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Processed Food Innovations

ARCA

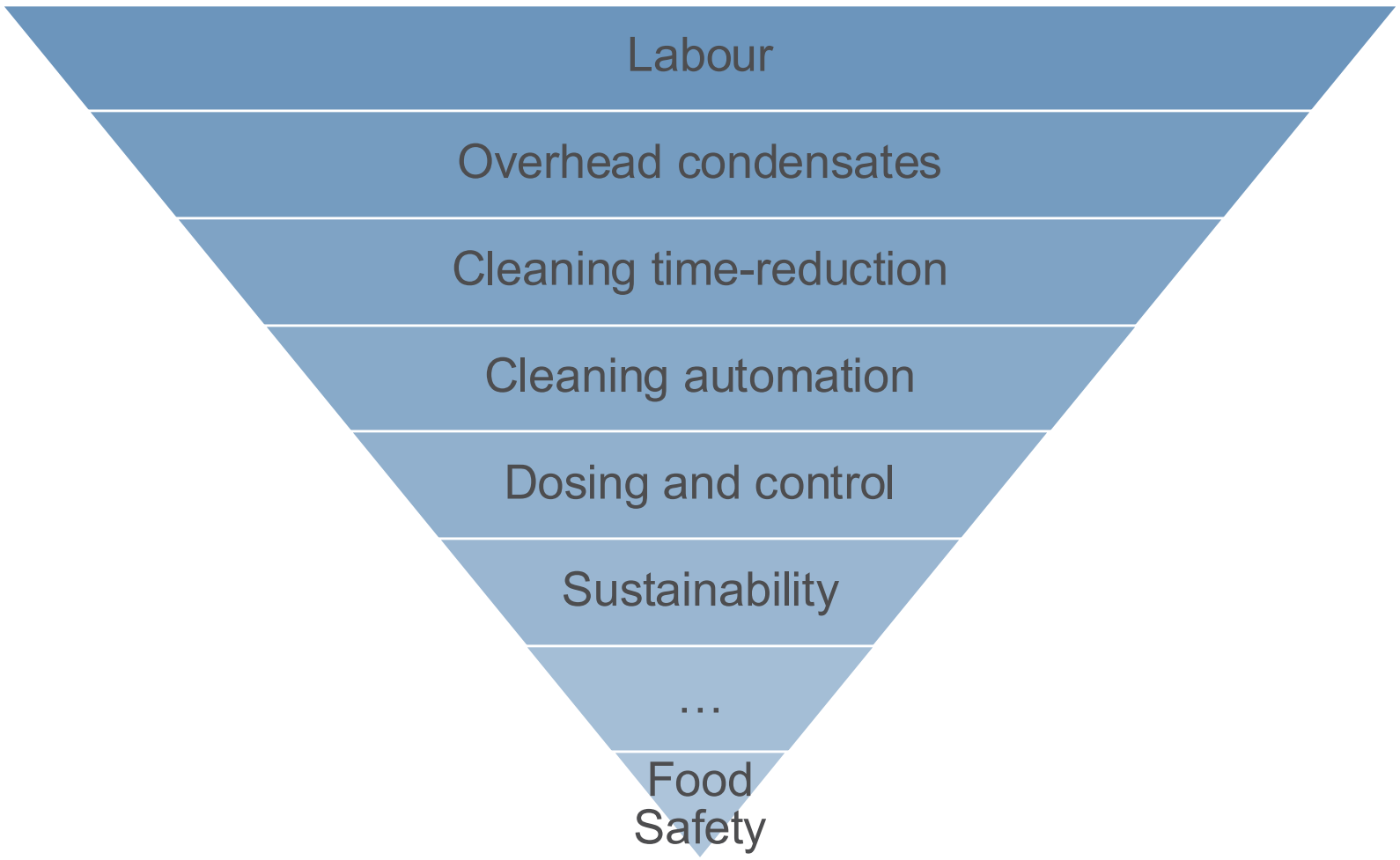
November 2025

Open Plant Cleaning

- Less Aggressive Chemistry
- Fewer Resources
- Less Time

- Higher Food Safety Standards

Voice Of Customer-major concerns



Innovations

1. Enduro Power range
2. Diverclean Sonic
3. Non rinse disinfectants
4. KBS new tools

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Enduro Power range

Enhanced operational efficiency

Enduro Power range

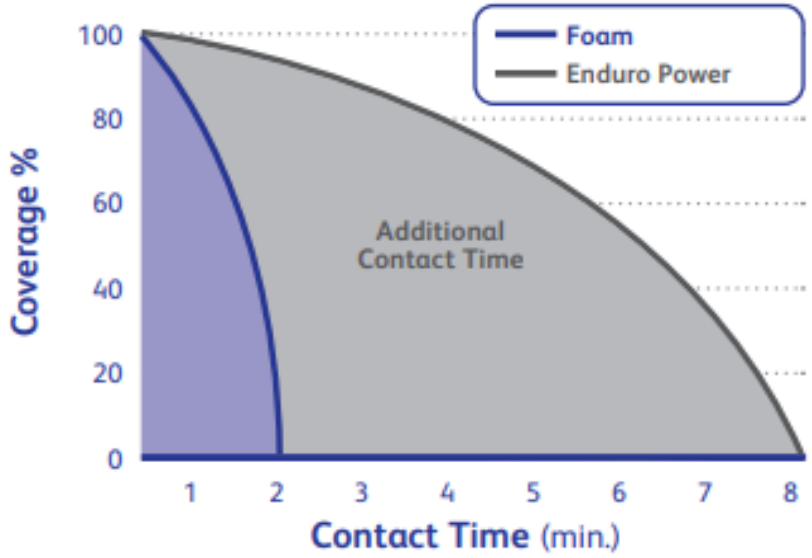
STANDARD FOAM

Hybrid between a foam and a gel, showing a totally different appearance

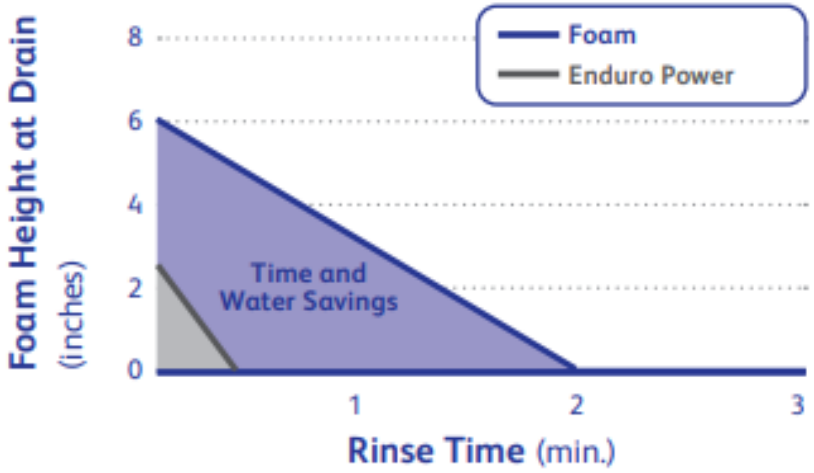
- **Superfoam**
- **Powerfoam**
- **Hypofoam**
- **Acifoam**

- **THIXOTROPIC FOAM**

Enduro Power range



Enduro Power products stay wet and active for 8-10 minutes, more than four times longer than conventional foam products.



Enduro Power products rapidly collapses under rinse and knocks down to drain in a quarter of the time required by standard foam, thus saving water and labor.

Enhanced Cling properties

Enduro products cling tenaciously to all surfaces. It forms a highly active and visible film that stays in contact up to four times longer than equivalent foam products, increasing penetration of stubborn soils

Ease of rinse

It knocks down to drain faster than a standard foam eliminating the waste of operatives time and water while enhancing the appearance of the facilities

Enduro Power range

Longer cling time and easier rinse:

- No re-application
- Lower concentration compared to standard foams
- Gains in operational efficiency
- Contribution to sustainability targets

Enduro Power range

Enduro product	Indications of use
Enduro Super	Makes daily cleaning operations more effective on fats and protein soil
Enduro Max	Suited for periodic cleaning applications with heavy soiling, such as smoke chambers or ovens
Enduro HD	Heavy duty environmental cleaning with fats, protein and starch soiling
Enduro Force	Effective for heavy soil (fats, starch, proteins). Can be applied on heated surfaces. Daily use prevents scale-up
Enduro Uniphase	For surfaces which are prone to formation of calcium and protein scales. Effective for removal of burnt-on soil
Enduro Chlor*	Chlorinated-alkaline
Enduro Plus*	Highly chlorinated-alkaline
Enduro Safe (SMS)*	Chlorinated and soft metal safe alkaline cleaning
Enduro Eco (Acid)	Particularly recommended for the removal of hardened protein residues and water hardness scale

**** Detergent-disinfectants***

Enduro range in fish processing

Salmon and Cod processing site

Objective of the trials

- Replace standard foam from competitor with Enduro Chlor
- Keeping the same micro levels with a better cost in use

Chlorinated-alkaline → Enduro Chlor

Enduro range in fish processing

The result

4% w/w chlorinated alkaline

2 % w/w Enduro Chlor

Total cost reduction of 22% considering labour, time of application, product and water costs

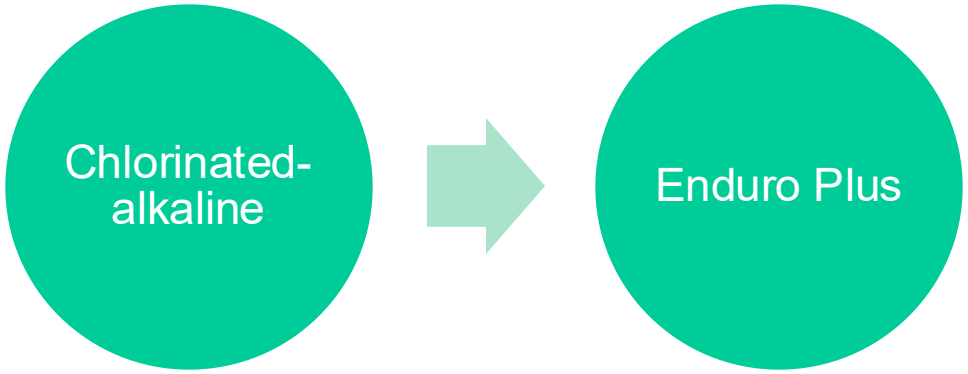
Time	Chlorinated alkaline	Enduro Chlor
1 min		
4 min		

