EHEDG Yearbook 2023

European Hygienic Engineering & Design Group

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Director’s message

Dear Reader,

Securing global food safety through innovative hygienic design, is what I like to think that we stand for. When looking back at 2023 we, at European Hygienic Engineering & Design Group (EHEDG), can be proud that with our multifaceted activities we make an important contribution to food safety. By providing guidelines, offering trainings and educational (online) courses, through testing and certification of equipment, networking opportunities and regional support, EHEDG empowers stakeholders across the food industry to uphold the highest standards of hygiene and quality. In doing so, EHEDG contributes to protecting public health and fostering trust in the whole food supply chain, from farm to fork.

In the ever-evolving landscape of food production, providing rigorous guidance of hygiene is paramount. This is precisely where EHEDG steps in, dedicated to spearheading initiatives that uphold food safety through innovative hygienic design. As we delve into EHEDG’s activities in 2023 and the roadmap for 2024, it becomes evident that our commitment to excellence remains unwavering.

Building a Strong Foundation: Team Expansion and Infrastructure Investment

After the EHEDG Foundation moved from Germany to the Netherlands in 2021, we started to build a small, diverse and inclusive team, to drive our mission forward.

Currently the head office consists of 9 employees (most of them working on a part time basis). And, as of March 2024, a Junior Communication Manager will join the team, to strengthen our interaction with our internal and external stakeholders. This move underscores our commitment to enhance a broader engagement within our volunteer subject matter expert community.

Accelerating Progress: Investing in Resources and Collaboration

The lifting of global COVID-19 restrictions in 2023 marked a turning point for EHEDG, as face-to-face meetings for Working Groups resumed. However, the backlog of pending updates and new guidelines necessitated additional resources. EHEDG responded by investing in a new Product Portfolio Manager and organising the inaugural Full Working Groups Day. This gathering brought together over 120 volunteers to strategise and streamline activities, ensuring efficient progress across 24 active teams, working on 44 different guidelines and papers.

Advocating for Industry Standards: White Papers and Position Papers

EHEDG’s influence extends beyond guidelines, as evidenced by its proactive stance on critical industry issues. In 2023, EHEDG published White Papers on topics such as the Global Food Safety Initiative (GFSI) Hygienic Design Scopes and the potential ban of per- and polyfluoroalkyl substances (PFAS) on food contact surfaces. These publications highlight EHEDG’s role as a thought leader, advocating for balanced approaches to regulatory challenges.

Empowering the Next Generation: Mentorship, Training and Education

Recognising the importance of engaging young professionals in the industry, EHEDG launched the EYE Mentorship Programme in collaboration with Young EFFoST. This initiative aims to bridge the knowledge gap and invigorate Working Groups with fresh perspectives.

In 2023 we saw a steep increase in the number of completed EHEDG Hygienic Design trainings, resulting in 795 individuals being trained during the year, compared to 451 in 2022.

Moreover, we introduced the first e-learning module on our website in 2023, and we are working on plans to expand our educational offerings in 2024 and beyond.

We are not alone in providing safer food: Partnerships, Collaborations and Regional activities

Promoting global harmonisation of hygienic design guidelines involves collaboration with various organisations in the food industry and safety management, including 3-A SSI, GFSI, BRCGS, FSSC, IFS, Cen, and ISO. Investing in partnering with groups like Interclean, EFFoST, CIFST and IAFP is vital for EHEDG’s agenda. Participation in key food events, by the EHEDG Board and head office representatives, allows us to gather and share insights, ensuring stakeholders stay informed, and facilitating worldwide collaboration to harmonise hygiene and safety standards.

We established a new Regional Section in Poland and we continued activities to revitalise our current local chapters, or start new ones. The primary objective of our Regional Sections is to make EHEDG offerings and hygienic design knowledge top-of-mind for small and medium-sized companies, educational organisations and research institutes, too. We are now in the midst of setting up new regional teams in the Czech Republic, Greece and India. All these initiatives and more have also resulted in a growth in EHEDG’s overall membership, in 2023 EHEDG welcomed 97 new company members, 2 new individual members and 1 new institute member.

Looking Ahead: The EHEDG World Congress 2024

As EHEDG charts its course for 2024, anticipation mounts for the EHEDG World Congress scheduled for October in Nantes, France. This prestigious event will bring together over 400 hygienic design and food safety specialists from around the globe. With an impressive line-up of speakers and interactive sessions, the congress promises to be a catalyst for innovation and collaboration.

In summary …

EHEDG’s activities in 2023 and the roadmap for 2024 reflect a steadfast commitment to advancing food safety through hygienic design. From team expansion and educational initiatives to advocacy and international collaboration, EHEDG continues to be a driving force in shaping the future of the food industry. As stakeholders eagerly await the EHEDG World Congress 2024, the stage is set for transformative discussions and partnerships that will further elevate standards of hygiene and quality in food production.

Warm regards,

Adwy van den Berg
Operations Director, EHEDG

EHEDG Head Office Team

EHEDG Foundation Board

Hein, reflecting on your first year as EHEDG President, what are the achievements and successes which you are most proud of?

2023 was indeed my first year as EHEDG President. With grateful thanks for the legacy of the EHEDG, due to the fantastic work of my predecessors, I was happy to accept this great challenge and continue my contribution in this new role.

In this growing organisation, I felt it was the right time to have a close look at our internal processes, and implement a new Executive Committee structure that allows for input from a broader variety of stakeholders, and promotes a more inclusive decision-making process.

We have also worked hard at strengthening the EHEDG Head Office team with young professionals, creating an inclusive workforce that brings with it diversity and new ideas, and is able to support our member organisation with enhanced tools and solid project management. With this strong team, we were able to fill our 2023 agenda with successful events, such as the EHEDG Online Congress, our yearly Plenary Meeting with its new format, and the very first Full Working Groups Day.

Being more focused on the needs of our members, with well-targeted participation in local events, we saw solid growth in our membership and regional development. More than 100 organisations joined our Foundation this year, we made advances in key regions such as China, and witnessed a revitalisation of our Polish Regional Section.

Furthermore, our Product Portfolio is expanding, with the launch of new Working Groups such as those on Chocolate Processing, Robotics, and Maintenance and Installations. And not to forget the team working to provide answers on all the current Environmental, Social and Governance factors, and to assess the sustainability of companies and countries and the important role hygienic design can play in these ambitious targets.
Following a period that was impacted by COVID, our training programmes have experienced unprecedented success, with a surge in the number of courses being conducted globally, and new formats like the e-learning module being developed and rolled out.

A cornerstone of our EHEDG brand – the accessibility of certified equipment – continues to expand steadily, providing an increasingly diverse range of choices to ensure food safety for our members in the industry.

Hein Timmerman, (Diversey) EHEDG President

And how about the challenges?

As EHEDG experiences unprecedented growth, it inevitably faces some challenges, too. The involvement of our members, including myself, relies heavily on voluntary work and commitment. As an organisation, we strive to streamline tasks in a professional way, ensuring optimal efficiency for all the Working Groups. To facilitate this, we have strengthened our team by welcoming a new Programme Portfolio Manager.

As an organic human organisation, we are currently navigating a generational shift, with subject-matter experts retiring or planning imminent retirement. This is why we have launched the EYE Mentorship Programme with Young EFFoST (European Federation of Food Science and Technology). This initiative pairs young professionals with experts in the field of food science and technology. Mentees and mentors engage in regular meetings, addressing various topics tailored to their individual needs and preferences. Whether the focus is on personal development or professional growth, this is a platform for nurturing the upcoming generation of EHEDG members and hygienic design ambassadors. If you would like to know more about this, then take a look on our website.

I am very happy that I can share this new vibe, and I hope all our members feel the same new energy as I do.

Patrick, what were the key strategic priorities that were set in 2023? How did they align with our mission?

During the Plenary Meeting held in Turkey in October, and the OGSM (Objective, Goals, Strategies and Measures) exercises conducted there, we identified and agreed on some key topics for achieving our EHEDG mission of being recognised as the source of information for hygienic design and engineering. I would like to highlight some of them. For example:

- Creation of a pool of 500 subject-matter specialists who can share their expertise in the Working Groups;
- Achieving a more balanced Working Group participation, which means a better representation of all our stakeholder groups in the development of guidelines and other EHEDG activities;
- Enhancing overall engagement by encouraging a greater number of individuals to sign up from each member company;
- Improving our (European) presence and recognition;
- Strengthening trust in our certification scheme.

To thrive, we need the support of all our members. This is why we are developing several activities to create awareness, and have also encouraged our Regional Sections to incorporate them into their annual plans for 2024. In the upcoming year, we will strategically execute various initiatives to achieve our ambitions.

What is your outlook for 2024? How do you envision EHEDG evolving?

In the contemporary world, there is a growing emphasis on our food and its production methods, particularly in terms of sustainability and efficiency. Ensuring the safety and quality of food requires a focus on the hygienic design of buildings, equipment and utilities, and ongoing maintenance of them throughout their life cycle.

As already mentioned by Hein, the EHEDG organisation relies on the hard work of its dedicated volunteers. In 2024 we anticipate updates to various existing guidelines, along with the introduction of several new documents covering topics that are not yet included in our portfolio. This to provide support to the food industry in addressing its current challenges. We have noticed that interest in hygienic design and engineering is growing, which is reflected in an increase in the number of requests from organisations all over the world to become EHEDG members, to establish new Regional Sections, and to receive training or input from our subject-matter experts.

It is clear that the incorporation of hygienic design requirements in the food safety management systems benchmarked by the Global Food Safety Initiative (GFSI) is contributing to this increased interest. EHEDG will remain in close contact with these organisations, to continue promoting the importance of hygienic design and to provide guidance on how to achieve hygienic design in a sustainable and cost-effective way. EHEDG is committed to sustaining, offering, and expanding this global network of hygienic design expertise across the industry. We also seek partnerships with other like-minded organisations.

Matilda, how did EHEDG's financial decisions in 2023 impact its mission and the programmes it supports? How can we ensure EHEDG's financial stability for the future?

We are very pleased to report that EHEDG is in a stable and healthy financial situation. A number of changes implemented over the last few years have increased our ability to manage the budget more precisely and, at the same time, provide greater transparency about expenditure.

As you are all aware, EHEDG has a strong strategy for the future. As mentioned by Patrick, this strategy was further refined and key priorities were developed by the members in attendance

at the Plenary Meeting in Istanbul. The budgeting process we implemented a few years ago helps to ensure that we fund those actions of the EHEDG groups (e.g. Regional Sections and Working Groups) that align with those strategic priorities.

In addition, it provides us with more detail on where the budget is spent, so that we can utilise this information to ensure that we allocate our budget in the most efficient and effective way to drive the EHEDG strategy forward. For 2024, we have made further enhancements to the process. These include a mid-year budget review and forecast that will allow us to make adjustments based on actual spending. We have also decided to reserve a portion of the budget centrally, to allow us to apportion money throughout the year to fund new activities or to supplement active teams that may need more resources. Everything we are doing from a financial perspective is designed to better support the volunteers, and ensure that they are equipped with the funding and resources needed to execute their plans on behalf of EHEDG.

We hope that these actions will be viewed favourably. Looking forward, we are mindful that increased activities and the growth of the organisation will require a larger budget. We are spending responsibly and strategically, to ensure we can sustain the financial health of EHEDG well into the future.

Thank you for your participation and support of EHEDG. We are excited about the future and the important work you all do in contributing to global food safety. We welcome your feedback and suggestions at any time.

Patrick Wouters, (Cargill) Vice-president; Hein Timmerman, (Diversey) President; Matilda Freund, Treasurer & Secretary

EHEDG Advisory Board

The advisory board consists of James Hartley (Mondelez), Anne-claire Carrere (Nestlé), Tim Schrodt (Endress+Hauser), and new members Debra Smith (Vikan), Dean Scopes (Tetra Pak) & Bastian Tolle (GEA Group), that were appointed in 2023.

Let's look back at your first year on the EHEDG Advisory Board. What has your experience been like?

Debra: Joining the EHEDG Advisory Board has been a great privilege. It has allowed me to gain a more in-depth view of how EHEDG operates and to actively contribute to its future development.

Dean: My first year as a member of the EHEDG Advisory Board has been an amazing one, meeting new colleagues from both the Foundation and the food industry, all dedicated and focused, and with the single ambition to improve hygienic design for the benefit of consumers.

Bastian: My personal impression from the first year on the EHEDG Advisory Board has been very positive. On all occasions, during all our exchanges and meetings, I have experienced a visionary and fully committed team. The Foundation Board, and the chairs and co-chairs of the sub-committees, as well as the EHEDG Head Office, all work with the utmost dedication and professionalism on the organisational strategy and operations. My highlight was the great experience of taking part in the Plenary Meeting in Istanbul. This 'get-together' of long-standing industry leaders formed an impressive representation of the EHEDG community, full of expertise and passion for hygienic design and engineering.

How has your background contributed to your role?


Debra Smith, Global Hygiene Specialist (Vikan)

Debra: When I first became involved with EHEDG nearly 20 years ago, while working at Campden BRI, I never imagined that it would become such an important and influential part of my career. Over time, I have become a passionate advocate for hygienic design, believing it to be an essential prerequisite for food safety and hygiene. I also believe that the principles of hygienic design should be applied not only to food production equipment, but also to the buildings, utilities and supplementary components used in all food handling areas. Having visited many food sites, I know that this is often a source of contamination, and through my work and my contribution to EHEDG, I have tried to pioneer this approach. Being elected to the Advisory Board will continue to help me bring my insights to EHEDG so that together, we can address industry needs and move hygienic design even further up the industry's agenda.

Dean: For the past 20 years I have been part of customer installation projects. During this time, I have worked with customer project teams delivering hygienic integrated industrial food solutions, and collaborated with our customers to meet their specifications and requirements. Talking to customers and translating their expectations into the new best practices within my organisation has been something I have focused on, and I am now able to drive these company-wide. Having this mindset and now having the opportunity to work with EHEDG on the Advisory Board, I believe I have brought this collaborative and positive approach, and will continue to support the Foundation in its crucial work across the food industry.

Bastian: My background in various product management and engineering roles in the industry has offered me several touchpoints with EHEDG and its initiatives, for example, as a member of the EHEDG Working Group 'Valves' and through various certification processes. Thanks to these activities and the exchanges within the network, I have gathered multiple practical experiences and received much feedback about EHEDG. I deeply value the established positioning of the organisation, as well as the personal commitment of a great community of contributors. Of course, there is room for thoughts and improvements, to become even better. My experience in operational and strategic management positions has helped me to understand the key aspects from both sides, and to view processes and plans from both perspectives.

What does the future look like for hygienic design?

Debra: Bright! Hygienic design is nothing new, having been present in EU law and pioneered by the likes of EHEDG and 3-A for many decades. However, awareness, application, and enforcement of good hygienic design principles have been sadly lacking. All that changed in 2020 when the Global Food Safety Initiative (GFSI) published a high-level set of hygienic design benchmarking requirements for Food Buildings and Processing Equipment. In 2022, GFSI scheme operator BRCGS (Brand Reputation through Compliance Global Standard) were the first global food safety standard to incorporate these benchmark requirements into version 9 of their standard. In 2023, version 6 of FSSC 2000 (Food Safety System Certification Scheme) followed suit. BRCGS and FSSC 2000 are the two largest food safety standards operated globally. Having hygienic design incorporated into these standards has already had a significant impact on raising awareness of hygienic design, and I am sure that EHEDG will be busier than ever in providing support to the food industry as they try to meet the standard requirements.


Dean Scopes, Director Quality & Safety Processing Solutions & Equipment (Tetra Pak Processing UK)


Bastian Tolle, Vice President Product Management & Engineering - Separation & Flow Technologies | Valves & Pumps (GEA)

Dean: Hygienic design is critical for the future of our industry, as we move faster to comply with the sustainability demands of consumers. As our key stakeholders look for organisations to support that journey, EHEDG is clearly positioned as one of them, able to offer independence and guidelines produced by cross-industry expertise.

Bastian: There's no doubt that hygienic design and engineering have always been - and will be - of the highest importance, and a key prerequisite for safe food production and consumer health. Furthermore, hygienically designed and engineered components, machines and plants offer a significant potential for more efficient cleaning processes in food production environments. Which translates into fewer energy-intensive cleaning cycles, and lower usage of fresh water and chemicals. These savings are high on the agenda of all companies, and I'm convinced that the positive impact on sustainability will be a great boost for hygienic design and engineering in the upcoming decades. It will also be a motivation for people in the industry to engage and stay engaged with these topics. EHEDG will be a highly attractive organisation for people to join and support.

New Working Group

SUSTAINABILITY

All stakeholders in the food supply chain – from farm to fork, and from original equipment manufacturers (OEMs) to engineering companies and system suppliers – must engage in environmental priorities and actions, with the goal of continuously reducing their ecological footprint and delivering solutions to help reach overall sustainability objectives. EHEDG recognises the importance of hygienic design, not only in contributing to safe food production, but also in promoting sustainable practices.

For this reason, the EHEDG Working Group 'Sustainability' was recently formed, under the guidance of former EHEDG President Ludvig Josefsberg.

Ludvig, what led you to take on the role of Chair of this newly established Working Group?

The EHEDG was originally established by the food industry for the food industry, with a primary focus on the hygienic design of food processing components. But hygienic design itself is only a vehicle, although an essential one, for obtaining various benefits. Foremost among these benefits is food safety, a non-negotiable aspect of all food production processes, which also brings enhanced operational productivity and sustainability. Whilst food safety is a given, many of the products developed by EHEDG, like guidelines and training courses, are focused on hygienic design, with limited mention of the specific and quantifiable advancements in productivity and sustainability. Having served on the EHEDG Executive Committee for more than a decade, including two terms as its president, it felt natural to me to take the opportunity to contribute to the development of a document that would potentially support the sustainability requirements of the industry. Sustainability is today a paramount concern for all companies in the food supply chain.

How do hygienic design and sustainability share common ground?

The Working Group 'Sustainability' is composed of a wide range of specialists from equipment manufacturing and food production companies, as well as from the academic world. This composition ensures that all aspects of hygienic design are considered by a broad group of industry stakeholders. There are several elements that can contribute to increased sustainability. We believe that the most important, with a direct impact on it, are lower energy and water usage, as well as reduced waste and lower chemicals consumption. Hygienic design should consequently influence operational productivity, leading to increased production uptime through factors such as shorter CIP (cleaning-in-place) cycles.

What will be the scope of the EHEDG Position Paper? Whom will it be intended for?

The Working Group kicked off its activities in October 2023, and has so far held two meetings. At the initial one we established the team, and in the following one we began formulating and detailing the task, as well as preparing a preliminary plan. We concluded that the first document to draft will be a white paper on sustainability, to stress its importance and to present a proposal for future development opportunities for the EHEDG. The proposal will be informative and objective, aiming to present the collective viewpoint of member experts and serve as a supportive tool for the EHEDG leadership in making informed decisions. It is intended that the white paper will be followed by the EHEDG position paper, and then possibly by one or several guidelines on this topic.

Ludvig Josefsberg, *Chair of the EHEDG Working Group 'Sustainability' and former EHEDG President (2016-2022)*

New Working Group

Chocolate Processing

Harvesting, fermenting, drying, transporting, cleaning, roasting, processing, retailing, and consuming – from bean to bar, the supply chain for chocolate is a long one, and can span multiple countries, handlings and transformations before the products finally reach the shelves and our tables. 'What is unique about chocolate and related products is that the pathogen removal step occurs very early in this very long supply chain,' says Dr Matilda Freund, former Vice President of Global Food Safety at Mondelēz International, and currently Treasurer of the EHEDG. 'As a result, great care must be taken after this critical point to ensure that the material remains safe. The focus, therefore, is on the handling and shipping conditions, GMPs (Good Manufacturing Processes), the hygienic design of equipment and, very importantly, the facility design, to ensure the material does not become recontaminated. When this is managed appropriately, chocolate is a very safe product.'

'Traditionally, in the world of chocolate, the introduction of water is avoided, even for cleaning, due to the fact that chocolate is a low water activity food,' continues Dr Freund. 'This absence of water ensures chocolate's stability and its long shelf life. Additionally, low water activity is important in maintaining a safe product, because then pathogens cannot grow.'

Unfortunately, there have been some high-profile chocolate-related microbiological events in the industry over the past few years which have had the potential to erode public trust. 'Such incidents are a reminder that food safety requires constant vigilance and that, as an industry, we must work together to understand what happened, share this learning across the industry, and challenge ourselves to examine our current practices to ensure we raise the bar on food safety even further, to prevent future issues,' says Dr Freund.

A failure in hygienic design is one area that can lead to a salmonella contamination in a chocolate plant. Poor design in areas such as air handling, water recirculation systems, jacketed tanks, and infrastructure can lead to issues. Even if it is not the direct cause, poor hygienic design can mean that effective cleaning can be difficult and time-consuming. This is why EHEDG has formed Working Group 'Chocolate Processing', with the intention of establishing best practices for the design and cleaning of chocolate processing equipment and infrastructure. Chaired by Dr Freund, will include scientists and engineers from most of the major chocolate producers, manufacturers of chocolate-processing equipment, cleaning companies, consultants and researchers.

The guideline to be developed by the team will focus on three main areas: Utilities and infrastructure; Definition of and optimal methods for cleaning; Hygienic design of key pieces of chocolate-processing equipment.

'This team has the technical expertise and experience in chocolate to challenge the status quo and drive real change,' says Dr Freund. 'I am very excited to work with such a distinguished group of professionals from so many different companies.'

Dr. Matilda Freund*, former Vice-President Global Food Safety (Mondelēz International), Chair of the EHEDG Working Group 'Chocolate Processing' and EHEDG Treasurer*

New Working Group

Robotic Systems

How are robotic systems deployed in the food industry? How can they facilitate efficient food production and food processing?

Robots are used on production sites in many different industries, but in the food industry, they are usually deployed for packing and palletising. There are three main factors that have influenced the limited use of robotics in food manufacturing until now:

- the cost of robotics technology,
- the lack of robots designed to manipulate food, and
- the absence of proper hygienic design.

Some examples of robots designed to manipulate foods are those used for ingredients that are fragile, deformable and often in a powder or liquid state. Thanks to the decreasing costs and developments in gripper technology and intelligent image processing, there is now a huge potential for the use of robots in the processing and production of food. However, as these are non-traditional robotic applications, not all manufacturers design robots for these applications, and also, not all integrators are equipped to successfully handle these demands.

What are the challenges in the field? Why are guidelines needed?

One challenge is meeting the regulations standards around food hygiene and the easy cleaning of robots. The ability to clean equipment effectively is a prerequisite for food handling technology. Protocols set by the machine directive require complete sanitisation of all surfaces that come into direct contact with food. Food equipment manufacturers should always, in their efforts to make the best products for their customers, look for ways to keep the workplace as bacteria-free as possible.

Who will this document primarily be intended for?

The Working Group ‘Robotic Systems’ is planning multiple guidelines in the coming years. The short-term goal is to draft a document intended for robot manufacturers, setting out the fundamental hygiene requirements and the possibilities for obtaining EHEDG certification on certain types of robots. The guideline will also be relevant for integrators and end-users, as it will specify the overall requirements for hygienic installation and performance. Subsequent ones will focus more on the needs of end-users.

Alan Friis, Senior Team Leader, Audit and Verification (FORCE Technology), Chair of the EHEDG Working Group ‘Robotic Systems’, EHEDG Authorised Trainer and Authorised Evaluation Officer

Maintenance

New Working Group

The ability of equipment, machinery and other assets to consistently and predictably perform their intended functions, without failure, is crucial for efficient and safe production processes in the food industry. Food safety regulations have evolved over the course of the years, but producers are still faced with the challenge of operating equipment that has been developed with old standards in mind, resulting in the need for effective maintenance, refurbishment and, in some cases, for a complete replacement. Maintaining high asset reliability in the food industry is a multifaceted effort that involves a combination of preventive, predictive and proactive strategies.

The newly established Working Group 'Maintenance and Installations' is currently drafting a guideline under the leadership of Dimitri Tavernarakis, Global Hygienic Design Excellence Lead at Mondelēz. The document will highlight the role of hygienic design and equipment reliability in supporting food safety programmes, focusing on how equipment can be efficiently installed, operated and serviced, following principles that can ensure longevity, best productivity and compliance. In addition, it will provide practical recommendations for day-to-day maintenance activities, as well as commissioning/decommissioning and food safety risks mitigation.

Dimitri, could you please introduce yourself?

My name is Dimitri Tavernarakis. I'm a mechanical engineer with over twenty years of experience in equipment development and production/industrial line design. Throughout my career I've been involved in various projects across different industry sectors, which has given me the opportunity to build up considerable knowledge on machinery reliability, line design performance, and modern business and project management standards. At some point my workload shifted to food processing and I started focusing exclusively on the food sector – and that's when I got to know the EHEDG. By liaising with various teams and networking in the industry, I saw the opportunity for a document on equipment which has already been designed, known as 'legacy equipment'. I'm honoured to be chairing the Working Group 'Maintenance and Installations' and leading this incredible group of experts in developing a guideline on maintenance of infrastructures, food factories and equipment. The team includes specialists from a wide range of applications and fields of expertise, from construction materials to chemistry, and more.

What is a maintenance programme, and how important is it for food safety?

Machinery used in food production and processing needs to be reliable, not only for productivity and employee safety, but also for food safety reasons. According to industry research conducted by McKinsey & Company, the average age of production line equipment is 20 years. Furthermore, around 50% of product waste during production and processing is caused by poor maintenance and equipment breakdown. A maintenance programme is a set of procedures that ensure that assets are in optimal working condition, thereby minimising downtime, extending the lifespan of equipment and preventing failures. These procedures can include different types of maintenance:

- Preventive maintenance, as a first step – the performance of scheduled tasks to avoid equipment failure;
- Corrective maintenance – unplanned activities carried out to address issues that arise unexpectedly;
- Breakdown maintenance and refurbishment.

If equipment breaks down and needs repair, it results in a 12-18% increase in maintenance costs. The equipment itself can also be the root cause of contamination. When it breaks down, foreign material may be released into the product stream, resulting in production being put on hold and recalls implemented. Planned and unplanned interventions in a GMP (Good Management Practice) area can also negatively affect food safety.

Equipment overhaul versus replacement: which is best?

There is no straight answer to this. The lifespan of equipment can be described using the concept of the 'bathtub curve'. In the early stages, known as the 'infant mortality phase', there is a higher likelihood of breakdown, often attributed to design flaws and manufacturing defects. If hygienic design is implemented in the equipment, we can considerably reduce this 'infant mortality'.

Well-maintained and properly operated equipment then tends to have a stable performance, until it starts getting old and potentially problematic, such as requiring more frequent inspections and posing a food safety hazard. At this point we could carry out a hygienic design review and potentially expand its useful life, by modernising it. Or we could just purchase a new one with higher reliability and lower operational expenditure. A common approach is to conclude that it has reached the end of its service life, based on the cost of maintenance and the residual value of the equipment. If the costs amount to more than 30-40% of the asset's residual value, then the best solution may be to replace it. But there are of course other aspects that need to be factored in, and this is more of a strategic business decision.

At which stage would you suggest conducting a comprehensive hygienic design evaluation?

We like to say: 'If it's not broken, don't fix it.' If it does not pose any food safety risks, then the equipment should not be subject to a hygienic design review. At the same time, if we aim to improve maintenance and sanitation programmes by decreasing downtime, then we need machinery that can be more easily accessed and cleaned. This would necessitate refurbishment. So we need to differentiate between opportunity-driven hygienic design reviews, and hygienic design reviews driven by food safety issues. Another significant aspect that we should consider is any change to the intended use of the equipment. If the business changes the product food safety profile (e.g. allergen to non-allergen, or RTE/Ready-To-Eat to IQF/Individual Quick Freezing processing), then a hygienic design evaluation should also be carried out to ensure that the equipment is still fit for purpose, and that all hygienic design gaps are properly addressed in the refurbishment.

What risks in different processing systems should be considered?

In open processing systems, there is a risk of surface damage, of loose moving parts which could end up in the product stream. But these lines are generally easier to access – or should be. The same risks can arise in closed processing systems, which are slightly more protected from environmental contamination during normal production. However, these are more difficult to access and inspect – and can be exposed to environmental contamination during maintenance and sanitation. Consider bearings, gaskets, polymers and lubricants. Closed processing lines require a longer downtime. And we should also not forget the buildings themselves: the building envelope, the walls, windows, doors, drains, HVAC (heating, ventilation and air conditioning), pumps, electrics, lighting, and fire and life safety systems. We often see businesses focusing their maintenance programmes solely on the equipment, to keep their KPIs on Overall Equipment Efficiency and production performance high. Implementing a good maintenance plan for a building can also definitely help prevent food safety issues. When it comes to the million-dollar-question of who should take responsibility for this, then I'm of the opinion that the maintenance team should draft the standard operational procedures for maintenance, in collaboration with the food safety, quality and sanitation departments, so that their needs and priorities are also understood. It really is a joint effort.

Dimitri Tavernarakis, *Global Hygienic Design Excellence Lead (Mondelēz International RD&Q), Chair of the EHEDG Working Group 'Maintenance and Installations'*

NEWLY Published Guideline

GL48: Elastomeric Seals

Could you please introduce yourself and your organisation?

My name is Angelika Ruhm. I'm a chemical engineer with experience in the field of polymers. I joined Freudenberg Process Seals thirteen years ago, firstly in the Applications and then in the Quality Management and Technical Support department. As a representative of a leading elastomeric seals producer, I assumed the position of chair of a visionary EHEDG Working Group, whose ambition was to create a guideline that could encapsulate all the essential aspects to be considered when manufacturing seals and their respective housings.

What is the role of elastomeric seals in the food industry?

Elastomeric seals play a crucial role as integral components in both food production plants and food packaging processes. Their application spans a wide range of equipment, including valves, pumps, homogenisers, mixers, filling machines and sensors. Each of these components demands specific types of seals – from O-rings to radial-shaft and diaphragm seals.
In the context of food safety, we need to consider some important hygiene aspects of seal design, to prevent the harbouring of microorganisms and to ensure the integrity of the food production environment. Guideline 48 aims to create awareness of these critical aspects.

What challenges are companies facing when trying to identify seals that comply with hygienic design principles?

The challenge is to find the best suitable sealing solution for a broad range of different applications. Seals need to withstand high temperatures and high pressure, static and dynamic loads, as well as to resist various media – some of them aggressive and abrasive – and CIP/SIP (Clean-in-place/Sterilise-in-place) agents. They must also comply with leading regulations such as (EC) No 1935/2004 in the European Union, FDA and 3-A standards in the United States, GB 4806 and GB 9685 in China, and many others around the world. To meet all these requirements, it is necessary to find a combination of different types of seals, seal materials and a coupling design based on hygienic principles, looking at parameters like material hardness, surface quality, groove fill and alignment. The aim is to find media-resistant sealing solutions with low dead space, to avoid providing a haven for microbes. These are the key points to consider when designing seals and housings.

