



Dear readers,

Peracetic acid delivers safe disinfection and has always been the right solution for maintaining hygiene standards. Find out how it became established in endoscope processing and what the alternatives and trends are in an interview with the expert Dr Biering, starting on p. 1.

On p. 3, we explore hazard symbols and safety instructions used for labelling chemicals. In the first part of our series, Dr Uwe Borchert, Dr. Weigert, Hazard Management department, explains GHS hazard symbols and the globally harmonised system for labelling chemicals.

The Dr. Weigert "Sustainability Team" started work at the beginning of the year, and soon received an accolade: with an EcoVadis silver rating, Dr. Weigert is among the top 25% of the companies assessed. Read more on p. 4.

Our newsletter is full of important information for you and matters a lot to us – but so does the environment. Subscribe to electronic copies of our publications online now – it's easy, and ensures a better future for us all. We explain just how easy it is on p. 4.

Enjoy the newsletter!

Best regards

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Systematic Hygiene

## Endoscope Processing – What Does the Future Hold?

### An Interview with Dr Holger Biering

*Dr Holger Biering is a chemist and a pioneer in the use of peracetic acid in the processing of flexible endoscopes. Having studied this agent in the former GDR, he applied his knowledge to establish the use of liquid peracetic acid in endoscope processing. In 2020/21, he chaired the AKI working group that produced the brochure "Value-Preserving Processing of Flexible Endoscopes".*

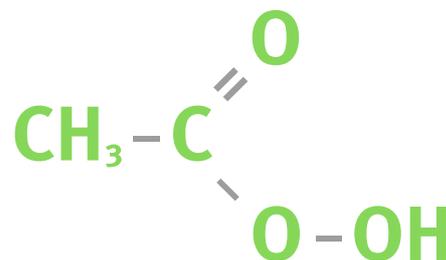
*We asked the expert Dr Biering how he sees the future of endoscope processing.*

Dr Biering, peracetic acid had a bad reputation in the GDR. Why was that, and what prompted the huge upturn in the reputation of peracetic acid?

The bactericidal and sporicidal effect of peracetic acid was first described 120 years ago. However, it took over 60 years for it to become widely used following in-depth investigations. In subsequent years, application areas in the food processing industry and healthcare were developed. If peracetic acid is not used in closed systems, it can meet resistance from users because of the smell. This could have been the reason for a negative response in some quarters.

How have the potential uses evolved in the medical sector?

I have been working with this agent since I started developing disinfectants for the healthcare sector 30 years ago. Initially, it was used in liquid form for disinfection of dialysis systems and in powdered formulations for processing surgical instruments. In powdered formulations, the peracetic acid is released when the powder is dissolved in water and is then present as a salt in an alkaline solution. The development of "bleach activators"



*Peracetic acid is increasingly used in the processing of flexible endoscopes.*

for detergents provided major impetus here. "Neutralised peracetic acid" was developed later. As a result, this agent was used all over the world in liquid form for the first time in final disinfection of endoscopes in washer disinfectors.

Will sterilisation of gastroscopes, colonoscopes, duodenoscopes and bronchoscopes become more prominent in the medium term?

At the beginning of 2022, the US standardisation organisation AAMI published the revised version of its "Standard for Endoscope Processing", which recommends the development of disinfection through to sterilisation of the endoscope. The reason given for this is an "assumed" higher safety margin for sterilisation. In my view, this general statement holds true only if the sterilisation process for endoscopes is demonstrably effective, taking into account the structural features such as length and diameter of the channels, material compatibility and the level of residual inorganic and organic soiling after cleaning. I am not aware of any investigations that prove the effectiveness of the low-temperature sterilisation process with H<sub>2</sub>O<sub>2</sub> under requirements comparable to those that apply

in terms of the level of soiling when testing disinfectants in clean conditions.

