthesia Products
- Veterinary Instruments
- Flexible Endoscopes.

Authors

Aaron Papadopoulos
Ecolab Deutschland GmbH
Ecolab-Allee 1, 40789 Monheim, Germany

Helmi Henn
Richard Wolf GmbH
Pforzheimer Str. 32, 75438 Knittlingen,
Germany

Ulrike Weber
SMP GmbH
Hechinger Str. 262, 72072 Tübingen, Germany





Step by step, a comprehensive collection of works emerged, characterized by great technical depth and broad applicability. The brochures have established themselves internationally as standard references in both education and continuing education as well as in everyday clinical practice. Today, the “Red Brochure” is published in 21 languages. With the new Version 12, to be released in October of the anniversary year 2026, the brochure impressively underscores its enduring relevance and timeliness.

Portfolio Expansion

In addition to the Red Brochure, the AKI developed other specialized guides:

- **Yellow Brochure:** Instrument Reprocessing in Dental Practices
- **Green Brochure:** Instrument Reprocessing in Veterinary Settings
- **Anthracite-colored Brochure:** Value-Preserving Reprocessing of Flexible Endoscopes.

The wide distribution of these publications illustrates their importance as a practical source of knowledge.

AKI Today: Internationally Connected and Scientifically Active

Today, the AKI is much more than a national working group. Its members are actively involved in standards committees and the development of guidelines, initiate and oversee scientific studies, and are regularly represented at national and international conferences.

Through the involvement of international ambassadors, the AKI has a global network. Examples include:

- Matías Pilasi (South America, Chile)
- Damien Berg (North America, USA).

The current membership of the working group is listed on the website www.a-k-i.org.

The Continuity of an Idea

A glance at the first brochure illustrates just how timeless the original approach is: experts from various disciplines pooled their knowledge with the aim of creating a well-founded guide to maintaining the value of surgical instruments. The principles of interdisciplinary collaboration, a scientific foundation and a practical focus continue to characterise the AKI to this day. Launched in 1976, the initiative has developed into an internationally recognised platform and continues to make a significant contribution to quality and safety in instrument reprocessing.



From skepticism to impact

How social media can help to make hygiene in healthcare settings understandable, effective, and measurable

Stella Nehr-Werner, Aaron Papadopoulos

After examining strategies, opportunities, and initial experiences in the first part of our series, we're now taking it a step further: How does social media impact everyday practices in hygiene? Can a 30-second clip really make a difference in a field otherwise dominated by training, guidelines, and standards?

In the second part, we discuss the journey from initial skepticism to genuine impact. Dr. Elena Dorn and Michaela Waldbauer give insights into how digital formats make hygiene topics more concrete, which content truly reaches people and where clear limitations lie. It's about attention and responsibility, humor and expertise, but above all, it's about one central question: How can we not only convey hygiene but also embed it in people's thoughts and actions?

An exciting interview about new ways of sharing knowledge and about why social media has long been more than just a peripheral phenomenon.

Why social media at all?

aseptica: When we think of hygiene, the first things that come to mind for many people are training sessions, guidelines, and posters. Why does social media still play a role today?

viva_hygiene: Because social media brings hygiene to where everyday life takes place – not just into the classroom. The content is accessible, easy to engage with, and often even entertaining. That's exactly where the real opportunity lies:

If we can successfully direct this attention toward hygiene topics, we'll reach people in a different way – and often with a more lasting impact. Social media isn't a substitute for training – but it's a valuable complementary tool.

aseptica: 30-second clip versus 45-minute training session – which sticks better?

viva_hygiene: The length is not decisive at all, but the design. A good training session can hold your attention for 45 minutes – a boring reel

gets swiped away after three seconds. The difference lies in the opening: A clip has to immediately “catch” the viewer's attention—with curiosity, an “aha” moment, or something unexpected. If it succeeds, even 30 seconds can make a big impact.

aseptica: What role does storytelling play?

viva_hygiene: A key one. Otherwise, hygiene messages tend to appear dry or preachy. Stories from everyday hospital life – common mistakes, little anecdotes, humorous scenes – make the content relatable. People recognize themselves in these stories, and that's exactly what ensures the messages stick. Short, to-the-point Reels grounded in reality work particularly well. What works less well: long explanatory videos or content that isn't relevant to everyday life.

aseptica: Social media is constantly creating new trends and languages. Opportunity or obstacle?

Authors

Stella Nehr-Werner
Global Infection Control & Prevention Consultant
Dentsply Sirona
Fabrikstr. 31, 64625 Bensheim, Germany
Stella.Nehr-Werner@dentsplysirona.com

Aaron Papadopoulos
Sr. Marketing Manager Healthcare
Ecolab Deutschland GmbH
Ecolab-Allee 1, 40789 Monheim, Germany
aaron.papadopoulos@ecolab.com

Do's	Don'ts
Passion for the subject!!!	No patient data
Individuals with consent	No identifiable individuals without consent
Employer's approval	No recognizable internal processes without approval
Clear messages	Embarrassing revelations / Exposure
Short formats	Bashing
Relevance to everyday life	Personal conflicts
Respectful tone	Preachy “schoolmaster” style

viva_hygiene: Well... probably both! ☺ It's fun to see what great ideas people around the world come up with, how a trend like actually triggers a hype all over the world, and how everyone implements it in their own way. It kind of brings people together, too. But it can also cause a little stress sometimes... Ha-ha... Sometimes there are so many ideas that you don't even know where to start.