Enduro range in allergen removal

Oxidisers for allergen in olive (almond stuffing) processing and packing

Objective of the trials

- Replace competitor's product
- Improve microorganisms load and allergens removal
- For allergens removal, **oxidisers are strongly recommended**



Enduro range in allergen removal

The result

Micro results from the test line- glass jars, after 48 hours: *SATISFACTORY*

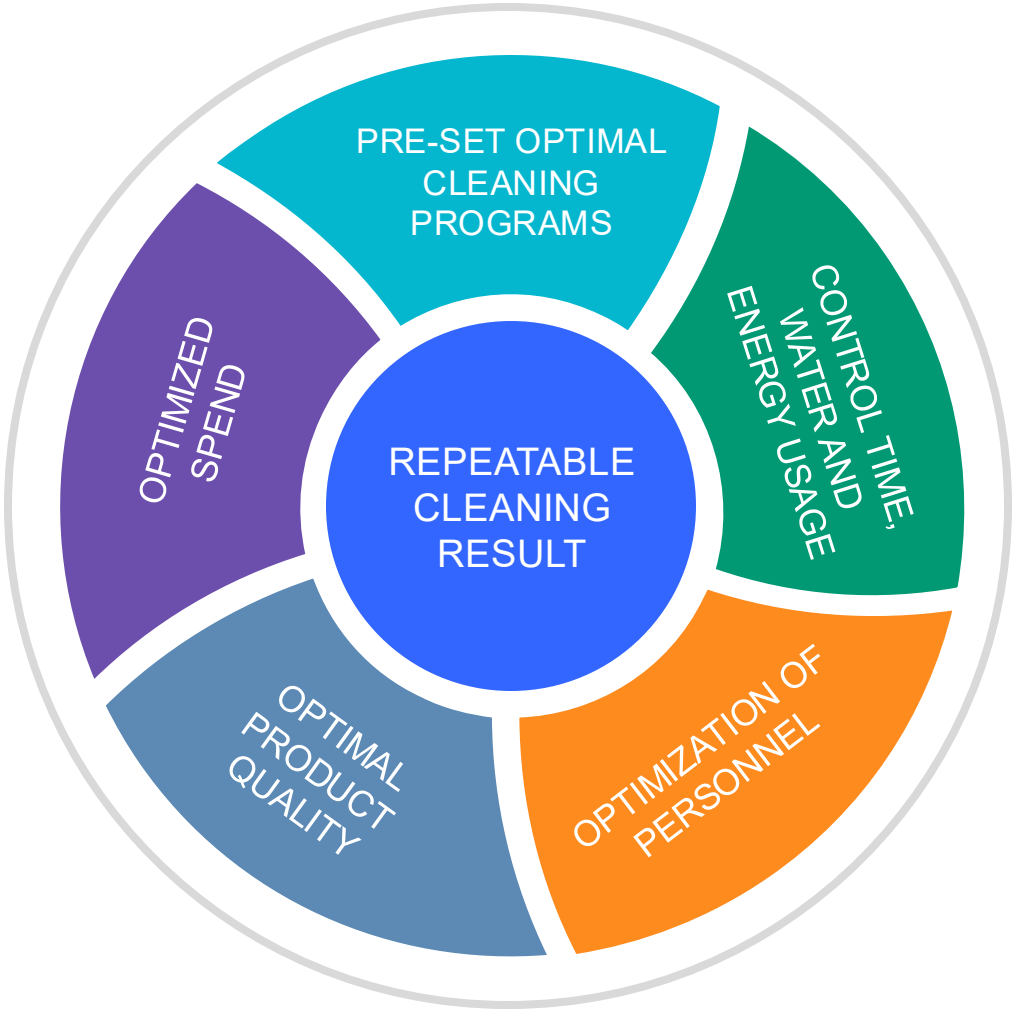
Sampled element	Total aerobic counts (ufc/cm2)	Total coliforms (ufc/cm2)
Long conveyor	2	0
Hopper	0,5	0
Return elevator	0	0
Hopper elevator	0,33	0

Allergens test: *ABSENCE of proteins/allergens*

Final protocol

- **Enduro Plus** (daily)- same concentration as before with competitor (5%)
- **Enduro Plus + Divosan Activ** (weekly)

Enduro range products in automated systems



Enduro disinfectants in combination with Diverclean Sonic

Advanced **pre-clean** technology

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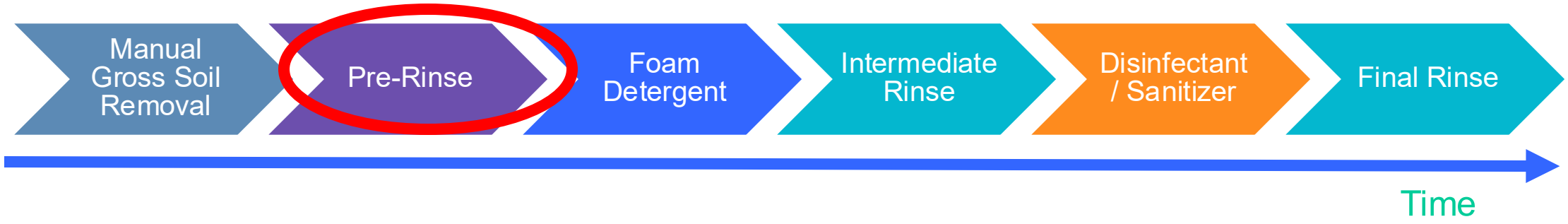
Diverclean Sonic

Re-thinking the open plant cleaning process

Re-Thinking OPC – Pre-Cleaning Technology

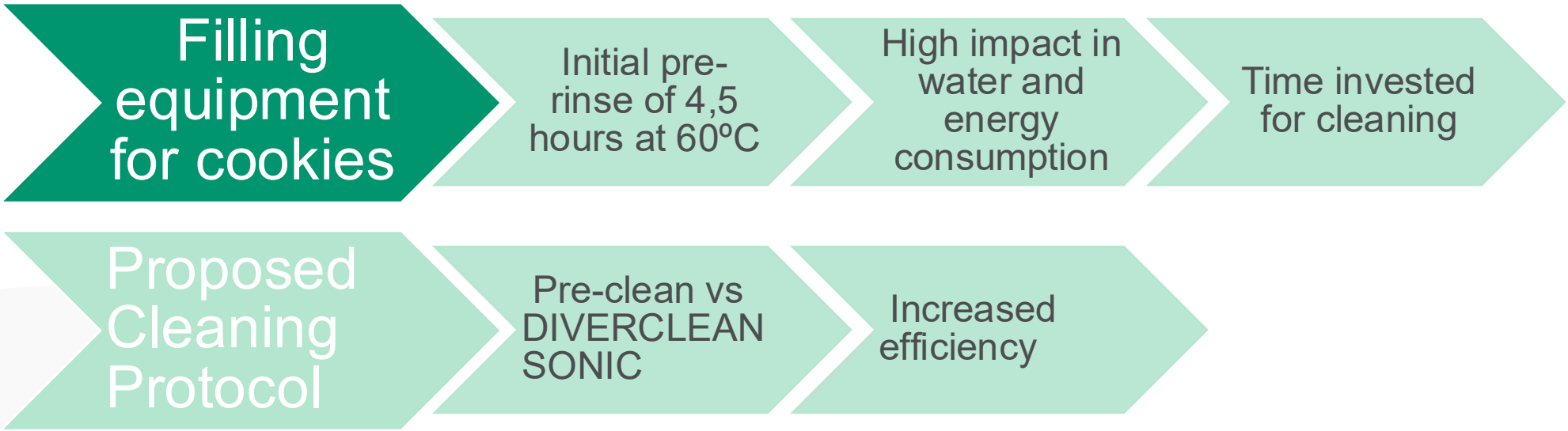
Traditional Open Plant Cleaning Procedure