Who is this guideline intended for?

Guideline 48 is a valuable resource for all professionals dealing with components and, in this specific context, with seals, for example, plant and packaging engineers, designers, consultants, food and cleaning agents producers, and their respective buyers. The objective is to inform about the parameters that influence the durability and functionality of a seal, focusing on the critical points from a hygiene point of view. The document has a specific emphasis on static seals made of elastomeric seals, as these are the most commonly used. It also contains a practical guide on failure analysis and optimal seal handling. Annex A and B offer an overview of the main primary standards and legislation, providing an excellent reference for companies seeking to align their practices with industry benchmarks and regulatory compliance.

"In the context of food safety, we need to consider some important hygiene aspects of seal design, to prevent the harbouring of microorganisms and to ensure the integrity of the food production environment."

What inspired you to chair this Working Group? What value could this experience create for the company you're working for?

Freudenberg has been involved in EHEDG activities for many years. As Chair of the Working Group 'Seals', I have the opportunity to work with an interdisciplinary team, to think 'outside the box', to get to know the perspectives of other professionals, and to benefit from their expertise. It is an opportunity to cooperate and together to create innovative solutions for our customers, and for the food industry in general. EHEDG is a platform that can enable this cooperation. I would like to thank all the dedicated members of the Working Group for their valuable contributions.

***Angelika Ruhm**, Quality Management/ TechnicalSupport (Freudenberg Sealing Tehcnologies), Chair of the EHEDG Working Group 'Seals'*

NEWLY Published Guideline

GL51: Hygienic design aspects for tank and vessel cleaning in the food industry

Guideline 51 offers a basic understanding of the hygienic design of tank cleaning devices and the tanks they are intended to clean. Alongside a tool to help in making the initial technology selection, the document illustrates cleaning principles, the total cost of ownership, and the sizing and installation of tank cleaning devices, as well as working principles, special considerations and potential design issues.

What differentiates tank cleaning from conventional CIP cleaning of pipe systems? Bo Boye Busk Jensen, Chair of the EHEDG Working Group 'Tank Cleaning': 'This new EHEDG Guideline addresses one particular part of the CIP process: the tanks that are used throughout the industry for various types of food processing. Compared to the CIP cleaning of pipe systems, the CIP cleaning of tanks is more challenging, because it's much more difficult to obtain a consistent mechanical force on the inner surfaces of tanks and vessels than on the inner walls of pipes, where it often suffices to pressurise the cleaning fluids to obtain effective cleaning results.'

'For any type of tank cleaning, you need a supply pump to the tank-cleaning device that sits at the top of the tank', he continues. 'A static spray device is the traditional method for tank cleaning. You apply a pressure of around two bars to the static spray device, which then showers the whole tank at the same time, and generates what are known as 'footprint spots'. With the rotary spray head, you have a few slots in a spherical-shaped ball as well. When the water flows through, the ball starts rotating and fans of droplets spray out, hitting the tank surface, so that part of the tank is cleaned. This cleaning pattern is then rotated at a certain speed, depending on the design of the spray device. Because of the higher impact from the droplets hitting the soiled areas, the cleaning is more effective. The rotary jet head has four jets sitting on a nozzle head, and the design of the machine makes the nozzle rotate in a figure-of-eight pattern, removing soiling with high-pressure jets which travel at a speed of around 30 m/s at 5 bars. This generates cleaning not only in the impact zone, but also in the 'footprint zone'. High wall shear-stress cleaning takes place, offering a higher level of cleaning where soiling is stuck on the surface. Less water is used, because the time and flow rates are reduced.

The soiling layers encountered in tanks can vary widely in composition and structure, giving rise to differences in the cleaning mechanism used and the effectiveness of the cleaning. 'It really depends on the product that is processed through the tanks. With skimmed milk that has not dried on the surface, a static spray device can provide easy and adequate cleaning. For heavier soiling applications, the rotary spray head could be used. In the guideline, we have included a table with easy, medium and heavy soiling scenarios and different focuses (water, time, energy savings).'

***Bo Boye Busk Jensen**, R&D Engineer (Alfa Laval Hygienic Fluid Handling), Chair of the EHEDG Working Group 'Tank Cleaning'*

In recent years we have done a lot of work on impinging liquid jets being used for cleaning. So when this Working Group was established, it was fairly straightforward. This is a team we would like to be involved in! Cleaning is all about determining what is going to govern the attractions in a material. Is the material going to be attracted to itself or to the surface? And how do you change that? Particularly if you want it to come off the surface. You might use more force, more energy, more water. As long as you can get the right solution conditions, like water PH or temperature, you can avoid using too high a level of chemicals. However, chemical agents are necessary for materials that stick to surfaces.

***Prof. Ian Wilson** (Cambridge University), member of the EHEDG Working Group 'Tank Cleaning'*

NEWLY Published White paper

EHEDG White Paper on GFSI Hygienic Design Scopes JI & JII

In 2020 the Global Food Safety Initiative (GFSI) published a high-level set of hygienic design benchmarking requirements with the objective of enhancing food safety from farm to fork. These Hygienic Design of Food Buildings and Processing Equipment requirements were published as scope JI (for building constructors and equipment manufacturers) and scope JII (for building and equipment users). With the EHEDG White Paper on GFSI Hygienic Design Scopes JI & JII, the EHEDG organisation would like to provide support to its stakeholders in interpreting and applying the requirements of scopes JI and JII. This document offers insights and guidance, rather than serving as a standard, by presenting EHEDG's perspectives on GFSI benchmarking requirements, along with advice and recommendations for meeting them effectively.

NEWLY Published Guideline

GL2: A method for assessing the in-place cleanability of food processing equipment

It has been 34 years since the EHEDG published the first version of Guideline 2, which offers a complete description of the method for assessing the in-place cleanability of food processing equipment intended for closed processes.

'Because of the expanding network of Authorised Test Laboratories (ATLs), we are faced with various climates and environments,' reported Andy Timperley, Chair of the EHEDG Certification Sub-Committee. 'With the enhancing of Guideline 2, we have tried to make the method work in all these different locations, by increasing some of the tolerances on temperatures, for example. With no chilled water supply, a laboratory in a hot country may not be able to meet the requirements for the rinse water temperatures. By doing internal trials among the ATLs over the last couple of years, we have ensured that those parameters do not affect the overall result of the test. By validating these increases in tolerance, we now have more flexibility across the world, without compromising the results of the method.'

The document has been updated by Sub-Committee Certification and includes the materials needed (e.g. micro-organisms and substrates), the procedures for soiling and drying equipment, for cleaning, for applying agar to and the incubation of the cleaned equipment for the detection of any remaining micro-organisms – and finally the procedure for evaluating the results of the cleanability test.

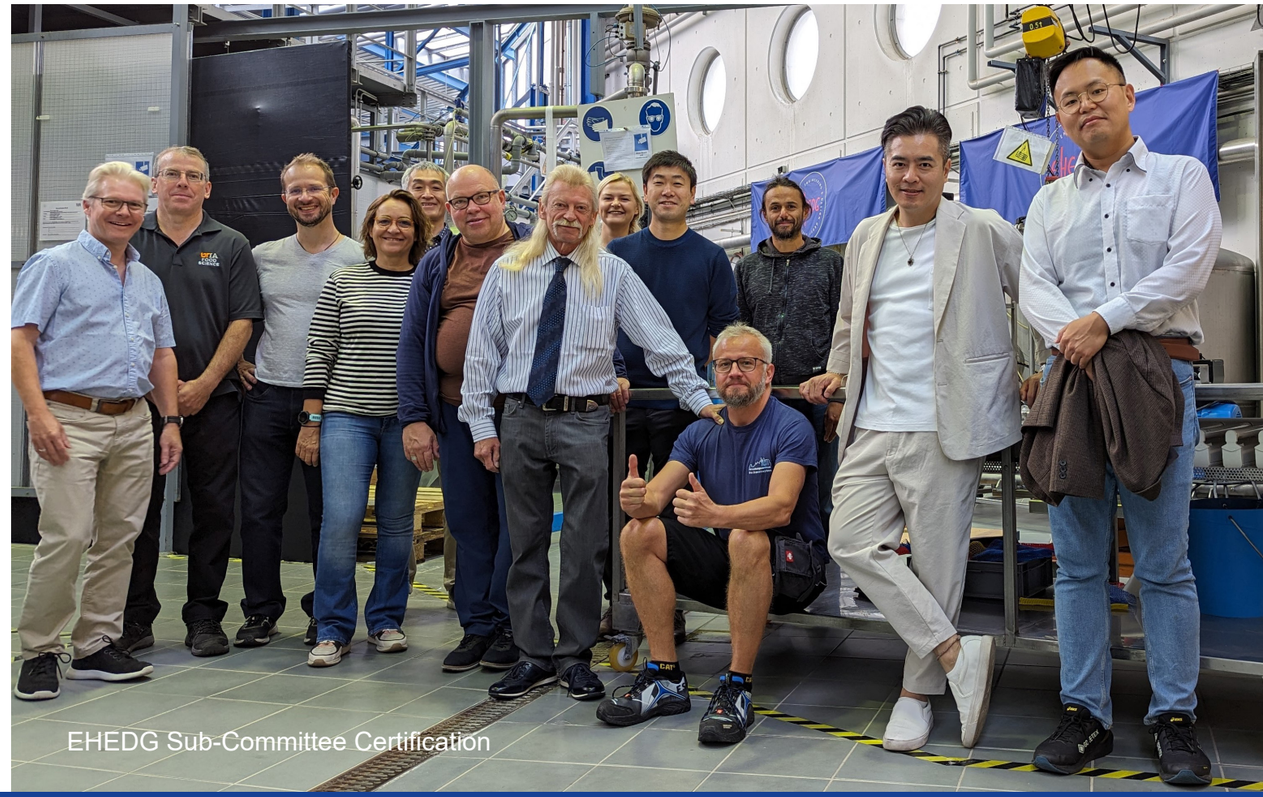
'Because of the range of equipment we are asked to certify, we have a specific set of supplementary certification requirements which describes what we do with particular components that may not fit directly into the standard methodology,' Andy continued. 'So we have the ability to change the back pressure during cleaning, reduce the detergent concentration, and increase the cleaning time.' EHEDG Guideline 2 is a must-read for all organisations who intend to certify a piece of closed equipment, and would like to know which particular parameters the component will need to undergo in order to be tested – resistance to pressure, temperature, cleaning chemicals.

Andrew Timperley, *Owner (Timperley Consulting), Chair of the EHEDG Sub-Committee Certification, EHEDG Authorised Evaluation Officer and EHEDG Authorised Trainer*

NEWLY Published Position paper

Potential Ban Of PFAS On Food Contact Surfaces In Food Manufacturing/Processing Equipment

EHEDG acknowledges the importance of addressing environmental and health concerns related to per- and polyfluoroalkyl substances (PFAS) under the REACH regulation. However, we believe that a more differentiated and risk-based approach is necessary to manage the potential prohibition of materials used in (food) equipment and plant engineering. The current proposal for restrictions necessitates further refinement to ensure both environmental preservation and the uninterrupted operation of crucial (food) industry processes. To address this concern, EHEDG, in collaboration with a panel of subject-matter experts from member companies, has developed a Position Paper on this matter. This document has been submitted to the European Chemicals Agency (ECHA) and relevant authorities, urging them to consider our recommendations and collaborate towards crafting an effective resolution.



EHEDG Sub-Committee Certification

The 2024 EHEDG certification is in the pipeline

The EHEDG certification of components began over 20 years ago, with numerous design requirements outlined in the guidelines. However, no assessment procedure was in place at that time. As several companies incorporated these requirements into their products, an independent assessment then became necessary, leading to the development of the EHEDG certification process. Since then, both the certification processes and the requirements have undergone changes. However, the primary objective has remained unaltered: to independently confirm compliance with EHEDG hygienic design criteria.

As the term 'Hygienic Design' is not legally protected, it is open to misuse and likely to be associated with components that do not meet the relevant EHEDG criteria. The decision-making process for users and buyers can often be challenging, as they struggle to identify and appraise the required criteria. The EHEDG certification provides independent and transparent evaluation, aiding in the assessment of specific equipment.

In addition, the EHEDG certification scheme is continually adapted to meet industry requirements. Originally introduced for certifying closed pipeline equipment, it is now possible to certify components for open processes, or even machines suitable for dry cleaning. Our unique approach is to test compliance with hygienic design criteria. This is done through practical cleaning methods. Open process component testing is currently limited – which is why EHEDG has recently developed a new test method suitable for easy-to-clean structures that use spray cleaning. This method is set to be published in early 2024, allowing for certification in the open area to become available.

EHEDG certificates provide independent confirmation of whether certain components and equipment meet the criteria of hygienic design. This offers an assurance to manufacturers that they can be employed safely in food production, and assists buyers in determining a component's suitability for specific applications. Nevertheless, for system planners, the hygienic integration of the certified components is paramount.

Dr Jürgen Hofmann *(Hygienic Design Weihenstephan), Co-chair of the EHEDG Sub-Committee Certification, Chair of the EHEDG Regional Section Germany, EHEDG Authorised Evaluation Officer and EHEDG Authorised Trainer*

OPC Test Method

Three EHEDG Authorised Testing Laboratories across Europe have officially started offering the OPC test method. OPC stands for 'Open Plant and Open Process Equipment'. The upcoming Guideline 57 will describe the basic hygienic design principles that need to be applied to meet the requirements of the OPC test method.

Why did EHEDG develop this new test method and guideline?

The industry has been searching for some sort of certification for the open processing of products. Organisations are looking to EHEDG, as one of the leaders in certification, to be able to provide this. The purpose is primarily to have a firm basis which the whole industry can understand – not only the equipment manufacturers, but also the equipment users, whether it is for commercial or personal use of products.

What challenges did you have to overcome when drafting this document?

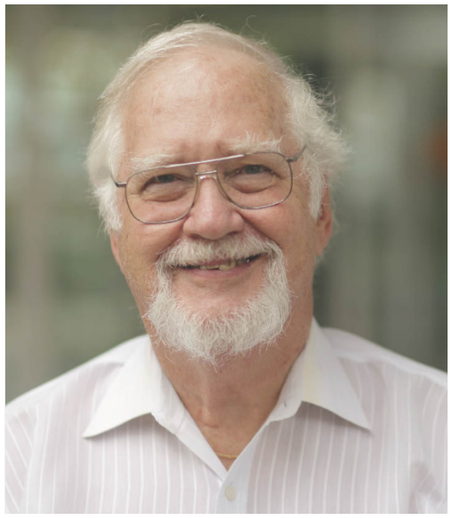
Because the test includes the external surfaces, the wide array of possible designs and fabrication techniques and the mounting of accessories like micro switches make it difficult to ensure that there are no areas where potential contaminants can accumulate and develop into contamination – and possibly gain access to the product itself. Open processing provides quite a challenging environment in which to ensure that everything is controllable.

Should end users read this guideline?

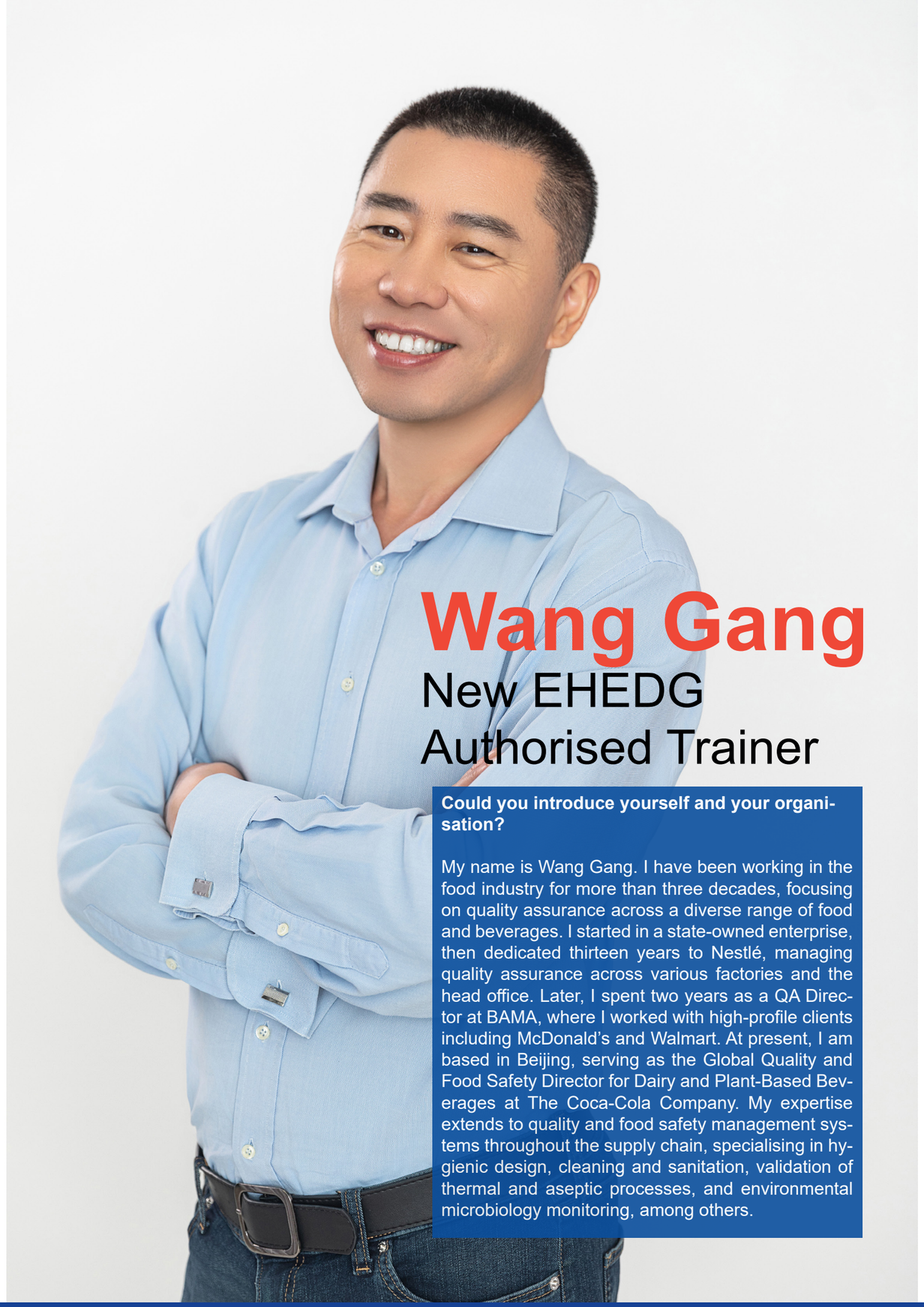
Definitely, so that engineers can have a good reference document as they go through their design phases. It always starts with the blueprints or the design phase. You can catch many problems on paper, early in the process. Fabricators can also ensure that the end surface is cleanable, and that the unit is correctly installed, so that there is free space around the piece of equipment – over and under it, and around the sides – to avoid any contamination.

Who is the guideline intended for?

This guideline is useful to all professionals active in food processing – the food processors themselves, equipment manufacturers, and those constructing the buildings. No man is an island, as the old saying goes, and no machine is an island, either. They all connect to conveyors or infeeds, not forgetting the human participation in the operation. It's fundamental to ensure that everything can be properly disassembled, cleaned, and protected from exterior contamination during the processing. All stakeholders need to work together. Even though the guideline refers to a relatively small range of sizes of equipment, the concepts it portrays can be applied throughout a processing facility, whatever its size.



Tracy Schonrock, *Co-Chair of the EHEDG Sub-Committee Working Groups*



Wang Gang

New EHEDG Authorised Trainer

Could you introduce yourself and your organisation?

My name is Wang Gang. I have been working in the food industry for more than three decades, focusing on quality assurance across a diverse range of food and beverages. I started in a state-owned enterprise, then dedicated thirteen years to Nestlé, managing quality assurance across various factories and the head office. Later, I spent two years as a QA Director at BAMA, where I worked with high-profile clients including McDonald's and Walmart. At present, I am based in Beijing, serving as the Global Quality and Food Safety Director for Dairy and Plant-Based Beverages at The Coca-Cola Company. My expertise extends to quality and food safety management systems throughout the supply chain, specialising in hygienic design, cleaning and sanitation, validation of thermal and aseptic processes, and environmental microbiology monitoring, among others.

Why did you decide to become an EHEDG Authorised Trainer?

I decided to apply to become an EHEDG Authorised Trainer as a natural outcome of my passion to promote hygienic design and food safety.

We have to redefine the concept of training, moving away from the idea of 'a one-way process'. No longer a giver of lectures, a trainer must be capable of providing business solutions. Prior to the course we need to understand the needs and expectations. During the training itself we need to interact with the participants, supplement the essential content with more hands-on input, and encourage a correct interpretation of the guidelines. This approach empowers trainees to apply their in-class learning in their day-to-day, practical scenarios. I believe this is the real value that we, as EHEDG, can offer to the audience. Every aspect of hygienic design and engineering is a proactive step to ensure safe food and beverage production. It is also a fantastic opportunity to network with professionals across the whole supply chain – food and beverage producers, and equipment manufacturers.

Do you see an increase in hygienic design awareness and interest in your region?

Yes, absolutely. I started my career with a state-owned enterprise in the early 1990s, at a time when Good Manufacturing Practices (GMP) and Hazard Analysis Critical Control Points (HACCP) principles were just being introduced in China. Over the past three decades, I've witnessed a significant increase in awareness and interest in food safety, including hygienic design. Given the massive scale of the food industry in China – both in terms of production and consumption – food safety is absolutely essential. China has also become one of the world's largest equipment manufacturers. Reflecting on various food safety incidents as a food manufacturer, many of them are related to cross-contamination from processing equipment or the processing environment. Every incident simply erodes the trust of our consumers, and is pushing manufacturers to stay ahead of food safety risks. Hygienic design has been unanimously recognised as a prerequisite in managing such hazards. The government is also strengthening supervision in the food industry. China's national standards – the GB 4806 series (General Safety Requirements on Food Contact Materials and Articles) and GB 9685 (Standard for the Use of Additives in Food Contact Materials and Articles) – are probably the strictest regulations in the world. But when we look at the understanding and implementation of hygienic design, we are still at the development stage. There is definitely plenty of room for improvement, and I hope I can contribute to this growth.

> ***"We have to redefine the concept of training, moving away from the idea of 'a one-way process'."***

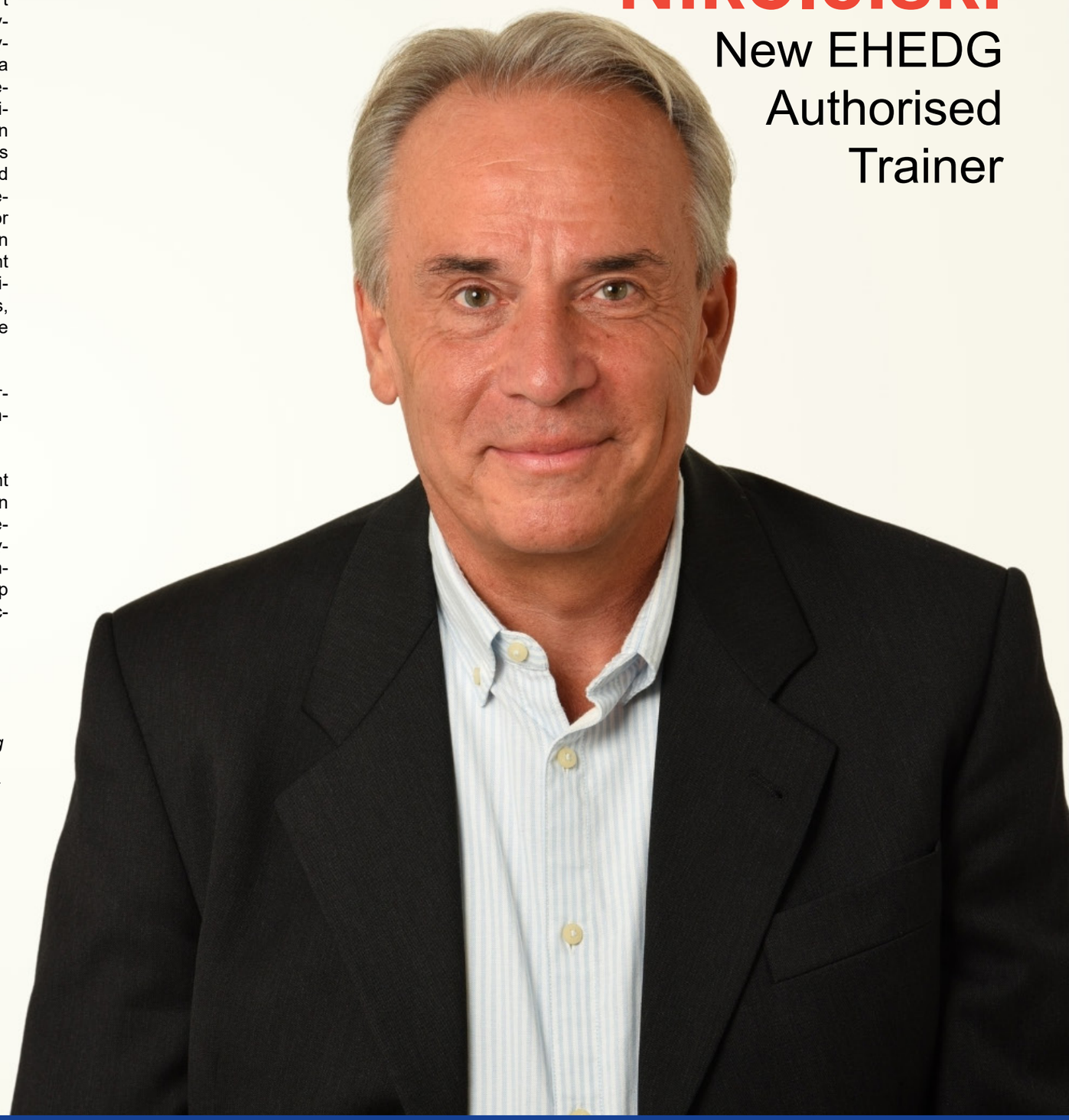
What main challenges do you think the industry will have to face in the future, in regards to food safety and food quality, productivity and sustainability?

The first challenge that comes to my mind is optimising cleaning and sanitation. This is an ongoing technical discussion on how we can achieve a balance in improving the efficiency of the cleaning programme, by reducing downtime, minimising chemicals, water and energy use, without compromising effectiveness. Hygienic design and cleaning always go hand in hand. If we look to a sustainable future, at the factory of tomorrow, I see increased automation, better and easier real data collection, tracking and analysis for making decisions with more defined outcomes. I see a more robust application of robotic systems and AI. There are high demands from the market, and we need to keep pace with such demands. Our ultimate goal is to provide the products our consumers ask for, while continuously delivering on our commitment to food safety.

***Wang Gang**, Global Quality and Food Safety Director for Dairy and Plant-Based Beverages (The Coca-Cola Company), EHEDG Authorised Trainer*

Dirk Nikoleiski

New EHEDG Authorised Trainer



Dirk, you are a known face within EHEDG – Chair of the Working Group 'Cleaning and Disinfection', active participant in many others, and also member of the Regional Section Germany. Why did you decide to become an Authorised Trainer?

Actually, there were a couple of reasons, and I have had it on my list for quite a while.

When I was working for a food manufacturer as a kind of internal consultant, I was already providing hygienic design training for stakeholders in the company. There is a strong need not only to discuss hygienic design from a technical perspective, but also to develop the skills and capabilities, so that multidisciplinary teams share a common ground for decision-making. At that time, I attended the EHEDG Advanced Course, which helped a lot in developing the in-house training materials. Being with Commercial Food Sanitation now, a global consulting company active in the area of food hygiene, I'm still involved in the creation and delivery of hygienic design training courses. The EHEDG Advanced Course, with its focus on the EHEDG guidelines content, complements our approach very well: together they play a crucial role in raising the bar of hygienic design in the industry.

Last but not least, I like interacting with people. As a trainer, you will always be challenged to reassess your own knowledge base, or what you perceive to be your expertise. You only develop yourself with other people around, not by sitting in an ivory tower, reading books.

Do you see an increase in hygienic design awareness and interest?

With my team, I'm providing consultancy services and training courses for the entire food industry in Europe, the Middle East and Africa. To be honest, hygienic design awareness does not differ very much across countries. It is more a question of the food safety culture in a company and management commitment. Very often hygienic design is considered to be a series of technical standards and a discipline of its own. But it is more than that. If you understand the 'why', the next questions are 'what' and 'how'. Awareness is: 'why is hygienic design important for my business?' In our training sessions, we provide responses and also engage in discussions about 'what to do' and 'how to implement hygienic design' in practice.

What main challenges do you think the industry will have to face in the future, in regards to food safety and food quality, productivity and sustainability?

I think food safety, food quality, productivity and sustainability are all interconnected, and shouldn't be considered in isolation when discussing hygienic design. Of course, the main objective of hygienic design is to support food safety. Here I see a push coming from the new benchmarking requirements issued by the GFSI (Global Food Safety Initiative) in 2020. These have in the meantime been taken into account by certification process owners such as the BRC (British Retail Consortium) and FSSC, when updating their Food Safety Management Standards. In short, the expectations for food manufacturers are that the hygienic design requirements for food manufacturing equipment should be defined and assessed by multidisciplinary teams using a risk-based approach. This is, indeed, what we have been training for over the years, and now it will be compulsory.

I anticipate an increased demand for training, particularly in the area of risk management concerning food hygiene through hygienic design.

I also expect that this will influence equipment manufacturers, leading to higher hygienic design expectations as outlined in Food Safety Management Standards, particularly in fields such as hygienic building and infrastructure design. The implementation of these requirements will also help food manufacturers to meet their quality, productivity and sustainability goals.

***Dirk Nikoleiski**, Food Safety Director (Commercial Food Sanitation), EHEDG Authorised Trainer, Chair of the EHEDG Working Group 'Cleaning & Disinfection' and member of the board of EHEDG Regional Section Germany*

China

Could you introduce yourself and your organisation?

My name is Monica Chen. My own company, Multi Flux Co., offers hygienic design consulting services to food factories in regards to materials and equipment, flooring, drainage and maintenance parts.

I chair the EHEDG Regional Section China, and am also a member of the Youth Committee of the Chinese Institute of Food Science and Technology (CIFST).

How would you describe the Chinese market in regards to hygienic design?

Following the training we carried out in Shanghai, I sense an increased awareness of hygienic design, given the rigorous food safety standards and the continual introduction of new products by manufacturers each year. The industry is facing significant pressure concerning quality and safety, prompting a quest for sustainable solutions that can bolster quality control and enhance efficiency, while at the same time reducing costs. China has over 170,000 enterprises active in the food and beverage sector, and more than 17 million companies operating under different brands. It is a vast and dynamic industry landscape. The demand for hygienic design is therefore enormous.