And not every trend suits us, fits our hygiene standards, or appeals to every target audience. And we certainly don't appeal to every generation equally well... there are some trends we just can't relate to... But that's okay! ;-)

Does social media really make a difference?

aseptica: Do you observe concrete effects in practice?

viva_hygiene: Yes – especially in the feedback we receive. After posting clips about everyday situations, we often hear, “That’s exactly how it is for us, too.” This shows that our content is resonating. We can’t measure the impact precisely, but we see how posts are shared or even used in hygiene training sessions. When hygiene becomes a conversation topic, we’ve already achieved a lot.

aseptica: Is there reliable data?

viva_hygiene: No traditional research data– that was never our primary goal. But we’re seeing steady growth in the community and broad representation across academic

disciplines. Above all, we sense that hygiene is becoming more visible and accessible.

aseptica: Social media in the healthcare sector is often viewed critically. What concerns do you encounter?

viva_hygiene: The usual ones: “too frivolous,” “too simplistic,” “not everyone understands this correctly.” There’s also criticism of details – sometimes even of hairstyles. (laughs) But overall, acceptance is growing.

aseptica: How do you deal with criticism?

viva_hygiene: Positively. We use feedback about potential errors as an opportunity to provide context or clarification– this often leads to short “mini-training sessions.” The dialogue has been very respectful and constructive so far.

Boundaries, Responsibility, and What Works

aseptica: What Are the Limits of Social Media in the Field of Hygiene?

viva_hygiene: It’s definitely a matter of depth. Complex topics can only be presented in simplified form. A reel can raise awareness, but it can’t replace in-depth training. Social media is a starting point – not the finish line.

aseptica: What Content Should Not Be Published?

viva_hygiene: It’s less about the topic and more about the presentation. As soon as content becomes too complex or open to interpretation, short formats reach their limits.

aseptica: Which content performs best?

viva_hygiene: The blend of expertise and emotion. Diversity is key.

aseptica: How can we balance modern language with the needs of different generations?

viva_hygiene: Not at all completely – and that’s okay. What matters is authenticity. Users can tell right away whether content is “real” or just copying trends.

aseptica: How important are trends such as Reels, music, or challenges in a medical context?

viva_hygiene: Reels, music, and challenges help attract attention. Reels, in particular, work well because they’re short and engaging. Classic posts offer more depth, while Stories encourage interaction. Every format has its value.

aseptica: What would you do differently today?

viva_hygiene: Wow! Here comes the deep talk! ;-) Doubt yourself and the project less. Doubt yourself less. Especially in the beginning, it takes courage and endurance.

Success, Feedback, and Outlook

aseptica: How do you measure success?

viva_hygiene: In terms of reach, followers – but above all, direct feedback.



aseptica: What do you remember most clearly?

viva_hygiene: When people approach us at conferences and tell us that our Reels are being used in their training sessions – that's incredibly motivating.

aseptica: Where do you run into challenges?

viva_hygiene: Finding the right balance between simplicity and technical accuracy remains a challenge – especially in very short formats.

aseptica: Was there any surprising feedback?

viva_hygiene: At first, there was mainly doubt – even from within our own professional community. That raised some concerns. So it was all the more satisfying to see that the concept works and has been well received.

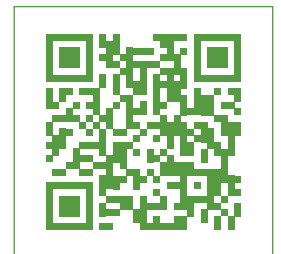
aseptica: Your most important tip for institutions?

viva_hygiene: Just get started – and stick with it. It's not always easy to get started, but it's worth it.

aseptica: Thank you all for your time and openness!



viva_hygiene on Instagram



viva_hygiene on YouTube

Summary

Social media doesn't make hygiene any simpler – but it does make it more accessible. It doesn't replace expertise, but it does generate attention, spark conversations, and open up new avenues. The key is finding the right balance: between humor and responsibility, between brevity and accuracy, between trends and authenticity.

Legal notice

Scientific advisory council:

F. Brill, Hamburg
C. Diekmann, Detmold
A. Hartwig, Berlin
S. Kaufmann, Saarbrücken
I. Liebig, Wedel
K. Mann, Regensburg
T. Miorini, Graz
F. v. Rheinbaben, Schwerin
J. Steinmann, Bremen

Publisher:

mhp Verlag GmbH
Bahnstr. 8
D-65205 Wiesbaden
info@aseptica.com

Responsible for content:

Dr. Ulrike Weber
Scientific Affairs
SMP GmbH
Hechinger Str. 262
D-72072 Tübingen
ulrike.weber@smpegmbh.com

Editorial team:

Aaron Papadopoulos, Ecolab
Ulrike Weber, SMP GmbH
Stella Nehr-Werner, Dentsply Sirona
Iven Kruse, ebro

Overall production:

mhp Verlag GmbH
Bahnstr. 8 | D-65205 Wiesbaden
Phone: +49 611 505 93 34
info@aseptica.com
www.aseptica.com
Dr. Gudrun Westermann
in cooperation with:

Ecolab Deutschland GmbH
Ecolab-Allee 1 | D-40789 Monheim
am Rhein;

Miele & Cie. KG
Postfach | D-33325 Gütersloh;

Dentsply Sirona Deutschland GmbH
Fabrikstraße 31 | D-64625 Bensheim;

Xylem Analytics Germany Sales GmbH & Co. KG
Ebro
Peringerstraße 10 | D-85055 Ingolstadt

Printing:

Druckerei Laub KG
Brühlweg 28, D-74834 Elztal-Dallau

Title image: iStock | kot63
Circulation: 4000
Publication schedule: three times a year
Printed on chlorine-free bleached paper

Only to be reprinted with the permission of the editorial team. Articles by named authors do not necessarily reflect the opinion of the editorial team. No liability is assumed for unsolicited manuscripts and photographs. The editorial team reserves the right to shorten letters from readers.