New **Diverclean Sonic** Open Plant Cleaning Procedure*

*Depending on local regulations you may need to use a standalone sanitizer

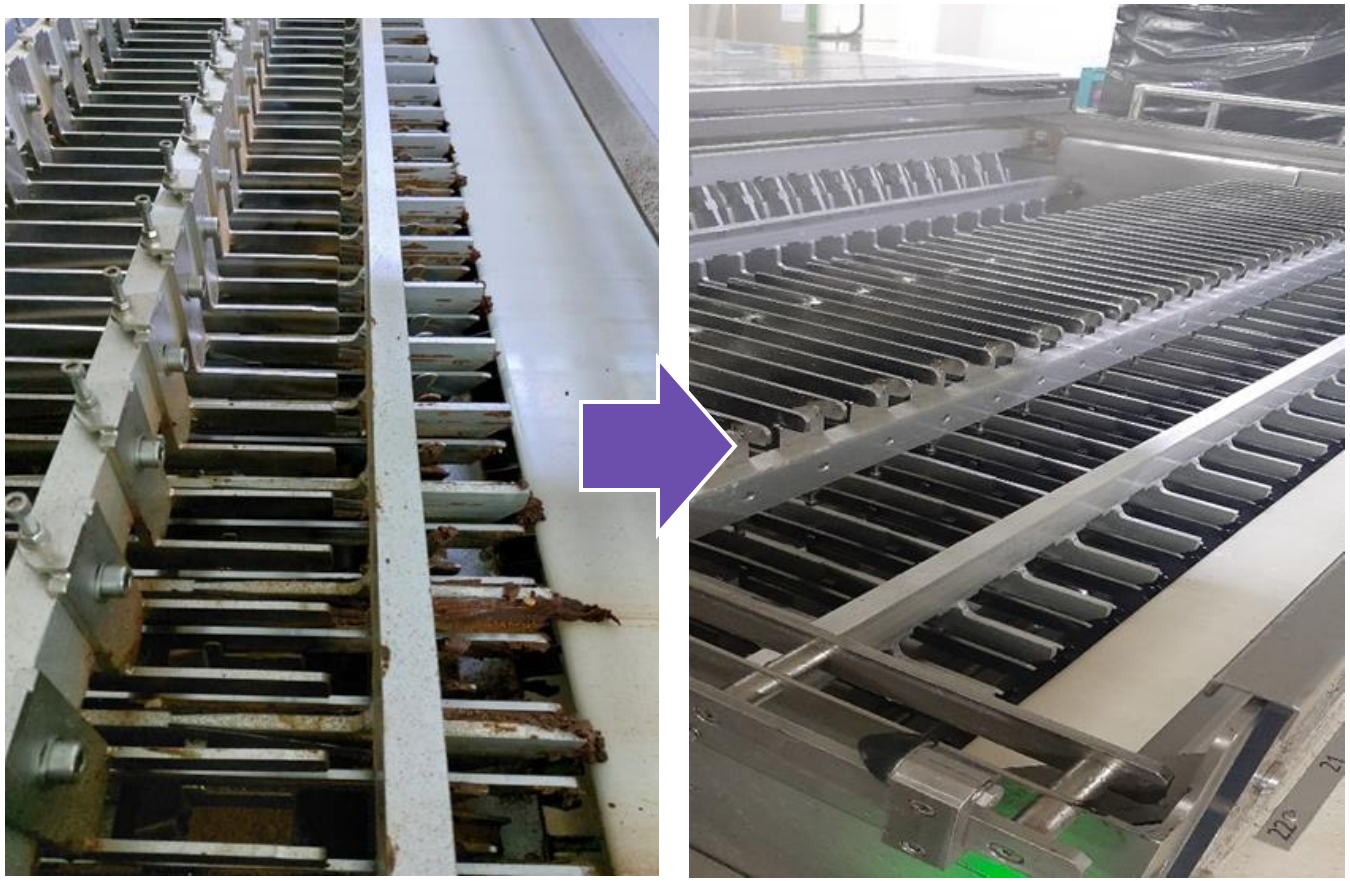
Diverclean Sonic in chocolate



The standard protocol includes HYPOFOAM after pre-rinse /Diverclean Sonic

Diverclean Sonic in chocolate

Variable/clean	Current Protocol	New protocol	Reduction
Time (Pre-rinse-hours)	4,5	1	**77%**
Water (Liter)	3510	1480	**57%**
Energy- (MWh)	0.122	0.062	**57%**



Diverclean Sonic

Boosting Operational Efficiency & Environmental Performance
in Poultry Industry

Project

Country	Middle East region
Plant	
Production type	Chicken Processing
Area	Open Plant Cleaning
Year	2024/7

Assignment

Operational Efficiency

Customer wanted to decrease the water consumption and cleaning time while meeting their corporate sustainability targets .

They trusted Diversey Innovation solutions to help them to reach these goals through smarter cleaning processes that could deliver efficiency and sustainability hand in hand.

We introduced Diverclean Sonic as part of our ongoing journey of optimization and continuous improvement with our partner.

Solution Description

To address the customer challenge , we decided to select one of their critical production lines and conducted a trial comparing our new advanced Pre-clean technology with their current optimized cleaning protocol.

The main challenge was how could we eliminate one of the most important steps in the traditional process , The pre-rinse which was consuming 90 mins on the Selected line for trial and replace it with just light rinse for 5 mins without compromising on hygiene and cleaning quality.

From the very beginning of the trial , the results were very clear. Our Innovation Diverclean Sonic delivered outstanding soil removal performance especially on High-fat residues, proving that the new process not only saves resources , but also simplifies daily operations.

Water savings: approx. 50%
Time savings: 50%
Energy savings: 50%
COD Savings : Step 1 : 76%
COD Savings : Step 2 : 67%

Value Advantage

Total Savings: .
- 50% Water
(958 m3 / line / year)
- 50% Energy

Saving of 19 man-days (456 h) cleaning time per year / line

50% Reduction of cleaning
Time, water & energy consumption &
simplified the cleaning process.

70% improvement in the COD and sustainability.

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Diverclean Sonic

Gaining Production Time and Supporting Sustainability in Fish Processing

Project

Country	Germany
Plant	
Production type	Fish Processing
Area	Open Plant Cleaning
Year	2024/5

Assignment

Operational Efficiency

Implementing the Diverclean Sonic method to improve cleaning quality while reducing utility costs.

This customer was looking to decrease the cleaning time and to improve the quality of the working environment (humidity was too high) at the start of production.

The facility has two production lines with 4 stations and 5 cleans per week.

Solution Description

The goal was to save water, energy, and resources by changing the products and concepts, while the cleaning results and microbiological properties must be the same as or better than the standard process.

During the trail period water consumption data was collected comparing a standard clean with Diverclean Sonic. A time and motion study was conducted on water and detergent use as well as general observations around hygiene methodology and outcomes.

Diverclean Sonic proved very effective in the removal of fat and oil soils negating the need to carry out extensive pre-rinsing; moreover, the plant was visibly cleaner after the Sonic detergent step compared with the incumbent detergent.

Water savings: approx. 3500m³ (1.7 m³/station/clean)
Time savings: approx. 60 min/station
Chemistry savings: approx. 12.9%
Temperature saving: 57 °C vs. 14 °C

Value Advantage

Total Savings: Approx.
- 17% Labor costs
- 100% Energy
- 18.9% Water

Saving of 87 man-days (2080 h) cleaning time per year

Reduction of cleaning Time, improved working environment (no fog), reduced water & energy.

€255,000 Annual Saving*
*Excluding capacity gain

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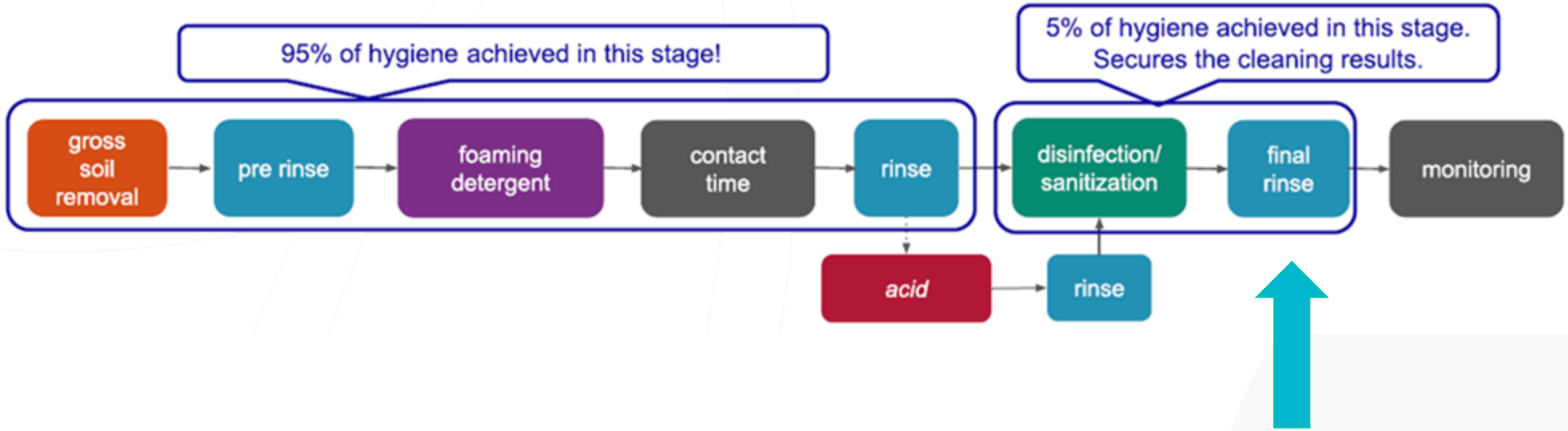
Non-rinse disinfectants

Dew and Protect

Typical OPC procedure



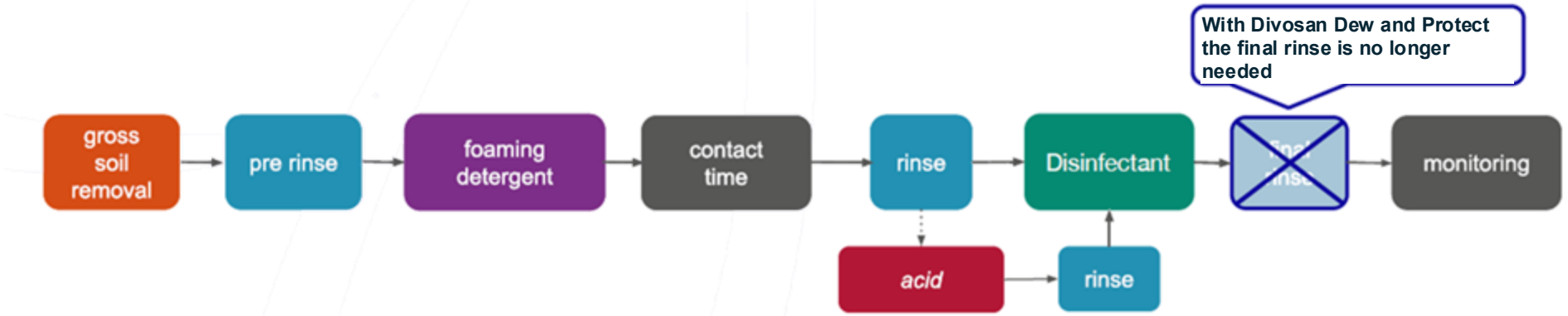
Rinsing of soils, detergents and disinfectants account for a large proportion of time and water consumption during the OPC process.

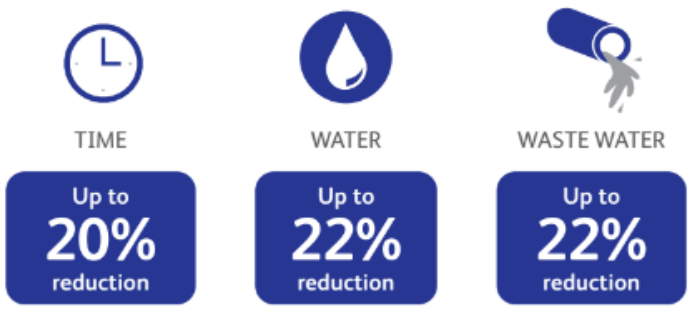
What if a final rinse isn't necessary? What if instead, you use naturally occurring ingredients to remove the requirement for rinsing?

Re-think the OPC Process

What if you could improve hygiene results and eliminate the risk of biocide residues?

New Non rinse Disinfectants for food contact surfaces





Innovative technology resulting in a more streamlined process, saving time and reducing water usage.

Divosan Protect Conc vs Divosan Dew VT98

Divosan Protect Conc.	Divosan Dew VT98
Lactic Acid Based	Formic Acid Based
Concentrated product, based on renewable RMs	Concentrated product
Cleaning & Disinfection	Disinfection
EU Approved for the control of bacteria, yeasts, and enveloped viruses.	EU Approved for the control of bacteria, yeasts, and enveloped viruses.
1% (v/v) required in use concentration	1,5% (v/v) required in use concentration
Minimal contact time; (EU BPR: 5 minutes)	Minimal contact time; (EU BPR: 20 minutes)

Impact Study
Meat Processing

Project

Evaluation study at a Meat processing facility in Western Europe.