What are the main challenges and opportunities?

I think we are faced with two challenges. First of all, we need to establish a robust network, encouraging the active participation of volunteers and fostering a stronger internal training infrastructure. Our current training resources are not able to keep up with the demand for courses. The second challenge is how to provide effective support to companies genuinely committed to hygienic design, how to assist them with the integration of hygienic design principles into their production processes. On a positive note, there are also two promising opportunities. Since 2015, our collaboration with the Chinese Institute of Food Science and Technology (CIFST) has helped us establish a good presence in the country. By targeting leading food producers, we can disseminate more knowledge and convey the advantages of hygienic design to their suppliers and industry followers. The Yili Group is the perfect example. After a comprehensive study of the EHEDG guidelines and a dedicated training programme, Yili successfully implemented hygienic design principles into their daily production processes, reaping significant benefits. This success story serves as a valuable practice model that we are eager to share with other companies and EHEDG Regional Sections.

What is your strategy to develop the region?

First of all, I would like to thank EHEDG for placing full trust in me and giving me the opportunity to chair the Regional Section. Our main target is enhancing the team of trainers and the quality of the courses they deliver. We aim at training all our partners, so that they become proficient in all hygienic design-related aspects. To develop China we will also need to build collaborative relationships with more food industry stakeholders – to expand our network, but also to contribute to a more comprehensive understanding and application of hygienic design principles.

We have the ambition to move EHEDG Regional Section China to the next level, marked by even greater success and impact in promoting good food safety practices.

***Monica Chen**, Owner (Multi Flux Co. Ltd), Chair of the EHEDG Regional Section China*

Regional Sections

Denmark

Could you introduce yourself and your organisation?

My name is Per Væggemose Nielsen. Having earned a Ph.D. in Biotechnology from the Danish Technical University, I dedicated a significant period to teaching and research before transitioning to the industry, where I have been actively engaged for the past decade. I am currently working as a Global Food Safety Microbiologist at CP Kelco, a food ingredients company producing hydrocolloids and stabilising agents. CP Kelco has a long history dating back almost a hundred years, and has factories in Denmark, Germany, Brazil, the United States and China. In my role I assist local teams and ensure that hygienic design principles are correctly applied in all production facilities. This is in response to an increasing demand for enhanced quality and for a stable, safer product.

How would you describe the Danish market in regards to hygienic design? What are the main challenges and opportunities?

Danish equipment manufacturers of pumps, valves, sensors or robotics have a good knowledge of hygienic design, with a number of EHEDG-certified components in the market. Some service providers are also involved in EHEDG activities. However, it's a different story when it comes to users. Considering some of the contamination cases that have occurred in the country, it seems that many small producers are not as aware of hygienic design as other industry stakeholders. They often hesitate to invest in hygienic design because of financial constraints and other perceived priorities. Particularly in the bakery and fishery sectors, we can see an opportunity to address and fill knowledge gaps using the guidelines that EHEDG Working Groups have published for these specific sectors.

What is your strategy to develop the region?

When it comes to the academic world, we have succeeded in making hygienic design an integral part of university programmes, sharing real-world scenarios and demonstrating its practical applications in industries such as food processing. The Food Technology curriculum offered by the Technical University of Denmark in fact includes a mandatory course on Hygienic Design in the Food Industry; Alan Friis and myself have delivered guest lectures as part of this. The Regional Section Denmark has also been fostering research programmes on food quality, microbiology, sustainability, the use of AI, the IoT, the application of 3D printed materials in the industry, and other innovative topics related to hygienic design.

In the years to come, we also aim to tighten the collaboration with the Nordic chapters and offer even more EHEDG Fundamentals and Advanced Courses, with FORCE Technology as the organiser.

Per Væggemose Nielsen, *Global Food Safety Microbiologist (CP Kelco), Chair of EHEDG Regional Section Denmark*

My name is Natacha Holmud.

I received my BSc in Life Science Engineering from the Technical University of Denmark. During my studies, I joined the R&D department of Aasted ApS, a manufacturer specialising in the development and production of machinery for the chocolate, confectionery and bakery industries. In my role, I had to deal with a great deal of technical documentation pertaining to ad-hoc solutions for some of the largest chocolate producers in the world, which included both risk assessment and customised cleaning procedures. An incredible opportunity to incorporate best practice in my learning process and know more about legislation, and machine and process design. Over time, I became more and more interested in hygienic design and the food aspects of life science engineering - rather than the pharma and biotechnology sides. This is why I subsequently decided to pursue a Master's degree in Engineering and Food Technology, and was promoted to research assistant at Aasted ApS. Here, I also started to educate customers in quality control and analysis methods, which I contributed to developing.

Early in 2023, I joined FORCE Technology, working as a Hygienic Design Consultant. FORCE Technology is a leading research and technology organisation headquartered in Brøndby, Denmark – where one of the EHEDG Authorised Testing Laboratories is situated. I am in fact also training to become an EHEDG Authorised Evaluation Officer, under the supervision of Alan Friis. In my day-to-day work, I perform bacterial contamination screenings and conduct research on the cleanability of materials and surfaces, disinfectants, and so on. My objective is to improve the microbiology section of the EHEDG Certification, and educate student workers to apply specific hygiene principles in their projects. When it comes to EHEDG documentation, you cannot really avoid Guideline 8. It describes not only the fundamental hygienic design principles, but also the mindset required for incorporating hygienic design when creating or constructing something, and including the processes and environment surrounding the equipment. This is a document that I always refer students and clients to. Given my previous experience in the chocolate processing field, I joined the EHEDG Working Group 'Chocolate Processing', and in the future I may contribute to the Robotic Systems group as well.

All in all, I am aiming to apply what I have learned and inspire people with my mindset. EHEDG is an organisation that offers new perspectives, and where it is possible to have a tangible impact on food safety. I like to look at the bigger picture. I'm young and have big ambitions.

Natacha Holmud*, Hygienic Design Consultant (FORCE Technology), member of EHEDG Regional Section Denmark, member of the EHEDG Working Group 'Chocolate Processing' and probationary EHEDG Authorised Evaluation Officer*

Regional Sections

Could you introduce yourself and your organisation?

My name is Jędrzej Gajda. I'm currently the Sales Director for Poland at ATT Inox, a company that I joined fifteen years ago. ATT Inox provides specialised products and customised stainless steel constructions. Apart from the domestic market, it implements projects in over 50 countries across the world.

How would you describe the Polish market in regards to hygienic design? What are the main challenges and opportunities?

Following the systemic transformation in the early 1990s, the Polish food industry found itself inadequately equipped to meet the demands of the newly emerging and open market. The relatively small number of food processing plants at that time, when contrasted with the rising demand in various branches of food processing (fruit and vegetables, brewery, dairy and so on), created attractive investment prospects that led to the rapid development of the sector. This included both small, locally financed factories and huge projects carried out by powerful international corporations.

Three decades later, the Polish food processing market has evolved into a cornerstone of the domestic economy. Polish food is known for its superior quality and use of natural ingredients.

This rise to prominence was accompanied by a growing awareness of hygiene issues in the production process. Polish producers swiftly adapted and learned from the experiences of their international counterparts. At the same time, faculties specialising in food production technology at Polish universities, in collaboration with chemistry and microbiology departments, cooperated closely and fruitfully with business entities, striving to improve food processing hygiene standards.

Today, hygiene standards in the majority of food plants in the country appear to be satisfactory, particularly when compared to similar facilities in the Central and Eastern European (CEE) region. Oversight of our domestic food production is diligently maintained by authorised institutions and internal microbiological laboratories.

Poland

Hygiene-oriented design and a constant increase in awareness among designers and producers alike is, of course, a process. There is still a great deal of room for improvement in the industry. Companies such as Diversey, Mondelez and ATT Inox actively participate in efforts to refine the hygienic design process, which was the objective of the EHEDG Conference which we held in November in Krakow.

What is your strategy to develop the region?

Our strategy involves convincing those responsible for food production processes of the benefits of collaborating and exchanging experiences, by using dedicated platforms and channels, such as seminars and conferences. It is necessary to familiarise production supervisors with publications dealing with hygiene guidelines. It is equally important to point out the importance of machine certification and the necessity to constantly update one's knowledge of this subject.

During our sales visits, as an EHEDG member, we promote awareness of the hygiene issues associated with operating, introducing and certifying food processing machinery.

For 2024 we are aiming to develop webinars and media publications on the theme of hygienic design, as well as strengthening the relationship with the academic world by organising a seminar at one of the universities in Poland offering a curriculum in Food Technology. We also plan to hold another EHEDG Conference to encourage cooperation among members, and to spread the message among partners and customers about such events.

***Jędrzej Gajda**, Sales Director (ATT Inox), member of the EHEDG Regional Section Poland*

Regional Sections

South Africa

Could you introduce yourself and your organisation?

My name is Peet Grobler. I have 37 years' experience in providing hygiene, technical and food safety solutions to the food and beverage industry throughout Africa. I am Chair of the EHEDG Regional Section South Africa, and Head of Hygiene and Food Safety and Business Director at Sentratek Holdings, the chemical division of the OFT Group. The OFT Group comprises a number of companies offering chemicals, hygiene and engineering solutions, and water treatment and food safety consulting services to the food and beverage industry in Africa.

How would you describe the South African market in regards to hygienic design?

The food and beverage market in South Africa is mature, with many national and international companies as well as small to medium-sized producers. From a food safety and hygienic design perspective, we obviously have various requirements and limitations, depending on the size of the operations. Large manufacturers have well-established food safety programmes in place, mainly driven by exporting to Europe and by the standards demanded by retailers. Facilities can range from well-designed factories to legacy ones that provide food safety challenges, especially when companies that start with a small output extend their capacities over the years, not always considering the impact of such expansions on managing food safety risks. Regarding processing and other equipment, we have different international and national manufacturers operating in the country, supplying equipment to the processors and directly supporting the food and beverage industry. We notice a number of EHEDG-certified components being installed mainly in the major food processing facilities, and other locally manufactured equipment predominantly supplied across the industry.

What are the main challenges and opportunities?

The Regional Section South Africa was established in 2019, just prior to the onset of the Covid-19 pandemic, which disrupted various planned activities. When it comes to challenges, lack of awareness of EHEDG and hygienic design, and underestimating the impact of poor equipment design on product quality and food safety are some of the key aspects. As for the opportunities, we have identified various avenues to engage all stakeholders within the food and beverage industry: collaboration with local equipment manufacturers, providing guidance on good hygienic design principles, as well as close cooperation with the wider industry through awareness, education, knowledge transfer and technical support. Hence we see an opportunity to promote the EHEDG certification scheme and the benefits it can offer to both the South African equipment suppliers/manufacturers and the processors. We wish to establish close engagement with EHEDG international company members operating in the country, such as Unilever, Nestlé, Mondelez and others. We are also strengthening our relationships with some key retailers such as Woolworths, one of South Africa's largest retail groups.

What is your strategy to develop the region?

Our strategy is designed around engaging all stakeholders in the South African food and beverage industry. To this effect, we have undertaken a number of activities which included a collaboration with various organisations such as the Red Meat Abattoir Association, the Dairy Standards Agency and the South African Association for Food Science and Technology (SAAFoST), through joint webinars and exhibitions. We are also directly interacting with food processors through validations and verifications of their operations using the EHEDG guidelines, and in-house training for national and international companies based on the Fundamentals and Advanced Hygienic Design courses developed by the EHEDG.

In collaboration with EHEDG Authorised Evaluation Officers, we have held webinars to introduce the EHEDG Equipment Certification scheme, process and benefits. This year we had the honour of presenting at the Woolworths Suppliers Food Safety Day in Cape Town, which was attended by delegates from more than 100 food manufacturing facilities. The purpose of the conference was to focus on pathogen and segregation control in production, sharing best practices and innovations to address these risks. We also concluded our first public course on EHEDG Advanced Hygienic Engineering and Design, endorsed by the University of Pretoria. The course is registered and contributes continuing professional development (CPD) points every year. From an academic perspective, agreement has been reached with the University of Pretoria, where Hygienic Design modules will be presented on a guest-lecture basis to the post-graduate students, fostering a holistic understanding of how different fields contribute to hygienic practices, and equipping students with the skills and knowledge directly applicable to industry needs.

***Peet Grobler**, Group Head Hygiene & Food Safety (OFT Group), Chair of EHEDG Regional Section South Africa*

Türkiye

Could you please introduce yourself and your organisation?

My name is Onur Devres. I am a Mechanical Engineer with an Associate Professorship Degree in Thermodynamics and a Professorship in Food Technology. I had been an academician at the Istanbul Technical University before establishing my own company in 2011. The following year, in collaboration with the Turkish Food Safety Association, EHEDG inaugurated its local chapter. After successfully completing an EHEDG Advanced Course in Istanbul, I applied to become an EHEDG Authorised Trainer and was formally appointed. Since 2014, we have been delivering EHEDG training alongside Prof. Barbaros Özer to more than 500 delegates.

How would you describe the Turkish market in regards to hygienic design? What are the main challenges and opportunities?

The Turkish food industry offers a wide range of products, including processed foods, dairy, confectionery, and beverages. Over the years, there has been a push for modernisation and the incorporation of technology in food production processes, to enhance efficiency and meet international quality standards. Awareness of hygienic design is probably one of the main challenges, but it also presents an opportunity. We can seize this by promoting a more comprehensive understanding of food safety and ensuring that all industry stakeholders adhere to best practices. This approach will also enable food processing equipment manufacturers to improve their competences in hygienic design and offer better-developed products to domestic and international markets.

What is your strategy to develop the region?

The first EHEDG Turkish member joined after contact at the Anuga FoodTec Trade Fair in 2015. To date, the number of Turkish company members has increased to 34. Additionally, 26 representatives from EHEDG company members that have local subsidiaries in Turkey became part of the foundation. All developments and communications regarding EHEDG are shared through a Google Group, which includes approximately more than 150 people from these companies. This channel also contributes to the development of commercial relations between members.

To ensure sustainability, EHEDG activities need financial support. Therefore, my goal is not only to promote hygienic design in the region but also to carry out initiatives that can contribute to its development, from a financial perspective as well. In this regard, I visit companies and current Turkish members throughout the year to provide information and updates. We also organised the ‘Hygienic Design Day’, an exclusive event for EHEDG members, in 2019, 2020 and 2023, to raise awareness about the organisation and strengthen member relationships.

***Pr. Dr. Onur Devres**, Consultant (Devres Technology and Consulting), Co-Chair of EHEDG Regional Section Turkey and EHEDG Authorised Trainer*

Brazil

How would you describe the Brazilian market in regards to hygienic design?

Brazil is famous for its well-established meat processing industry, for both domestic consumption and international markets. In the 2022 world ranking, Brazil was the second and third largest producer of beef and chicken meat respectively, and the largest exporter of these products. It is also one of the world's main agricultural producers, thanks to its abundant natural resources and fertile land. For centuries it has been a major coffee and sugar supplier, but it is now exporting more innovative and local products, such as superfruits, nuts and soybeans. According to the Brazilian Food Industry Association (ABIA), the food and beverage industry is the largest in Brazil, and 58% of everything produced in the field is processed by the industry. There are 38,000 food and beverage companies, which generate 1.8 million jobs and whose revenue represents 10.8% of the national GDP. Over 1,030 companies are certified under GFSI standards and must comply with stringent food safety regulations due to corporative goals. These organisations are EHEDG members. Others are looking at hygienic design as part of their competitive strategies, and are seeking more knowledge in this field. There is also a huge market share that has not yet discovered the advantages of hygienic design.

What are the main challenges and opportunities?

Certain companies do not yet see the long-term benefits linked to hygienic design. Our local inspectors are strict when it comes to building design, but do not go into in-depth detail in the application of hygienic design principles in equipment. And this is not due to a lack of legislation. Food safety and quality are of paramount importance in Brazil's food industry. It is clearly stated that equipment should be easy to clean and accessible for cleaning.

What is your strategy to develop the region?

Our strategy is to use the same formula as the EHEDG World Congress and Plenary Meeting – and achieve active participation by all stakeholders. At our events, we invite equipment manufacturers and service providers, present basic concepts for newcomers, and engage in more advanced discussions with those already familiar with hygienic design. We involve the academic world and research institutes. We approach equipment users, mainly previous participants on our EHEDG Advanced Courses, to present case studies and show how the application of hygienic design can enhance productivity and food safety, while also offering savings. Alongside this, equipment integrators have the opportunity to present their solutions from a technical perspective. We also provide in-house training with customised content.

In 2025, we will celebrate our tenth anniversary as a Regional Section. We plan to organise a major seminar and inaugurate an education room featuring real-world examples of hygienically designed solutions.

***Juliane Dias**, Food Safety and Quality Communicator & **Carla Gomes**, Hygienic Design Consultant (Flavor Food Consulting), EHEDG Regional Section Brazil*

***Marisa Padula**, Researcher (ITAL - Institute of Food Technology), Chair of EHEDG Regional Section Brazil*

France

On 2-3 October 2024, EHEDG will be holding its biannual World Congress in the city of Nantes, capital of the Pays de la Loire in western France. Which is why a conversation with three of the key leaders of EHEDG France is something that we just couldn't miss in this edition.

Would you like to briefly introduce yourselves and your organisations?

Erwan Billet: I'm the director and founder of Hydiac, a consulting and training organisation in the field of hygiene and cleaning, particularly in the food industry, but also in pharmaceuticals, cosmetology and hospitals. I have been president of EHEDG France since 2009, and this will be my last year as its president.

Maxime Chevalier: I am the treasurer of EHEDG France, Janyce is vice-president, and Olivier Rondouin is secretary. The office of EHEDG France is in Laval, not far from Nantes. Since 2005, I have been working for a company called PCM, a manufacturer of various types of positive-displacement pumps. My head office is an hour from Nantes. I joined the EHEDG Board of Directors in 2014.

Janyce Franc: I am vice-president of EHEDG, and CEO and co-founder of Sterixene, based near Avignon, which specialises in decontamination using pulsed light and UV LEDs.

How would you describe the French market in terms of hygienic design?

Erwan: In France, there are around 70,000 food-related companies – big ones like Lactalis, and then many SMEs (small and medium-sized enterprises), including one-person farms. It's quite a serious market. Over the past few years, there has been a real desire in most agrifood companies to move towards hygienic design, following a number of health crises. As a result, there has been a big increase in the need for both knowledge and support in the field of hygienic design. And this is linked to a number of factors: contamination, of course, but also energy crises, plus the problem of water consumption and cleaning time, both of which cost money. On top of that, we have a serious problem with plants that are very old.

Maxime: Concerning these small farmers, quite a few of them end up coming to trade shows, interested in materials-saving and cleaning systems. So they, too, are starting to become aware of the importance of it all.

What are the main challenges and opportunities in the hygiene sector in France?

Erwan: Companies are realising the importance of hygienic design. The problem is that they don't automatically know how to tackle the problem – all the technical details, the costs, return on investment, etc. At EHEDG, we need to explain the benefits of hygienic design, including in terms of financial control. What's more, there is not much legislation on hygienic design, even in Europe, apart from the machinery directive. I would say that as long as there is no legal obligation at European level, many companies will hesitate before moving towards hygienic design.

What is your strategy for developing this sector in France?

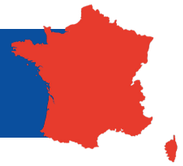
Janyce: A major challenge for us is to work with schools and universities to help students who are going into the food industry. Right from the start, we have to explain to them what hygienic design is and why it's important for the future. We are doing it, but maybe not enough yet – perhaps especially not as the EHEDG. It's all about communication – via schools, but also via contributions to professional journals. And we are trying to reach the decision-makers in the agrifood industry, the government among others, to explain the importance of it all. And we go to trade shows as often as possible.

Maxime: The students, the future professionals, will be in charge after us. But they are not very aware of hygienic design. That's where we really have a role to play: to interact with them, show them that industrial issues are not the same as those in laboratories, and that tomorrow, when they are operating in the industry, there will also be consumers to consider.

Erwan: Another thing we want to develop is actions with other EHEDG regional sections. We need to cooperate more with them to create webinars, maybe even special modules. We are a little too 'French'.

Janyce: That's extremely important. The bigger our network, the more people will talk about EHEDG. The important point is to hold conferences open to everyone, members and non-members alike.

Regional Sections



France

EHEDG World Congress 2024

2 & 3 October | Nantes, France

‘Achieving hygienic excellence by design’

Nantes will host the World Congress EHEDG 2024: what can we expect from the city and the event?

Erwan: The EHEDG central office is organising this congress. We are helping them, trying to introduce a little French style and bring something new to the debates and conferences, with enough young people and so on.

Janyce: With a conference like this, you are in a setting, a city. So why Nantes? Because the majority of our EHEDG members are based in the west of France. It’s the main agrifood area of the country. And also, the congress needed to be where there is an international airport. In addition, it’s easy for us because Maxime and Erwan are based not far from Nantes, and Erwan and I know Nantes well, having lived and studied there.

Erwan: And then there’s the historical aspect – it’s the city of Jules Verne, who was born there. There is a connection there with hygienic design, because Verne was full of ideas for innovative materials and devising new things. And Nantes is a university town – the academics have already shown great interest in the congress.

Janyce: What’s more, you’ll find Breton culture and gastronomy there. Because even though Nantes is the capital of the neighbouring Pays de la Loire region, there are a lot of references there to Brittany, like the historic Château des Ducs de Bretagne.

Maxime: The Loire is a major presence. There’s the port of Nantes and everyone is familiar with the châteaux on the Loire. And let us not forget that this is a wine-growing area, too.

Janyce: Site accessibility is important. We are trying to limit the number of people who have to travel during the week of the World Congress, while at the same time raising awareness of the need to save energy and protect the environment.

Erwan: As for communication about the event, the French trade press is already interested. We are also going to have coverage in the regional and national press, and why not the international press also? A congress like this can be of enormous interest to journalists from all the media. There will be a lot of companies there, evolving and trying to imagine the future of the agrifood industry. Agrifood has to be safer, but also greener. We need to succeed in linking the two, to have healthier products and to control the environment.

Maxime: And let’s not forget the sponsors, who are very much involved with the congress.

Erwan: They will be very visible!

Erwan Billet, Founder and Director (Hydiac), Janyce Franc, Co-founder and CEO (Sterixene) and Maxime Chevalier, Food Systems Engineering Manager (PCM Europe), board of EHEDG Regional Section France

Inspiring Keynote Speeches, Breakout Sessions, Poster Area, Sponsor Tours*, Networking & more**

Register now!

Topics of the congress

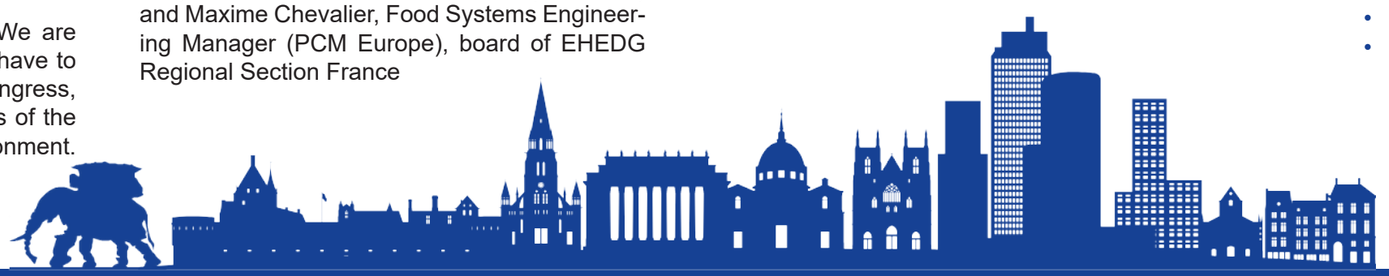
Microbiology:
- Advances in Pasteurisation & Sterilisation Methods
- Innovations in Microbial Control

Toxicology:
- Strategies for Ensuring Product Safety

Open Cleaning:
- Sustainable Cleaning Practices
- Open Cleaning Technologies and Applications

Infrastructure:
- Hygienic Design in Facility Layouts
- Case Studies on Infrastructure Enhancements

Materials:
- Hygienic Materials Selection
- Emerging Materials for Hygienic Design
- Topics of the congress



* Last sponsorship opportunities available

** Call for Speakers & Posters submission still open

EHEDG ONLINE CONGRESS 2023

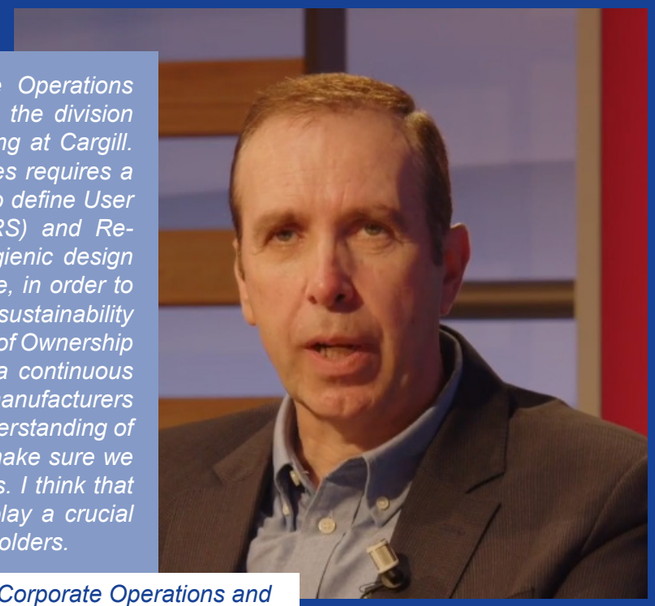
Food safety covers the entire food chain, and includes the stages of manufacturing/preparation, handling, transportation and storage using methods that manage potential hazards and prevent foodborne diseases. An important part of achieving safe food is the hygienic design of the production process. ‘We have gathered more than 200 years of practical experience in food safety,’ was the opening remark by EHEDG President Hein Timmerman, as he welcomed viewers from all over the world to learn from the case studies shared by the keynote speakers during the EHEDG Online Congress in October.

The EHEDG Online Congress 2023 proved to be a resounding success, drawing over 600 eager attendees. This virtual event served as a platform for food industry professionals to delve into the intricate world of hygienic design. Participants had the unique opportunity to explore how such design principles not only strengthen food safety standards, but also elevate overall food quality, enhance productivity, and reinforce sustainability efforts. Through engaging presentations and panel discussions, attendees gained a comprehensive understanding of how incorporating hygienic design practices into food production processes can yield multifaceted benefits.

Relive the events of the EHEDG Online Congress here

My name is John Donaghy, I’m the Head of Food Safety at Nestlé, responsible for global operations. At the Online Congress we were able to network with fellow colleagues and highlight how hygienic design, food safety, food quality, productivity and sustainability all go hand in hand. Hygienic design and engineering are prerequisites, and during the event we made reference to a number of EHEDG documents that can serve the industry. I hope that small and medium enterprises can also tap into the topics that were discussed, and pick up some nuggets of information.

***John Donaghy,** Head of Food Safety (Nestlé)*



I’m Patrick de Wilde, Corporate Operations and Capability Centre Director in the division of Food Processing and Packaging at Cargill. Building new facilities or processes requires a robust and risk-based approach to define User Requirements Specifications (URS) and Requests For Quotation (RFQ). Hygienic design topics are critical issues to include, in order to positively influence productivity, sustainability goals and ultimately the Total Cost of Ownership (TCO). It’s fundamental to have a continuous dialogue between equipment manufacturers and users, to have a common understanding of each other’s challenges, and to make sure we work on continuous improvements. I think that the EHEDG platform can really play a crucial role in connecting all these stakeholders.

***Patrick de Wilde**, Corporate Operations and Capability Center Director in the division of Food Processing and Packaging (Cargill)*

My name is Georg Kalss. I’m the Materials Science Principal & Food Safety Ambassador, Consumer Foods at Bühler. During the Online Congress we emphasised how sustainability, total cost of ownership and the use of resources are all connected to each other – and require a lot of fine-tuning. In addition, we talked about mycotoxins and other threats to food safety. Because of climate change, different hazards are anticipated, so guidance will be more necessary than ever. EHEDG is in the best position to guide the interaction between the industry and the market.

***Georg Kalss**, Materials Science Principal & Food Safety Ambassador Consumer Foods (Bühler)*

EHEDG ONLINE CONGRESS 2023

I'm Olivier Couraud. I work as a Food Safety Specialist at Commercial Food Sanitation. The primary focus of EHEDG was originally components – valves and pumps, for example – but we are working more and more on whole food production and equipment manufacturing processes, from farm to fork, and from the first planning phases to turnkey delivery. The GFSI has started incorporating hygienic design in food safety management programmes. Hygienic design has received a significant boost, and we need to continue to build on that. Events like the EHEDG Online and World Congress are an opportunity to reinforce the value of hygienic design, and network with a pool of experts that is continuously expanding.

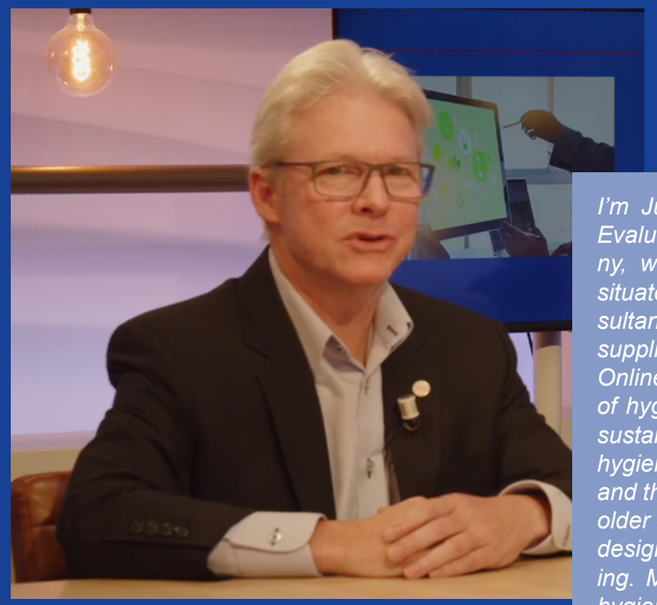
***Olivier Couraud**, Food Safety Specialist (Commercial Food Sanitation)*

My name is José Mellenbergh. I work at Tetra Pak as a Food Safety Specialist, currently focusing on materials and parts that are in contact with food. I enjoyed being a panellist and appearing alongside other food safety enthusiasts and experienced colleagues from different businesses. We had an open and transparent exchange on hygienic design and sustainability, where we were able to highlight some of the critical factors that can affect them. Of course, the topic is so broad that we couldn't cover everything! But we hope that the roundtable inspired other people to continue the discussion. Together, as an industry, we can keep on learning and developing – and ultimately delivering safe food to consumers.