ISSN 1439-9016

New Annex 8 of the KRINKO/BfArM Recommendation: What is changing? – Part 1

Author |

Ines Liebig
Aseptio Hygienemanagement
Kastanienweg 13
37445 Walkenried, Germany
i.liebig@aseptio-hygiene.de

Ines Liebig

With the revised Appendix 8 of the KRINKO/BfArM recommendation, the reprocessing of thermolabile endoscopes has been realigned professionally and structurally. The new version from 2024 replaces the previous Annex 8 including its

annexes, and considers current findings on infection risks, multi-resistant pathogens, technical developments and quality assurance requirements. In practice, this means that microbiological control is no longer the focus in isolation, but is understood as part of comprehensive, risk-based quality management.

Importance is attached to operator responsibility, risk assessment, validation and requalification of treatment processes, as well as defined warning and intervention limits. New or much more precise descriptions include the requirements for product and process controls, the handling of conspicuous findings, the sampling of complex endoscope channel systems and the evaluation of relevant indicator microorganisms. A separate informative appendix has been included for endocavitary ultrasound probes, which provides practice-relevant information on hygienic reprocessing.

The article presents the main innovations and classifies them from the point of view of practical hospital hygiene, endoscopy and RUMED.

For better orientation, two different highlights are used in this article.

The main conclusions from the new Annex 8 of the KRINKO/BfArM recommendation for practical implementation derive **practice-relevant consequences**. For this purpose, the text is written in the color orange.

Practical boxes complement the content with the author's experiences and recommendations from different professional perspectives. They are based on her many years of work as a hygiene specialist, surgical nurse, technical qualification and expert knowledge, auditor as well as consultant and lecturer in the fields of endoscopy, RUMED and hospital hygiene.

The aim is to combine the requirements of the KRINKO/BfArM recommendation with practical recommendations for action and to support the transfer into everyday clinical practice.

Introduction

The reprocessing of flexible thermolabile endoscopes has been one of the most demanding areas of medical device reprocessing for years. The combination of complex product design, narrow channel systems, sensitive materials, high patient frequency and sometimes invasive examinations presents facilities with high hygienic and organizational requirements.

With the publication of the new Annex 8 of the KRINKO/BfArM recommendation in 2024, this area has been comprehensively updated. The previous Annex 8 from the recommendation "Requirements for hygiene in the reprocessing of medical devices" has been replaced, including its annexes. At the same time, aspects that had previously been considered separately, such as flexible cystoscopes and bronchoscopes as well as ultrasound probes, were reclassified.

The update is more than an editorial revision. It changes the view of quality assurance in endoscope reprocessing. The focus is not only on the question of whether an endoscope is microbiologically inconspicuous. Rather, the decisive factor is whether the entire reprocessing process is mastered, validated, documented in a comprehensible manner and monitored on a risk-based basis.

Why was revision necessary?

Since the last fundamental revision, the framework conditions have changed considerably. Internationally, transmissions of pathogens through endoscopes have been repeatedly described. Particularly complex endoscopes such as duodenoscopes, echoendoscopes, bronchoscopes or cystoscopes can pose a particular challenge due to their design.

In addition, there are technical developments in endoscopes, new findings on biofilms and multidrug-resistant gram-negative pathogens, as well as increased requirements for validation, documentation and operator responsibility. The outpatient sector is also becoming increasingly important, so that the requirements for both inpatient and outpatient facilities must be formulated clearly and practically.

The new Annex 8 therefore pursues three central objectives:

1. Increased patient safety
2. Stronger process orientation
3. Risk-based quality assurance

This makes it clear that microbiological sampling is not an end in itself. It is an instrument for assessing process safety.

What is fundamentally new?

Previous practice in many institutions was strongly oriented towards periodic microbiological checks. The new Annex 8 is broader. It combines product control on the real endoscope with process control, validation and regular requalification.

In particular, the following are new or clearly specified:

- the scope of application for all inpatient and outpatient facilities,
- the emphasis on operator responsibility,
- the greater integration of risk assessment,
- the requirements for personnel qualifications,
- the consideration of complex endoscope types,
- the handling of loaned and repaired endoscopes,
- the definition of warning and intervention limits,
- the description of indicator microorganisms,
- the recommendation of sensitive sampling methods,
- the informative appendix on endocavitary ultrasound probes.

This turns pure control logic into a comprehensive quality concept.

Product control and process control

A central difference to the previous consideration lies in the clearer separation and simultaneous dovetailing of product controls and process controls.

Product control checks the reprocessed real medical device. It provides information as to whether the endoscope is free of relevant microbiological contamination and visible or detectable residues after reprocessing.

Process control, on the other hand, evaluates the performance of the preparation process. These include, for example, tests on cleaning performance, overall process performance and microbial reduction. Both levels complement each other.

Practice-relevant consequence

In practice, this means that a single inconspicuous microbiological finding is not sufficient to assess the entire process as safe. Likewise, a conspicuous finding must not be considered in isolation. The systematic analysis of the causes is crucial.

A hygiene management system that only samples endoscopes annually and stores the results no longer sufficiently meets the requirements of the new Annex 8. What is required is a comprehensible concept consisting of validation, requalification, routine checks-controls, risk assessment, assessment of findings and corrective measures.