Detailed analysis of time, water and microbiological standards during the trial period.

Assignment

OPERATIONAL EFFICIENCY

Implementing Divosan Dew to improve the efficiency in terms of labor time and resources.

The customer wanted to reduce the TCO for daily cleaning tasks.

Description

The study took place the meat preparation, sausage filling and steak area (4 rooms).

Standard Procedure:

1. Growth soil removal
2. Pre - cleaning
3. Foam Application (chlorine based 5%)
4. Rinse
5. Sanitation (chlorine based 1,5%)
6. Final rinse

} **with Divosan Dew → one step**

Achievements:

Cost savings

- Saving water ✓
- Saving time (labor) ✓
- Saving Energy (heated water) ✓

Equal or better microbiological results ✓

Outcome

Divosan Dew

Cleaning Time Reduction

21%

OPERATIONAL EFFICIENCY

Labour cost = 21%
Water = 22%
Energy = 22%

COST REDUCTION

Annual Savings
Time = 562 h (11,250€)
Water = 375m² (2,250€)
Energy = 1,765€

Total = 15,265€

Divosan Protect Conc.

Solving listeria issues at food contact surfaces
in French fries production

Project

Country	Netherlands
Plant	Lamb Weston, Kruiningen, plant 2
Production type	French fries
Area	Open Plant Cleaning
Year	2025

Assignment

Food Safety

Customer is facing persistent Listeria monocytogenes issues after the triweekly cleaning interval on direct food contact surfaces at the **frozen sorting department just before packaging**.

The cleaning and disinfection protocol has been revised, and Divosan Protect Conc has been implemented for the final disinfection as an alternative to the current no-rinse competitor product based on hydrogen peroxide.

Solution Description

During the triweekly cleaning, there is a **time window of about 32 hours** available to clean and disinfect the entire production site. Because many activities are carried out simultaneously (cleaning and disinfection, maintenance, etc.), the risk of suboptimal cleaning and microbiological recontamination is high.

Cleaning and disinfection activities have been scheduled in better-defined phases (e.g. cleaning and of the frozen sorting department only after finalizing of the cleaning of the freezing tunnel). Other modification is the application of Divosan Protect Conc immediately after the cleaning phase and additionally just before production start-up (food contact surfaces only). As a result of the modifications all food surface contacts are now free of Listeria spp. and this method reduces the risk for cross-contamination.

In addition to the improved hygiene level, a cost reduction has also been achieved, because the competitor's hydrogen peroxide-based product needs to be applied at a 7% (v/v) dosage, whereas Divosan Protect Conc is used at 1% (v/v), with an almost comparable sales price per kg.

Value Advantage

All food surface contacts are now free of Listeria Spp.

New methodology in combination with Divosan Protect Conc. inherently reduces risk of cross-contamination.

Around 70% reduction in disinfection product cost.

Value: approx. 7.000 euro

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Combined solutions

Re-thinking the open plant cleaning process

Traditional Open Plant Cleaning Procedure

Time

New Diverclean Sonic Open Plant Cleaning Procedure

For light levels or soil

Time

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KBS new tools

Knowledge Based Services

Knowledge-Based Services Portfolio

Diversey® BWCheck™✓

Optimisation of the Bottle Washing (BW) equipment and process. Page 6-7

P W E F

Diversey® CIPCheck™✓

Optimisation of Cleaning in Place (CIP) equipment and processes. Page 8-9

P W E F

Diversey® Dryformance™

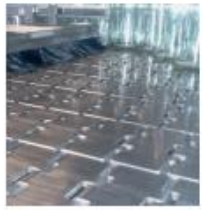
Water-free conveyor lubrication engineering and optimisation. Page 10-11

P W E

Diversey® FillerCheck™✓

Optimisation of the Filler Cleaning equipment and processes. Page 12-13

P W E F



Diversey® LubeCheck™✓

Optimisation of the conveyor track lubrication system. Page 14-15

P W E

Diversey® OPCCheck™✓

Optimisation of Open Plant Cleaning (OPC) equipment and processes. Page 16-17

P W E F

Diversey® AquaCheck™✓

Optimisation of water usage. Page 18-19

W E

Diversey® AirCheck™✓

Optimisation of compressed air generation and usage. Page 20-21

E

Diversey® SteamCheck™✓

Optimisation of steam generation and usage. Page 22-23

E

Diversey® SecureCheck™✓

Food safety diagnostic tool. Page 24-25

F

Diversey® Hygiene Academy

E-learning platform and training modules. Page 26-27

F

Core pillars:

PRODUCTIVITY	P
WATER	W
ENERGY	E
YIELD	Y

FOOD SAFETY	F

OPCCheck™

Challenge

- Resources commonly mismanaged during Open Plant Cleaning are:
- Water - Overuse while performing rinses and potential for recontamination when rinse is continued after cleaning
- Labor – Training, under/overstaffed
- Time – Opportunities to streamline without compromise to hygiene

Solution

Diversey OPCCheck is systematic detailed assessment of the open plant cleaning process, a complete a technical audit of the current cleaning procedures, the OPC system installation, and a review the sustainability impact of the cleaning chemistry. The outcome is a scorecard that indicates areas to prioritize with an action plan.

Value Advantage

Diversey OPC Check will:

- Optimize your OPC process design, efficiency and opportunities for process automation
- Prioritize areas of improvement and take action
- Benchmark your performance using Diversey OPCCheck's scorecard again each visit and against other sites.
- Ensure correct level of hygiene is achieved

SecureCheck™

Challenge

- Food safety risks against product recalls
- Increased product waste/rework
- Brand reputations
- Profitability

Solution

Diversey SecureCheck, is a unique diagnostic tool that helps you to ensure the safety of your processed food product and reduce the risk of contamination.

Value Advantage

SecureCheck you can:

- Simplify the management of food safety and hygiene throughout your site
- Drive efficiencies in utility, chemical and labor utilization
- Identify the areas within your process that have the potential to harbor and promote the spread of microorganisms - and reduce the risk of contamination by implementing the recommendations made
- Ultimately reduce the microbiological burden on your final product, resulting in a higher quality product prior to packaging.

SecureCheck™

Process

Diversey SecureCheck is a unique diagnostic tool that helps you ensure the safety of your products and protect your consumer and brand.

- Our solution is tailored made.
- You will gain access to Diversey's global hygiene solutions knowledge to provide a global understanding of the hygiene issues most affecting business today.
- Diversey SecureCheck will identify your strengths and minimize your weaknesses, to help build a more successful hygiene strategy.

Step One: Detect the Potential Risks

The Diversey SecureCheck program's qualified specialists are trained to inspect and identify risk-sensitive areas throughout your production process. Data relevant to your site is collected using a proprietary software package,

Step Two: Presenting the Data

After the inspection is completed, the data will be presented in an easy-to-understand format that highlights potential areas of risk and identifies where processes can be improved.

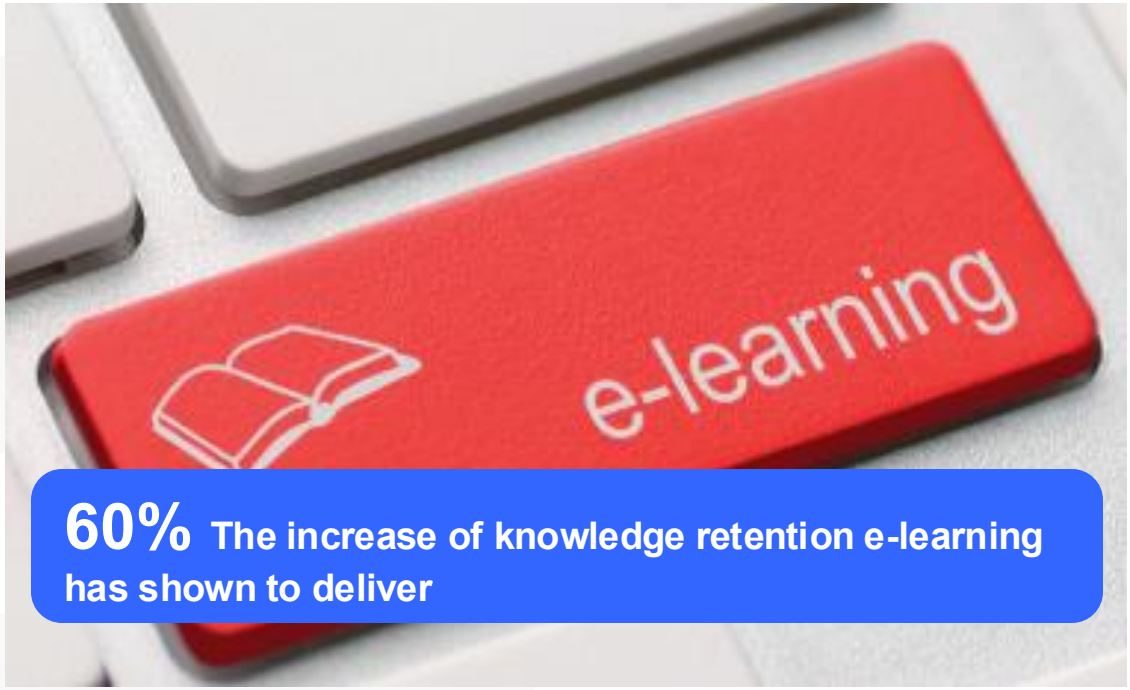
Diversey SecureCheck is different from other audits: we do not score your site based on compliance to a set of rules. Our aim is to *use the results of our inspection to develop a tailor-made improvement plan to reduce microbiological risk and attain best-in-class production standards*.

Diversey SecureCheck monitors progress over a specified time and measures the impact and effectiveness of corrective actions.

Diversey Hygiene Academy

Challenge

- Skill gaps with workforce - Having a well-trained workforce that recognize hygiene issues is an important step to avoid risk to food safety and brand reputation
- Frequent staff turn over reduces the ability to have face to face training, which is often complex to manage and very costly.
- Retention rate of training



60% **The increase of knowledge retention e-learning has shown to deliver**

Solution

Diversey has created the **Hygiene Academy** platform and e-learning courses. A cloud-based solution that enables you to manage and deploy your own trainings and integrate our best-in-class knowledge into your operations.