**The AAMI standard that you mentioned recommends the use of borescopes for quality control of endoscope cleaning. As a co-author of this standard, what potential uses for borescopes do you see in the near future?**

Borescopes are flexible endoscopes that used to be predominantly used in technical fields for examining cavities. I think it's excellent that we can now assess individual channels of the endoscopes with borescopes after cleaning/processing. However, I see a problem in the interpretation of the findings and their allocation to the steps and parameters of the processing process. Further extensive scientific studies should be conducted regarding this. At present, I don't see a general use of borescopes for routine checks or in the validation or requalification of manual or automated processing processes for endoscopes.

**Do you think both disinfection agents – glutaraldehyde and peracetic acid – will continue to have a place in endoscope processing in the medium term?**

Both agents are highly effective, and I must mention a third: orthophthalaldehyde. However, some European countries have decided in favour of peracetic acid. Glutaraldehyde cannot be used there, e.g. in France or the UK. In other countries, e.g. Germany, peracetic acid and glutaraldehyde are used in parallel. However, there is a trend towards peracetic acid in all countries.

**Is a new agent or molecule conceivable in endoscope disinfection/sterilisation in future?**

It is 30 years since a new disinfection agent went on the market. This is due to the high costs involved in ensuring that a new agent meets the requirements of the German Chemicals Act and medical device legislation. The ambitions and options of companies are limited when it comes to developing a new molecule. In the days when new agents were still being developed, they came from other sectors such as plant protection research. The barriers and costs are huge. For instance,

in healthcare, it is almost impossible to recoup the investment costs. That's why a new disinfectant agent for the medical sector is unlikely to be found.

**What about hydrogen peroxide? Does H<sub>2</sub>O<sub>2</sub> have any effectiveness gaps, or are there other reasons why it is ignored?**

Hydrogen peroxide has long been known as an agent. Although it has no effectiveness gaps, it must be used at a higher concentration. However, H<sub>2</sub>O<sub>2</sub> alone is less effective than a combination of peracetic acid and H<sub>2</sub>O<sub>2</sub>. When I say peracetic acid, I always mean a combination of the two agents. In peracetic acid products, there is a balance between acetic acid, H<sub>2</sub>O<sub>2</sub> and peracetic acid.

**What do you think about the trend towards disposable endoscopes? Do you see opportunities to improve sustainability in endoscope processing?**

I find it worrying that some companies are really pushing the use of disposable endoscopes. The use of disposable endoscopes instead of processable ones wastes valuable resources and is bad for the environment. Endoscopes can be processed safely if this is done on the basis of a validated procedure. The recommendations of the endoscope manufacturers regarding pre-treatment ahead of the automated process and regarding storage must be taken into account here. Disposable endoscopes have their place in emergencies or extreme situations if safe processing or a processed endoscope are unavailable. But widespread use of disposable endoscopes is unsustainable.

**What trends do you see among endoscope-cleaning products?**

The "push-pull" method would mark a massive improvement in cleaning performance. This principle is used in tube systems in which the liquid is guided back and forth by the application of air. These air/water transitions have an additional mechanical effect that significantly boosts cleaning performance. This process is already available. Its integration into an endoscope washer-disinfector would be a major advance in the automated processing of endoscopes. Processing could also be made safer this way.

**What trends do you see among endoscope-cleaning products? Will mildly alkaline cleaning of flexible endoscopes also catch on internationally and replace pH-neutral cleaning?**

In both pH ranges, some cleaning agents have better performance and material compatibility than others. With pH-neutral cleaning agents, it is crucial that the enzymes have a sufficient exposure time so that they can attain their optimum performance. I doubt that this is the case with automated processing if only 3 or 5 minutes are available for the cleaning step. In this respect, mildly alkaline cleaning agents are less affected by the restriction that has to be taken into account with the enzymes.

**Dr Biering, thank you for talking to us.**

*The interview was conducted by Daniela Schrickler, German Beck and Guido Merk.*



**Dr Holger Biering, Holger Biering Consulting**

# Working Safely with Process Chemicals

## Hazard Symbols for Classifying and Labelling Chemicals – Part 1

Everything was better in the old days, they say. In the old days, our overnight “elves”, as they were known in Cologne, used to do our work while people slept. The Industrial Revolution, 200 years of science and technical advances have gradually displaced our elves. In their place – like the Sorcerer’s Apprentice in Goethe’s story – we have invoked new spirits to help us in our work behind the scenes. These modern-day elves have a name: “Energy”.