Warning and intervention limits

An important innovation is the clear description of warning and intervention limits. This makes the evaluation of microbiological and chemical test results more structured. A **warning limit** is understood as an early warning signal. If it is exceeded, measures to stabilize the process must be initiated and their effectiveness checked.

An **intervention limit**, on the other hand, requires immediate action. If the intervention limit is exceeded, if the total number of microorganisms is exceeded or if defined indicator microorganisms are detected, the affected endoscope must be locked. It must then be clarified whether the cause lies in the reprocessing process, in the washer disinfectant for endoscopes, in drying, in storage, in handling or in the endoscope itself.

Practice Box

Conspicuous findings must not be processed according to the principle of "reprocessing and sampling again". The decisive question is: Why is the finding conspicuous? Only the root cause analysis turns a laboratory finding into a quality assurance measure.

Indicator organisms and their significance for root cause analysis

The new Annex 8 strengthens the importance of microbiological findings in the context of quality assurance. The focus is not only on the total number of pathogens. Rather, certain microorganisms can provide indications of possible weak points in the treatment process and support root cause analysis.

The recommendation describes various groups of microorganisms, the detection of which must be considered in the context of the risk assessment. These include Enterobacteriales, *Enterococci*, Pseudomonads, other non-fermenters, green-staining *Streptococci* and *Staphylococcus aureus*. In addition, depending on the risk assessment, legionella or mycobacteria can also be important.

The detection of certain microorganisms can provide clues to possible causes of contamination. For example, water-associated microorganisms such as pseudomonas can indicate problems with the water quality, final rinsing, drying or storage. The detection of skin or mucous membrane flora, on the other hand, can provide indications of recontamination during handling or storage.

Appendix 8 makes it clear that microbiological findings must always be evaluated in the overall context of the treatment process. Although individual pathogens allow indications of possible sources of error, they do not replace the systematic analysis of all process steps. The aim is not only to document abnormalities, but also to identify and permanently eliminate the underlying causes.



Flush-Brush-Flush Process

The description of sensitive sampling strategies is particularly relevant in practice. The combination of rinsing, brushing and re-flushing – the so-called flush-brush-flush method – is described as a sensitive method to better capture sewer systems.

The advantage is that not only free-floating microorganisms are flushed out, but also adhering contamination can be better mobilized. Especially in the case of complex sewer systems, this can increase the informative value of microbiological investigations.

For brush-accessible channels, sampling of multiple channels can be done in one merged sample. Alternatively, separate sampling of individual sewers is still possible. In the event of abnormal findings, targeted re-sampling of individual sewers may be necessary to narrow down the source of contamination.

Practice-relevant consequence

Facilities should review their previous sampling concepts. In the future, it will not be enough to sample “one channel” across the board. The decisive factor is whether the existing channel systems of the respective endoscope type are recorded in a risk-oriented and methodologically appropriate manner.

Equally important is the selection of suitable brushes. The brush diameter should be matched to the respective channel lumen to ensure sufficient contact with the channel wall. This is the only way to reliably mobilize adhering residues and microorganisms and ensure meaningful sampling and cleaning. Manufacturer's information on brush type and diameter must be observed.

Inspection frequencies and risk-based adjustment

The new Appendix 8 recommends periodic random product inspections to test the overall process effect. At least one endoscope of each endoscope product family used is to be tested quarterly. In addition, each endoscope should be checked at least once a year.

In the case of inconspicuous results, the test interval can be extended based on a risk analysis, especially in the case of mechanical chemothermal processing in the washer-disinfector for endoscopes. In the case of manual or semi-automated processes, shorter inspection intervals must be specified.

In practice, this means that inspection intervals must be justified. The blanket adoption of old intervals without a documented risk assessment is no longer technically sufficient.

Dealing with abnormal findings

Dealing with complaints is one of the most important points for practical implementation. The new Annex 8 requires a structured approach.

If a warning limit is exceeded, measures must be determined immediately, implemented and confirmed by re-examination. Whether the endoscope can continue to be used until then must be decided based on a risk assessment.

If an intervention limit is exceeded, if the total number of microorganisms is exceeded or if indicator microorganisms are detected, the affected endoscope must be closed immediately. It is then necessary to check whether there is a systemic process error or an endoscope-specific problem.

Possible causes can be:

- insufficient pre-cleaning,
- incorrect manual cleaning,
- Defect in the endoscope,
- Biofilm formation,
- Problems in the process of the washer-disinfector for endoscopes,
- insufficient final rinse,
- inadequate drying,
- recontamination during storage or transport,
- Handling errors,
- unsuitable or incorrectly applied process chemicals.

Practice Box

The most important question after a conspicuous finding is not: “When is the follow-up sample negative?”

The most important question is: “Is the problem endoscope-specific or process-related?”

Part 2, including information on rental endoscopes and ultrasound probes, will be published in the next issue of aseptica.

References

1. KRINKO/BfArM. Appendix 8: Hygiene requirements for the reprocessing of thermolabile endoscopes. Federal Health Gazette, 2024. DOI: 10.1007/s00103-024-03942-1.
2. KRINKO/BfArM. Hygiene requirements for the reprocessing of medical devices. Federal Health Bulletin-Gazette, 2012; 55:1244–1310.
3. DIN EN ISO 15883. Washer-disinfectors – Requirements, definitions and test methods.
4. Medical Devices Operator Ordinance, MPBetreibV.
5. DIN EN 16442. Storage cabinet with controlled ambient conditions for reconditioned thermolabile endoscopes.
6. Wehrl, M. et al.: Flush-Brush-Flush Method for Hygienic-Microbiological Inspection of Reprocessed Endoscopes. Zentralsterilization, 2022.
7. Pineau L, Alfa M, Radix C. Endoscope sampling and culturing methods. Journal of Hospital Infection, 2024.