Value

With Diversey Hygiene Academy you can:

- Remove the need for expensive hardware or software.
- Create, print and digitally sign training course certificates, and incorporate expiration policies according to your organizational needs.
- Drive consistency, with the same training delivered to all workers across all locations and in several languages.
- Increase accountability by tracking employee participation and provide documentation to workers and supervisors.
- Access powerful reporting capabilities to monitor employee participation, performance and progress.
- Save time and reduce expenses associated with face-to-face training.

Diversey Hygiene Academy

Diversey e-learning Platform

Diversey Academy e-learning courses are hosted on the Diversey Online Learning Management System. The platform simplifies employee training administration, takes cost out of your operations and enables consistent training delivery across your organisation.

Diversey e-learning modules

Essential courses

The foundation principles of hygiene to enable you to build an understanding of the role and importance of cleaning.

Application courses

Training courses developed for specific hygiene applications commonly found in the food and beverage Industry.

Process courses

Advanced courses dedicated to site wide best practices.

Specific microbe control courses

Courses focused on specific microbes that might impact food and beverage production via direct or cross contamination. These courses help to increase awareness and provide pragmatical advices on mitigation and reduction of food safety risks within your process.

Please refer to the Diversey Hygiene Academy catalogue to see the complete range of courses available.

Hygiene Academy – Course List

e-learning courses - Index

CATEGORY	COURSE	COURSE MODULES
ESSENTIAL COURSES	Chemical Safety	Cleaning safely with detergents and disinfectants
	Principles of Cleaning	1. Basic hygiene and cleaning concepts 2. Chemistry 3. Food microbiology 4. Disinfection (sanitation) 5. Monitoring and Documentation
	Microbiology	1. Introduction & Growth of Microorganisms 2. Spoilage Organisms 3. Pathogen Organisms
APPLICATION COURSES	OPC	1. OPC Fundamentals 2. OPC Applications 2. OPC Applications
	CIP	1. CIP Concepts 2. CIP Units Concepts: Single Use, Recovery, Static Leg 3. Recovery CIP 4. Static Leg CIP
	Bottle Washing	1. Bottle Washing Concepts and Equipments 2. Operational Applications 3. Control Applications
	Membrane Cleaning	1. Basic Membrane Concepts 2. Membrane Materials: Applications restrictions 3. Membrane Cleaning Application
	Track Treatment	1. Track Treatment Concepts 2. Track Treatment Optimisation
	Crate Washing	Crate Washing Application

CATEGORY	COURSE	COURSE MODULES
PROCESS COURSES	GMP for Food Plants	Personal Hygiene and Good Manufacturing Practices in Food Processing
	Hygienic Design	Hygienic Design Principles for Food and Beverage Plants
	Allergens Management	Managing Allergens in Food Processing
	Dry Cleaning	Dry Cleaning Best Practices
SPECIFIC MICROBE CONTROL COURSES	Listeria	Listeria Management in Food Processing
	Campylobacter	Campylobacter Management in Food Processing
	Biofilm	Managing and controlling Biofilm in a food and beverage production
	Salmonella	Salmonella Management in Food Processing

Diversey® Intelligent OPC is an advanced digital system that automates insights for a cleaner operation.

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Aquaform

In-Situ generated Food Processing Aid for the fresh-cut vegetables industry

Selecting the Optimum Processing Aid for Your Process

Choosing the right processing aid involves balancing multiple critical factors. Each element impacts both your operational efficiency and product quality, requiring careful evaluation to meet your specific production needs.

Efficacy
Desired performance and processing aid effectiveness

Residue
Minimal or no chemical residue on finished product

Sustainability
Environmental impact and carbon footprint considerations

Odor
Non irritant or neutral smell profile for worker comfort

Operator Safety
Low toxicity and safe handling requirements

Cost
Total cost of ownership including application and storage

Disposal
Waste treatment and regulatory compliance ease

Application Method
Integration with existing equipment and processes

Introducing Diversey Aquaform

Aquaform represents a breakthrough in food safety technology, generating performic acid and hydroxyl radicals on-site for superior food process protection. This powerful oxidizing system is created by safely mixing formic acid with hydrogen peroxide through specialized generators

- Versatile Applications:
  - Fresh produce wash
  - Chilled water system maintenance
  - Process water network maintenance
  - Recycled water treatment

- Complete solution package
  - Diversey provides both the specialized generation equipment and chemical precursors, ensuring seamless integration and consistent performance.

Aquaform Generator

- The Aquaform system safely combines hydrogen peroxide and formic acid through precision-engineered generators to create performic acid and hydroxyl radicals on-demand. This in-situ generation eliminates the hazards and regulatory complexities of storing concentrated peracetic acid.

- **Hydrogen Peroxide Feed**
  - Safe, stable oxidizer precursor continuously supplied to the generator
- **Formic Acid Feed**
  - Organic acid component precisely metered for optimal reaction conditions

- **Precursors storage**
  - Separate tanks maintain chemical stability
- **Point of use application**
  - Fresh solution applied directly to process

Aquaform Generators

The redesigned equipment will be available from January 2026

Aquaform remote data acquisition system

Access data remotely 24/7

Real Time Monitoring

- Collects continuous data on generated processing aid chemical concentrations and inhibitor levels, giving you instant visibility into system performance.

Intelligent Alerts

- Configurable alarm parameters trigger instant email or text messages when conditions require attention, minimizing response time to potential issues

Long Term Validation

- Comprehensive data logging provides historical records for regulatory compliance, trend analysis, and process optimization initiatives.

Thanks

Innovation

- Intelligent CIP
- Divosan Uniforce - CO2 Atmosphere
- Rapid CIP
- OSA
- Dual CIP
- Single Stage
- CIP Additives
- Reduced P, N and Na CIP detergents

- Elite 360 Electrostatic Spraying
- Antifoams
- Food Processing Aids
- Biocides

- Coagulants and polymers
- Odor control programs
- Antiscalants for Waste Water
- Sludge dewatering polymers
- Antifoams and defoamers

- Diverclean Sonic Pre-Clean Technology
- Non Rinse Disinfectants
- Enduro Range Thixotropic Foams
- Clean & Disinfect 2 in 1
- Low Pressure Foamers
- Gels
- General Purpose Foams
- Biocides
- N&P Free

- Divobrite Defend – Reduced bottle scuff
- Bottlewashing Additives
- Divomask – Bottle Masking Technology
- DryFormance – Dry Lubrication
- DryTech
- Hybrid Lubrication
- Synthetic Lubricants

- Accelerated Cleaning Protocol (ACP)
- Enzyme Technology
- Divos Technology (updated)
- BMF – Beer Membrane Filtration
- WWT membrane cleaning

Industry leading digital technology integration

Equipment and Engineering Innovation

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Divosan Protect Conc.

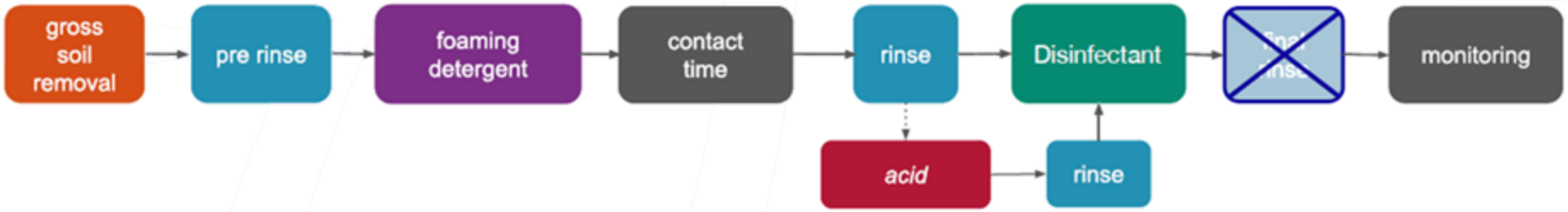
OPC Non-Rinse Detergent Disinfection

What if you could improve hygiene results and eliminate the risk of biocide residues?

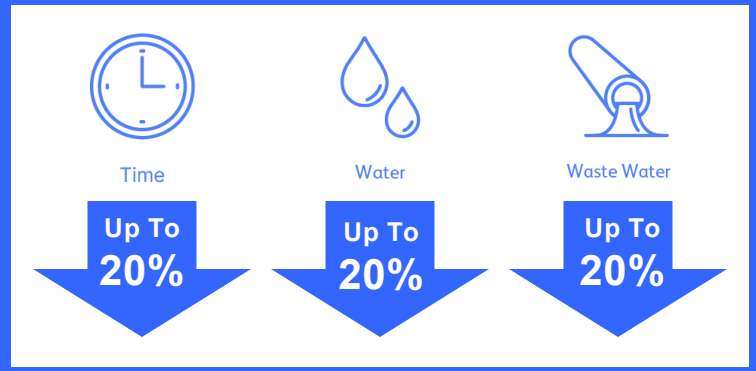
Divosan Protect

Now Divosan Protect gives you this choice

New non-rinse Detergent-Disinfectant for food contact surfaces



Innovative technology resulting in a more streamlined process, saving time and reducing your water usage.



With Divosan Protect you can:

Food Safety

Harness the power of nature to deliver reliable results, without the associated residues that often come with powerful biocides.

Sustainable use of Resources

Reduce water consumption and benefit from reduced volume and chemical reaching your wastewater treatment plant.

Operational Efficiency

Redistribute time, labour and resources to your product whilst still ensuring the highest hygiene standards.

Divosan Protect Features:

- Concentrated No-Rinse Detergent-Disinfectant
- EU wide BPR approval
- No environmental hazard classifications
- No safety warnings for product in use
- Residue free
- Contains plant-based ingredients from renewable sources readily biodegradable and decomposed by natural processes
- Excellent spreading, wetting and film formation on all surfaces
- Can be applied with standard foaming equipment
- Efficacy: mandatory claim at 1% for 5 minutes

Knowledge Based Services

Knowledge Based Services

The challenge to food and beverage manufacturers is how to **produce quality and safe product** whilst reducing operational costs to **stay competitive**

The Diversey Knowledge-based Services portfolio address key industry challenges under five core pillars of focus;

- Productivity,
- Water, Energy,
- Yield and
- Food Safety.

All have a common goal of continually improving **Food Safety, Operational Efficiency and the Sustainable use of resources** in Food and Beverage processing.