Every cleaning process ultimately boils down to the sum of three types of energy: firstly, the mechanical energy expended by brushing, then the energy obtained from the increased temperature, and thirdly, the application of the energy stored in the chemical bonds of the tensides and disinfectants.

Our sensory organs intuitively teach us to give energy the respect it deserves. Humans and animals have sensory organs for the energy released in thunder, lightning and heat. We have not learned to respect the chemically stored energy contained in man-made chemicals, and we must learn to handle it safely so that we don’t end up like the unfortunate sorcerer’s apprentice.

Communication of hazards is important. To be effective, it should clearly address the most highly developed sense in humans, namely sight and the understanding of language. That is why the globally

harmonised system (GHS) for labelling chemicals uses a system of symbols/pictograms. There are a total of nine black pictograms on a white background in a diamond with a red border, each of which is intended to symbolise the type of hazards posed by substances.

An corrosive, irritant, flammable substance that is harmful to the environment is described below as an example (see Fig. 1).

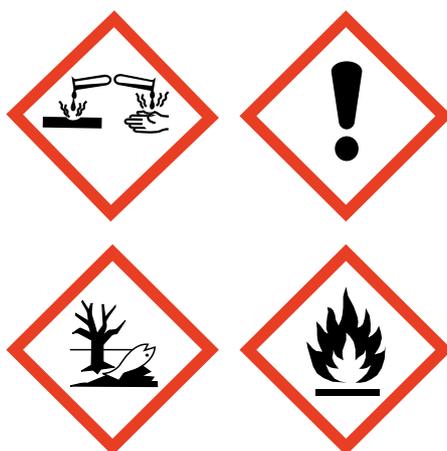


Fig. 1, clockwise: GHS symbol no. 5 (corrosive), no. 7 (irritant), no. 2 (flammable), no. 9 (harmful to the environment)

The hazards shown in the pictograms are repeated on the label in short, concise H statements (H for hazard). Users are given help in dealing with the hazard, as the P statements (P for precaution) also printed

on the label provide suggestions for protective clothing, safe storage and disposal (see Fig. 2).

Each of the classifications described so far relates to the product concentrate in the container. The diluted application solutions produced from this are mostly exempt from labelling requirements.

Along with the safety data sheets, the information from the German Social Accident Insurance Institution (DGUV) and the Technical Rules for Hazardous Substances (TRGS) issued by the German Federal Institute for Occupational Safety and Health (BAuA), the described labelling makes the chemical energy stored in cleaning agents and disinfectants easy to manage and safe to handle for users – because not everything was better in the old days after all.

Author: Dr Uwe Borchert, chemist, Dr. Weigert Hazardous Substance Management

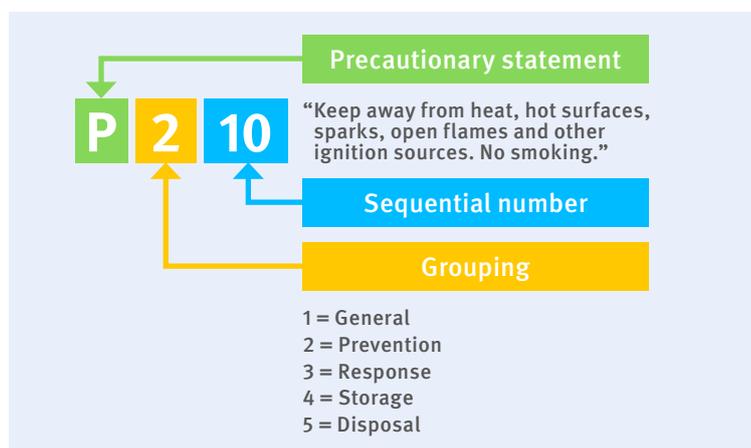
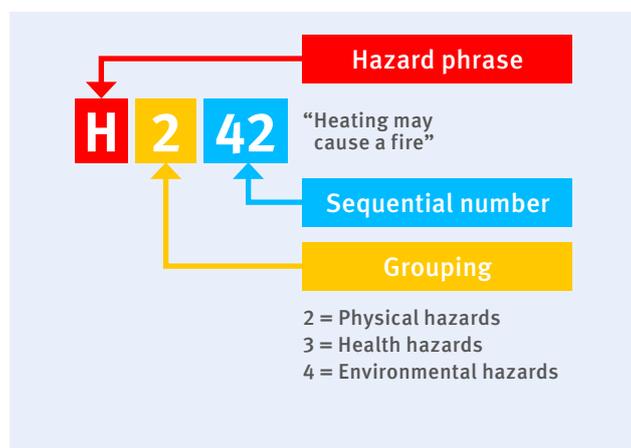