Validation of manual cleaning and high-level disinfection of semi-critical ultrasound probes

Niklas Wilhelmi

The reprocessing of semi-critical ultrasound probes has become increasingly important in clinical practice. In particular, transvaginal and transrectal ultrasound probes require stringent cleaning, disinfection, and process reliability due to their direct contact with mucous membranes [1–4].

Ultrasound examinations are among the most frequently performed diagnostic procedures in hospitals and outpatient clinics. At the same time, awareness of the potential infection risks associated with inadequately reprocessed medical devices continues to grow. International studies and national recommendations have shown that contamination of probe surfaces may occur even when protective probe covers are used. Microperforations or unnoticed damage to these covers often remain undetected during routine clinical use and may facilitate the trans-

mission of microorganisms or organic residues [1–4].

Against this background, transvaginal and transrectal ultrasound probes are classified as semi-critical medical devices according to the recommendations of the German Commission for Hospital Hygiene and Infection Prevention (KRINKO) and the German Federal Institute for Drugs and Medical Devices (BfArM). Consequently, these devices require appropriate and validated reprocessing procedures, including thorough cleaning followed by High-Level Disinfection (HLD) [5].

In addition to the efficacy of the disinfection process itself, increasing attention is being paid to the quality of the preceding cleaning step. Organic residues such as blood, secretions, and protein contamination may impair the effectiveness of subsequent disinfection. Manual cleaning therefore represents an essential component of the overall reprocessing workflow [5].

The requirements for reprocessing semi-critical ultrasound probes are defined by the KRINKO/BfArM recommendations as well as the Guideline for the Validation of Manual Cleaning and Manual Chemical Disinfection of Medical Devices published by DGSV, DGKH, and AKI. The guideline requires manual reprocessing procedures to be reproducible, standardized, and fully traceable. Particular emphasis is placed on standardized operating procedures (SOPs), suitable cleaning agents, and verifiable testing methods [5].

According to the guideline, the SOP provided by the healthcare facility should be evaluated under reproducible conditions. The described cleaning procedure should be performed at least three times. This may be carried out using either identical or different probe types. In addition, the validation should be performed by two independent operators to assess operator-related variability within the manual cleaning process [5].

Validation of the Manual Cleaning Process

In the present validation project [6], transvaginal ultrasound probes were manually cleaned according to a predefined SOP using an enzymatic detergent. To evaluate cleaning performance, the probes were first contaminated with standardized sheep blood in order to simulate clin-

Author

Niklas Wilhelmi
Service Engineer und Commercial Ops Lead
Nanosonics Europe GmbH
Poppenbütteler Bogen 66
22399 Hamburg, Germany
n.wilhelmi@nanosonics.com

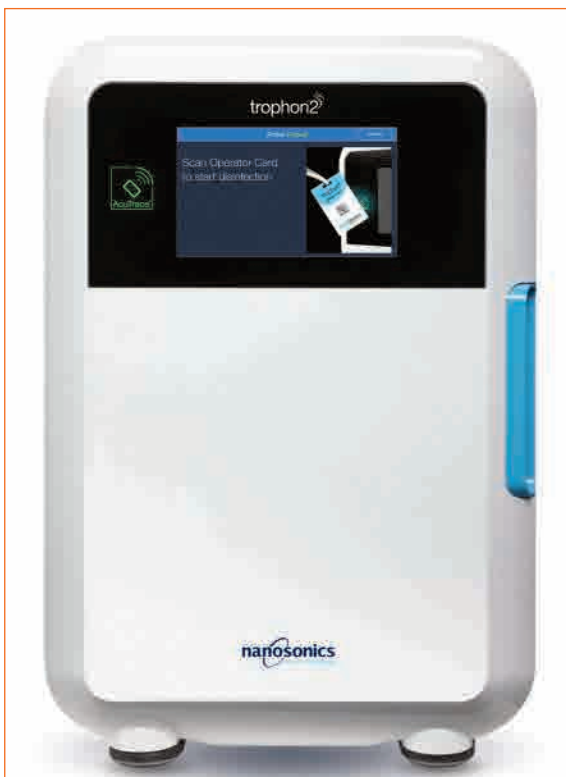


Fig. 1: trophon®2 system for automated High-Level Disinfection of semi-critical ultrasound probes using hydrogen peroxide.



ically relevant organic soil [6]. Manual cleaning was subsequently performed by trained operators in accordance with the defined process parameters [6].

Residual organic contamination was then assessed using an SDS-based extraction method. The extracted solutions were analysed in a laboratory to quantify remaining protein residues. According to the predefined acceptance criteria, the total residual protein load on the medical device had to remain below 100 µg [5, 6].

The validation was carried out by multiple operators to account for operator-related variability during routine clinical practice and to evaluate the reproducibility of the manual cleaning procedure [5, 6].

Following successful validation of manual cleaning, High-Level Disinfection was performed using the automated trophon®2 system based on hydrogen peroxide technology. Requalification of the disinfection process was subsequently performed using three biological indicators containing *Geobacillus stearothermophilus*. In addition, critical process parameters such as pressure and temperature were evaluated to confirm reproducible disinfection performance [6, 7].