AirCheck™

Challenge

- Water usage/discharge limits set in the community
- Rising water costs
- Corporate sustainability reduction commitments

Solution

Using **Diversey AirCheck**, we will help you to reduce utility waste and realize significant cost savings on your total compressed air budget. The AirCheck audit and resulting custom actions can reduce waste, with the return on investment having an instant impact on your site's financials

Value Advantage

Diversey AirCheck will:

- Improve your compressed air utilization
- Measure and trace all sources of compressed air waste
- Determine whether incremental improvements will improve efficiency
- Prioritize areas of improvement and take action

AirCheck™

Process

Following an initial meeting to agree on the project scope and expectations, our specialists undertake the on-site Diversey AirCheck audit using specialized equipment to identify leaks while your plant remains in operation:

- Leaks are identified, tagged and documented and a detailed action plan is created to prioritize repairs.
- The repair schedule can be implemented as a project, managed by the Diversey team or completed by your own maintenance team.
- Following the repair of these leaks, we will arrange a scheduled return 2-4 times a year to maintain your air system's performance.

Following the Diversey AirCheck, you'll receive a report with the following:

- **A leak report**
- **Action plan**
- **Impact summary of cost leaks by department**

Case study

Location:
Beverage bottler, North America

Challenge:
Increased energy spend attributed to the compressed air handling system.

Solution:
An Diversey AirCheck audit identified 35 compressed air leaks, that when addressed, saved the bottler $19,800 per year in energy savings.

35
leaks

282,683
kWh electricity saved

$19,800
annual savings

AquaCheck™

Challenge

- Water usage/discharge limits set in the community
- Rising water costs
- Corporate sustainability reduction commitments

Solution

Using **Diversey AquaCheck**, we will help you to optimize water consumption, evaluate quality, control costs, and balance the goals of efficiency with food safety

Value Advantage

Diversey AquaCheck:

- Improve water utilization ratio
- Measure and trace all sources of water in scope
- Understand the true value of water
- Provide a roadmap for your water management – Reduce, Reuse, Recycle improvements, develop KPIs, and action plan to meet goals

AquaCheck™

Process

Diversey® AquaCheck is a systematic identification and quantification of water.

- The process starts with an **AquaScan** that evaluates historical information and indicates potential savings.
- The **AquaProbe** is a deeper evaluation of water users establishing value to water used and volume and quality boundaries.
- Diversey **AquaSolve** delivers a series of recommendations with indications of volume, cost savings and time frames.

Trend analysis of historic consumption data as it compares to production data to establish baseline and basic understanding of mass balance.

Determine the mass balance, cost impact, and the quality of water needed for water consumer. Identify water quality boundaries.

Identification of total water use improvement projects that considers total impact to site - reduce, reuse, recycle.

Case study

Location:
Medium-sized protein slaughter and further processing plant in the United States.

Challenge:
Water scarcity was highlighted as a major concern to the business.

Solution:
Ten projects were identified and completed which generated savings of 170M gallons of water and $365,000 annually.

10	170M	$365k	27%
projects	gallons saved	annual savings	reduction in water&effluent

*Based on results achieved by Diversey. All facilities are different. The impact for your site will be calculated as part of an initial Diversey AquaCheck scan.

CIPCheck™

Challenge

- Roughly 75% of CIP systems run un-validated, using the original settings - That means your system probably hasn't been fine-tuned to perform optimally for your plant,
- Production processes have changed since the installation, and it is unknown if you are receiving full operational benefits of CIP system

Solution

- **Diversey CIPCheck** is based on a human inspection, and short-term data collection and analysis performed by trained CIP specialists.
- **Diversey CIPCheck** is the baseline for CIP validation and will make a positive impact on available production time, waste, energy costs, and environmental issues.

Value Advantage

- With **Diversey CIPCheck** you can:
- Determine whether incremental improvements such as balancing out the line capacity or adding a recovery tank to re-use water will improve efficiency.
- Optimize CIP design, energy efficiency and process automation
- Improve resource utilization and prioritize areas of improvement.

CIPCheck™

Process

Diversey CIPCheck focuses on technical, environmental, and economic optimization of CIP installations.

Our service team will do the following:

- Conduct a detailed probe into the CIP system
- Evaluate aspects of the installation such as system design and operational performance of current cleaning procedures.
- Develop an action plan to make meaningful improvements.

Following the Diversey CIPCheck, you'll receive recommendations based on four pillars:

- Effective and efficient hygienic design
- Cleaning efficiency
- Water, energy and chemical efficiency
- Time and usage efficiency

Case study

Location:
Large dairy processing plant, Netherlands

Challenge:
The CIP process was recognised as under optimised.

Solution:
The Diversey CIPCheck highlighted areas of substantial improvement. The subsequent monitoring and project to optimise the process delivered improved efficiency and resource use as well as cost savings.

13,393	90,000	1.26M	€600k
kW saved	cubic metres saved	kg saved	annual savings

*CIP benchmark data based on Diversey experience. All facilities are different. The impact for your site will be calculated as part of an initial Diversey CIPCheck scan.

Intelligent CIP

Challenge

- It is difficult to know if Cleaning in Place (CIP) system is cleaning enough or overcleaning
- Ensuring quality and traceability
- Continuous cost pressures
- Changing production demands – automation systems go unchecked
- Unmanageable amount of data or a lack of data to help see the unseen

Solution

- **Diversey Intelligent CIP** unlocks and transforms Cleaning-in-Place data.
- Intelligent CIP's tools transform how you see your CIP, securely and remotely processing your CIP data and shining a light deep into your automation system.

Value Advantage

With Intelligent CIP you can benefit with:

- Quality Control and Food Safety - Confidence of knowing hygiene targets are compliant within set parameters.
- Discovery for Optimization - Identify underperforming cleans and improve profitability
- Enhanced Partnership with Diversey - Effectively define priorities that require expert knowledge from Diversey CIP Specialists
- Meet Sustainability Goals - Track and reduce water and energy
- Reduce the chemical cleaning requirement and removal of biological growth, especially in PET packaging lines.

Intelligent CIP

Process

Diversey® Intelligent CIP will:

- Provide summary information of cleaning runs in a layout and function designed to increase CIP situation awareness without causing information overload. Any plant/quality manager will have peace of mind and a focused approach to CIP
- CIP Cleaning run details - compliance reporting of the targets and details to follow the CIP activity
- Provide advanced analytics to drive toward process stability and opportunities for improved quality and Total Cost of Operations savings.

Customer Testimony:

"Intelligent CIP is part of the plant manager's cockpit. As we are vigilant about customer safety, and committed to deliver highest product quality, decisions on optimization can only be made based on big data collection and analysis. Now we are able to identify, based on evidence, opportunities for safely reducing water and energy usage during hygienic process and deliver time to production."

Compliance at a Glance

- At your desk – have a quick view of your CIP process for any date range, specific unit, CIP circuit, or recipe
- Drill down to a specific cleaning run and view or download a compliance report that compares the site's quality standard protocols vs actual data. The report highlights hygiene concerns or efficiency opportunities

Continuous Improvement

- Know if your process is in control
- Learn which CIP recipes can be effectively optimized to operate more sustainably
- Compare each cleaning run of a specific recipe using a six sigma distribution curve

DryFormance™

Challenge

- Product change-overs between batches are a major cross contamination risk.
- The hygiene of fillers is critical to ensure that the quality and food safety of your finished product is not compromised.
- Time cleaning impacts overall plant efficiency

Solution

- **Diversey DryFormance** combines water-free conveyor lubrication with packaging line engineering excellence to deliver against water reduction and health and safety targets as well as improving the overall operation…

Value Advantage

With **Diversey DryFormance** you can:

- Reduce fallen, wasted containers.
- Improve Asset Care. The life-span of plastic conveyors belts running with a Diversey DryFormance system is dramatically increased, extending the life by at least 100%.
- Improve health, safety and hygiene. Diversey DryFormance eliminates the use of water for conveyor lubrication and creates a safer, more hygienic working environment.
- Reduces your water consumption by up to 100%.
- Reduce the chemical cleaning requirement and removal of biological growth, especially in PET packaging lines.

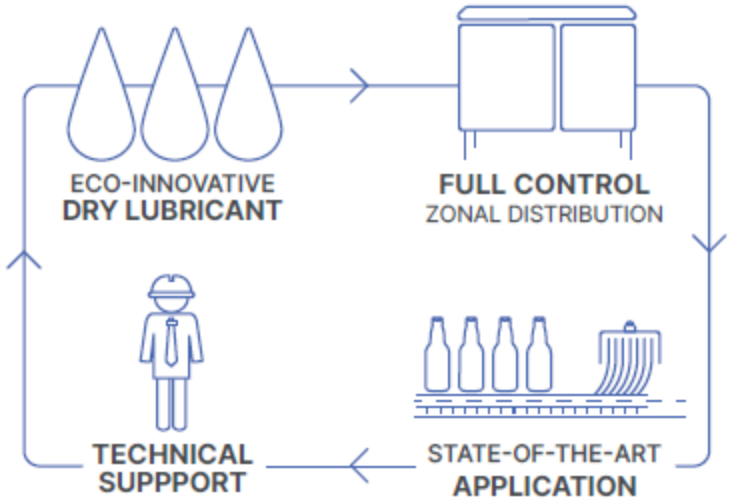
DryFormance™

Process

Diversey DryFormance installation provides the full management of your conveyor lubrication system and includes; servicing, lubricant, spare parts and maintenance, all built into one monthly service charge.

Our specialist will audit the current conveyor lubrication system and provide a proposal outlining requirements, benefits, and return on investment.

On agreement, Diversey DryFormance engineers will install and commission the new conveyor lubrication system to a schedule that minimizes impact to production.



Case study

Location:
Brewery can line, UK

Challenge:
A need to improve safety in the production hall where floors were covered in wet lube.

Solution:
Over 95% water reduction from seamer outfeed to packers.