***José Mellenbergh,** Food Safety Specialist & mpFC Officer (Tetra Pak PS&E Global)* Since February 2024, José works at Van Geloven Group*

I'm Jim Hartley, Global Sanitation Director at Mondelēz. It has been a great couple of days focussing on productivity and sustainability, two closely related topics. It was interesting to hear different perspectives from other food suppliers and equipment manufacturers. Whichever company you are with, we all face the same kind of challenges. Accessibility, for example. Hygienic design cannot be restricted to the individual piece of equipment – it is about the overall installation, how that piece of equipment relates to other components and to the factory as a whole. I believe hygienic design is still underrepresented in the industry, in terms of thinking. So let's keep raising awareness of it and ensuring that we put the right procedures in place. The four pillars of the EHEDG strategy (food safety and quality, productivity and sustainability) can really help businesses succeed in the long term.

***Jim Hartley,** Global Sanitation Director (Mondelēz) and EHEDG Advisory Board Member*



I'm Jürgen Hofmann, an EHEDG Authorised Evaluation Officer based in Munich, Germany, where the Authorised Test Laboratory is situated. I also work as a hygienic design consultant for food producers and their machinery suppliers. The panel discussion at the EHEDG Online Congress highlighted the significance of hygienic design in meeting productivity and sustainability demands. During my work as a hygienic design consultant for food producers and their machinery suppliers, I encounter both older and newer installations that lack hygienic design, making the cleaning process challenging. Many organisations require education on hygienic design. Fortunately, EHEDG is expanding as a foundation, offering significant potential for promoting these principles across the globe.

***Dr. Jürgen Hofmann,** Hygienic Design Consultant (Hygienic Design Weihenstephan), EHEDG Authorised Evaluation Officer, EHEDG Authorised Trainer and Co-Chair of EHEDG Sub-Committee Certification*

Plenary Meeting & Full Working Groups Day 2023

Over 100 attendees from the EHEDG Foundation, Advisory Boards, Working Groups and Regional Sections convened in Istanbul on 17-18 October for the 2023 EHEDG Plenary Meeting and Full Working Groups Day, to reflect on the work accomplished, and the work that remains to be done, as individuals, leaders, representatives of companies active in the food industry, end users and equipment manufacturers alike. But more importantly, as members of a global organisation – to deliver on the vision of safe and high quality food, produced in an optimal and sustainable way.

During the Plenary Meeting morning session, participants received updates from the EHEDG Sub-Committees and the EHEDG Head Office. In the afternoon, an OGSM exercise (Objective, Goals, Strategies, and Measures) was conducted. This structured approach is crucial for organisations, as it helps to clarify objectives, define measurable goals, outline strategies and tactics for achieving those goals, and establish specific measures to track progress. By engaging in this OGSM initiative, teams composed of EHEDG members with different backgrounds and expertise were able to contribute to drafting our roadmap and setting our priorities for 2024 and beyond.

The Full Working Groups Day brought together the active EHEDG Working Groups under the same roof. During this event, the chairs of the Working Groups Clusters shared insights and updates with each other and their team members, aiming to optimise work procedures, foster cross-knowledge exchange, and prevent any potential overlaps or gaps in efforts.

Outside the conference venue, delegates were able to enjoy a fantastic tour of some of the city landmarks, dinner on a boat on the Bosphorus, and a food and drink tasting session featuring traditional fare and delicacies from all over the world. A big thank you to our local host, Dr Onur Devres, who made this such a memorable, productive and inspiring event. The positivity in the room, the enthusiasm about all the future projects, and the pleasure of once again being able to meet in person were very palpable.

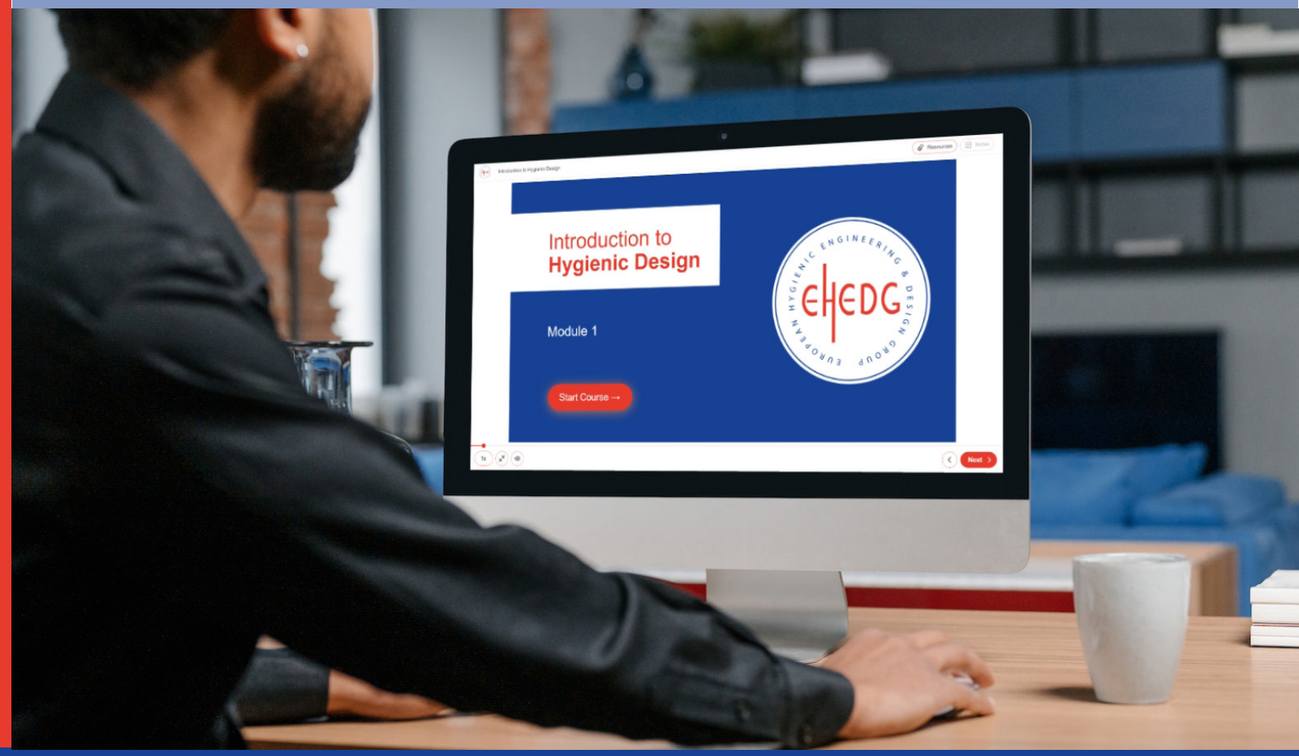
E-learning Catalogue

Whether you're new to the world of hygienic design or seeking to refine your expertise, our e-learning platform is ready to provide an immersive educational journey, enriched with real-world insights. Launched in July 2023, the first module in the pilot year is exclusively available to EHEDG members upon logging in. Here, you have the opportunity to empower your team members or peers with the essential knowledge needed in food safety and food quality.

The initial session is designed to raise awareness of hygienic design principles, showing their benefits in sustainability, cleanability and operational efficiency. Such awareness is a cornerstone in ensuring the production of safe, nutritious and environmentally sustainable food for consumers. A brief quiz reinforces key learning points, enabling you to sharpen your problem-solving skills.

In the second part of the module, you can immerse yourself in an ice-cream plant, where you will conduct a comprehensive hygienic design assessment. Here you'll delve into hygienic design issues spanning formulation and mixing, pasteurisation, ageing, blast chillers, filling machines and packaging, translating your knowledge into practical application.

Upon successful completion of the e-learning module, provided you achieve a minimum score of 80%, you'll receive a certificate of achievement to proudly share within your professional network. Access the website using your credentials, and embark on your learning journey today.



The EYE (EHEDG & Young EFFoST) Mentorship Programme is an initiative started by Young EFFoST in cooperation with EHEDG, which pairs young professionals from academia or industry with experienced individuals in food science and technology. Mentees and mentors engage in regular 1:1 meetings and work together on several topics according to their needs and preferences, with a focus on personal development and professional growth. The virtual interactions are complemented by an on-site event in Europe, organised to deepen the connections and create networking opportunities. The event features workshops and keynotes, and there are travel grants available for qualifying mentees. The mentorship programme spans one year, commencing in November at the EFFoST Conference, and emphasises goal-setting during the first meeting and collaborative progress evaluation throughout subsequent months.

Can you please introduce yourself?

Helen: I'm Helen, a 33-year-young food professional from Estonia. I have had international exposure throughout my studies and career, but am currently working as a researcher and project manager in the Center of Food and Fermentation Technologies (TFTAK) in Tallinn. I am supporting the organisation of various initiatives within Young EFFoST.

Sophie: I'm Sophie, 27 years old, originally from Austria, and I will soon be approaching the finishing line of my PhD in Food Science at the Norwegian University of Science and Technology (NTNU) in Trondheim. Within Young EFFoST I am responsible for communication and memberships.

Felix: I'm Felix, 34 years old, originally from Germany, and I am an assistant professor of Food Process Engineering at the University of Natural Resources and Life Sciences (BOKU) in Vienna. I am Co-chair of the EHEDG Regional Section Austria and Chair of the Young EFFoST Council.

How do the values and objectives of EHEDG and Young EFFoST align with each other?

EHEDG and Young EFFoST share a common commitment to fostering advancements in the food science and technology community, catering to the interests of both academia and industry. EHEDG places an emphasis on the equipment utilised in food processing and the corresponding facilities by developing guidelines to encourage the implementation of recommended practices.

Young EFFoST, on the other hand, is a network of young talents from the field of food science and technology – with a focus on PhD students and aspiring young industry professionals. We aim to provide a platform that facilitates connection, as well as personal and career development for the next generation. Both EHEDG and Young EFFoST strive to improve the way food is produced. By combining the practical industry-oriented focus of EHEDG with the research-driven perspective of Young EFFoST, we can bring together the best of the two worlds.

Are there any specific skills or outcomes you hope participants will gain through this experience?

In the programme, mentors and mentees are paired based on their respective backgrounds. The mentees' group consists of highly motivated young persons from the food industry and academia, including (prospective) PhD students and early-stage industry professionals. Regular 1:1 sessions between mentors and mentees take place, aiming to shed light on the mentee's career trajectory, provide insights for personal development, and enhance confidence within a professional setting.

Mentors, who come from the domain of food science and technology, have a minimum of five years' professional experience. While a prior mentoring background is beneficial, it is not obligatory. Participating in the programme is an opportunity for mentors to get to know promising future professionals, refine their leadership and mentoring competencies, and expand their professional network.

How do you envision the long-term impact of this initiative on the industry?

The EYE Mentorship Programme has significant potential to positively influence the food industry in the future. By fostering a collaborative learning environment, this initiative can facilitate the direct transfer of knowledge, the development of critical skills, and the cultivation of innovative perspectives from the mentees for the industry. As mentees gain insights from experienced mentors, they are prepared to contribute innovative ideas and approaches to meet industry challenges. This not only accelerates individual career growth, but also influences the broader food industry through a dynamic and forward-thinking workforce. The mentorship programme's impact extends to enhanced problem-solving capabilities, increased adaptability to emerging technologies, and the creation of a robust professional network. Ultimately, this initiative for food science and technology talents contributes to the industry's resilience, competitiveness, and ability to address evolving global demands, positioning it for continuous growth and advancement. Moreover, the knowledge of proper hygienic design transferred via the mentors from EHEDG will make its way into the industry through the mentees, where it will receive further emphasis in the future.

What advice would you give to a mentee?

Helen: Be open-minded and curious, and remember that your mentor is a learner, as well, during this interaction. Invest time in building a genuine relationship with your mentor. Learn about their experiences and share yours.

Sophie: Take the unique opportunity of the mentorship programme not only to connect with your mentor, but also to actively engage, learn, and grow both professionally and personally. Remember, this is a safe space!

Felix: I have a very general piece of advice that I would give to any young person who has a clear goal in front of them: 'Just ask!'. If you have a specific idea or plan in mind and want to get the right people for this on board, just fire off a message to them or - even better - approach them in person if you have the opportunity. People are more open to cooperation than you may think.

Helen Saar, *Food Researcher (Center of Food and Fermentation Technologies) and member of Young EFFoST*

Sophie Kendler, *Ph.D. in Biotechnology and Food Science (Norwegian University of Science and Technology) and member of Young EFFoST*

Felix Schottroff, *Assistant Professor (University of Natural Resources and Life Sciences - BOKU), Co-Chair of the EHEDG Regional Section Austria and Chair of the Young EFFoST Council*

EYE Mentorship programme

Mentors

Why did you decide to become a mentor?

Maxime: When EHEDG approached me to take on the role of a mentor, at first it did not feel like an easy decision. Being a mentor involves responsibilities towards the mentee and requires a strong degree of commitment and dedication within a hectic day-to-day business life. But then, realising it was going to be a unique opportunity to have exchanges with a student with the potential to play a significant role in the industry, it quickly turned into a resounding 'Yes!' Today's students hold the building blocks for our future. It is natural to offer them guidance and share experiences on how to place these building blocks, in full awareness that they will ultimately construct the wall on our behalf.

Stefan: I decided to join the programme as I mentored some students a few years ago, while working within Tetra Pak Research & Technology. My interaction with the academic world is less frequent now compared to the past, and becoming a mentor is a chance to step once again into the realms of science and research. My current focus area is food safety and all related topics, such as hygienic design, materials in food contact, zoning, food technology, and so on.

What specific skills and experiences do you bring to the table?

Maxime: For more than 23 years, I have applied my engineering education in various roles, transitioning from the water treatment industry to the field of food system manufacturing. I have therefore acquired significant experience in this area, facing challenges and failures – and enjoying successes too! I have also had opportunities to work with PhD students coming straight out of university, and I quickly realised that their expectations quite often differ from the perspectives of the industry. These differences have sometimes led to some level of frustration, as both parties have been inadequately prepared for this. Being aware of this and of the fact that Gabriele, my mentee, may consider moving into the industry, I am hoping to impart some of that knowledge to him, to prepare him for that kind of situation and hopefully pave his way to a successful career.

On a more specific note, I have been focusing on hygienic design for over 15 years now, from the design of a gasket to the manufacturing of a complete system at an international level. In the food industry, safety is paramount. Regardless of how excellent an idea or development may be, it will inevitably at some point confront the issue of consumer safety. This is also knowledge that I am looking forward to sharing with Gabriele.

Stefan: I have some background in guiding students during their Master's theses, and understanding the difficulties that may arise. A lack of experience can pose various challenges for students, not only in their current scientific endeavours, but also in establishing contacts and seeking opportunities. That's when the mentor comes into the picture. The mentor can assist and bring value to the student. A mentor typically has a network that includes contacts in academia, industry and professional associations, and for a student, every contact is valuable. Engaging with students and the academic community provides a valuable insight into ongoing research and future activities. Additionally, getting to know students from different countries, cultures and backgrounds adds an intriguing dimension to the experience.

What goals have you set with your mentee?

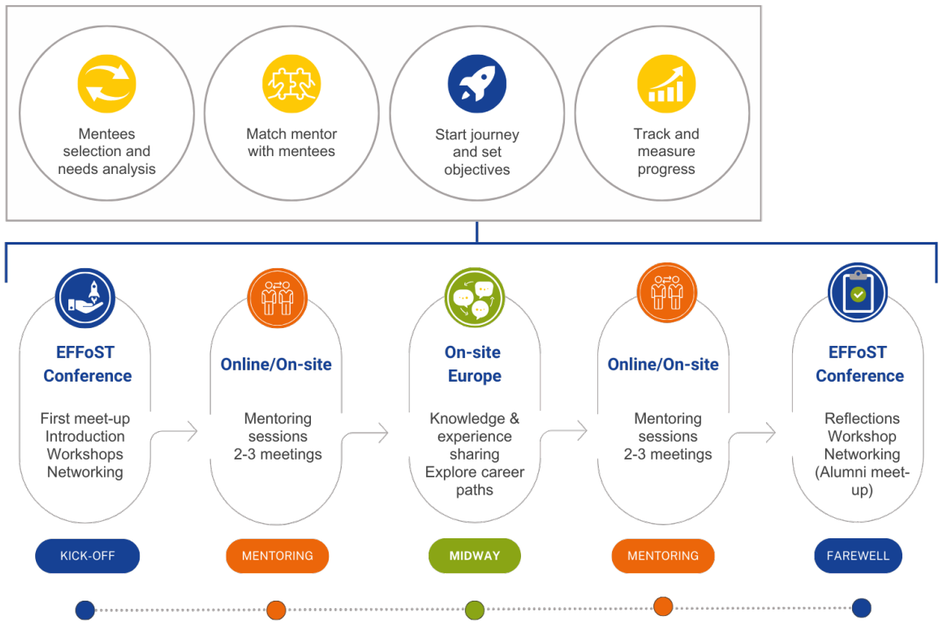
Maxime: The main objective is to keep in touch with one another! As mentioned previously, we are all very busy with our day-to-day professional and academic commitments, but it is important to find time to maintain contact. So the target will be to hold regular calls throughout the term.

The EYE Mentorship Programme also features a mid-term meeting in the Netherlands, which is an excellent opportunity not only to discuss progress, but also to catch up and have a good time!

Stefan: Niloufar, my mentee, is looking for new opportunities, and the main goal is to create an attractive package with a personal letter, CV and information on social media such as LinkedIn. Given the competition in the job market, standing out among many applicants can be challenging. At the same time, for recruitment companies, the task of selecting candidates is daunting. To advance to second rounds and be called for an interview, it is crucial for Niloufar to present herself as a well-rounded and qualified prospect. That is my objective as her mentor – to help her build a strong CV, develop her professional (online) presence and showcase her skills.

Maxime Chevalier, *Food Systems Engineering Manager (PCM Europe) and board member of the EHEDG Regional Section France*

Stefan Akesson*, Company Specialist Food Safety (Tetra Pak Production Solutions & Equipment), Chair of the EHEDG Regional Section Nordics and member of various EHEDG Working Groups*



EYE
Mentorship programme
Mentees

What motivated you to join the EYE Mentorship Programme?

Gabriele: I joined the EYE Mentorship Programme because I was seeking good opportunities to expand my professional network, and meet new people with different backgrounds and expertise. Besides that, I wanted to engage in discussions about my career with both experienced individuals and peers, have the chance to gain new tools to improve my self-awareness, focusing on my strengths and especially weaknesses, and see how I can further develop myself – both professionally and personally.

Niloufar: I was motivated to join the EYE Mentorship Programme primarily because of my desire to accelerate my personal and professional growth, especially during a transitional period in my career. I believe that mentorship is a powerful catalyst for development, providing valuable insights and perspectives that can significantly impact one's journey. The prospect of learning from a mentor who is an experienced individual and who has navigated similar paths and overcome similar challenges appeals to me immensely. Moreover, I saw the EYE Mentorship Programme as an opportunity to not only receive guidance, but also to contribute to a network of like-minded individuals, fostering a culture of continuous improvement.

In what specific areas are you seeking guidance and support?

Gabriele: I would like to receive guidance and support to explore new tools and engage in discussions that will enhance my self-awareness. The goal is to gain a deeper understanding of my professional and personal strengths and weaknesses, leading to improvements on both fronts.

In addition, it could be helpful for me to discuss the soft and hard skills I have learnt so far during my PhD, to raise awareness and to translate them in a way that they can be further developed and contextualised in a potential industrial R&D environment. I am also interested in delving into the expertise of my mentor, to try to acquire further knowledge in hygienic design – as no food can be consumed if it is not safe to eat.

Niloufar: I am seeking guidance in areas related to professional advancement and skills development, especially during a transitional period in my career. I would like my mentor to assist me with career path clarity. While I aspire to remain in academia, I am uncertain about the specific steps and strategies required to secure a position and establish a successful journey in the academic world. I need support in developing a clear plan and navigating the academic job market. In addition, I hope I can enhance my soft skills, such as communication, networking, teamwork and leadership, and achieve a healthier work-life balance. Balancing professional responsibilities with personal well-being is a challenge, and I believe that my mentor's experience will provide valuable insights into managing priorities and fostering a fulfilling career.

What are your ambitions for the future?

Gabriele: In the near future, I would like to advance my skills as a scientist, expanding my knowledge and acquiring proficiency in new methodologies. The ultimate objective is to discover effective solutions that contribute to the creation of more nutritious, palatable and sustainable food. Once I have had more work experience, I would like to have the chance to lead a team, drive science-based innovations and help people develop, from a personal and professional point of view.

Niloufar: I am committed to growth, both personally and professionally. I look forward to the guidance and support of my mentor as I navigate the challenges and opportunities that lie ahead, and I am eager to contribute to the vibrant community that the programme fosters.

***Gabriele D'Oria**, Ph.D. Fellow (University of Copenhagen)*

***Niloufar Sharif,** Postdoctoral Researcher (Swiss Federal Institute of Technology Lausanne)*

HYGIENIC STUDY AWARD

The Hygienic Study Award, a collaborative initiative spearheaded by Fraunhofer IVV, VDMA and EHEDG, is a testament to the dedication of these organisations to advancing food safety via hygienic design.

The winners in the 2023 round were announced; they were selected by a distinguished panel of universities and research institutes representatives, as well as leading industrial companies. 'We received applications from all over Europe. The review and selection process was complex, as all submissions were of a high quality', said Marc Mauermann, Deputy Director Division Processing Technology at Fraunhofer IVV, Dresden and Richard Clemens, Managing Director at VDMA. 'For the first time, we have confirmed four finalists.'

EHEDG, Fraunhofer IVV and VDMA are proud of the contributions that these young talents are making to the global scientific community and industry. The recipients have been formally honoured in a ceremony that took place in May at the Interpack trade fair in Düsseldorf, Germany.

First place

'Numerical and experimental investigations of the rheological behavior of foam flow: application to the cleaning of surfaces contaminated by microorganisms in the food industries'

My name is Heni Dallagi. I currently work as a researcher at the Aix-Marseille University in France.

Around half of food-borne disease outbreaks are linked to cross-contamination. In my thesis, we proposed the use of foam flows to clean surfaces contaminated by spores and biofilms in the food industry. This technique proved to be more efficient compared to a conventional Cleaning-in-place (CIP) programme, and also more sustainable, resulting in a reduction in water and energy consumption (7 and 8 times less, respectively).

In the future I would like to carry out cleaning simulations, and apply these solutions to industry equipment on a larger scale.

***Heni Dallagi** (University of Lille)*

Second place

'Identification of cleaning mechanism using machine learning methods'

My name is Wolf von Marschall. I graduated in mechanical engineering from the Technical University of Dresden, Germany, with a major in fluid mechanics.

The dairy industry currently uses up to 28% of water and 13% of energy to clean equipment. In my thesis, we developed an AI-based approach to the physical classification of cleaning processes. The technology forms the basis for a tool that can be used to identify the cleaning mechanism for arbitrary soils and select a suitable simulation model. This will help optimise inefficiently designed cleaning systems, thereby producing water and energy savings.

***Wolf von Marschall** (TU Dresden)*

Fraunhofer IVV

VDMA

EHEDG

Are you a PhD student or young researcher with a thesis or studies on hygienic design in machinery and buildings, fouling, cleaning and disinfection, food-contact materials, surface design, fluid mechanics, or other food-safety related topics? Join us in promoting the pursuit of excellence in hygienic solutions, and contribute to shaping the future of the industry.

You have until 30th June 2024 to submit your paper. The Hygienic Study Award 2024 will be presented at the EHEDG World Congress on 2nd and 3rd October 2024, in Nantes, France.

Joint Third place

Emerging concepts for the monitoring and control of hygienic food production'

My name is Elena Zand. I'm a postdoc at the Institute of Food Technology of the University of Natural Resources and Life Sciences (BOKU) in Vienna, Austria. I am working in the area of food production hygiene and also active within the EHEDG Regional Section Austria.

The overall goal of my thesis is to enhance food safety, and minimise food-borne illness outbreaks, food spoilage and economic losses. In my work, I have developed a rapid detection method and designed different approaches for alternative protection against airborne microorganisms. At the beginning we investigated biofilms, one of the main microbiological risks in the food area, and also bacterial attachment and biofilm formation on different surfaces. Hygienic design proved to play an essential role in this respect.

In the future I would like to provide hygienic solutions for the industry, utilising my expertise in food microbiology and hygienic design.

***Elena Zand** (University of Natural Resources and Life Sciences of Vienna)*

'DEVELOPMENT OF A NANOTECHNOLOGY-INFORMED CLEAN-IN-PLACE (CIP) STRATEGY: Effect of interfacial characteristics on milk fouling and cleaning mechanisms'

I am Alejandro Avila Sierra. I'm a chemical engineer and I am currently working at INRAE, a French public research institute dedicated to agricultural science.

By applying nanoscopic techniques, I investigated milk fouling and the opportunities to optimise well-known CIP programmes. Fouling begins with the interaction between the surface and the product. A hygienically designed system with smooth surfaces and specific geometries allows for optimal drainage, reducing liquid adhesion and product build-up, and consequently the risk of cross-contamination.

I would like to keep working in the academic and research world, as I find it energising to collaborate with so many specialists in different fields.

***Alejandro Avila Sierra** (University of Birmingham)*

3-A
Sanitary Standards, Inc.

Tim, in what ways do you see 3-A SSI and EHEDG reinforcing each other's missions?

The best way we can reinforce each other's mission is probably by providing opportunities for our constituents to affiliate. Our stakeholders' profiles are quite similar, our mission statements are very comparable, but what we do is somewhat different. 3-A SSI has a strong presence of the regulatory sanitarians. They look to our organisation for trustworthy and credible resources on training and education, for better ways to strenghten their inspection programmes with our documents. The marketplace and the requirements for criteria and background information on hygienic design continues to evolve with the implementation of the Food Safety Modernisation Act (FSMA). The level of scrutiny for equipment has become more rigorous because processors need to have a documented step-by-step plan to avoid or minimise potential food risks. Much of that goes back to the design of the equipment that they use.

In general, the world has become more interested in food safety, and what EHEDG does is essential to meet this demand. We want to construct a vehicle for groups outside of our traditional markets to establish a relationship with 3-A SSI. This is possible through cooperation with EHEDG.

From your perspective, what are the key successes or achievements resulting from our cooperation? How do you measure its impact on both organisations?

Through our collaboration, we have elevated the quality of our documents – as an example, some of the additional criteria for testing originated from EHEDG. Our organisation exists to promote a brand, the 3-A Symbol. We grow if we improve the demand, the recognition for what we do, the integrity of our standards. These are parameters that measure our success. And we do see an increasing number of suppliers specifying 3-A SSI design criteria and showcasing our mark.

How do you envision our collaboration evolving in the coming years?

We can capitalise on the strenghts of our groups by bringing our stakeholders together, to learn and share from each other, in meetings and in Working Groups. These collaborative efforts will continue to promote the development of best practices in hygienic engineering and design, leading to a more comprehensive understanding of this important topic throughout the food chain. As mentioned, the regulatory authorities strongly rely on 3-A SSI, and the cooperation we have with EHEDG presents a valuable opportunity for all of our stakeholders. By harmonising our expertise, we can provide them with a unified and informed perspective on hygienic design, shaping the future of the industry and collectively raise the bar for excellence.

***Tim Rugh**, Executive Director (3-A SSI)*

In the photo, from left to right: Dr. Patrick C. Wouters (Global Hygienic Design Lead at Cargill and EHEDG Vice-President), Tim Rugh (Executive Director at 3-A SSI), Hein Timmerman (Global Sector Specialist at Diversey and EHEDG President), Rick Heiman (Corporate Hygiene Dairy Farmers of America Director and Chair of Board of Directors 3-A SSI), Adwy van den Berg (EHEDG Operations Director), attending the 3-A SSI 2023 Education Event & Annual Meeting technological development.

Engineering for a better world.

Can you please introduce yourself and your organisation?

My name is Bastian Tolle and I serve GEA as Vice President Product Management & Engineering for the BU Valves & Pumps within GEA. In addition to that role, I'm GEA's representative within the EHEDG organisation.

GEA is one of the largest suppliers for food processing technology and related industries. The global group specialises in machinery and plants, as well as process technology and components.

Within this, GEA covers full-scale greenfield and brownfield projects within the food industry, as well as designing, manufacturing and delivering the machines and process equipment utilised within these processing plants. Our offering covers the full range of the entire production process, i.e. from powder handling, separation, homogenisation and distribution of media within the pipelines, through valves and pumps, mixers and blenders, to the fillers at the end of the process. Complementing this is our comprehensive offering of utility products, i.e. heat pumps, which – besides their hygienic design – play a significant part in sustainability in these plants, which in turn plays a major role for producers.

Which team(s) in your company apply hygienic design principles?

Hygienic design principles are applied by numerous teams and is anchored in the DNA of GEA engineering teams and individuals. GEA's purpose – 'Engineering for a better world' – reflects our ambition to provide high quality processes, plants and machines for which uncompromising hygienic design is a fundamental requirement, and one on which we consequently place a great emphasis. This focus is underlined not only by talking about it, but also by contributing proactively to the work of hygienic design associations such as EHEDG.

This aspect of our mindset at GEA, and our passion about topics related to hygienic design, can be seen not only in the participation of our experts in multiple working groups, i.e. for valve technology, cleaning technology, welding technology and separation, it is also apparent in the fact that, in many cases, our experts even serve the EHEDG as chairs of the specific working groups.

We continually experience the valuable results of our membership, and our participation in Working Groups, as well as in EHEDG training courses, when putting into practice the jointly prepared and discussed guidelines and principles during

design phases, regardless of whether we are designing complete process lines or single components. Furthermore, the active exchanges among the subject-matter experts within the industry helps us to constantly challenge the status quo, and to constantly improve our design of processes, machines and equipment in terms of hygienic design, in every area of GEA's organisation.

What hygienic solutions are you currently offering on the market and/or are in the pipeline?

Most prominent and obviously most visible to the public are those products in GEA's machine and equipment offering which have undergone the EHEDG certification process, and are publicly listed on the EHEDG website as EHEDG-certified equipment. Among these certified components are several single seat and mixproof valves, as well as pumps.

These types of components also represent the area in which we are mainly active in terms of EHEDG certification processes, and we are constantly working on further certification processes for these for multiple reasons. On the one hand, EHEDG certification provides 'third party proof' that we have designed our components in accordance with the latest hygienic design standards, and that they comply with the requirements of the European Machinery Directive. On the other hand, certification helps us as a supplier to convince our customers that we are providing high quality, state-of-the-art components which fulfil the highest requirements in regards to hygienic design, which in turn will have a major positive impact on the food quality and safety in their processing plants.