Results and Clinical Significance

The validation study demonstrated that the predefined acceptance criteria for residual protein contamination following manual cleaning were consistently achieved [6]. Furthermore, the investigation confirmed that the implementation of a clearly defined Standard Operating Procedure (SOP) enabled reproducible cleaning performance across different operators, thereby minimizing user-dependent variability [6].

The combination of standardized manual cleaning and automated High-Level Disinfection therefore provides a reliable, reproducible, and fully validated reprocessing workflow for semi-critical ultrasound probes under routine clinical conditions [6, 7].

Particularly for transvaginal and transrectal ultrasound probes, an integrated approach combining cleaning, High-Level Disinfection, and process validation is becoming increasingly important. In addition to fulfilling regulatory requirements, this approach enhances patient safety through improved process reliability, standardized operator performance, and comprehensive documentation of every stage of the reprocessing workflow [5–7].

Practical Relevance and Implementation

The validation of manual cleaning procedures presents both organizational and methodological challenges for many healthcare facilities. In particular, the standardiza-

tion of manual cleaning steps and the laboratory-based assessment of cleaning efficacy require a structured approach that complies with current guidelines and regulatory requirements [5].

Successful implementation of validation projects therefore requires not only expertise in infection prevention and regulatory compliance but also standardized technical process support and comprehensive documentation of every stage of the reprocessing workflow [5, 6].

By validating manual cleaning in combination with automated High-Level Disinfection, healthcare facilities can establish a robust, reproducible, and auditable reprocessing process. Such validated workflows not only support compliance with regulatory requirements but also contribute to improved patient safety, optimized quality management, and increased confidence in the reprocessing of semi-critical ultrasound probes.

References

1. Buescher DL et al. Disinfection of transvaginal ultrasound probes in a clinical setting: comparative performance of automated and manual reprocessing methods. *Ultrasound Obstet Gynecol.* 2016;47:646–651.
2. Laurilla-Niemann DLR, Amosco MD. Evaluation of Current Disinfection Practice of Transvaginal Ultrasound Probes in a Philippine Tertiary Referral Hospital: A Comparative Study on the Performance of Manual Reprocessing Methods. *Acta Medica Philippina.* 2022. doi:10.47895/amp.vi0.3556.
3. Oide S et al. Incidence of residual bacterial contamination of transvaginal ultrasound probes. *J Med Ultrason.* 2019;46:475–479.
4. Kac G et al. Evaluation of Ultraviolet C for Disinfection of Endocavitary Ultrasound Transducers Persistently Contaminated despite Probe Covers. *Infect Control Hosp Epidemiol.* 2010;31:165–170.
5. KRINKO/BfArM. Hygiene Requirements in the Reprocessing of Medical Devices. *Bundesgesundheitsblatt.* 2012;55:1244–1310. Supplemented by the current DGSV, DGKH, AKI Guideline for the Validation of Manual Cleaning and Manual Chemical Disinfection of Medical Devices.
6. Wesch R, Wilhelmi N. Validation Report on the Manual Cleaning of Semi-Critical Ultrasound Probes at St. Georg Hospital Leipzig. WHC – Wesch Healthcare Consulting. Leipzig, 2026. Unveröffentlichter Validierungsbericht.
7. Wesch R, Wilhelmi N. Requalification Report of the trophon®2 System at St. Georg Hospital Leipzig. WHC – Wesch Healthcare Consulting. Leipzig, 2026. Unpublished requalification report.



Disinfection of nitrile gloves in a patient room with contact isolation

Elvira Schäfer

As part of a research project for the continuing education program to become a hygiene specialist (HFK), a study was conducted to determine whether nitrile gloves can be effectively disinfected using alcohol-based hand sanitizers without compromising their protective function. The aim of the study was to assess both the microbiological effectiveness of the disinfection and the gloves' impermeability and material durability after repeated contamination and disinfection.

Test Procedure for the Microbiological Test Series

A standardized test procedure was conducted to evaluate the disinfectant's effectiveness. First, the fingertips of the nitrile gloves were contaminated with 1 mL of a microbial suspension of the multidrug-resistant pathogens MRSA, ESBL, and VRE. The suspension was distributed evenly across the fingertips to ensure contamination was as uniform as possible.

After a drying time of one minute, the bacterial count was determined using a contact plate method. Without changing the gloves, the fingertips were then recontaminated with another 1 mL of bacterial suspension. After another one-minute drying period, 3 mL of an alcohol-based hand sanitizer was applied to the contaminated gloves and carefully distributed.

The effectiveness of the disinfection was then tested using three different test organisms. In each case, the contact time for the disinfectant was 30 seconds.

Results of the microbiological test series

The first two test series were conducted using low bacterial counts (10^1 to 10^4 colony-forming units) of the multidrug-resistant pathogens MRSA, ESBL, and VRE. After disinfection, no pathogen growth was detected on the contact plates. It was notable, however,

that no growth was observed on the culture plates even for the contaminated but not-disinfected nitrile gloves.

The manufacturing process of the nitrile gloves was examined as a possible influencing factor. Due to the manufacturing process, chlorine residues are present on the glove surface. These residues exhibited a growth-inhibiting effect on a *Bacillus subtilis* inhibition plate, as evidenced by the formation of an inhibition zone. It can therefore be assumed that these chlorine residues influenced the microbiological results of the first two test series.

In the third test series, the bacterial load was significantly increased. Here, contamination was introduced using a very high concentration of approximately 10^{12} bacteria per fingertip. Under these conditions, the inhibitory effect of the chlorine residues was overcome, making pathogen growth detectable via the contact plate method. This allowed for a reliable assessment of the actual effectiveness of the subsequent disinfection.