0 slip	3M	100%	2%
Contributed to lubrication	Over 3 million litre reduction	Improvement in plastic belt life	Improvement in package stability

BWCheck™

Challenge

- Ensuring that the returned containers are fit for re-use
- Wasted resources and unnecessary costs due to over-utilization of energy, water, and/or chemicals in bottle washing proces
- To protect the returnable bottle fleet investment by extending the bottle lifespan

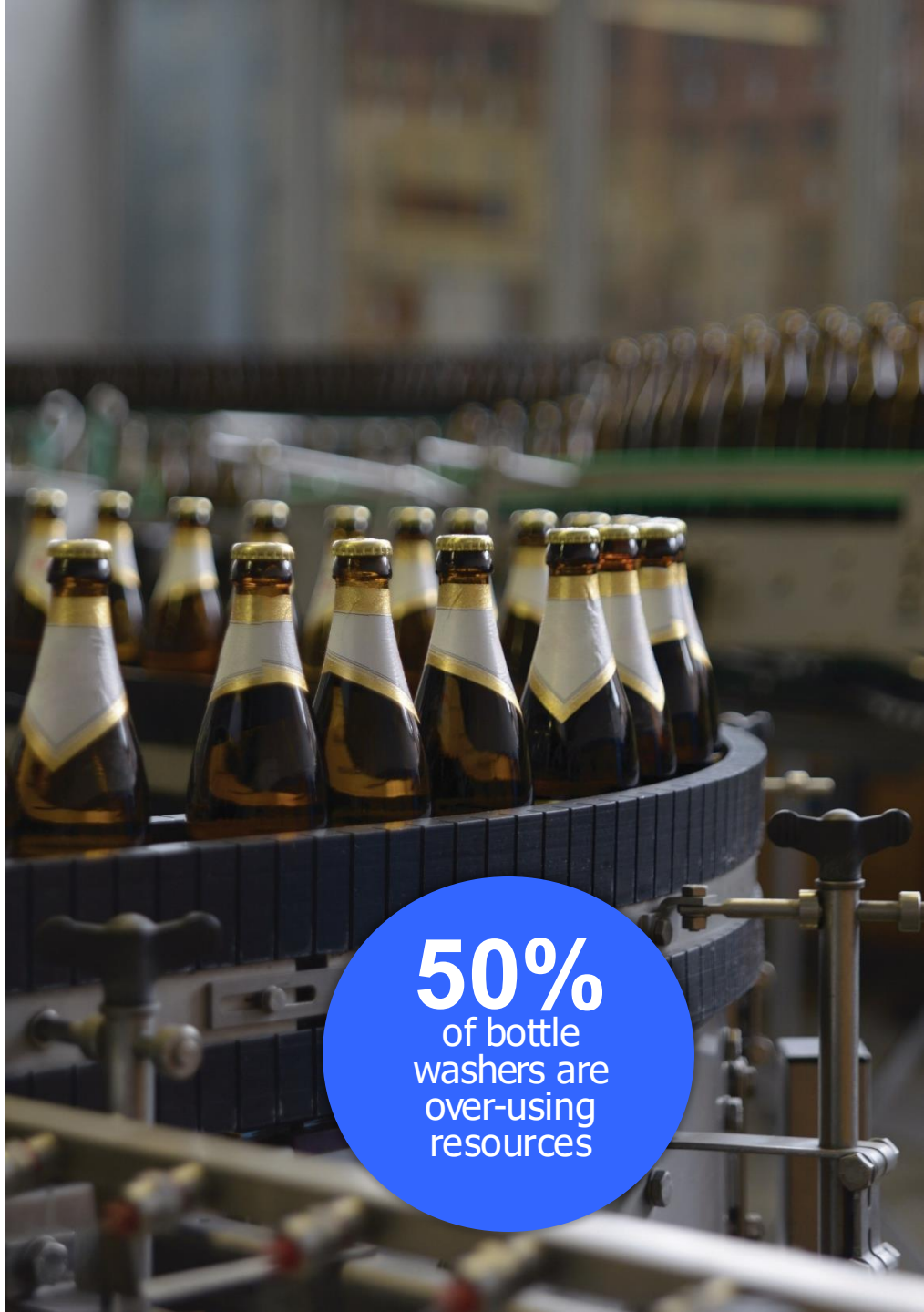
Solution

- **Diversey BWCheck** is an assessment determining the performance and hygienic design of the bottle washing application by a visual inspection and basic measurements.

Value Advantage

With Diversey BWCheck you can:

- Determine whether incremental improvements will improve efficiency and be a viable option to reducing the total cost of operation
- Prioritize areas of improvement and take action
- Ensure that the chemical solution in place is suitable for the soils present
- Limit wear to your glass while ensuring a consistent, repeatable clean
- Reduce the chemical cleaning requirement and removal of biological growth, especially in PET packaging lines.



BWCheck™

Process

Improve your cleaning results, optimize resource use and extend the life of your bottle fleet with Diversey BWCheck.

Our service team will:

- Assess performance of bottle washer
- Prioritize areas of improvement and action plan
- Offer a consistent evaluation to benchmark multiple-site customers or annual evaluations

Following the Diversey BWCheck, you'll receive recommendations based on four pillars:

- Effective and efficient hygienic design
- Cleaning efficiency
- Water, energy and chemical efficiency
- Time and usage efficiency

Case study

Location:
Brewery in India processing 330 ml bottles

Challenge:
Poor label removal

Solution:
The initial Diversey BWCheck identified improvements beyond the chemicals being used to optimise the bottle washing efficiency. The implementation of the recommended corrective action improved washer efficiency 60% and improved label removal 20%.

60%	27%	10%	20%
improvement in washer efficiency	increase in bottles per hour	reduction in caustic use	improvement in label removal

*Bottle washer data based on Diversey experience. All facilities are different. The impact for your site will be calculated as part of an initial Diversey BWCheck scan.

FillerCheck™

Challenge

- Product change-overs between batches are a major cross contamination risk.
- The hygiene of fillers is critical to ensure that the quality and food safety of your finished product is not compromised.
- Time cleaning impacts overall plant efficiency.

Solution

Diversey FillerCheck, assesses the complete operation of the filler cleaning to maximize microbiological safety and the mechanical function of the filler.

Value Advantage

Diversey FillerCheck will:

- Review the functionality of an automatic cleaning and disinfecting system
- Ensure that the chemical solution in place is suitable for the soils
- Ensure correct level of hygiene is achieved balanced with opportunities for time and water usage improvements

FillerCheck™

Process

Diversey **FillerCheck** is systematic assessment of the filler completed by an experienced CIP specialist.

The Sector Specialist will evaluate six pillars: Filler Block, EFC Equipment, EFC Organization, EFC Step Parameters, Employed C&D Products, and Hygiene Check.

The outcome is a scorecard that indicates areas to prioritize with an action plan.

Diversey FillerCheck report will include:

- Scorecard of facility based on four pillars of excellence
- Proposed recommendations with an overview of the main findings to repair or resolve the identified EFC issue(s)
- The report recommendations can then be assigned to plant management teams to be repaired, replaced, or implemented.
- Prioritization matrix of recommendations to help prioritize next steps

Case study

Location:
Beverage manufacturer, Europe

Challenge:
The filler cleaning process was limiting site capacity.

Solution:
Applying optimised CIP programs, and going from 5-step hot to 3-step Diversey CIP, significant savings in time, water and energy were realised.

50%	30%	30%
reduction in CIP time*	reduction	reduction

**allowing increased production time.*

*15-50% based on results achieved by Diversey. All facilities are different. The impact for your site will be calculated as part of an initial Diversey FillerCheck scan.

LubeCheck™

Challenge

- Product change-overs between batches are a major cross contamination risk.
- The hygiene of fillers is critical to ensure that the quality and food safety of your finished product is not compromised.
- Time cleaning impacts overall plant efficiency.

Solution

Diversey LubeCheck, will focus on enhancing lubrication and hygiene, lowering component wear, reducing water usage and spent solution discharge volumes, resulting in a safer workplace.

Value Advantage

- Diversey LubeCheck will:
  - Discover if the conveyor system is under-performing
  - Identify areas of inefficiency and prioritize areas of improvement
  - Determine whether incremental improvements such as the selection of a high-performance lubricant will benefit the process.

LubeCheck™

Process

Diversey **LubeCheck** is systematic assessment of your conveyor system.

Our service team, will conduct a detailed probe into your conveyor system to assess the system design, the chemical consumption and friction, audit the lubrication efficiency, review conveyor hygiene and conduct a sustainability and safety review.

Following the Diversey LubeCheck, you'll receive recommendations based on your objectives:

- Improved safety, hygiene, line efficiency, economics
- Reduced water consumption, energy usage, CO_2 emissions

Case study

Location:
Brewery can line, UK

Challenge:
A need to improve safety in the production hall where floors were covered in wet lube.

Solution:
Over 95% water reduction from seamer outfeed to packers.

0 slip	3M	100%	2%
contributed to lubrication	Over 3 million litre reduction	improvement in plastic belt life	improvement in package stability

*Diversey benchmark study and industry sources. †Figure based on Diversey achieved result - reduction of can loss from 1% to 0.7%. All facilities are different. The impact for your site will be calculated as part of an initial Diversey LubeCheck scan.

OPCCheck™

Challenge

- Resources commonly mismanaged during Open Plant Cleaning are:
- Water - Overuse while performing rinses and potential for recontamination when rinse is continued after cleaning
- Labor – Training, under/overstaffed
- Time – Opportunities to streamline without compromise to hygiene

Solution

Diversey OPCCheck is systematic detailed assessment of the open plant cleaning process, a complete a technical audit of the current cleaning procedures, the OPC system installation, and a review the sustainability impact of the cleaning chemistry. The outcome is a scorecard that indicates areas to prioritize with an action plan.

Value Advantage

Diversey OPC Check will:

- Optimize your OPC process design, efficiency and opportunities for process automation
- Prioritize areas of improvement and take action
- Benchmark your performance using Diversey OPCCheck's scorecard again each visit and against other sites.
- Ensure correct level of hygiene is achieved

OPCCheck™

Process

Diversey® OPCCheck will:

- Analyze the efficacy of the cleaning regimen to ensure the optimum cleaning chemical and process for the soils found in your manufacturing process.
- Use a systematic approach to focus on three pillars: Facility, Cleaning Protocol, and Evaluation & Performance
- Prioritize areas of improvement and to take action.

Following the Diversey OPCCheck, you'll receive a report with the following:

- Scorecard of facility based on three pillars of excellence
- Proposed recommendations with an overview of the main findings to repair or resolve the identified OPC issue(s)
- The report recommendations can then be assigned to plant management teams to be repaired, replaced, or implemented.
- Prioritization matrix of recommendations to help prioritize next steps

Case study

Location:
Potato chip manufacturer, Greece

Challenge:
Open plant cleaning activities were accounting for a significant proportion of available production time.

Solution:
Conveyor cleaning found to negatively impact production time. Following implementation of projects to automate the cleaning process, significant improvement in time and resource use were realized.