In addition to these obvious benefits, the exchange of information about hygienic design principles and the knowledge acquired through these certification processes help us and our engineers to constantly improve our hygienic design in all the products and solutions offered in our portfolio – for instance, by applying these hygienic design principles and what we have learnt to products which have yet to be certified, because they cannot be certified until the appropriate test procedures and methods are available. As a result, these products may lack this clear public reference and 'third party proof', but they are designed according to the same hygienic principles as certified equipment and conform to the same high hygienic standard as all our solutions.

So, in summary, my position on the specific question about our current offering of hygienic solutions would be that this goes far beyond just single solutions and certified products. It is expressed in multiple examples from our daily work and is part of our fundamental mindset, e.g. by ensuring we avoid dead ends in process line design, and applying correct automatic welding procedures. I have therefore come to the conclusion that the hygienic design of components, process lines and complete plants is anchored in our company's DNA, so that we can provide the best possible support to our customers with regards to food safety and quality in their process plants – and this goes far beyond single examples.

Through certification for certain components, we can underline and support this value proposition with a validation process from an external party. But, of course, our experts and engineers are in any case open to sharing how we apply the design criteria and best practices for good hygienic design in our products and solutions, even for those items in our portfolio and offerings which have not yet been or cannot currently be certified.

GEA VARIVENT® Valve Unit

Can you share a hygienic design best practice?

One of my favourite and most tangible examples of putting hygienic design into practice at GEA was the development of our VARINLINE® housing unit.

Traditionally, sensors & instruments were often applied to process lines by T-pieces or elbows, which come complete with dead ends and hence also

GEA Hilge NOVALOBE 30 Super

GEA Hilge NOVALOBE Vertical

have areas which are difficult to clean. To make this easier to visualise, EHEDG prepared a great video with a transparent T-piece to show the negative effect on cleanability, which is shared in EHEDG training courses. This video not only clearly underlines the hygiene risks of using dead ends in process lines, but also presents a potential solution to reduce the effort, and hence the costs required for proper cleaning of the process lines.

To improve the hygienic design and minimise the effort required for proper cleaning, the VARINLINE® housings allow sensors to be applied flush-mounted within the process line, to avoid dead ends at multiple points in a processing plant.

In recent years we have seen an increasing trend towards this hygienic solution, and nowadays more or less all major suppliers of instruments and sensors offer a connection for applying their sensors to the process line using this hygienic adaption method.

Without being able to cite specific figures or the total impact, due to the wide range of application, I'm 100% convinced that this solution has resulted in a huge positive effect and that customers are benefitting from this on a large scale globally.
This is a great achievement, and EHEDG has played a vital role in this positive development for hygienic design and food safety by highlighting the downsides of elbows and T-pieces. Hence, in my opinion, this is real best practice for hygienic design, as it represents how theoretical design reviews and evaluation of hygiene risks go hand in hand with products and solutions offered by suppliers to overcome these risks. And how EHEDG and players along the food processing chain can together improve the level of hygienic design, food safety and food quality in process plants.

Why did you decide to sponsor the EHEDG World Congress 2024?

GEA has always been a major supporter of the EHEDG organisation and, as we focus on hygienic design as part of our DNA, we have always shown our commitment to EHEDG.

With our sponsorship of the EHEDG World Congress 2024, we underline our commitment and contribute to an event which plays a very important, future-oriented role in our industry. During the congress, EHEDG and all supporting members encourage discussion about hygienic design principles, share best practices, and actively support exchanges amongst all players in the food industry.

GEA Engineering for a better world.

For decades, congresses like this have been leading to continuing improvement in the levels of hygienic design in all parts of this chain within the food industry. These ongoing activities bring together the views of equipment and solution providers, engineering companies and food producers, and results in a continual raising of food safety levels and quality, and therefore benefit food consumers worldwide. Last but not least, improved levels of hygienic design clearly also have a tremendous and positive impact on sustainability – in the reduction of food waste, and a reduction in energy and water consumption for cleaning processes, which also gives a reduction in wastewater loaded with chemicals.

We fully believe in the relevance and importance of events like the EHEDG World Congress 2024 to drive forward improvements on these issues. On the one hand, we want to support this active exchange amongst experts through our sponsorship. On the other hand, we also want to take our own responsibility for these issues seriously and actively contribute to these discussions, exchanges and improvements from our own perspective, and put GEA's own purpose, 'Engineering for a better world', into practice.

Bastian Tolle, *Vice President Product Management & Engineering - Separation & Flow Technologies | Valves & Pumps (GEA)*

Can you please introduce yourself and your organisation?

My name is Wesley Pieterse and over the course of 15 years of international food processing experience, I have seen many examples of best practice, but just as many cases where food safety was not secured. My current position is Global Manager, Industry Segment Poultry, Red Meat and Fish & Seafood at Habasit. Together with local teams, I support businesses worldwide by adding value to food-processing processes using hygienic and innovative belting solutions.

Food safety is at the heart of the food processing industry; it is essential for the health and wellbeing of consumers, and to protect the food industry's reputation as a whole. The safety of food products is a major concern for regulators and consumers alike.

Processed food is continuously exposed to cross-contamination originating from contact with biofilm, which grows on the surfaces of tools and production equipment. Biofilms contain colonies of fungi, moulds, bacteria, and other microorganisms harmful to health that can significantly reduce fresh food's shelf life. Intensive and frequent sanitation processes are required to remove contaminants from equipment and conveyor belts.

As a supplier of conveyor and processing belts, we are aware that we are part of a network of actors. Working with protein processing companies and original equipment manufacturers, we search for new ways to produce foodstuffs in a food-safe and efficient way. Beyond this, we face the growing challenge of needing to reduce the consumption of natural resources and become more sustainable.

This is why, together with our industry team, I have launched our mission: 'Our aim is to contribute to food safety, maximise yield optimisation, and support the sustainability goals of food processors worldwide.'

How can plastic make a difference?

We know that our belting has by far the greatest surface area that touches the food products in a food processing plant. So we have to find ways to reduce the risk of cross-contamination and growth of biofilms, and enhance the ease of cleaning processes. For example, how would it be to reduce the cleaning time of a conveyor belt by 50%? Or how can we have a conveyor belt surface that has 40 times less bacteria colony-forming units after a single rinse, compared to a traditional conveyor belt? These are the topics we are currently discussing with our customers all over the globe, and the results are impressive.

Which team(s) in your company apply hygienic design principles?

Our company has been a member of the EHEDG

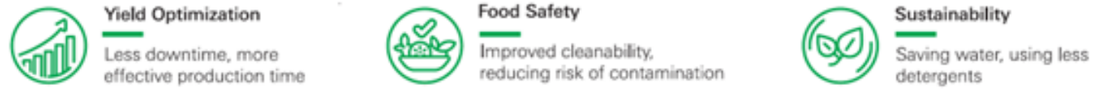
community for many years, and has been actively involved in several working groups. Currently we are participating in the Working Group 'Hygienic Design of Belt Conveyors for the Food Industry'.

This covers the important impact of belting design on food safety in the wider perspective. One of the group's outcomes, the revision of EHEDG Guideline 43 to encompass risk assessment for belt conveyor components, offers significant value for the food industry. By targeting both original equipment manufacturers (OEMs) and end-users, the revised guideline will provide a comprehensive guide to ensuring the hygiene and safety of belt conveyors used in food processing facilities. This will foster a more proactive and risk-based approach to conveyor design, installation, and maintenance, ultimately reducing the risk of contamination and ensuring the safety of food products.

What hygienic solutions are you currently offering in the market and/or are in the pipeline?

All our innovations are part of our three pillar concept, which forms our Hygienic Innovation Portfolio. The core products are listed below:

- Super HyCLEAN: A revolutionary plastic modular belt that delivers 50% savings on cleaning time, water consumption, and chemicals used. Super HyCLEAN® products are specifically crafted for applications demanding the highest hygienic standards, with particular emphasis on poultry and fish processing. The inventive hygienic design minimises the accumulation of organic debris, facilitating swift, trouble-free, and effective cleaning procedures. This not only lowers overall sanitation expenses, but also reduces the risk of product cross-contamination.
- Hygienic CIP units: Habasit's hygienic CIP (cleaning-in-place) units simplify and enhance the cleaning of conveyor belts in food processing facilities, even on existing conveyor belt systems. Installation in three simple steps lowers the barrier to installing CIP where needed. These units deliver efficient internal and external cleaning, reduce cleaning time and water consumption, and minimise the risk of biofilm formation. The unit's self-draining, hygienic design allows minimum cleaning of the device. Water consumption in production processes is one of the main challenges of the poultry industry.
- Cleandrive: A monolithic aramid reinforced conveyor belt that is recognised worldwide for its safe and hygienic performance, Habasit Cleandrive belts feature a fully extruded monolithic belt design, eliminating any fabric members that could potentially fray and pose a food safety hazard during use. Additionally, the solid yet flexible belt design lacks the cavities, joining rods, and crevices commonly found in hinged belts, simplifying the cleaning process and enhancing overall cleanliness.
- Saniclip: Habasit Saniclip is an innovative device for quick belt assembly and easy belt sanitation. It allows simple rod installation and removal in applications where frequent belt



sanitation is required. Multiple Habasit Sani-clips can be installed in a single belt to allow easy opening at several locations.

We are consistently investing in research and development to expand our product portfolio, with several promising hygienic solutions in the pipeline. As we continue to pioneer advances in this field, our goal is to provide comprehensive, state-of-the-art offerings that not only meet but exceed the expectations of our customers in the food industry.

Can you share a hygienic design best practice?

A poultry processing company in Brazil was experiencing high costs in terms of time, personnel, water, and cleaning agents for the daily cleaning procedures on its line for cooked and diced chicken pieces. Habasit offered to replace the existing modular belt with an innovative solution based on a mechanically reliable and hygienically designed modular belt that would help them reduce cross-contamination risks and save cleaning resources, while maintaining or even improving cleaning results.

We installed a belt from our innovative Super HyCLEAN range, with its unique, patent-pending design based on minimised use of hinges and rods – up to 80% less than on traditional modular belts. This reduces the total exposed surface of the belt by 33%. The lateral opening of the hinges allows water flow to reach hinges and rods, with easy flush away. Thanks to its outstanding hygienic design, this solution considerably reduces overall sanitation costs and the risk of product cross-contamination compared with the currently available products on the market.

The customer's hygiene team praised the ease of cleaning, resulting in savings of up to 50% on washing and sanitisation time. According to the maintenance team, the belt is reliable, and easy to handle and clean. They suggested using the belt in other applications at the poultry plant. The belt was also installed at the fish plant operated by the same company, with the same success. Both cases are supported by a written testimonial, signed by the plant director.

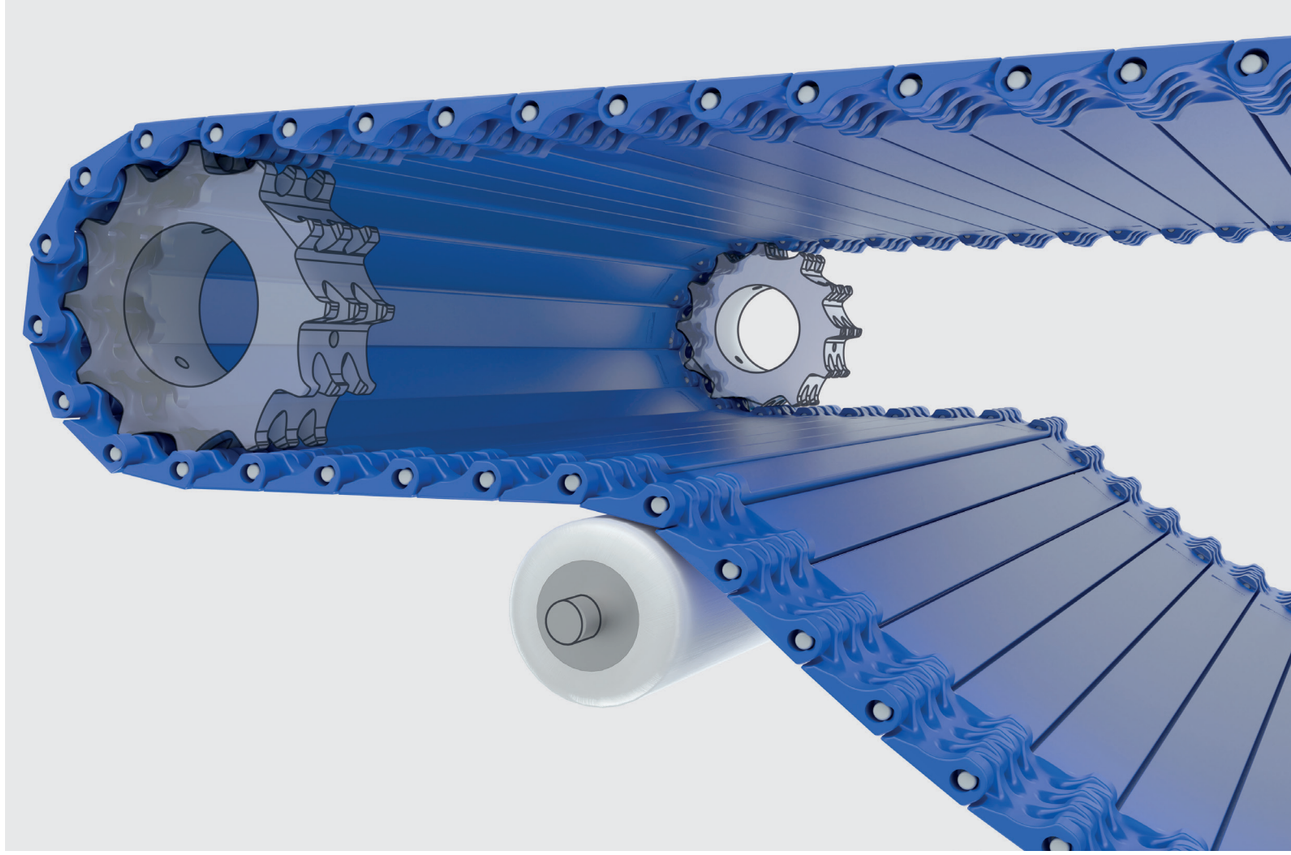
By providing an innovative solution, we helped the customer to improve food safety, lower its total cost of ownership (labour costs, water consumption, and sewage treatment), enhance overall product shelf life, and use a more environmentally friendly conveyor belt.

Why did you decide to sponsor the EHEDG World Congress 2024?

Habasit is enthusiastic about participating in the EHEDG conference, as it aligns perfectly with our commitment to advancing hygienic design and innovation within the food processing industry. This conference serves as a premier platform for industry leaders, experts, and stakeholders to converge, exchange knowledge, and stay abreast of the latest developments in hygienic engineering.

Habasit recognises the intrinsic value of EHEDG's mission in promoting food safety and hygiene, and by actively participating in this conference we aim to contribute our expertise, learn from industry peers, and collaborate on solutions that elevate hygiene standards globally. This engagement underscores our dedication to continuously enhancing our products and services to better meet the evolving needs of our customers and the broader food processing community.

In addition to reinforcing our commitment to hygienic design and innovation, Habasit sees the EHEDG conference as an invaluable opportunity to foster meaningful connections with industry professionals. By engaging in discussions, workshops, and collaborative sessions, we aim to forge partnerships that facilitate the exchange of ideas and insights, ultimately driving advances in food safety and processing efficiency. Participating in the EHEDG conference is not just about showcasing our expertise, but also about actively contributing to a community dedicated to raising the bar for hygiene standards. Habasit is excited to be part of this collaborative effort and looks forward to playing a proactive role in shaping the future of hygienic engineering practices within the food industry.



I am thrilled to contribute to and co-create with the EHEDG community, and participate in the ongoing dialogue surrounding hygienic belting solutions, conveyor systems, and cleaning-in-place. Together, we can revolutionise food safety and safeguard the wellbeing of consumers worldwide. I'm always interested in brainstorming with peers in the industry, so please feel free to contact me.

habasit

Wesley Pieterse, *Global Manager, Industry Segment Poultry, Red Meat and Fish & Seafood (Habasit)*

Can you please introduce yourself and your organisation?

We are a founder member of EHEDG – initially as part of Unilever – but since 2002 we have continued this commitment as Diversey. With recent developments, Diversey is now part of Solenis. Together we are a global leader in hygiene and water treatment chemical, service, and innovation, with a joint focus on sustainable change across the many sectors in which we operate.

With the addition of Diversey's acknowledged cleaning and hygiene solutions, Solenis offers world-class expertise and proactive, innovative solutions that help create a cleaner, safer, and more sustainable world. We bring together the right people, the right experience, and the right technology into a full suite of solutions that span consumer, institutional, industrial, food and beverage, and pool water markets to deliver everything in one place for our customers.

Our core products reflect our global leadership and breadth of sector involvement. These are incorporated in a Total Solution. This is provided by our engineers, technical and operational customer support, sector specialists and training professionals who operate under the umbrellas of - Chemicals, Equipment, Engineering, Knowledge-Based Services (KBS) and Training. Our numerous products, services and programmes include sanitisers and disinfectants, water treatment, cleaning protocols for open plant cleaning (OPC) and cleaning-in-place (CIP), data analytics, remote monitoring, and e-learning solutions. All contribute to our sustainable approach designed to save resources, energy, time, and labour, while adding value and enhancing productivity.

We are a truly global company. We operate in over 130 countries. Our proposition integrates the passion of our 15,400 Employees, with 69 Manufacturing Facilities, and the intellectual benefits of our R&D - which has established 3,400 patents - for the benefit of over 96,000 Customers. While the numbers are large, we see ourselves as ONE Global Team. This singular strength is also reflected in the close partnerships we have with each of our customers.

We are constantly expanding our global reach and portfolio of innovative solutions to meet our customer's needs through the challenges of an increasingly uncertain world. We actively seek to consolidate or add to our portfolio through continuous improvement, along with R&D investment and targeted acquisition.

Which team(s) in your company apply hygienic design principles?

These are primarily our Engineering Team who are comprehensively trained to EHEDG guidelines, and also includes our Knowledge-Based Service and Auditing Teams. Several of the EHEDG guidelines are specifically helpful for our teams; Document 8 for the general principles of hygienic design, Document 13 for open equipment, Document 50 for CIP, Document 51 for tank cleaning, Document 52 for cleaning and disinfection, and Document 45 for cleaning validation, for example.

Diversey colleagues are participating in many of EHEDG's Working Groups including Meat and Fish Processing, Chocolate, Cleaning Validation, Cleaning in Place, Cleaning and Disinfection, and Maintenance. We benefit directly as the relationship between hygienic design and cleanability is critical to the provision of our solutions and services. Our focus is on continuing to drive the optimisation of hygienic production. Organisations like EHEDG bring together the best minds from all areas of the industry to further improve hygiene aligns closely with our goals and our customer's requirements.

Members of our team have completed EHEDG training courses and Ester Fernandez, Processed Food Application Specialist, and Hein Timmerman, Global Sector Specialist F&B and EHEDG President, are also actively involved in developing the courses with EHEDG and for our own Hygiene Academy – ensuring the content and the services we offer customers, is up to the latest standards.

What hygienic solutions are you currently offering in the market and/or are in the pipeline?

We currently offer a wide range of Open Plant Cleaning (OPC) formulations, spanning detergents, foams, gels, our proprietary Sani, and EnduroPower ranges, our disinfection portfolio including the trusted Divosan brand, along with Diverclean Sonic – a new novel pre-cleaning technology to reduce cleaning time and optimise resource usage in the food industry.

Our hygienic solutions also include Cleaning in Place chemical, engineering and optimisation services, encompassing leading developments in CIP monitoring, control and validation with our CIPTEC and Intelligent CIP innovations.

In addition, our portfolio of optimisation services incorporates hygienic design standards in our recommendations for processes such as Filler Cleaning, Bottle Washing, Conveyor Cleaning, to name just a few.

Can you share a hygienic design best practice?

Hygienic design is fundamental in maintaining a safe environment and in protecting our customer's brand reputation. From the architecture of the processing equipment to the factory layout, preventing contamination and ensuring future compliance is crucial. Customers may appear daunted initially at the task, but we stress the key is to start as you mean to go on.

Assessing hygienic design is at the core of our Knowledge-Based Services (KBS) and our sector specialists offer advice on the basis of ten key principles for customers to achieve their goals in a systematic and comprehensive manner. Bringing our design and engineering expertise together across the production environment is essential to minimise contamination risk and enable effective cleaning and sanitation.

Everything starts with a broad risk assessment of all areas that present a cross-contamination risk. In addition to direct food contact surfaces, hygienic design principles concern indirect and non-product contact surfaces, and the impact of personnel.

Processing equipment and food-contact surfaces must be designed and constructed to enable effective and efficient cleaning for their full lifespan. We have often found that daily wear and tear, equipment repair, and grinding and corrosion of the surface can produce 'pits'. We emphasise regular evaluation and to recover equipment by resurfacing, grinding, polishing and passivation. Also, this equipment should be self-draining, preventing liquid pooling or condensing and encouraging the growth of bacteria.

Our specialists also identify the need for any materials introduced into the environment to be compatible with our customer's product(s), production environment, any cleaning and disinfecting chemicals, and the cleaning methods.

Undertaking continuous welding is preferable to fabricated stainless steel components. Poor welds – either excess or too little - have much the same effect as poor surface finish. External evidence of this on a pipe is almost certainly a sign of poor welding inside. An endoscope provides for a minimum internal inspection while, in some cases, we have advised that an x-ray inspection is required.

If CIP is not employed, all equipment parts should be readily accessible for inspection, maintenance, cleaning, and disinfection without using tools. Maintenance enclosures and human machine interfaces (HMI) should ensure that food product, product liquid, or water do not penetrate, or accumulate. While the design of all enclosures should be sloped or pitched, removing temptation by staff to use as a storage/shelving area.

Good hygienic design also applies to pipework and nozzles used in automated and manual cleaning processes, along with the outside of machines. One frequent occurrence are dead legs in process pipework - any ‘T’ piece where the pipe length is more than half a pipe diameter in the ‘non-flow’ direction, or one pipe diameter in the ‘flow’ direction. Exceed these dimensions and CIP mechanical action will not remove soiling.

We advise eliminating hollow areas of equipment or sealing permanently. Bolts, studs, mounting plates, brackets, junction boxes, nameplates, end caps and sleeves must be continuously welded to the surface.

Construction and zoning principles should also be understood and implemented, including design and layout of workspaces for one-direction production flow and physical separation of activities, preventing cross-contamination with allergens or biological hazards. Sufficient lighting is necessary to aid visual inspections during manual cleaning, and provision of suitable employee facilities, such as non-touch hand-washing systems, door-fogging, and break areas.
Procedures for cleaning and disinfection must be clearly written, designed, and validated to be effective and efficient. Any chemicals must be compatible with the equipment and the manufacturing environment. By recommending these foundation principles and procedures, we help ensure the highest standards of food safety in all our customer’s production facilities.

Why did you decide to sponsor the EHEDG World Congress 2024?

The EHEDG World Congress brings together all aspects of the industry that are linked by the common aim of improving hygiene in the F&B industries. We sponsor the event to ensure that we as a community have the opportunity to meet, discuss and share knowledge during the sessions to further advance our shared objectives. Our commitment to EHEDG began from its inception, and although Diversey may have changed its name, many of our colleagues have been involved with EHEDG throughout its history, contributing to its growth and maturity as a recognised authority.

Our objective remains to advance the fundamental principles, procedures, and comprehension of the crucial role hygiene plays in upholding the highest standards of cleanliness and food safety. We eagerly anticipate exchanging our enthusiasm, insights and observations with like-minded colleagues worldwide, who share the same dedication.

Ester Fernàndez i Català
Sector Specialist Processed Food – Diversey – A Solenis Company, EHEDG Working Group ‘Meat Processing’

Diversey™ | A Solenis Company

Can you please introduce yourself and your organisation?

I am Pieter Haers, Director of Phibo Industries, a company that has been at the forefront of innovative surface treatment solutions since 1988. Our core expertise lies in the manufacturing of cutting-edge blasting installations and advanced cleaning machines.

Our flagship solution for the food sector is the revolutionary SUBLIMOTION-process®. This monitored surface cleaning and conditioning process represents a significant leap forward in hygienic design, as it provides a permanent hygienic finish to stainless steel, making it an ideal solution for the food and pharmaceutical industries. The SUBLIMOTION-process® removes contamination and welding discoloration resulting from fabrication, while transforming the surface topography and surface energy level, offering minimal soiling adhesion, optimal cleanability, outstanding corrosion resistance and visual appeal. The SUBLIMOTION-process® has undergone rigorous independent, scientific studies and testing, including EHEDG cleanability tests, which all confirmed and recognised its transformative impact on surfaces in the food industry.

With operational SUBLIMOTION-process® machines currently deployed in Belgium, The Netherlands, France and Spain, we are actively pursuing potential opportunities in Germany, Austria, Switzerland, and the Scandinavian markets. Nevertheless, we welcome inquiries from all corners of the globe, and are eager to collaborate with potential partners and distributors as we continue to expand our footprint and deliver state-of-the-art surface hygiene treatment solutions to industries worldwide.

Which team(s) in your company apply hygienic design principles?

At Phibo Industries, familiarity with hygienic design principles is deeply ingrained in the fabric of our organisation. It is primarily our engineering and development team, along with our project sales engineers, who are well-versed in these principles. Their profound understanding of hygienic design is crucial for the ongoing development and optimisation of processes, surfaces and processing machines. This knowledge is not only instrumental in our internal endeavours; it is also vital for advising and supporting our clients to achieve the best hygienic outcomes for their final products, completed with our revolutionary SUBLIMOTION-finishing.

The EHEDG Guidelines that resonate most with our teams are Guideline 8, ‘Hygienic Design Principles’, Guideline 32, ‘Materials of Construction for Equipment in Contact with Food’, and Guideline 52, ‘Basic Principles of Cleaning and Disinfection in Food Manufacturing’. These documents serve as the cornerstone for our approach to obtaining the highest standards of hygienic surfaces with our solutions. By adhering closely to these principles, we are better equipped to meet the stringent requirements of the food sector.

In addition to EHEDG Guidelines, several members of our staff have undergone Hygienic Design training. These training courses have been instrumental in enhancing their understanding of the multifaceted aspects of hygienic design. The practical examples provided during the training sessions have offered valuable insights, allowing our team to apply a broader and more comprehensive approach to our clients’ projects and their hygiene objectives. These initiatives reflect our ongoing commitment to staying informed, continuous improvement, and setting new benchmarks in hygienic design practices.

What hygienic solutions are you currently offering in the market and/or are in the pipeline?

Phibo Industries takes pride in offering an innovative and highly effective hygienic solution to the market – our proprietary SUBLIMOTION-process®, a revolutionary surface treatment –, leading to significant advantages in hygiene improvement and safety across various industries. The unique process stands as a comprehensive alternative to traditional stainless steel finishing methods, providing a one-step solution for cleaning and conditioning stainless steel surfaces at a microscopic and microbial level. Furthermore, unlike traditional methods such as electropolishing and chemical pickling, our process involves no chemicals, making it environmentally friendly, as well as safer and healthier for operators.

The permanent SUBLIMOTION-finishing which is created by the process boasts a multitude of benefits, including an intensely purified surface, a unique improved surface topography, exceptional corrosion resistance, minimal dirt adhesion, optimal hygienic and cleanability properties, and uniform high-end finishing, making it an indispensable asset for industries such as food and pharmaceuticals. The SUBLIMOTION-finishing has been validated and certified, and conforms to the various directives and regulations relating to materials and articles intended for contact with food. It has also been thoroughly researched and certified by renowned independent institutes, all of which confirm the accuracy of the claimed characteristics and qualities of the finishing.

The finishing contributes to the future of food companies by mitigating the risk of microbial contamination, ensuring longer shelf-life of food products, reducing the risk of recalls and financial damage, minimising downtime, decreasing food product loss, facilitating efficient cleaning and disinfection, and lowering maintenance requirements.

Our hygienic solution extends beyond the process itself, as we offer a range of machines to apply the SUBLIMOTION-process®, tailored to different production needs, the components, their geometry and size. From fully robotised and automatic surface finishing lines to standard manual units, our finishing solutions cater for diverse requirements. These total concepts are designed not only to excel in quality and enhance efficiency, but also to minimise operating costs and maintenance requirements, leveraging years of experience, an in-house R&D department, and a range of process units already installed throughout Europe. Investing in the SUBLIMOTION-process® goes beyond acquiring technology: it’s also an investment in a unique and proven process with quantifiable hygienic characteristics, corrosion resistance, and compliance with industry standards.

In conclusion, the SUBLIMOTION-process® is a forward-looking finishing solution with demonstrated benefits, making it the ideal choice for companies seeking enhanced hygiene and cleanability, regulatory compliance and operational efficiency

Sublimotion Hall and Cabine

in their production processes. As we continue our journey, we look forward to expanding our presence in new markets and providing machine and component manufacturers with our SUBLIMOTION-process® technology for the highest levels of hygiene on their surfaces.

Can you share a hygienic design best practice or case study?

Phibo Industries has been actively involved in multiple groundbreaking research projects by various institutes, which collectively highlight the effectiveness of the SUBLIMOTION-process® in achieving superior hygienic conditions, optimal corrosion resistance, and enhanced cleanability, making it a best practice in hygienic finishing for stainless steel surfaces in various industrial applications.

Notable evaluations were conducted by one of the officially authorised EHEDG Test and Certification Institutes. The institute conducted a Guideline 2 EHEDG Cleanability Test for which an EHEDG Certificate Type EL Class I for Wet in-place cleaning of closed equipment, without dismantling was awarded. In addition, they also conducted a scientific study based on EHEDG Guideline 2, with specifically adjusted parameters to evaluate, in an independent and standardised way, the cleanability of a stainless steel surface finished with the SUBLIMOTION-process®, compared to surfaces finished with traditional surface treatment methods. Having submitted all of these differently finished stainless steel surfaces to the cleanability test, the surface treated with the SUBLIMOTION-process® was determined to be highly cleanable, and more specifically, much more cleanable than surfaces treated with chemical pickling & passivation, glass bead blasting, standard surface with 2B finishing, and than the reference pipe of the cleanability test, and at least equally as cleanable as an electropolished surface. The first four types of surfaces all contained residual contamination after completing the cleanability test, while the SUBLIMOTION-finishing contained no residual contamination at all, underscoring the effectiveness of the SUBLIMOTION-finishing in minimal adhesion and optimal cleanability.

Furthermore, the ‘Kill-film’ research project, a collaborative effort by Flanders Food, the University of Leuven, the University of Ghent, and the Institute for Agricultural, Fisheries and Food Research (ILVO), unveiled compelling evidence regarding the prevention of biofilm formation through the application of the SUBLIMOTION-process®. In this context, biofilms, defined as groups of microorganisms adhering to surfaces, pose a significant challenge in the food industry. These biofilms, comprising microorganisms embedded in a matrix of self-produced polymers, exhibit high levels of stickiness and resilience, making them extremely difficult to remove from surfaces. Importantly, these biofilms can go unnoticed, and their persistence can lead to post-cleaning contamination, affecting the shelf life of food products and posing potential risks to public health.