Fig. 2: Diagrammatic representation of the labelling of cleaning agents and disinfectants based on the example of a hazard phrase and a precautionary statement

# Forward-Looking Sustainability Principle at Dr. Weigert



This year, to supplement the 14001 environmental audit, Dr. Weigert formed a “Sustainability Team” to promote this particular subject even more intensively and to support our customers in their sustainability efforts in the best way possible. Recently, following analysis of various providers, our “Sustainability Team” chose the agency EcoVadis to rate our sustainability practices.

## EcoVadis – Global Provider of Sustainability Ratings

EcoVadis is one of the world’s largest and most reliable providers of sustainability ratings for companies and has built up a global network of more than 90,000 assessed companies. The aim of the CSR (Corporate Social Responsibility) rating from EcoVadis is to assess the quality of a company’s CSR management system. The assessment concentrates on 21 criteria, divided into four overall subject areas:

- Environment
- Fair business practices
- Sustainable procurement
- Work practices and human rights

Through combined efforts and working according to a tight schedule, Dr. Weigert answered a questionnaire with 80 main questions and numerous subquestions and uploaded 55 documents on the EcoVadis platform. This work has paid off.

## Pleasing Result: Dr. Weigert Receives Silver Rating

With its EcoVadis silver rating, Dr. Weigert is among the best 25% of companies assessed by EcoVadis. This shows that Dr. Weigert has already reached important milestones with its sustainability strategy. At the same time, it is also an incentive to think even bigger and be even more ambitious as we proceed with the implementation of the sustainability goals. For this reason, this groundbreaking element for assessing and portraying our sustainability strategy will continue to be an important

component of our company policy in the future.

*Author: The Dr. Weigert Sustainability Team, comprising Jana Rieling, Sabrina Kastl, Anke Uhlmann, Martin Kern, Frank Stühlmeyer, Bernd Stranghöner and Dr Matthias Otto*

## Dates

July – December 2022

(As at: 1 July 2022)

### • Dr. Weigert & DEGEA Webinar:

Topic: Challenges and potential solutions in the processing of flexible endoscopes



Here you find the webinar:

<https://www.drweigert.com/de/aktuelles/herausforderungen-und-loesungsmoeglichkeiten-in-der-aufbereitung-flexibler-endoskope>

### • Dr. Weigert & DEGEA Webinar:

9 November 2022, 6:00 p.m. – 7:30 p.m.  
Topic: tbd

## Fancy a Further Update from Dr. Weigert?

In our company magazine “update”, you will find further interesting specialist articles and testimonials on best practice in the fields of hygiene and processing. You can expect articles from the various divisions of Dr. Weigert: from Medical, Laboratory and Endoscopy through Food and Pharmaceutical to Kitchen Hygiene.

For instance, in the current May edition of “update”, you can learn useful facts about preservatives in our chemistry series “Basics of Our Raw Materials”. Or if your interests range further afield, read the interview with two head chefs about kitchen concepts, gourmet services, digitalisation and hygiene. It’s well worth it!

You can read about these topics and many more in the twice-yearly “update”. Subscribe now free of charge to receive “update” by e-mail newsletter so you can continue to gain insight into the world of hygiene in a convenient, straightforward way.

Subscribing to endoNEWS as an e-mail newsletter is easy, too. All the major news on endoscope processing will then be delivered straight to your inbox three times a year, saving paper and ensuring sustainability.

Further information is available at: <https://www.drweigert.com/com/newsletter>



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