36.5%*	37%	16.7%	25%*
reduction in time usage	reduction in water usage	reduction in chemical usage	reduction in labor usage

allowing redeployment of the hygiene team and increased production time.

*OPC benchmark data based on Diversey experience. †30% based on Diversey achieved results. All facilities are different. The impact for your site will be calculated as part of an initial OPCCheck scan.

PASTEURIZERCheck™

Challenge

- Competing production efficiency with the time required for pasteurizer frequent boilouts.
- Increase in water, energy, manpower, and time costs
- Time cleaning impacts overall plant efficiency

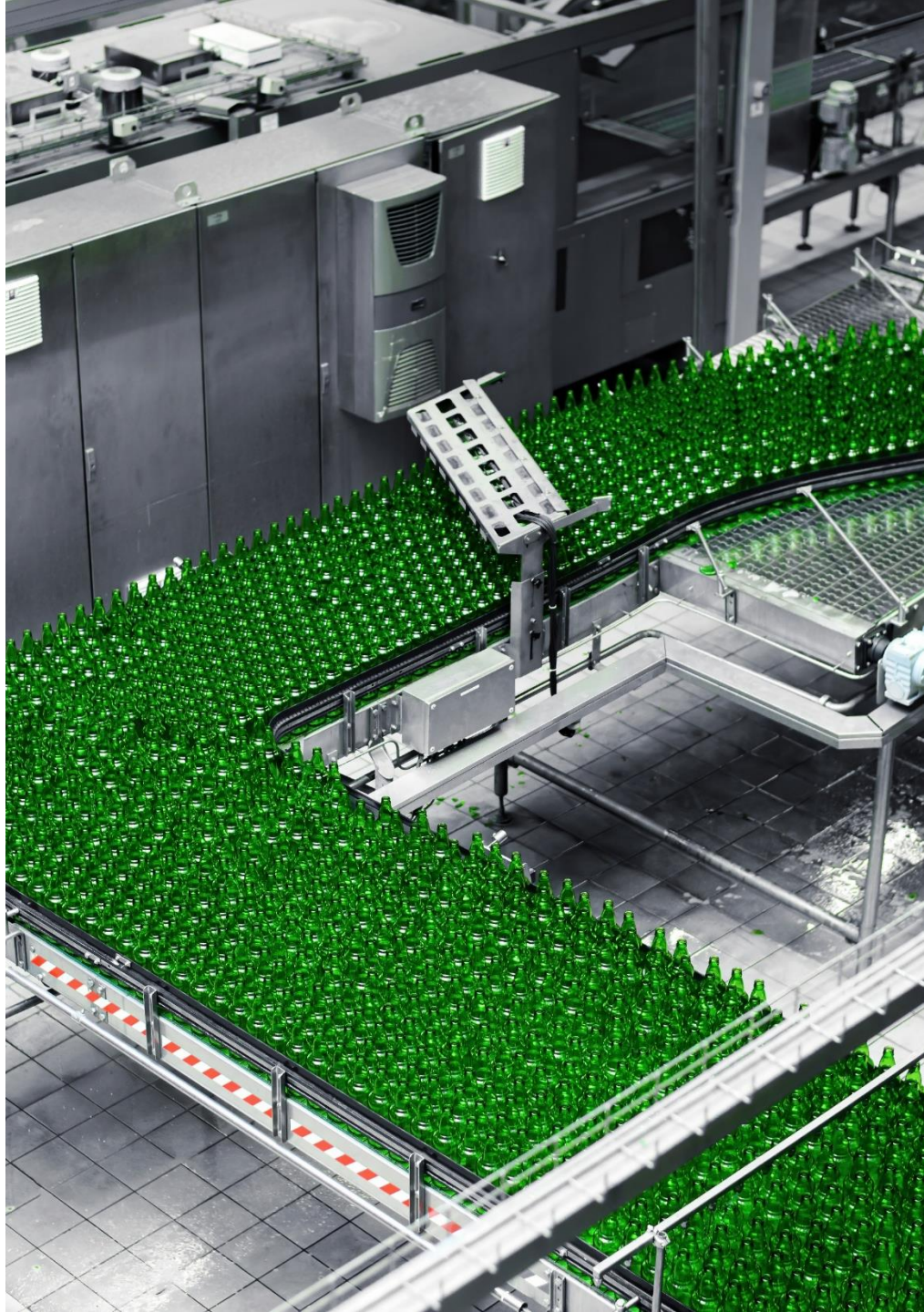
Solution

Diversey® PasteurizerCheck a focused, snapshot of the pasteurizer - ensuring proper performance. A pasteurizer under control leads to improved energy usage and plant safety, preventing microbiological hazards. PasteurizerCheck will give you insights on where you are, and guidelines to prioritize areas of improvement with actionable recommendations.

Value Advantage

With Diversey PasteurizerCheck you can:

- Identify areas of inefficiency in a pasteurizer CIP
- Ensure that the chemical solution in place is suitable for the soils
- Ensure correct level of hygiene is achieved
- Recommend opportunities for time, energy and water usage improvements



SteamCheck™

Challenge

- Rising energy costs
- Failed steam traps, or those opening too rapidly have a large impact on your operational resources including: Inefficient transfer of heat exchanger steam
- Loss of steam pressure
- Thermal losses in condensate return system
- Increased water, chemical treatment and effluent charges

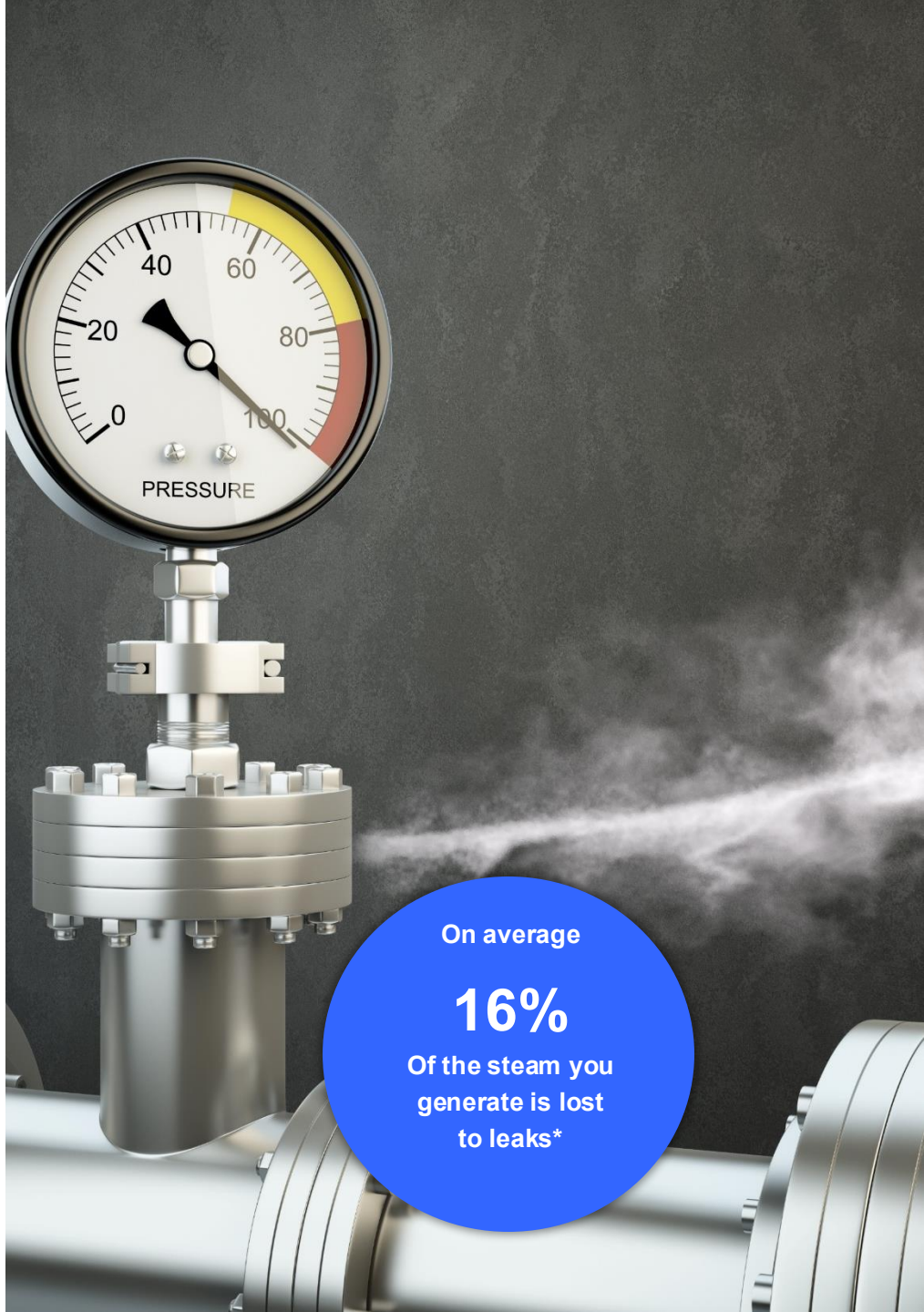
Solution

Using **Diversey SteamCheck**, we will help you to reduce utility waste and realize significant cost savings on your total compressed air budget. The AirCheck audit and resulting custom actions can reduce waste, with the return on investment having an instant impact on your site's financials.

Value Advantage

Diversey SteamCheck will:

- Improves steam utilization
- Measure and trace all sources of steam waste
- Determine whether incremental improvements will improve efficiency
- Prioritize areas of improvement and take action



SteamCheck™

Process

With Diversey SteamCheck's steam trap survey you will identify costly losses within the steam distribution system.

During the Diversey SteamCheck, we will follow the steam distribution system, documenting details about each steam trap and determine steam trap operation using with ultrasonic equipment.

Following the Diversey SteamCheck, you'll receive an analysis report :

- Listing each steam trap on your site (make/model)
- Identifying operation status and baseline information
- Calculating your losses for leaking/blowing steam traps
- Identifying other non-conformities in your steam distribution system that may include other losses to the system

Case study

Location:
Large brewery in Italy

Challenge:
Excessive utility costs attributed to the steam generation process.

Solution:
The Diversey SteamCheck process and the resulting implementation of recommendations saved the brewer energy costs, improved the integrity and safety of the steam system, and improved the efficiency of the boiler.

60	12	8M	$80k%
steam traps	failed steam traps	kg/steam per year saved	annual savings

*US Department of energy http://www.energy.gov/sites/prod/files/2014/05/f16/steam1_traps.pdf