The study employed a dynamic model system in fermenters, effectively simulating an industrial environment to evaluate preventive measures against biofilm formation. Multiple biofilms were investigated, including those formed by organisms such as Lactobacillus rhamnosus, E. coli., Listeria monocytogenes, and Delftia acidovorans. Notably, the research demonstrated that the SUBLIMOTION-process® applied to stainless steel surfaces hindered the attachment of biofilms and reduced the regrowth following cleaning and disinfection. This outcome reinforces the SUBLIMOTION-process® as a proactive solution in minimising biofilm-related risks and enhancing the overall hygiene standards in food production environments.

Moving on to research on corrosion resistance, the CORONA project (the name of which took on an important second meaning two years after the start of the project, although the project is unconnected with the COVID virus) conducted by the Belgian Institute for Welding Technology (BIL) from 2018 to 2022 aimed to investigate the corrosion resistance of stainless steel welds after post-treatment. Various cleaning techniques were scrutinised, including pickling, electrochemical cleaning, laser cleaning, brushing and the unique Sublimotion-process® developed by Phibo Industries. The results of this comprehensive project revealed the significant influence of cleaning techniques on corrosion resistance, with the Sublimotion process® exhibiting superior performance in preventing corrosion compared to the traditional methods like chemical pickling: pieces treated with the Sublimotion-process® consistently showed the least corrosion formation and the shallowest pits after deliberate exposure, especially in the strictest corrosion category C5.

Moreover, research conducted by OCAS – an advanced metal research centre founded by a joint venture between ArcelorMittal and the Flemish Region – demonstrated once more that the SUBLIMOTION-finishing is top of the class in terms of corrosion resistance. Both the laboratory investigations as well as the real outdoor exposure setups in industrial and marine conditions over one to three years revealed that the SUBLIMOTION-process® maintained superb corrosion resistance under such harsh conditions. Once again, the performance was found to be comparable to, if not better than, electropolishing.

All the independent results on cleanability and adhesion, as well as corrosion resistance, collectively emphasise the effectiveness of the SUBLIMOTION-process® in achieving optimal hygienic conditions for stainless steel surfaces and showcase its compliance with EHEDG guidelines. The finishing not only ensures superior cleanliness, reducing the risk of contamination, but also provides remarkable corrosion resistance, making it a standout solution in hygienic design across various industrial applications.

Why did you decide to sponsor the EHEDG World Congress 2024?

We have chosen to participate in the EHEDG World Congress 2024 as part of our commitment to advancing hygienic design practices globally. Our goals during the Congress and its follow-up include sharing our expertise, exploring potential partnerships and showcasing how the SUBLIMOTION-process® sets a new standard for hygienic surface treatment.

The Congress provides an invaluable platform to intensively engage with like-minded professionals, and collectively drive the industry toward more sustainable and hygienic practices. We align with the EHEDG’s mission of promoting hygiene in the food industry, and we are committed to pushing the boundaries of hygienic design and making food factories a more hygienic place through the SUBLIMOTION-process®.

Pieter Haers, *Director (Phibo Industries)*

Can you please introduce yourself and your organisation?

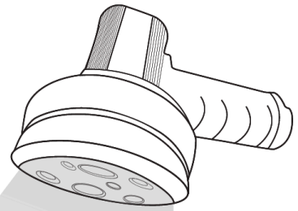
My name is Samuel Peppin, I'm the Managing Director of Bioscan LTD. Bioscan has been operational since 2017 and its key goal is to help manufacturers of food and pharmaceutical products to improve their levels of safety with regards to their final products, with the shortest downtime possible. This is achieved by actively promoting our preventative maintenance services, and our products for inspections and repair works on processing equipment, in order to reduce the likelihood of cross-contamination risks. We have global capabilities, with offices in the UK, France and the USA. In 2023 alone, we have performed 100+ projects across Europe, the United States, Canada, Mexico, Argentina, Saudi Arabia, Kuwait, the United Arab Emirates, India and Southeast Asia. In 2024 we plan to increase our market share in France, Germany, the United States and Canada, and begin working with clients in New Zealand and Australia.

What are your core services and products?

Using Bioscan's unique electronic testing technology, which uses no dyes or chemicals, we provide the most efficient and environmentally friendly crack-testing inspection service currently available in the industry. The technology is used for the detection of cracks and defects within spray dryer systems, tanks and silos. Unlike other methods, such as dyes, visual means, robotics or drones, all defects can be accurately detected, including cracks that are non-visible to the naked eye. We ensure that our clients' production downtime is minimised and their audit requirements are met, all whilst maintaining our high safety standards when working in and around critical food and pharmaceutical equipment. We use bespoke access methods, such as suspended platforms and ropes, meaning that large-scale spray dryer inspections and repairs can be carried out in 24 to 48 hours (repair-work dependent), thereby significantly reducing downtime and increasing productivity for our clients. We also supply welders during each inspection project so that instant repairs and polishing can be performed to meet the required sanitary standards. We aim to provide our clients with 100% satisfaction in all aspects of our service. We achieve this by offering the quickest, most reliable and safest crack-testing test option currently available.

Bioscan have recently developed a biofilm detection lamp called BioDtex. It uses an alternative UV wavelength compared to conventional UV lamps for the instant detection of biofilms and other pathogens. This enables clients to take accurate ATP swabs of potentially contaminated areas, vastly reducing the process currently used, such as random ATP swabbing. We also plan to develop an endoscopic version in 2024 which will enable pipework inspections.

We may consider having our UV biofilm lamp BioDtex and our crack-testing scanning technology EHEDG certified in late 2024 or early 2025.



BioDtex™

Which team(s) in your company apply hygienic design principles?

Samuel Peppin (Managing Director) and Lance Prince (Global Sales Director) are actively participating in the EHEDG Working Group 'Maintenance', in which they aim to share Bioscan's knowledge on the importance of preventative maintenance as a key step to improving food safety. Using examples of one-off and recurring projects which we have successfully completed for clients, we can help show the benefits of implementing preventative maintenance as a standard practice, which can save costs in the short and long term.

Can you share a hygienic design best practice?

In May 2023, Bioscan completed the inspection and repair of two of the largest infant formula spray dryers in Southeast Asia, in a shutdown window of only five days. As the access into the dryers was extremely complex and Bioscan could not use their gantry platform, we decided that the best method would be to use rope access. Three rope-access technicians were deployed to the site and a 100% inspection was performed on each dryer, which took a total of 5 days. This included the setup and removal of the rope systems, inspection, repair and polishing of 10 defects. Before this, the client had to use scaffolding for these dryer inspections, which required a total of two weeks. Bioscan was therefore able to significantly reduce the client's shutdown time by almost 10 days, thereby producing substantial cost-savings and a huge increase in their productivity with regard to infant formula. In addition, as Bioscan did not need to use scaffolding, there was no introduction of wooden materials into the dryer, and the risk of damage from the installation/removal of the scaffolding was eliminated. By using Bioscan's expertise and electronic inspection technology, combined with rope-access methods to locate the different types of visual and non-visual defects, the client was extremely satisfied in knowing that they could continue production of their high-care infant formula products in safe conditions.

Why did you decide to sponsor the EHEDG World Congress 2024?

We would like to increase our global reach with regards to the importance of improving food safety where crack detection in food and pharmaceutical equipment is concerned. We also look forward to meeting and networking with new and existing clients, and learning from other suppliers of services and products in the industry about innovative ways relating to preventative maintenance, and its implications for increasing food safety.

Samuel Peppin, *Managing Director (Bioscan LTD) and member of the EHEDG Working Group 'Maintenance and Installations'*

Can you please introduce your organisation?

BLÜCHER has 50 years of experience in supporting customers, from an early stage, in planning and supplying drainage systems for optimal efficiency and to a sector-leading standard. Getting it wrong can be serious and can give rise to additional hygiene issues and additional cleaning costs, including for many years into the future.

In drainage, it's important to find the right solution. There is a whole range of important issues that BLÜCHER can help you solve in terms of planning and supplying the right drainage system for your processing plant. This is vital, because it is a long-term investment that needs to be coordinated from the very beginning of a project and take into account the machinery that is going into the plant. These same considerations apply when renovating an existing plant, whether it will involve solely new machinery, or production will be continued with a combination of the existing machinery and other new technology.

It is of vital importance that drainage systems are not only hygienic, but that they are also strong enough to withstand high temperatures and pressure. No chain is stronger than the weakest link, so if new stainless-steel drainage is combined with old, part-cracked, or perhaps melted drainage made of different materials, it may result in serious issues. Planning and projecting ahead are key factors in achieving a well-functioning production line, whether in a new, existing, or partially renovated processing plant.

Which team(s) in your company apply hygienic design principles?

BLÜCHER participated in the development and contributed to the content of EHEDG Guideline 44, 'Hygienic Design Principles for Food Factories' back in 2014, and since then we have been an active part of EHEDG; both our global and regional offices also participate in EHEDG's work. At BLÜCHER we have developed dedicated cleaning equipment for our own drainage products, to make it easier for our customers to obtain top hygienic drainage systems every day.

Case studies

'At BLÜCHER we have case studies showing the value of coordinating the drainage layout with the different participants in the building process, so that the drainage system is in complete accordance with outlets from machines, and slopes are designed in alignment with internal transportation,' says Palle Madsbjerg, Business Development Manager at BLÜCHER.

When working with the above, BLÜCHER always focusses on sustainability. We design products which save a great deal of cleaning water, reducing the total amount of water used for each unit produced.

New products

BLÜCHER is currently developing new products to meet the rising demand from the food processing industry. We constantly update the guidance to the food industry, to avoid mistakes in the project phase which can cause potential production downtime in the future. BLÜCHER has tested products against the EHEDG guidelines to prove the hygiene of the different components.

Recycled stainless steel

BLÜCHER sources stainless steel material from European suppliers. Such material contains 65-80% recycled steel. The steel production phase requires less energy compared with stainless steel made from virgin steel. This is one of the reasons why the BLÜCHER ESG level is rated by the well-known EcoVadis system. Furthermore, BLÜCHER has been a core member of EHEDG for 10 years. The great advantage from an environmental point of view is that stainless steel drainage can be re-used or recirculated again and again, once its original purpose has come to an end. BLÜCHER has developed high quality tools for regenerating used drainage parts, so that they remain up to the high standards set by BLÜCHER.

Sound investment

Furthermore, you will also find BLÜCHER solutions interesting from an investment point of view. Their extremely low – or no – maintenance and repair costs and high efficiency in drainage provide a sound investment, and give very interesting figures in terms of total cost of ownership in budgets and calculations. From this point of view, you will find that an investment in the BLÜCHER solution over a range of years is a high-quality and low-budget way of efficiently providing a processing plant with drainage, even one with high or extreme demands in terms of hygiene, or an aggressive environment.

Meet and greet the BLÜCHER experts

As you can tell from the above, there is very good reason to meet at the EHEDG World Congress 2024. We will of course be there to meet you, and tell and show you in more detail how we can assist you in your present and future projects.

Therefore, we invite you to 'Brain & Drain' together with the experts from BLÜCHER!

Jerome di Nicola, *Head of Southern Europe (BLÜCHER)*

Can you please introduce yourself and your organisation?

I'm Steve Arnold, SMC Food Standards Manager for the EU & the US. Founded in 1959, SMC Corporation is a provider of automation solutions, with annual turnover exceeding $5.5bn. Our team of food sector experts works to stay up to date with current industry trends and challenges so they can recommend appropriate food industry automation solutions to customers worldwide.

SMC currently has sales offices in more than 80 countries, with manufacturing facilities in over 30 countries. The company frequently invests in its business operations: as well as a complete refurbishment of our UK administration offices in Milton Keynes, output from our factories in Germany, Czechia and the US will be increased thanks to building extensions. Output began in 2023 from a new, state-of-the-art manufacturing centre in Vietnam, and last summer saw the announcement of the relocation and extension of our Japan Technical Centre (research & development) to a 42,000 m2 site north-east of Tokyo, representing an investment of over $800m.

Which team(s) in your company apply hygienic design principles?

Hygienic design principles are taken into consideration not only by the 1,500 staff at our five R&D centres worldwide, but also by our design engineers, who consider bespoke solutions for individual customers at a local level. The principles are also considered by the customer-facing sales teams globally in proposing product solutions when visiting food manufacturers.

EHEDG Guideline 8, 'Hygienic Design Principles' is the most fundamental guideline we refer to, although EHEDG Guideline 44, 'Hygienic Design Principles for Food Factories' and Guideline 52, 'Basic Principles of Cleaning and Disinfection in Food Manufacturing' are also useful resources. The EHEDG white papers are also insightful and help us to understand forthcoming legislation and changes to benchmarking and audit protocols.

Working with sector experts within the scope of EHEDG enables us to anticipate market needs and serve our customers well. Several members of our team are involved in working groups for EHEDG. Thanks to SMC's unique experience as both a manufacturer and a solutions provider for the food sector, we can share a wealth of customer experience when considering new guidelines or a guideline refresh. Our product design and sales teams in Europe can recommend the most appropriate product at our customers' first request, as they have been trained in both EHEDG Fundamentals and EHEDG Advanced Hygienic Design, and can then apply this training when designing new product solutions or considering customer issues. We also host EHEDG training courses across our local country premises.

What hygienic solutions are you currently offering on the market and/or are in the pipeline?

SMC's KFG2H-E pneumatic fitting is the only product of its type on the market which is certified by EHEDG (certificate number C200017 EL Class 1 AUX). This product is ideal for use in the protein and dairy sectors or any arduous application. EHEDG certification gives our customers the reassurance that they are incorporating the best possible solution for their new process equipment and confidence in their compliance with the latest design guidance from EHEDG and GFSI.

We also offer a range of hygienic-design products suitable for food sector use, including the HF1 point-of-use air filtration sets, HF2 antibacterial air filtration sets, IP69k clean line valve manifold and CG5-X2977 stainless pneumatic actuators.

KFG2H-E pneumatic fitting

CERTIFIED HYGIENIC ENGINEERING & DESIGN EUROPEAN GROUP EHEDG
TYPE EL
CLASS I AUX
DECEMBER 2020

Can you share a hygienic design best practice?

SMC helped one particular customer to reduce the downtime experienced on one of their processing machines. The machine had been repurposed and was therefore not initially designed with hygienic principles or parts in mind. It had been manufactured with a mix of stainless and hard anodised aluminium components and the seals used in its actuators were not fit for purpose. A further challenge was presented by the many recessed channels that were difficult to clean and sanitise. The moving parts had become covered in a protein and sugar-based sauce which had dried onto the piston rods of the pneumatic actuators, damaging the piston rod seals; this led to excessive air consumption and extended machine downtime. A constant water rinse was employed in an attempt to wash away the sauce and protect the piston rod seal from damage, but to little effect. The machine was so unreliable that an operative was generally stationed next to the machine to carry out the job the machine was meant to perform.

SMC undertook a root cause analysis of the problems the user was encountering. Our Sales Consultant recommended that the machine was retro-fitted with SMC roundline stainless steel 304 grade, CG5 series actuators. These actuators performed well in this arduous environment, withstanding aggressive washdown chemicals without any oxidisation – in contrast to the original, hard anodised aluminium counterparts. Cleaning and sanitisation was made quicker and easier thanks to the CG5's rounded, stainless steel body with 0.8Ra surface finish.

The pneumatic actuators were also fitted with FDA-approved chemically resistant piston-rod wiper seals, so protecting the seals on the piston rod from the production sauce; these measures eliminated machine downtime caused by leaking actuator nose seals. These simple changes yielded multiple benefits – increased machine availability, fewer mechanical breakdowns, quicker cleaning and sanitation times, a reduction in water and chemicals used to clean the machine, the redeployment of the operator tending the machine and a cost saving on compressed air consumption.

Why did you decide to sponsor the EHEDG World Congress 2024?

The EHEDG World Congress is an ideal environment to network with subject-matter experts and industry leaders which, in turn, enables SMC to continue to fully understand our customers' needs and to design products and solutions addressing those needs.

We work closely with EHEDG across the globe and on specific EHEDG working groups and have been involved with the EHEDG World Congress since 2018 when it was held in London. It makes sound commercial sense for SMC to align our product conception and implementation activities with principles laid down by the leading global authority.

Steve Arnold, *Food Standards Manager for the EU & the US (SMC) and Board Member of EHEDG Regional Section UK & Ireland*

At KEOFITT in Denmark, our focus is entirely on liquid sampling. It is safe to say that KEOFITT is a dedicated liquid sampling company. Improving sampling is all we ever do and have done for more than four decades. Since our start in the beer brewing industry, our aim has been to enhance the sampling process and the sampling equipment. The KEOFITT sampling valves have become the standard throughout the entire food industry for obtaining representative and uncompromised samples – and hence laboratory results you can rely on. We have attended and arranged conferences, trade shows and seminars, discussing the ways and means to take safe, qualitative, and representative samples. In these many discussions and meetings, we have learned a great deal about the challenges of taking sanitary, sterile, and safe process samples and, more importantly, how to address them. Building on this experience and our position as market leaders, we want to share our expertise with you, and with all others who may be interested. That is our mission at KEOFITT.

KEOFITT is represented world-wide through more than 50 distributors, each covering their own country and some also covering neighbouring regions.

Hygienic design teams

The KEOFITT 'steam-sterilisable sampling valve' is part of our DNA. Kai Ottung, our founder, was committed to better and safer sampling, and constantly worked on improving the valve. We have enhanced the valve using the latest technology, and have developed new sampling equipment that is compatible and usable with the original sampling valve.

KEOFITT, as one of the pioneering companies in Denmark, became a member of EHEDG as long ago as the mid-nineties. When the first EHEDG Authorised Testing Laboratory was established in the country, we had our valves tested according to the first edition (1992) of EHEDG Guideline 2: 'A method for assessing the in-place cleanability of food processing equipment'.

Our key personnel have engaged in EHEDG Hygienic Design Training courses and in the Working Group 'Valves', playing an active role in the development of Guideline 14, 'Requirements for valves in hygienic and aseptic processes' (2020). Participation in an EHEDG Working Group serves as an excellent platform to connect and collaborate with individuals sharing similar educational backgrounds or professional pursuits.

Hygienic design best practices

Sampling valves are often an overlooked component when designing a new food process line. Focus is on the tanks, the piping and the process valves. We have encountered numerous cases where newly installed, but non-hygienic sampling valves have had to be removed from equipment that was only six months old, and be replaced with KEOFITT's hygienic sampling valves.

This issue is discovered when the food manufacturers realise that the obtained samples are not indicative of the actual process within the production line, and has led to consistently unexpected laboratory results.

EHEDG World Congress 2024

At KEOFITT we would like to shed more light on the importance of liquid sampling in the food industry. Sampling is a key factor in food safety and, as such, one would expect it to be high up on the agenda, both when designing a new production line and in its subsequent operation.

Our goal is ultimately to educate the industry in understanding the pitfalls of sampling and to suggest better sampling procedures. Unfortunately, there are many inaccurate, erroneous and even dangerous notes, instructions and videos around which purport to show how one should go about taking a sample from a production line. We would like to raise awareness on this topic and, given our experience and expertise in this area, provide solutions.

One way of doing this is by sponsoring an event like the EHEDG World Congress. We did this in London in 2018, focusing on testing methods for assessing sampling valves' cleanability. In 2024 and ahead we shall focus on spreading the message on hygienic and representative sampling – how to choose the right sampling valve and sampling equipment for your specific requirements, and how to then operate it hygienically and correctly in the production process. This includes not only taking the samples correctly in the production line, following standard procedures, but also how to transfer them safely to the laboratory without compromising them, in order to be able to rely on the laboratory analysis.

All we do is sampling!

The Angst+Pfister Group, headquartered in Switzerland, has been a leading developer and manufacturer of technical components and engineering solutions for over a hundred years. With local sales and technical support units, as well as logistics centres worldwide, the company serves over 20,000 customers in numerous industries in more than 50 countries/regions. Angst+Pfister operates its state-of-the-art research and development centres in Switzerland, Turkey and Italy, as well as manufacturing facilities in Switzerland, Turkey, Italy, Denmark, China and Vietnam. These facilities are complemented by production partners in more than 15 countries/regions, enabling Angst+Pfister to remain at the forefront of technology.
We supply customers active within the EHEDG organisation with sealing solutions made of food-grade materials in hygienic designs, tailored to the unique installation spaces of each customer.

Angst+Pfister values are based on reliability and flexibility, as well as on a respectful and equitable interaction with all stakeholders. As part of the proactive implementation of UN Global Compact (UNGC) principles, Angst+Pfister pursues the goal of sustainability in all its endeavours, to create a positive impact on our planet and society through pragmatic, meaningful, and measurable initiatives.

Christian Geubert, Product Leader in Sealing Materials, and Giovanni Valente, Senior Engineer in Sealing Technology, have extensive expertise in sealing technology. They have experienced the ever-increasing regulatory, hygienic, mechanical and chemical requirements for seals in the process industry.

Christian Geubert instructs in food technology part-time at a renowned university in Germany. He is also a sought-after speaker for companies and industry associations. He joined EHEDG in 2008 and has been a member of the board of Regional Section Germany since 2015. ‘In sealing technology, you are at the heart of the technical process and have to understand how machines and systems work,’ says Christian Geubert. Its international nature and the different communication channels and processes tailored to each customer make his work very dynamic.

Giovanni Valente specialises in sealing concepts in terms of materials and design, with a focus on the food and beverage industry. He sees it as his mission to expedite the time-to-market of his customers’ products with the right sealing concept. Giovanni Valente’s motto is ‘first time right’.

Hygienic design teams

The EHEDG Guideline 48, ‘Elastomeric Seals’ is the most important one for Angst+Pfister. It indicates which characteristics are essentials for seals to be effective, and what customers’ design engineers should keep in mind. The document ensures that we can deliver the best possible performance in joint projects, and that the latest know-how flows are integrated into the collaborative efforts across companies.

Angst+Pfister’s experts are involved in various EHEDG Working Groups, such as ‘Seals’ (Giovanni Valente), ‘Maintenance, ‘Sensors’, and ‘Valves’ (Christian Geubert).

Hygienic design solutions

Angst+Pfister customers have previously obtained certification for solutions resulting from collaborative projects, for instance, innovative solutions in process sensor technology, which find application, among other sectors, in food processing. However, seals cannot be certified on their own, as they have to be tested together with the customer’s component, as a complete solution.

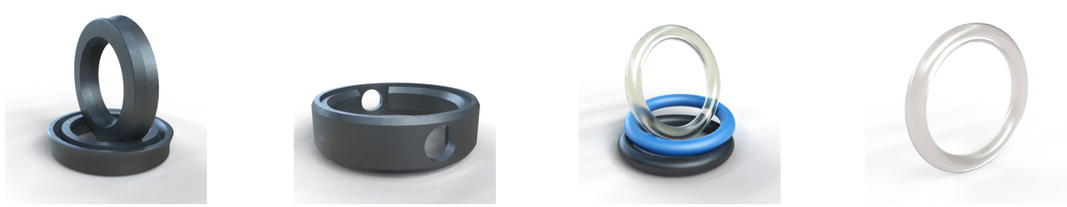
Hygienic design best practice

New sensors developed by Angst+Pfister customers measure various process parameters, including temperature, flow rate and turbidity (particularly in processing plants for food, beverages and other products). The use of seals eliminates the need for welding or gluing components to the systems, allowing for flexible use of a single product and easier maintenance. This results in cost-effective optimisation in logistics and warehousing. These innovative sensors would not exist without the seals that are employed. This, in turn, can offer competitive advantages to users. Successful implementation of such hygienic design solutions requires collaborative efforts between engineering teams of manufacturers and suppliers. Beyond technical expertise, therefore, it is the partnership-based cooperation that stands as the key factor for success.

Why did you decide to sponsor the EHEDG World Congress 2024?

Angst+Pfister offers exceptional materials tailored to the food and beverage industry. These materials enable the development of cutting-edge and long-lasting sealing solutions that adhere to global regulations. Numerous coffee machine manufacturers rely on the expertise of Angst+Pfister.

Our participation in the 2022 World Congress in Munich and the 2024 World Congress in Nantes will bolster our expansion in this important market.



Lip seals, Molded seals, O-rings

Christian Geubert, *Product Leader in Sealing Materials (Angst+Pfister) and member of the EHEDG Working Groups ‘Maintenance and Installations’, ‘Sensors’ and ‘Valves’*

Giovanni Valente, *Senior Engineer in Sealing Technology (Angst+Pfister) and member of the EHEDG Working Group ‘Seals’*

My name is Francesco Donati and I am Engineering Manager at CSF Inox.
Our organisation is a renowned engineering and manufacturing company specialised in providing cutting-edge process equipment for the pharmaceutical and food and beverage industries. Our core products include stainless steel pumps and fluid-handling systems, all meticulously designed to meet the stringent hygiene standards of the food sector. Currently, we are active in most parts of the world and we continually assess opportunities for expansion, to better serve the evolving needs of the food industry globally.

Hygienic Design Teams

In our company all the technical teams and operational departments are committed to applying and observing hygienic design principles. In the R&D and technical departments, we focus on product design and engineering, with a commitment to ensuring that our solutions meet and exceed the requirements of the European Hygienic Engineering & Design Group (EHEDG). The EHEDG Guidelines that play a pivotal role in our design processes include Guideline 2, 'A method for assessing the in-place cleanability of food processing equipment', Guideline 8, 'Hygienic design principles', and also Guideline 17, 'Hygienic design of pumps, homogenisers and dampening devices' and Guideline 18, 'Chemical Treatment of Stainless Steel Surfaces', to name but a few.
Several of our staff members periodically participate in EHEDG Hygienic Design training courses, depending on their knowledge level. These training courses have been instrumental in reinforcing the importance of hygienic design principles, offering insights into the latest requirements, and providing practical applications of EHEDG guidelines. The value of this training is firstly reflected in our ability to incorporate the most up-to-date hygienic design practices into our product development processes, and put it into perspective. The primary objective is to instil a culture of hygienic design throughout the entire company, to effectively meet customer needs that align with the evolving trends in our market.

Hygienic solutions

At CSF Inox we are proud to offer a range of hygienic solutions for the pharmaceutical and food and beverage industries. The EHEDG-certified stainless-steel pumps in our product portfolio are concrete proof of our commitment to meeting the highest standards of hygienic design.

Among our centrifugal pumps, the series CSA and CN are EHEDG certified, and we also have a positive displacement twin screw pump, the TS series, which is certified.

Our pipeline projects focus on innovation, so we are actively considering EHEDG certification for additional products. EHEDG certification holds significant value for us, as it enhances industry recognition, facilitates market access, instils customer confidence and aligns with our commitment to producing equipment that meets and exceeds hygienic design standards.

Hygienic design best practice

We have recently been working with a pharmaceutical plant performing separation processes on extremely delicate clean fluids. The plant is facing the challenges of finding harmless pumping solutions and of prolonged downtime, as well as increased resource consumption during cleaning processes. The existing CIP (Clean-in-place) system was inefficient, leading to extended cleaning times, higher water and chemical usage, and reduced overall productivity.

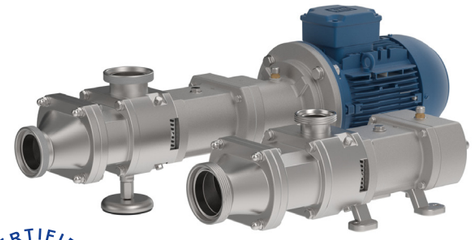
Our hygienic design solution focused on optimising the process equipment and the CIP system on two different lines – the first one mainly processing water-based fluids, the second one transferring and filling the separate fluid.

- We installed a CN centrifugal pump for the process and CIP launch in the first line, in order to minimise piping length and additional components, and water and chemical usage.
- We installed a TS twin-screw pump, handling both the process and CIP launch for the filling line.
- The equipment design has smooth internal surfaces, is crevice-free and uses only materials resistant to bacterial growth in accordance with EHEDG Guidelines.
- Automated cleaning sequences were introduced in accordance with the customer requirements, targeting specific zones and reducing overall downtime.

The results were impressive:

- **Pumped fluid delicate properties were preserved:** the TS twin-screw pump designed by CSF was the only technology capable of maintaining the chemical properties of the separate fluid integer;
- **Reduced downtime:** the optimised CIP system significantly shortened cleaning times, leading to shorter downtime between production runs and increased overall production capacity;
- **Enhanced productivity:** with more efficient cleaning processes and minimised downtime, the plant experienced increased overall productivity.

This case study highlights the real-world benefits of incorporating hygienic design principles, resulting in a more sustainable, productive and hygienic processing operation.



CERTIFIED EHEDG HYGIENIC ENGINEERING & DESIGN EUROPEAN GROUP
TYPE EL CLASS I
NOVEMBER 2023

Twin Screw Volumetric Pumps

EHEDG World Congress 2024

Our decision to sponsor the EHEDG World Congress in 2024 is rooted in our commitment to advancing hygienic design standards globally. Our goals for engaging in and sponsoring the Congress include:

Reinforcing our industry leadership and visibility by showcasing our expertise and innovations;

Fostering collaborations with industry experts and potential clients through networking opportunities;

Staying at the forefront of hygienic design trends and best practices through knowledge exchange and learning.

Our strategic sponsorship is not just about the Congress itself, it extends to a post-event follow-up plan aimed at leveraging connections made in Nantes for ongoing collaborations and business development. By sponsoring the EHEDG World Congress, CSF Inox SpA aims to contribute to the dialogue on hygienic design, share our knowledge and innovations, and strengthen our position as a key player in providing advanced solutions for the pharmaceutical and food and beverage industries.

***Francesco Donati**, Engineering Manager (CSF Inox)*

Can you please introduce yourself and your organisation?

I'm Debra Smith, Global Hygiene Specialist at Vikan.

Vikan is the world's leading supplier of hygienic cleaning tools to the food and beverage industry and other hygiene-sensitive environments. Our aim is to help keep these environments cleaner and safer. With over a century of experience, we have amassed the industry's largest depository of hygiene and regulatory insights, and use this to develop the world's most effective professional cleaning tools and advisory services.

We have strong relationships with our customers and work with them closely to solve the challenges they face. We are unique in the professional cleaning tool market in that we formally incorporate customer ideas into our product development process. Our aim is to develop products that really meet industry needs. With our headquarters in Denmark and around 265 employees across the UK, USA, Germany, Sweden, France and Estonia, Vikan is a modern, dynamic, international workplace with a Scandinavian management style, structure, and heritage that is renowned for its professionalism. In 2023 we proudly celebrated our 125th anniversary.