The disinfectants "Sterilium" classic pure" and "Aseptoman" fragrance-free" were used for disinfection. Both disinfectants wet the nitrile gloves evenly and demonstrated very good material compatibility. Even after the fifth

disinfection, no damage to the gloves was observed. At the same time, the disinfection was shown to have very good microbiological efficacy.

Results of the leak test

In addition to microbiological efficacy, the study investigated whether repeated disinfection impairs the protective function of nitrile gloves. A total of 60 nitrile gloves from the Dermagrip® and Meditrade® brands were tested for this purpose.

Author

Elvira Schäfer
HFK am Hygieneinstitut Klinikum Stuttgart
Kriegsbergstraße 60
70174 Stuttgart, Germany
e.schaefer@klinikum-stuttgart.de



Fig. 1: Imprints of contaminated and subsequently disinfected gloves (top row) and contaminated gloves (bottom row—positive control) on selective plates containing MRSA agar after 48 hours at $35 \pm 2^\circ\text{C}$ in an incubator.



The gloves were each disinfected five times for 30 seconds using “Sterilium® classic pure” or “Aseptoman® fragrance-free” and worn for a total of 30 minutes. This was followed by a test for leaks and material damage via pressure measurement over 30 minutes at approximately 15 mbar (Fig. 3).

No significant leaks or perforations were detected in any of the gloves tested. The material structure and tactile sensitivity were also preserved. Only slight wrinkling of the gloves was observed, but this was deemed clinically insignificant.

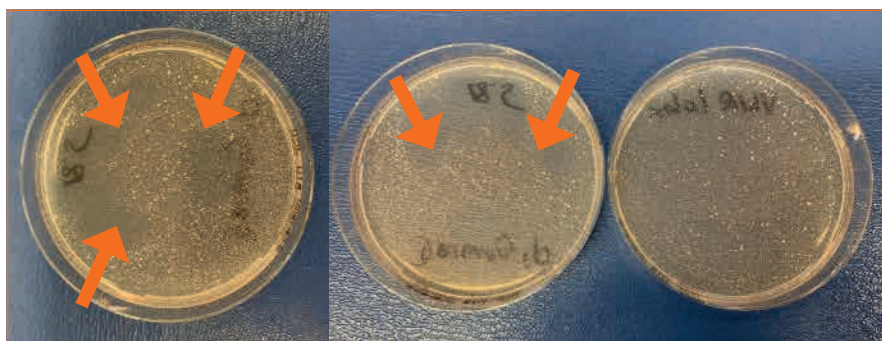


Fig. 2: Detection of traces of chlorine on nitrile gloves after 24 hours at 36 °C in an incubator → small inhibition zones form. The traces of chlorine on the nitrile gloves can be inactivated with sodium thiosulfate; afterward, no inhibition zones are visible on the inhibition plates.

Conclusion

The results of the study show that nitrile gloves can be safely and effectively disinfected using appropriate alcohol-based hand sanitizers. The gloves used retained their integrity and protective function even after repeated disinfection. At the same time, an effective reduction in microbial load was demonstrated.

The results suggest that patient-specific disinfection of nitrile gloves, under defined conditions, can contribute to infection prevention. Furthermore, this approach could improve adherence to the “Five Moments of Hand Hygiene” as recommended by the WHO, since gloves would not necessarily need to be changed after every single patient contact if disinfected as indicated. This could both facilitate the practical implementation of hygiene measures and increase compliance among healthcare personnel in everyday clinical practice. However, this requires the use of suitable glove materials and compatible disinfectants, as well as adherence to current hygiene recommendations.



Fig. 3: Pressure measurement over 30 minutes at approximately 15 mbar.



News from the Industry

30 Years of ebro Routine and Validation Data Loggers

Standards-Compliant Process Monitoring According to DIN EN ISO 15883 and DIN EN ISO 17665

The compliant reprocessing of medical devices is now based on a consistently process-oriented approach. Central to this are the requirements of DIN EN ISO 15883 for washer-disinfectors (WDs) and DIN EN ISO 17665 for steam sterilization. Both standards require objective evidence of reproducible and effective processes under real operating conditions. The necessary metrological foundation for this is provided by routine and validation data loggers, which have become integral components of modern validation concepts.

Normative Framework: Verification Instead of Assumption

DIN EN ISO 15883 and DIN EN ISO 17665 do not require indirect evidence but rather the **physical verification of critical process parameters**.

Key requirements include:

- Continuous measurement of temperature, time, and, where applicable, pressure
- Verification of uniformity throughout the load
- Reproducible process execution
- Documented evaluation within IQ / OQ / PQ activities
- Regular routine monitoring and requalification.

This makes one point clear: **Process efficacy must be measured, not assumed.**

Differentiation: Validation Loggers vs. Routine Loggers
Standards and industry guidelines clearly distinguish between two applications:

Validation Loggers

Used during initial validation and performance qualification (PQ) as well as requalification.

- High-precision, often multi-channel measurement systems
- Placement in worst-case locations
- Complete process mapping
- Basis for process approval and release

Routine Loggers

Used during daily operation for ongoing process monitoring.

- Regular verification of process consistency
- Spot checks or cyclical monitoring
- Early detection of process deviations
- Support for periodic requalification

Both systems are normatively linked:

Validation establishes the reference process – routine monitoring confirms its ongoing stability.