Vikan is a truly global company. Our tools are available in more than 90 countries, and we have a vast distributor network ready to meet every need. Notwithstanding our global reach, we operate with a local business mindset that puts customers first. We have longstanding, close relationships with our distributors worldwide and, in September this year, we will be adding Wells, one of our strongest, to the Vikan global family. With over 95 years of industry experience, and 50 years as our exclusive partner, Wells in Australia and New Zealand brings an extensive wealth of knowledge about the food industry and the local markets.

Which team(s) in your company apply hygienic design principles?

Hygienic design is a fundamental consideration in most areas of our business, whether in the provision of hygiene and food safety advice related to the hygienic design of food processing equipment and buildings, delivered by our field staff and hygiene experts, or the incorporation of hygienic design principles in the development of our new and improved products by our R&D team.

Guideline 8, 'Hygienic Design Principles' and Guideline 32, 'Materials of Construction' are frequently reference points, and every member of the Vikan Sales, R&D, and Marketing teams is given specific in-house training on both the principles of hygienic design and the requirements for the use of appropriate food-contact complaint materials.

Vikans Global Hygiene Specialist Deb Smith sits on the EHEDG Advisory Board and regularly shares information on the principles of hygienic design at technical events and in scientific publications.

What hygienic solutions are you currently offering on the market and/or are in the pipeline?

As the global leader in the manufacture and supply of cleaning tools to the food industry, Vikan is always seeking to develop products that better support food safety and higher food quality. We have always been pioneers in this field, and our most recent innovations have focused strongly on incorporating hygienic design principles,covering everything from the design of the equipment to the materials from which they are made.

Using the hygienic design principles defined by EHEDG, Vikan have developed equipment for use in areas where hygiene is critical. The range includes:

- our Ultra Hygiene handles,
- our Ultra Hygiene squeegees,
- a range of food handling tools, including a range of scoops, stirrers, and measuring jugs,
- our multi-award-winning Ultra Hygiene Technology (UST) brushware.

All feature a fully moulded construction, minimal presence of crevices and contamination traps, smooth surface finishes, easy access to all areas for cleaning and disinfection, and durable construction.

Vikans Ultra Safe Technology (UST) brushware was developed specifically to minimise the risk of contamination from brushware and reduce bristle loss. Their fully moulded construction eliminates the need for drilled holes, staples, and resin, and so minimises the presence of crevices where contamination can become trapped. Additionally, their unique construction enables every bristle to be fixed individually so that the loss of one bristle does not impact the security of the others in the bundle. This minimises the risk of bristle loss. They also have unique bristle patterns, designed and assessed to improve the functionality and cleanability of each brush type.

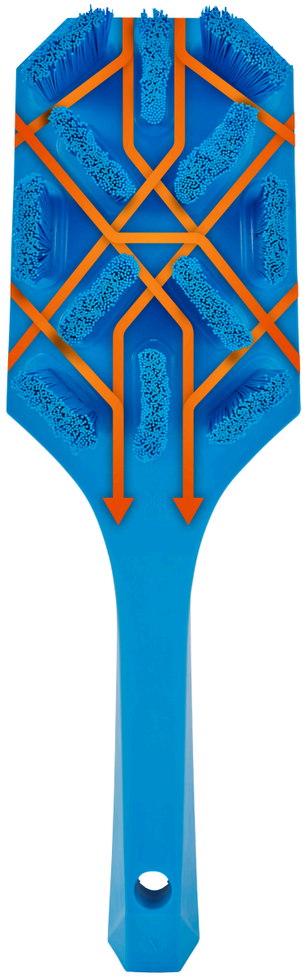
All Vikan colour-coded tools are made with EU and FDA food contact compliant materials.

To find out more about hygienically designed cleaning and food handling tools, please see:

- https://viewer.ipaper.io/vikan/food-safety-information/food-contact-approval/food-contact-approval
- https://viewer.ipaper.io/vikan/food-safety-information/ultra-hygiene/ultra-hygiene-advertorial-en-300/

The incorporation of hygienic design into the development of cleaning tools also helps the food industry comply with the requirements of GFSI benchmarked food safety schemes, including those operated by BRCGS and FSSC22000:
BRCGS clauses 4.11.6 & 8.5.3:
'Cleaning tools shall be hygienically designed and fit for purpose.'

FSSC 22000, clause 11.2 (ISO/TS 22002-1:2009 (2013)):
'Tools and equipment shall be of hygienic design …'



Vikan UST Hand Brush

Why did you decide to sponsor the EHEDG World Congress 2024?

Vikan believes passionately that hygienic design is an essential prerequisite to ensure food safety, whether the principles are applied to food production equipment, the production environment, food handling tools, or the cleaning equipment used. Consequently, we actively encourage the adoption of hygienic design by all our customers, and frequently promote and support EHEDG activities. Our continued sponsorship of the EHEDG World Congress demonstrates our commitment to raising awareness of and the adoption of hygienic design, and its importance in the food industry.

Debra Smith, *Global Hygiene Specialist (Vikan), EHEDG Advisory Board Member and Chair of Regional Section UK & Ireland*

Can you share a hygienic design best practice?

During the development of the UST brushware range, Vikan worked closely with infant formula manufacturers to develop a solution to a specific problem related to the hygienic design of the cleaning brushes used. Manufacture of infant formula requires the strictest food safety and hygiene conditions. Before the development of the UST range, the brushes used for cleaning were used once and then thrown away. This was because their drilled and stapled construction didn't allow them to be effectively wet cleaned, disinfected, and dried. The fully moulded, hygienically designed construction of the UST brushware meant that they could be effectively decontaminated to the standard required for re-use.

EHEDG World Congress 2024

2 & 3 October | Nantes, France

'Achieving hygienic excellence by design'

Platinum Sponsors

SEW EURODRIVE

ACO

Can you please introduce yourself and your organisation?

My name is Pascal Weber and I'm CEO of Polysoude SAS.
Polysoude, a French company founded in 1961 in Nantes, has been pioneering the automation of assembly processes with its development of orbital TIG welding machines.

In my role as CEO of Polysoude, I take great pride in spearheading our organisation's efforts to deliver cutting-edge welding solutions specifically designed to address the particular challenges faced by the food industry. At Polysoude, our commitment goes beyond merely supplying equipment; we are dedicated to improving cleanliness and simplifying maintenance in food processing facilities worldwide.

At the heart of our offerings are automated TIG and Plasma welding solutions designed specifically for pipework joints. Our technology caters to a wide array of materials, including stainless steel, carbon steel, titanium, and various alloys. Key among our products are closed chamber welding heads, meticulously engineered to ensure oxidation-free welds, thereby upholding the highest standards of hygiene crucial in food processing environments.
In addition to our cutting-edge welding systems, we provide intuitive and connected Smart Welding Stations, empowering operators with seamless control and monitoring capabilities. Moreover, our commitment to customer satisfaction extends to comprehensive technical assistance services, ranging from the development of welding procedures to on-site support and training programmes.

While we are currently active in prominent regions such as Europe, the USA, China, South East Asia, India and the Middle East, we have plans for expansion on the horizon. With strategic initiatives underway, we aim to strengthen our presence in key markets such as Europe, the USA, and China, reaffirming our dedication to driving innovation and efficiency in the food industry on a global scale.
At Polysoude, we are not just providers of welding solutions; we are partners in progress, committed to equipping food processing facilities with the tools they need to maintain impeccable standards of hygiene while optimising operational efficiency.

Which team(s) in your company apply hygienic design principles?

At Polysoude, we are committed to ensuring the highest standards of hygiene in welding applications. Our development teams are dedicated to integrating hygienic design principles into our processes, to design the best solutions for our clients. Our welding engineers are at the forefront of applying hygienic design principles.

They provide comprehensive hygienic welding training, and conduct welding tests for end users and subcontractors, ensuring that every welding application meets the stringent hygiene standards required. We adhere closely to EHEDG Guidelines, to ensure our welding processes align with industry best practices.

Our global sales network also plays a crucial role in upholding hygienic principles. They work closely with clients to understand their specific hygienic requirements and offer tailored welding solutions that meet these standards. By adhering to EHEDG Guidelines, our sales network ensures that every client receives the most suitable welding solution for their hygiene applications.

What hygiene solutions are you currently offering in the market and/or are in the pipeline?

Polysoude delivers a range of equipment and services adapted to the food industry. Our offerings include orbital welding equipment, such as closed chamber welding heads, Smart Welding Stations for oxidation-free welds, and mechanised TIG and Plasma welding systems, designed to meet the demanding requirements of hygienic welding applications, such as those for the production of baby milk, cheese, yoghurt, wine, etc.

We are continuously implementing EHEDG Design guidelines, ensuring optimal processes and product development. Leveraging the expertise gained from our EHEDG design training, our team member active in the EHEDG Welding Group is spearheading the application of these guidelines across our organisation. This initiative underscores our commitment to enhancing hygiene standards and continually improving our offerings for our customers.

Smart welding station & welding head

Can you share a hygienic design best practice?

At Polysoude, ensuring hygienic quality welds for global food manufacturers is a daily best practice activity. Our welding processes, including orbital welding for tube lines and heat exchangers, as well as automated TIG and Plasma welding on storage tank cones, are essential to achieving this goal.
When it comes to advising customers, our approach prioritises avoiding welding whenever possible. However, if welding becomes necessary, we offer equipment and related services for achieving the best hygienic weld joints, following EHEDG guidelines.

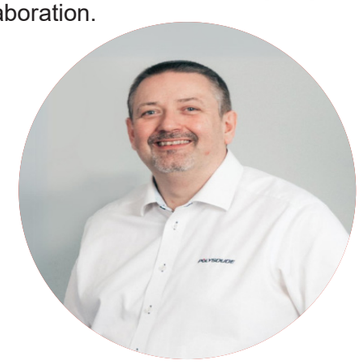
One notable case, where hygienic design proved to be the perfect solution, involved a major player in the food industry. Facing challenges related to maintaining hygiene standards during the welding of storage tank cones for their dairy products, they approached us for a solution.

By implementing our orbital welding systems, we were able to significantly reduce the downtime and cleaning time associated with welding processes. Additionally, a hygienic design approach led to a reduction in the amount of water, energy, and chemicals required for cleaning, resulting in substantial cost savings and increased productivity for the client.

This case study exemplifies how our commitment to hygienic design principles and innovative solutions can deliver tangible benefits in terms of operational efficiency and cost-effectiveness for our customers in the food industry.

Why did you decide to sponsor the EHEDG World Congress 2024?

Sponsoring the EHEDG World Congress 2024 aligns with our mission to advance food industry standards. Our goals include networking with major equipment manufacturers and advocating for automated orbital welding. We aim to highlight its versatility beyond thin wall stainless steel applications, showcasing its efficacy in manufacturing large equipment like pressure vessels. Our objective is to ensure superior quality control of welded assemblies and drive productivity gains, contributing to enhanced efficiency and safety in food processing. We're committed to sustaining engagement post-congress to foster ongoing innovation and collaboration.



Pascal Weber, *CEO (Polysoude)*

Can you please introduce yourself and your organisation?

I'm Joachim Zipp, Global Market Segment Manager Food and Pharma at WIKA.

The WIKA Group is a market leader in pressure and temperature measurement. The company also sets the standard in the measurement of level, force and flow, and in calibration technology. Today the family-run business has a global presence, with 11,200 employees.

WIKA combines hygienic design with high-quality measurement technology, for a best fit for highest customer value in food and beverage processes. With application-driven instrumentation, we work based on strength in risk prevention & hygienic design, including global approvals supporting sustainability in customer processes by enhanced efficiency.

Which team(s) in your company apply hygienic design principles?

From the beginning of a new sensor concept for the food and beverage industry, hygienic design principles are followed. This means that, from market research, product management and product development through to customer service and marketing, all relevant teams are involved, utilising the advantages of hygienic design. Many of the team members across all functions have participated in hygienic design training in order to develop the appropriate mindset for creating superior hygienic design sensors. As a company member of the EHEDG, WIKA contributes to EHEDG Guideline 37, 'Hygienic Design and Application of Sensors'. Here we share our knowledge of and experience with hygienic sensors, their benefits and applications.

What hygienic solutions are you currently offering on the market and/or are in the pipeline?

WIKA supplies a wide range of EHEDG-certified measuring instruments, and in total holds 7 EHEDG certificates covering forty instrument models. This covers in-line instruments for pressure, hydrostatic level and temperature measurement, all types of hygienic standard process connections which are recommended in the EHEDG position paper. The instrumentation range goes from mechanical gauges, electronic switches and programmable transmitters to wireless devices. The EHEDG certification is proof of the easy cleanability of our measuring devices.

Can you share a hygienic design best practice with us?

Temperature measurement is one of the most important process parameters, comprising up to half of the measuring points in most production facilities.

Pressure transmitter SA-11

It plays a central role in heating, cooking and UHT processes. In food processing, inaccurate process temperatures can affect degeneration of proteins and result in an off-quality product. The risk of process contamination is also more pronounced if temperatures are not adequate for proper sterilisation. Precise temperature measurement ensures optimal use of heat during cleaning and sterilisation processes, to remove residue from the pipeline and prevent any instances of cross-contamination in aseptic process lines.

To meet the performance demands of food processing, temperature instrumentation must be designed to deliver highly accurate measurements and to comply with essential hygienic and even aseptic production requirements. Such requirements stipulate design features that minimise the risk of process contamination. These include easy cleanability of all components that are in contact with the product, and easy even of instruments to eliminate any product residues. Complying with aseptic requirements when integrating sensors into the process can present especially difficult design challenges. In fact, instrument connection points are well known to invite the risk of contamination, because fittings and mounting orientations can create crevices and dead spaces. EHEDG guidelines encourage equipment designs that limit the number of connections and thereby reduce the hygiene risks from these problem areas.

Properly positioning the temperature sensor is important for accuracy, but also represents an additional design challenge. To ensure precise readings, the instrument should be installed in the middle of a pipe or the flowing media. The temperature of product flowing in a pipe is higher in the core of the flow than at the pipe walls. In fact, the temperature difference can vary by more than 5°C, depending on the flow rate, the process medium, viscosity and ambient conditions. This is true even of turbulent flow. Therefore, the registration of the temperature in the core of the flow is extremely important for accurate measurement, especially for temperature-sensitive food.

THERMOWELL DESIGN OPTIMISED FOR SANITARY APPLICATIONS

Thermowells are often installed to help meet sanitary requirements for temperature sensors. The thermowell prevents the temperature sensor from being in contact with the food being measured. And when a replaceable measuring insert is used, it is possible to calibrate the instrument without opening the process, which reduces the risk of process contamination.

This saves time and the costs associated with sterilisation processes.

Flow-through thermowells with a design free of dead-space comply with EHEDG principles for addressing the hygiene risks that can stem from the installation of temperature sensors. In fact, the use of this technology can eliminate all branch legs of piping caused by temperature sensor installation. The flow-through design features an inverted, curved insertion point where the temperature probe enters the process. As a result, there are no crevices where product can become lodged and compromise aseptic conditions. The optimally designed thermowell also facilitates cleaning and emptying to further ensure product safety.

An orbital weld according to EHEDG Doc. 35 is used to integrate the flow-through thermowell directly into the pipeline, providing a defined, clean weld seam. As a result, there are no gaskets to present a risk to the hygienic design, if the recommendation of EHEDG Doc. 10 to minimise the number of joints is followed. In addition, there are no gaskets to maintain, which saves maintenance time, downtime of the production line and costs. Eliminating gaskets also minimises the risk of unforeseeable leakage during the process.

The flow-through thermowell also provides considerable leeway regarding the mounting position, because draining and cleaning are possible in any mounting situation. This allows flexibility when designing processes or food machines. In addition, the flow-through thermowell measuring

inserts always have the same length, despite differing nominal pipe widths. The standardisation of measuring inserts eliminates the need to stock a wide range of spare parts. It also removes the risk of error in installing the wrong measuring insert, which would cause incorrect readings.

To remain competitive in the advancing food processing industry, taking any step necessary to avoid costly issues is always the right step. Instrumentation, like the flow-through thermowell with EHEDG-certified hygienic design, has been optimised to avoid risks that cannot be tolerated in a tight marketplace. Exploring the latest state-of-the-art technology during the planning phase of a project can help with the design of a cost-effective and safe operation.

Why did you decide to sponsor the EHEDG World Congress 2024?

We are looking forward to meeting hygienic design experts from across the world. And discussing the current trends and benefits for the industry, and sharing our experience. By exhibiting our latest developments in regards to sensors incorporating hygienic design, we want to show the hygienic design experts outstanding solutions in hygienic design integrated to smart sensors.

***Joachim Zipp**, Global Market Segment Manager Food and Pharma (WIKA) and member of the EHEDG Working Group 'Sensors'*

Miniature resistance thermometer TR21-B

WIKA

EHEDG World Congress 2024

2 & 3 October | Nantes, France

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www.ehedg.org/congress-2024/

ATT www.att.eu is a Polish manufacturer specialising in stainless steel engineering. The company provides products and services for investment projects in various sectors – from the public, wastewater treatment, hospitality, chemistry and pharmaceuticals sectors to food and beverage. This last sector, **food and beverage**, is the one that ATT is the most focused on, and the one that is the driving force that sets the direction for the company's technological development.

ATT's core product group is drainage systems. Drains were the first products successfully developed in **2002 when the company was established.** Since then, we have managed to significantly extend our product portfolio, the most significant ones being: **manhole covers, protective elements (such as kerbs and bollards), platforms and support structures, expansion joints, stuffing trolleys/eurobins, and food processing trolleys.** Thanks to our engineering and installation team, we are also able to handle the most advanced and customised **construction structures.**

We can certainly say that ATT delivers its products and services to a **global market.** We even reach remote areas of the world like Australia, South Africa and Latin America. But our home and our strongest market is definitely Europe.

From the very beginning, ATT has been involved in the food and beverage processing industry. Most of our efforts are therefore aimed at hygienic design and quality requirements, understood as a product's functionality and durability. The hygiene concept, termed H.Design by us, involves every single department that is engaged in the production process in our Krakow facilities. This means purchasing, technology, engineering, production, quality control and logistics. All these **teams are trained and aware of the factors that influence the hygiene features of the product.**

In sharing our best hygienic design practices, we should briefly mention **drainage systems that create a buffer between the 'clean' and 'dirty' zones.** Installation of drainage products with low hygienic standards may result in harmful substances (present in the sewage system) penetrating to the clean/high-care zones and contaminating the

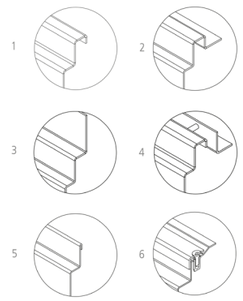
production area.

Before selecting a drainage system, technology managers in F&B plants should take into account the following elements.

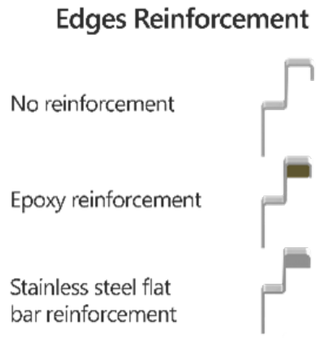
- materials and hygiene of the drains' production environment;
- types of elements and compatibility with floor technology;
- hygienic design features;
- flow rates of liquids;
- load class.

Let's briefly focus on the most important features of hygienic design.

1 – with downward flange
2 – with flange
3 – with raised back edge
4 – with expansion joint
5 – with tightly folded edge
6 – for vinyl floor



Adapting the drainage to the type of floor is a very important technical issue as point of contact between manufacturers of the drainage systems and industrial floor applications contractors. The selection of appropriate edge finishing of the products to enable the application of a given type of floor is critical. Incorrect adjustment of drains to the type and technology of the floor may lead to **cracks/leaks, which significantly reduce hygiene in the production area,** causing surface contamination and accumulation of bacteria in areas of cracking. There are two basic types of industrial floors – resin, and industrial tiles. Below are examples of types of edge finishing profiles used in industrial plants.



Here we should also emphasise the importance of **drainage edge reinforcements**, which affect the load capacity of the system. We strongly recommend reinforcing the drain edges at the producer's facilities – which ensures precision and cohesion. **We strongly advise epoxy or flat bar filling as the most reliable materials.** Other filling substances like concrete or rubber would weaken the drains' edges and lead to damage at the junction with the floor.

The design of drainage systems is a very broad topic. We would list the following as principles:

- maximum reduction of places suitable for bacteria accumulation;
- the most effective cleaning possible.

To a large extent, the subject would form material for a separate detailed study. Basically, the design and technology are heading towards the **maximum use of deep pressed elements** for the construction of drains. In this way, the number of welds is reduced, and **consequently, sharp corners that are difficult to clean are eliminated.** Only well cleaned **butt welds** are used.

Tight continuous joints are very important. The processes of **grading the edges** of elements that come into contact with production personnel during the service of the product should also be checked. A critical point of hygienically designed drainage is the slope. For ATT, the s**tandard slope parameter is a constant 1%.** Flat bottom drainage design leads to sewage remaining in drainage channels for a longer period of time, which creates an unnecessary hygiene risk for the production facility.

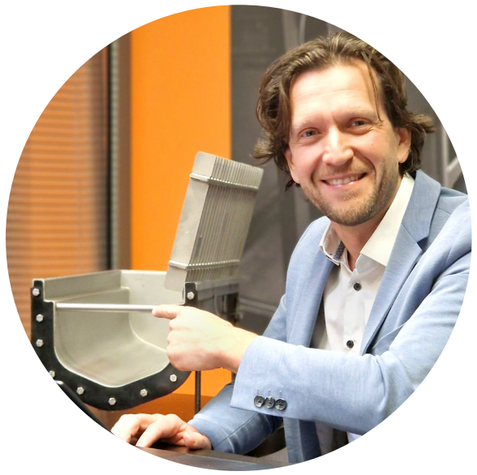
It is extremely important to stress that no matter how well and hygienically the product is designed, **the production quality standards ultimately influence its performance and durability.**

At ATT, quality control and the inherent safety of products are not just slogans, but an extremely important process that is present at numerous stages of the manufacturing process. Our reputation in the industry is certified by multiple periodic audits performed by independent third-parties, such as **TÜV Rheinland, Bureau Veritas, NSF, and IAPMO.** Having developed appropriate procedures, we have implemented and maintained certification in accordance with **ISO EN 1090 EXC-3 and 3834-2** standards since 2015, one of the most prestigious quality indicators for manufacturing and design of steel structures – **1090 Execution Class 3 certification: Fabrication of steel and aluminium structures.** These testify to our ability to carry out highly advanced and technically complex welding projects. As a result, welded structures are not only aesthetically pleasing, but above all **hygienic, safe and durable.** Equally important are our employees' certificates of competence. **International Welding Engineer, Visual Testing - Level 2, Radiographic Testing 2, Penetrant Testing 2, and welding authorisations** in their respective ranges are proof of the top qualifications for the tasks performed in the production process.

Finally, I must mention that the **installation process** is a key factor for every hygienic system in F&B facilities. There is an interesting synergy between the expertise stemming from the professional experience of **ATT's own installation crews**, and the technology departments that apply these ideas to the production process. It also lets us constantly improve hygienic and functional features of our products.

Why do we sponsor the EHEDG World Congress 2024?

We view it as t**he most important place** for the industry to develop hygienic design and safety standards for customers, not only in Europe, but all over the world. We greatly appreciate the fact that ATT and other prominent producers are deliberating on hygienic design guidelines, and also that these opinions are constantly subject to scrutiny by food and beverage producers.



Marcin Rębalski, *Export Sales Director (ATT) and Chair of the EHEDG Regional Section Poland*

Krzysztof Kaczmarczyk, *Technology Manager*
Michal Rabczuk, Manager of Factory Production Control

Stainless Steel Engineering

EHEDG World Congress 2024

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'Achieving hygienic excellence by design'

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Tetra Pak®
PROTECTS WHAT'S GOOD

About Tetra Pak®

Tetra Pak® is a world leader in food processing and packaging solutions. Together with customers and suppliers, we help to ensure access to safe, nutritious food for hundreds of millions of people in over 160 countries, while at the same time striving to reduce our environmental impact.

More than 70 years ago, we embarked on a journey to help make food safe and available, everywhere. Today, we continue to innovate to protect food, people, and the planet.

We do this by developing food processing and packaging solutions tailored to meet the needs of global customers. Using the latest science and technologies, our dedicated team of innovators, collaborators and experts work together relentlessly to find answers to some of the biggest challenges facing the global food and beverage industry today. We enable brands in the cheese, dairy, powder, prepared foods, ice cream, beverage, plant-based beverage and 'new food' businesses to find ways to move forward.

About food safety and hygienic design at Tetra Pak®

Hygienic design is about ensuring that all equipment designed, manufactured, or sold by Tetra Pak® complies with regulations and standards for hygienic design, and food contact materials and articles. We provide solutions that support our customers in producing and delivering food that is safe and available everywhere.

The health and safety of the end consumer is ensured by applying the principles of hygienic design, as well as the requirements for food contact materials.

My name is Dean Scopes, and I am Quality & Safety Director at Tetra Pak® Processing solutions and Equipment. I lead a dedicated team of specialists, located around the world, that support our Tetra Pak® equipment product owners and solution designers in the areas of quality, food and equipment safety. Our Quality ambition is that customers should recognise Tetra Pak® as the food safety & quality leader, and within our Processing Solutions and Equipment we strive to be the integrated industrial food solutions leader for our customers. This is not just about good business: it is about being an active player in the food industry, supporting customers and consumers alike and driving our supply chain to be the best it can be, and our commitment to food safety is therefore in a wider context. Our Food Safety Specialists participated in the Global Food Safety Initiative's (GFSI) benchmarking requirements for Scope JI and Scope JII, and we see our commitment to EHEDG, and its objectives, as a critical part of this wider industry involvement.

Tetra Pak® food safety specialists are active members of the EHEDG Regional Sections, and they support delivery of EHEDG Advanced Hygienic Design Training on behalf of EHEDG; as a member of the Advisory Board, I also support this. We also actively support many of the EHEDG guideline developments and updates, lending our knowledge and expertise to support the industry in improving hygienic design. To emphasise the importance of hygienic design, I will focus on one of our food categories, ice cream.

Ice cream production and hygiene

Hygiene and food safety are paramount in commercial ice cream production and must be secured at each stage of the manufacturing process. According to research published in the Tetra Pak® Index 2020, consumers are becoming more concerned about food safety on a global scale, a jump from 30% to 40% on 2019 figures. Heightened worries regarding food safety are hardly surprising in the wake of the Covid-19 pandemic. The 2020 Tetra Pak® Index found that 68% of consumers believe food safety is a major concern for society, while 50% see improving food safety as the responsibility of manufacturers.

Stefan Åkesson, Company Specialist for Food Safety at Tetra Pak® and Chair of the EHEDG Nordics Regional Section, says that awareness of hygiene in commercial ice cream production has increased greatly over the years. 'Food safety management systems, including HACCP, are in place at customer sites, and today we also have a greater focus on the material used in food contact. The line solutions used for commercial ice cream manufacturing must be built for optimal hygiene, using expert knowledge and intelligently designed equipment to secure the best standards for food safety. Hygienic equipment design also makes cleaning equipment simple and easy, eliminating areas in which bacteria can grow.'

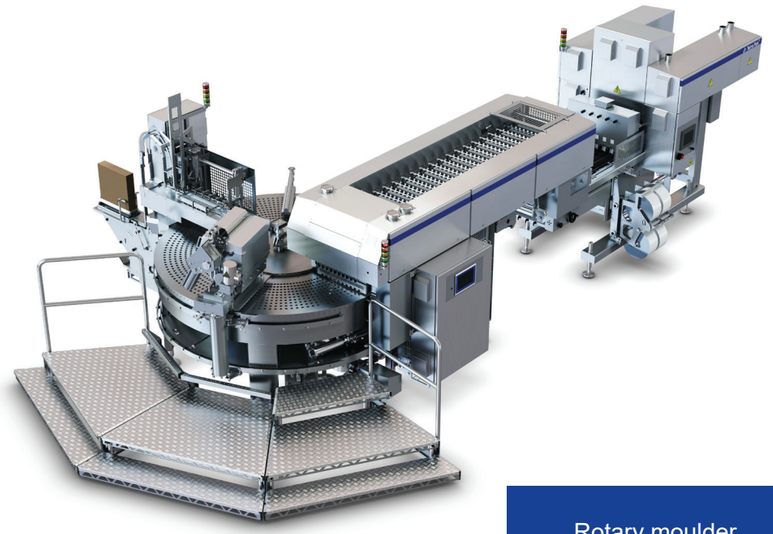
To take this one step further, let's look at one item in our ice cream equipment portfolio.

Breaking the mould for moulded ice cream & designing for a more hygienic world (Image – Rotary Moulder)

By innovating on the traditional design, the Tetra Pak® Rotary Moulder 27 A4 takes ice cream moulding to new heights, both figuratively and literally, with improved food hygiene, product quality and next-level automation.

As we were starting to look at what changes we could make to the design, we found ourselves amid a global pandemic. Suddenly, hygiene and cleanliness became a top priority for both companies and consumers – and naturally they became a top priority in our design process as well.

Niels Fogh Nielsen, Product Manager for Tetra Pak® Processing Solutions and Equipment, explains that the most significant change to the design of the new moulder is that it has a conical



Rotary moulder

open tank rather than the traditional design's cylindrical enclosed tank. 'By opening up the tank and making it conical, we eliminate any hard-to-clean areas – and make it much easier to spot even a small amount of spillage and clean it up before bacteria has a chance to grow.'

The EHEDG World Congress 2024

Tetra Pak® has a long history and a close relationship with EHEDG, and this is set to continue, as we are both aligned on the significance of hygienic design aimed at the increasing industry food safety requirements. We continue to sponsor the EHEDG World Congress as part of this commitment and our joint ambitions for the future. This is wholly in line with our customer-centric approach and commitment to improving our supply chain through our stakeholders. The EHEDG World Congress is the perfect platform through which we can continue to share our mission, vision, and strategic goals with the wider food industry and our EHEDG partner members, who are all committed to food safety through hygienic design.

Dean Scopes, *Quality & Safety Director (Tetra Pak) and EHEDG Advisory Board Member*

EHEDG World Congress 2024

2 & 3 October | Nantes, France

'Achieving hygienic excellence by design'

Call for Posters

We encourage submissions not older than two years, that align with the Congress' scope on hygienic design principles, technologies and best practices. The following broad topics will be covered:

Microbiology:
- Advances in Pasteurisation & Sterilisation Methods
- Innovations in Microbial Control

Toxicology:
- Strategies for Ensuring Product Safety

Open Cleaning:
- Sustainable Cleaning Practices
- Open Cleaning Technologies and Applications

Infrastructure:
- Hygienic Design in Facility Layouts
- Case Studies on Infrastructure Enhancements

Materials:
- Hygienic Materials Selection
- Emerging Materials for Hygienic Design
- Topics of the congress

How to submit your work
- Abstracts must be written in English and e-mailed to events@ehedg.org, using the template that you can download here.
- All submissions will be reviewed by our Scientific Committee and evaluated according to the criteria listed on our website.