DIN EN ISO 15883: The A_0 Value as a Key Performance Criterion

For washer-disinfecting processes, the A_0 concept is the primary evaluation criterion for thermal disinfection.

The A_0 value describes:

- The thermal impact on microorganisms
- As a function of temperature and exposure time
- Referenced to a temperature of 80 °C

Practical Implications for Measurement Technology:

- Complete and highly time-resolved temperature recording
- Accurate representation of heating, holding, and cooling phases
- Multiple measuring points for temperature distribution analysis

Typical Requirement:

- $A_0 \geq 3000 \rightarrow$ the common benchmark for semicritical medical devices in Germany and many European countries.

Determination of the A_0 value is only possible on the basis of valid measurement data and therefore directly depends on the use of suitable data loggers.



DIN EN ISO 17665: Sterilization Validation and Physical Evidence

In steam sterilization processes, DIN EN ISO 17665 requires:

- Precise recording of temperature and pressure profiles
- Verification of saturated steam conditions
- Assessment of exposure times at sterilization temperature
- Reproducibility of all process cycles.

Again, the principle is clear:

Validation loggers provide the basis for performance qualification, while routine loggers and electronic Bowie-Dick tests ensure continuous process safety.

In conjunction with EN 285 (large sterilizers) and EN 13060 (small sterilizers), additional requirements apply for process monitoring and functional verification, including Bowie-Dick testing.

Guideline for the Validation of Automated Cleaning and Disinfection Processes (DGKH, DGSV, AKI) Practical implementation of the standard requirements has been further specified through the German guideline for validation of automated reprocessing processes.

- Minimum requirements for measurement systems
- Calibration and accuracy requirements
- Number and positioning of loggers
- Evaluation of temperature distribution within the chamber.

It clearly states that: **Only suitable, validated, and calibrated measurement systems may be used for process evaluation.**

Technological Development: 30 Years of Routine and Validation Data Loggers

Against this regulatory background, ebros systematically advanced its data logger technology toward validation applications. A key driving force was **Wolfgang Klün**, who, as Managing Director, recognized the strategic importance of validation data loggers at an early stage and actively promoted their development.

Major Milestones:

- **1996 – EBI 125A Series**
Early generation of specialized validation loggers for thermal process applications.
- **2006 – EBI 10 Series**
Establishment of data loggers for validation and routine monitoring in washer-disinfectors and sterilizers.



- **2018 – EBI 12 Series**

Introduction of highly precise sensor technology and support for advanced validation applications.

- **2012 – EBI 16 Bowie-Dick System**

Elektronischer Bowie und Dick Test

- **2026 – New Data Logger Series EBI 111**

Today, these systems fully cover the requirements of both validation and routine process monitoring.

Software Validation and Data Integrity

Standards compliance does not end with measurement. Equally important is the **validated evaluation** of the collected data.

Requirements according to international standards and GMP-oriented environments include:

- Automatic evaluation of cleaning and disinfection processes
- Automatic calculation of A_0 values and relevant process parameters
- Complete data traceability
- Audit readiness.

The TÜV SÜD-certified software platform ensures that evaluation and documentation meet applicable regulatory requirements.

Conclusion: Routine and Validation Data Loggers as a Key Element of Compliance

The requirements of DIN EN ISO 15883 and ISO 17665 can only be fulfilled in practice through the systematic use of:

- Validation loggers for performance qualification and requalification
- Routine loggers for continuous process monitoring

Together, they provide:

- The basis for regulatory compliance and objective proof
- A reliable instrument for process monitoring
- A key prerequisite for audit readiness.

The development of ebros systems exemplifies the transformation of process monitoring technology: **from simple measuring devices to integral components of validated and continuously monitored reprocessing processes.** Over the past 30 years, this has resulted in a technology platform that is now established as an industry standard for validation and routine monitoring – **transforming ebros from a specialized supplier into a leading solution provider in the field of validation measurement technology.**



We warmly invite you to the 2026 DGSV conference in beautiful Wolfsburg, where we will also be celebrating **30 years of DGSV!**

We offer you

- interesting presentations and discussions
- workshops and discussion forums for active participation
- a parallel session for personnel in outpatient settings.

Join us at the conference and update your knowledge in a pleasant atmosphere! We look forward to seeing you there!

Board of DGSV e.V.

Simultaneous translation of the presentations into English!

The programme is available at www.dgsv-kongress.de.

27th WFHSS Congress in Belgrad

The 27th World Congress on Sterilisation will take place in Serbia from 21 to 24 October 2026.



The WFHSS and the Serbian Association for Sterilisation and Disinfection are delighted to welcome you to the 27th World Congress on Sterilisation, which will take place in Belgrade, the capital of Serbia. In collaboration with leading figures in the field of sterilisation, scientific experts and innovators from around the world, we have put together an exciting scientific programme. Through insightful presentations and inspiring ideas, we aim to drive the further development of reprocessing practices and ensure the highest standards of safety and efficacy. We are confident that this congress will foster collaboration, creativity and progress in the field of sterilisation. Let us set this process of discovery in motion together! The congress offers a fantastic opportunity to

catch up on the latest findings from the world of reprocessing. It is also a great chance to catch up with old friends, make new ones and expand your network!

We look forward to seeing you in Belgrade!

Information, programme and registration at www.wfhss-congress.com

**Clean, Disinfect,
Protect**

what's vital!

Entdecken Sie jetzt unsere Auswahl
an gebrauchsfertigen Reinigungs- und
Desinfektionstüchern



Incidin OxyWipe S



Incidin Alcohol Wipes



Incidin OxyWipe NG