Submit now

Important dates
- Submission deadline: Friday 19 July 2024
- End of the review process and acceptance notification: Friday 23 August 2024

Can you please introduce yourself and your organisation?

I'm Jean-François Clavreul, Director of Food Global Key Accounts at ifm. For more than 50 years, ifm (headquartered in Essen, Germany) has been developing innovative and reliable automation technology for virtually every industry. As a first industry market (with 20% of global revenue in food), farm-to-fork strategies have taken centre stage in the food industry, emphasising the importance of ethical, healthy and sustainable value chains. With more than 1,600 sales engineers covering more than 50 countries, we promote our solutions for meeting the challenges of sustainability and food safety in the following areas: production, processing, packaging and cold chain.

Which team(s) in your company apply hygienic design principles?

As a sensor manufacturer, we follow the EHEDG Guideline 9: 'Welding Stainless Steel to Meet Hygienic Requirements' and Guideline 35: 'Hygienic Welding of Stainless Steel Tubing in the Food Processing Industry' (as listed in our mounting instructions). For 2024, we have already planned for our team of food specialists to take part in EHEDG training courses: a Fundamentals course for 25 food industry managers and an Advanced course for 10 global key account managers.

What hygienic solutions are you currently offering on the market and/or are in the pipeline?

We have a wide range of EHEDG certified sensors: pressure sensors (PG27xx, Pix7xx, PM17xx), temperature sensors (TA25xx, TD25xx, TCC5xx), radar sensors (LW2720), level sensors (LMTxxx) and conductivity sensors (LDL2xx).

ifm electronic Pressure Sensor

Can you share a hygienic design best practice with us?

Case study of Level Transmitter (LT) solution for vessels

We have always had a solution for our Pressure sensors (PI17xx) + welding adapter (E30130).

Even though this solution is EHEDG Certified, we received some feedback from our customers about a technical issue (leakage). A team project was set up with end-users, original equipment manufacturers and original equipment manufacturers (oems) (vessel manufacturers) and ifm to assess the welders' practices.

The result of this project has been to create a new process adapter, the E30529, in order to make the welding easier for the welders, and so solve the technical issues and meet the food safety challenges.

Why did you decide to sponsor the EHEDG World Congress 2024?

By sponsoring the EHEDG World Congress 2024 and sharing experiences with end-users and oems, we aim to get to know more about the food challenges, and continue to be in line with food safety requirements.

ifm flush pressure sensor with display

Jean-François Clavreul, *Director of Food Global Key Accounts (ifm)*

New Institute Member

Food Industry Centre
Cardiff Metropolitan University
ZERO2FIVE
Canolfan Diwydiant Bwyd
Prifysgol Metropolitan Caerdydd

ZERO2FIVE Food Industry Centre at Cardiff Metropolitan University

Can you please introduce yourself and your organisation?

My name is Simon Burns and I have 25 years' experience in the Welsh food industry. After graduating from Cardiff Metropolitan University in 1998, I worked at a food microbiology testing laboratory in factory-based roles, with both technical and operational responsibilities. This involved working with fresh and processed vegetables and ingredients (including high-care), ready meals, meat, poultry and meat products, cooked meats, cakes and bakery, vitamins, minerals and probiotic food supplements. Whilst in post, I was also involved in several factory repurposing/building and design projects, as well as purchasing equipment.

I joined ZERO2FIVE Food Industry Centre at Cardiff Metropolitan University in 2022. ZERO2FIVE employs experienced food and drink technologists, business specialists and senior lecturers and professors, and provides food businesses with technical, operational, and commercial support to enable them to compete more effectively. My role here is to manage the practical and operational activities of the pilot plant facilities and offer technical and operational support to Welsh businesses with their food quality and safety systems, specialising in hygienic factory and equipment design. This enables them to develop, test and evaluate new products at the trial stage, prior to considering full-scale production.

The support provided by ZERO2FIVE to Welsh food companies within my position is varied and applies across a range of scenarios. The operational and technical knowledge transfer, and the review of processes delivered to companies when upscaling from trial to production, helps to reduce waste and make their operations more sustainable. Businesses looking to set up a new production facility or those considering purchasing new equipment can benefit from a wealth of experience and advice. Work is conducted across various technical projects from internal audits, HACCP review and development, to legal compliance and training, with clients being SALSA, BRCGS Start and BRCGS accredited. It is for some of these companies that I have also formulated and run technical workshops on topics such as hygienic design.

In addition to the support already mentioned, it is my responsibility to provide a link between the student population and external stakeholders such as IFST, EHEDG and IAFP, and to represent ZERO2FIVE at conferences and events including involvement in organising committees such as the EHEDG UK and Ireland Regional Section.

What does hygienic design mean in your organisation? Which teams apply hygienic design principles?

Hygienic design within ZERO2FIVE is seen as a major and important prerequisite programme with regards to food safety and quality. The introduction of BRCGS Issue 9 and the extended clauses in 4.6 has further brought this to the forefront of most BRCGS certified companies we work with in South Wales. Hygienic design is considered and promoted by technical managers and technologists involved in NPD, process improvements and design. Our technical affiliates working within the industry are also mentored around the importance of hygienic design and the benefits it can bring.

We are finding that in several of the businesses we work with, engagement is becoming more frequent with non-technical members such as engineers, purchasing, etc. The waste, sustainability, and operations team at ZERO2FIVE understand and promote the added benefit that if something is hygienically designed, then less down-time is required for cleaning, and reduced resources are required to ensure the equipment is clean. There is a push for the 'total cost of operation' approach rather than the 'capital cost' when looking at purchasing equipment for use at ZERO2FIVE or when reviewing equipment purchases with industry partners.

Why did you join our foundation? How can EHEDG create value for your organisation? What are your expectations?

ZERO2FIVE joined EHEDG to form a relationship with the organisation, as well as enhance the team knowledge around hygienic design. We have been able to provide better and more informed support with some of the knowledge transfer we can now deliver. This has included BRCGS workshops for businesses in Wales looking at hygienic design, when trying to comply with the requirements of BRCGS Issue 9.

I have recently joined the EHEDG Regional Section UK and Ireland Regional Section, and I am pleased to have been given the opportunity to try and raise the profile of EHEDG and hygienic design by linking with academics and the food businesses we work with in Wales. We hope to offer some EHEDG events at Cardiff Metropolitan University in 2024. I believe that ZERO2FIVE's membership has actually helped to promote and raise the profile of EHEDG with many food businesses in Wales. I hope the relationship formed between ZERO2FIVE and EHEDG will continue to spread the message around hygienic design for many years to come.

A personal goal of mine is that I complete the EHEDG Advanced Hygienic Design Course in 2024, and I hope that in the future I might be considered to become an Authorised Trainer for EHEDG, helping to offer more training opportunities in UK and Ireland.

How can you contribute your expertise in our Working Groups?

I am currently contributing to the EHEDG Working Group 'Building and Factory Design'. I am really enjoying this opportunity and working alongside some real 'titans' in the world of hygienic design.

I can offer practical and operational input into these teams, having worked in both technical and operational roles previously. My expertise is based around managing risk and applying control, where I draw upon my past experiences within these areas.

I am particularly passionate about considering the position of micro and SME-type businesses, who often have to start with repurposing a factory rather than having one built to specification. I feel it is important to take these business types into account in guidance documents, as if they can get it right the first time, it helps to avoid costly alterations later on and put them on a more solid grounding as a business.

Simon Burns, *Process Operations Manager (ZERO2FIVE Food Industry Centre at Cardiff Metropolitan University), member of the EHEDG Working Group 'Building and Factory Design'*

New Company Member

SEEING POSSIBILITIES IN POTATOES

Can you please introduce yourself and your organisation?

My name is Dyanne Parnel. I'm currently the Director, Sanitation and Hygiene at Lamb Weston. I've been with the company for about four years and I have had the wonderful opportunity of working with multiple departments – engineering, procurement, quality and food safety, to name just a few. I rely a great deal on hygienic design standards and guidelines, specifically when it comes to designing new facilities and equipment, or to modifying our legacy ones. We strive to continuously keep hygienic and sanitary design at the forefront of what we are doing, so that we can make our processes more efficient and our products safer.

Lamb Weston is the leader in frozen potato products; it is headquartered in the United States but now has a global presence. We have facilities in Europe, the Middle East, Asia Pacific and Argentina, as well. For over 60 years Lamb Weston has been leading the industry in how we introduce new types of potatoes, and how we process them from the ground to the table. We try to make potatoes more interesting and bring innovative products to the consumer.

What does hygienic design mean in your organisation? Which teams apply hygienic design principles?

For us hygienic design means that we create infrastructures and processes with product, people and environment safety in mind. We devise ways of ensuring good efficiency and effectiveness in our equipment, so that it is accessible and easily cleanable, without too much dismantling.

Of course, we have some legacy plants that still present a challenge from a hygiene point of view. Hygienic design inevitably affects food safety culture. When your employees can clean the equipment more effectively, they naturally become more inclined to follow food safety policies.

The corporate engineering team is the owner of hygienic design. The corporate sanitation department oversees the sanitary part of it, so we work in conjunction with one another. The engineers bring the design to the table and we discuss all the risks and related mitigation strategies, so that they can be incorporated into the project. Eventually equipment and facilities need to comply with the regulations. The food safety and microbiology teams are also very involved in hygienic design, so we tend to look at it from a holistic perspective, with a multifunctional approach. Everyone owns a little piece of our hygienic design.

Why did you join our foundation? How can EHEDG create value for your organisation? What are your expectations?

EHEDG has more of a global and collaborative approach when it comes to guidelines development.
Lamb Weston has facilities in many countries across the world, and the documentation that EHEDG provides can really help us, no matter which product is being manufactured and where it is processed. Our engineers rely heavily on the knowledge shared by EHEDG, and incorporate hygienic design principles in our internal standards.

On a personal level, I have found it important to have a voice within EHEDG, to be able to utilise our unique type of expertise with potatoes, from the ground to the table, to influence critical decisions to make plants safer for our teams, and the end product safer for our consumers. This is one of the greatest benefits that this organisation can offer.

How can you contribute your expertise in our Working Groups?

I'm currently part of the Working Group 'Water Management'. The processing of potatoes requires quite an amount of water. We have a team here at Lamb Weston that is currently focusing on water conservation techniques and water-saving opportunities, for a more positive impact on the environment, while achieving the same result and operational performance. One of the critical objectives within our company is to reduce our water footprint, so we feel we can add valuable input to the discussion on water usage efficiency at a global level.
There are a number of large potato manufacturers, and understanding the uniqueness of this product in terms of handling, water usage and equipment design can be beneficial in guiding best practice within the industry.

Dyanne Parnel, *Director Sanitation and Hygiene (Lamb Weston), member of the EHEDG Working Group 'Water Management'. Since February 2024 Dyanne works at Darigold.*

New Company Member

Can you please introduce yourselves and your organisation?

My name is Claire Texier. For the past year and a half I have had responsibility for quality at Mecapack, on both the supplier and client sides. With over 20 years of experience in quality management within the food industry, I have honed my expertise in hygienic design. Joining me is Benoit Avinin, the Technical Director, who leads the engineering and design teams, focusing on automation and electrotechnical aspects. Mecapack, with a rich history spanning more than 75 years, is situated in the Vendée department, adjacent to Nantes, in France. We also have a subsidiary in Spain, and work with agents worldwide to distribute our machines. Our core competency lies in the design and manufacture of packing machines such as tray sealers and thermoformers, catering to diverse industries including the food, industrial, pharmaceutical and medical sectors. While we do not provide packaging material itself, our cutting-edge equipment is designed to be able to adapt to our clients' final products.

Our dedicated local team comprises over 200 professionals, supported by a network of technicians in the field. These technicians play a crucial role in assisting our clients with new installations, carrying out maintenance and addressing any repairs needed – both in France and abroad.

What does hygienic design mean in your organisation? Which teams apply hygienic design principles?

The R&D team, and the engineering and design teams at Mecapack specialise in implementing hygienic design principles, aligned with requests from our clients. In particular, large international organisations, upon commissioning a machine, present us with distinct and stringent technical and food safety requirements, which necessitate careful consideration right from the early stages of the design process.

Hygienic design and sustainability are also interconnected. Central kitchens that provide services to public hospitals or school canteens are increasingly focused on enhancing their recycling efforts. In contrast to disposable packaging, we introduced a system a year ago that uses stainless steel containers, and so promotes reusability through cleaning. This not only meets hygiene standards, but also contributes to a reduction in packaging material.

Why did you join our foundation? How can EHEDG create value for your organisation? What are your expectations?

While we are not embarking on hygienic design initiatives from scratch, we are eager to reinforce our existing knowledge in this field. Our clients demand more in terms of hygienic design, to meet increasingly rigorous regulations. We therefore aim to strengthen our position and affirm our commitment in this direction to offer even more hygienic solutions which are easier to maintain and to clean. Building on our prior collaboration in various projects with the EHEDG Regional Section France, we decided to apply for membership and capitalise on the valuable guidelines offered. To further enhance our expertise, we are also considering participating in the Working Groups.

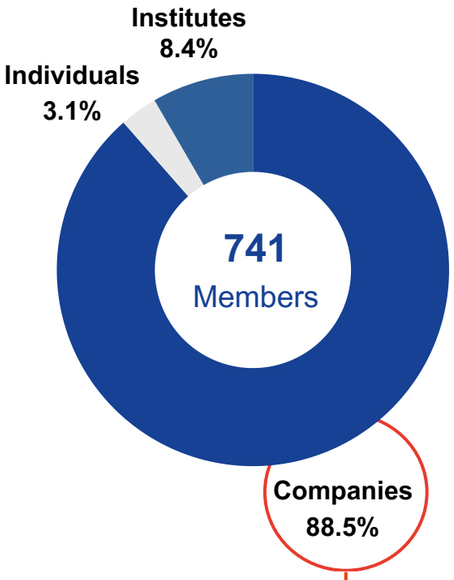
Claire Texier, *Quality Manager, and Benoit Avinin, Technical Director (Mecapack)*

OUR FACTS & FIGURES 2023

MEMBERSHIP DEVELOPMENT

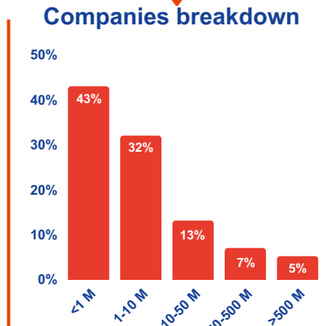
New members

- 2 Individuals
- 1 Institute
- 97 Companies



OUR GEOGRAPHICAL PRESENCE

Companies breakdown



Food-related revenue per annum

GLOBAL EVENTS

EHEDG Online Congress
13 & 14 September

Spoonful of ...
Food safety & Quality
Productivity & Sustainability

600+ Attendees

Revisit all the congress sesssions here:

130+ Attendees

20 Working Groups

Plenary Meeting & Full Working Groups Day
17 & 18 October

Istanbul, Turkiye

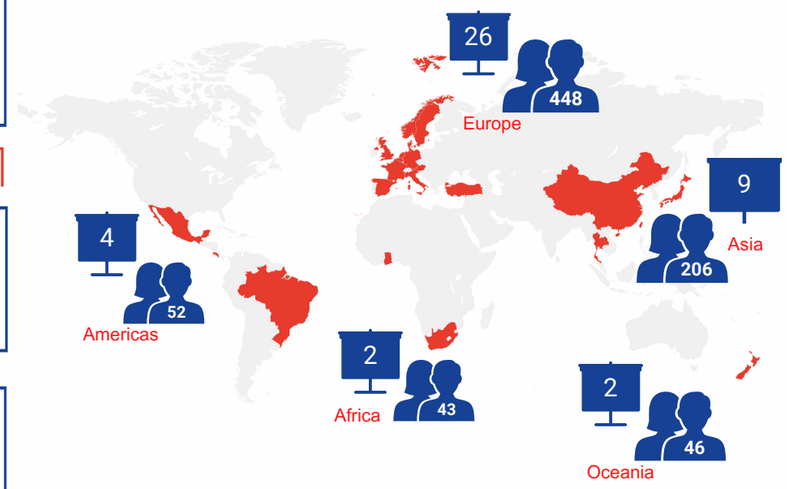
TRAINING AND EDUCATION

57 Authorised Trainers

3 new trainers in 2023

1200+ Hours Delivered

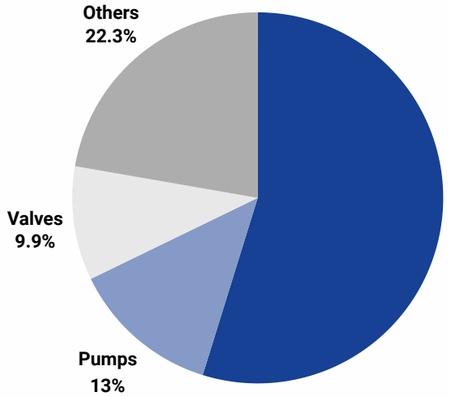
770+ Trainees

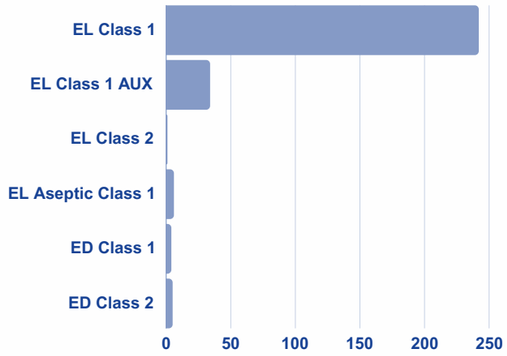


E-learning Catalogue*

110	60	80.65	49
Enrolled	Completed	Average Score	Certificates

OUR CERTIFICATION PROGRAMME





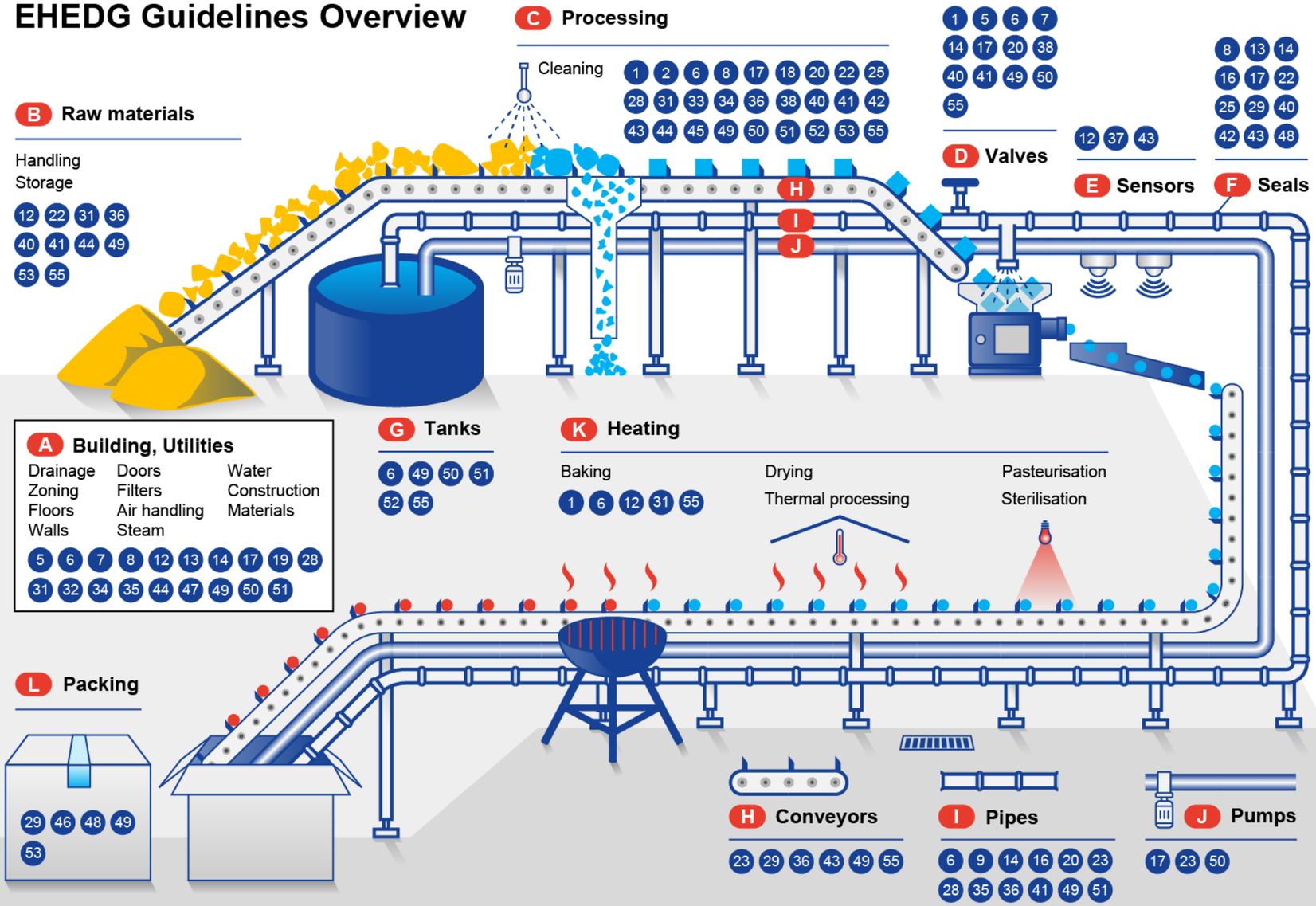
8 Testing Labs Worldwide

12 Evaluation Officers

292 Active Certificates

*E-learning catalogue is a pilot that started July 2023 and is currently available for members only.

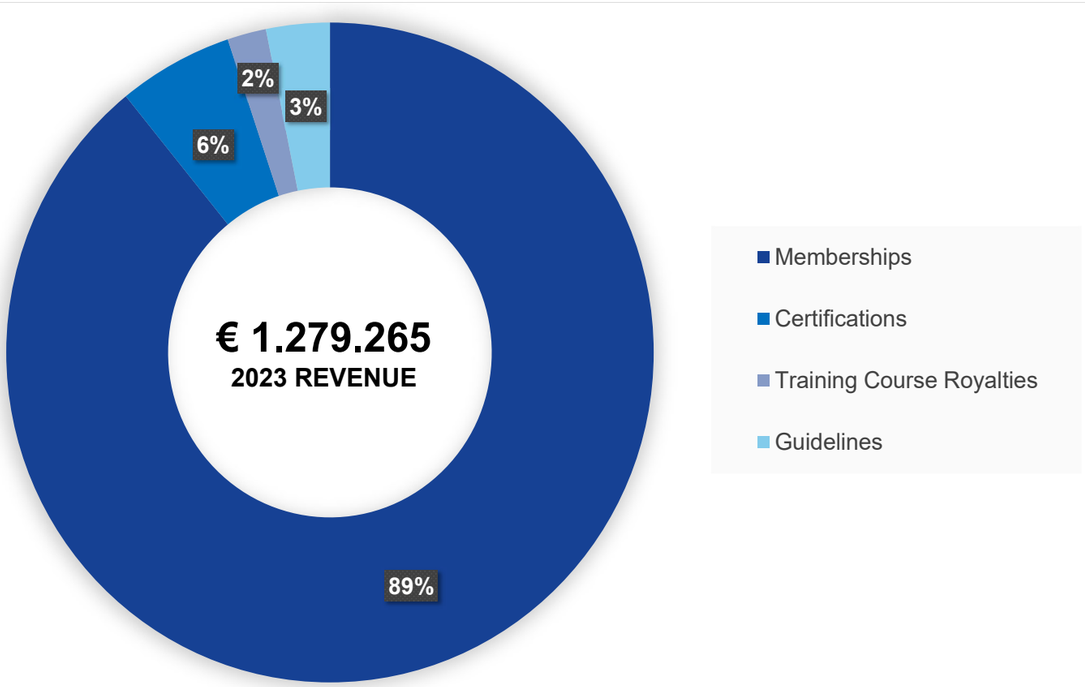
EHEDG Guidelines Overview

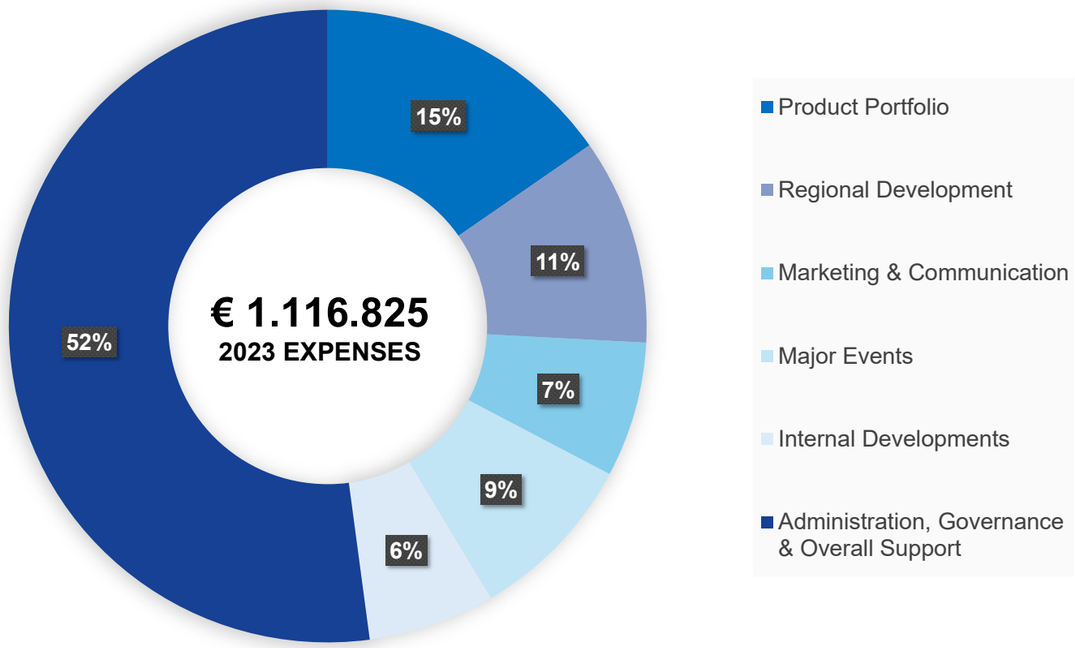


Guidelines	1	2	5	6	7	8	9	10	12	13	14	16	17	18	19	20	22	23	25	28	29	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55
A: Building & Utilities			x	x	x	x			x	x	x		x		x					x		x	x		x	x										x			x	x	x				
B: Raw materials									x								x					x					x			x	x				x						x			x	
C: Processing	x	x		x		x							x	x		x	x		x	x		x		x	x			x		x		x		x	x	x	x	x			x	x	x	x		x
D: Valves	x		x	x	x						x		x			x													x		x	x	x	x							x	x				x
E: Sensors									x																			x						x												
F: Seals						x				x	x	x	x				x		x		x									x		x													
G: Tank				x																															x	x	x	x				x		
H: Conveyors																		x			x						x							x								x				x	
J: Pipes				x			x				x	x				x		x		x						x	x														x			x		
K: Pumps													x					x																								x				
L: Heating	x			x					x													x																								x
M: Packing																					x																x		x	x			x		

Financials 2023

We are delighted to present the financial annual results of the EHEDG Foundation, a not-for-profit organisation dedicated to raise awareness of hygienic design and engineering among the various target groups in the food processing industry. We are doing so through the development of guidelines and solutions, and by providing a platform to promote our expertise and facilitate networking across the world. This year has been marked by significant growth and achievements. We welcomed 100 new members, expanding our community and reinforcing our commitment to our cause. Additionally, membership contributions increased by nearly 20%, reflecting the continued support and engagement of our stakeholders. Furthermore, our guidelines experienced a remarkable surge in popularity, with a 16% increase in downloads and an impressive 65% uplift in sales, demonstrating the growing demand for our resources. Moreover, there was a notable 75% increase in individuals trained on hygienic design, highlighting the market needs and demands for our educational initiatives. These results exemplify our dedication to advancing our mission and making a meaningful impact in the field of hygienic design and engineering.





Product Portfolio: EHEDG focused on enhancing its product portfolio, particularly the update and creation of hygienic design guidelines for the food industry. Despite the backlog accumulated during the COVID period, efforts were intensified with the addition of extra resources, including a new Product Portfolio Manager, to expedite delivery processes. We invested in the activities of 24 Working Groups, focusing on 44 hygienic design guidelines.

Regional Development: EHEDG expanded its reach by establishing new Regional Sections, with ongoing efforts to revitalise existing ones. These local chapters serve as crucial platforms to disseminate EHEDG offerings and hygienic design knowledge, especially targeting small and medium-sized companies and educational institutions.

Marketing & Communication: To engage a younger demographic and strengthen volunteer participation, EHEDG invested in the EYE Mentorship Programme in collaboration with Young EFFoST. Additionally, white papers on topics such as Global Food Safety Initiative (GFSI) Hygienic Design Scopes were produced, anticipating industry needs and providing valuable guidance. We continued organising our webinar series on critical hygienic design topics.

Major Events: EHEDG hosted its Online Congress, attracting over 600 participants globally. The event featured insightful discussions on various pertinent topics like Food Safety, Quality, Productivity, and Sustainability, facilitating active participation and knowledge exchange. We organised the first Full Working Groups Day, with over 120 volunteers who participated, discussing scopes, the status and the ways going forward of their Working Groups.

Internal Development: EHEDG made significant investments in IT infrastructure, improving website performance, regional content, and search functionalities. Moreover, new e-learning courses were introduced, with plans for further expansion in 2024.

Administration, Governance & Overall Support: EHEDG prioritised collaborations with other not-for-profit organisations and participation in major food congresses to foster industry-wide harmonisation of hygienic design and food safety standards. These endeavours aim to keep stakeholders informed and advance EHEDG's mission globally.

That’s a wrap on 2023!

Regional Section activities: Thailand, Japan, Poland, South Africa, Romania and New Zealand.

Working Group meetings: hocolate Processing, Conveyor Belts, Hygienic Design Risk Management.

EHEDG Online Congress 2023, EHEDG Plenary Meeting Istanbul.

International Congresses: International Association for Food Protection (IAFP) and ISEKI-Food conference.

Thank you!

EHEDG World Congress 2024

2 & 3 October | Nantes, France

'Achieving hygienic excellence by design'

- Inspiring Keynote Speeches
- Breakout Sessions
- Poster Area
- Sponsor Tours
- Networking

Register now!