


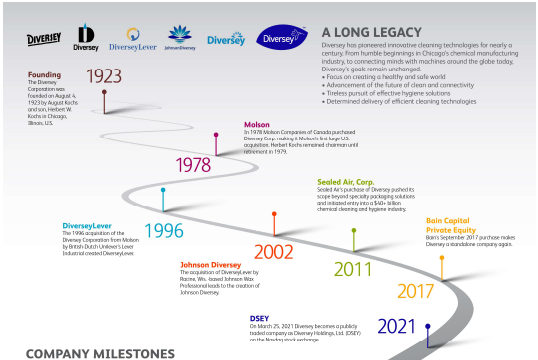


# Diversey™

**Sustainability and cleaning:  
preparing for the future**



## Who is Diversey



**A LONG LEGACY**  
Diversey has pioneered innovative cleaning technologies for nearly a century. From humble beginnings in Chicago chemical manufacturing industry, to connecting minds with machines around the globe today, Diversey's spirit remains unchanged.

- Focus on creating a healthy and safe world
- Advancement of the future of clean and connectivity
- Unrelenting pursuit of effective hygiene solutions
- Determined delivery of efficient cleaning technologies

**COMPANY MILESTONES**


**Hein Timmerman**  
Global Sector Specialist  
Diversey F&B

### Experience

- 29 years with Diversey, started in Lever Industrial.
- Roles covering Global Strategic Accounts support, training, technical, applications and solutions support.
- EHEDG Executive Committee member, authorized trainer and chairman of Working Group CIP.

### Education

- MSc Food Technology from University of Gent
- MBA Brussels




## Who is EHEDG: the European Hygienic Engineering and Design Group

- Stichting EHEDG - a Dutch "Institution for General Benefit"
- Founded 1989 as a non-profit consortium by the food industry for the food industry
- Funded by a growing number of strongly committed members

**Our mission: EHEDG enables safe food production by providing guidance as an authority on hygienic engineering and design.**




EHEDG Statutes  
Internal Rules and  
Code of Conduct

ANBI  
Algemeen Nut  
Beoogende Instelling

**Who is EHEDG: the European Hygienic Engineering and Design Group**

The EHEDG members are:

- Equipment manufacturers
- Food industries
- Suppliers to the food industries
- Research institutes and universities
- Public health authorities and governmental organisations

The "Big 40" out of about 500 member companies worldwide

**Environmental impact of hygiene-related activities**

**DELICIOUS FOOD TO FIT YOUR LIFESTYLE!**

Profitability

- Income
- Brand image
- Consumer

Hygienic as a tool towards ...

- Cost saving
- Sustainability

**Good Food, Good Life**

**Gives You Win**

Help Yourself to Happiness

Smile

**Environmental impact of hygiene-related activities**

**Diversey** Environmental impact of hygiene-related activities

Cleaning & disinfection

The slide features several icons: a blue water drop, a yellow square with a flame labeled 'HEAT', a black electrical plug, and a green bottle of disinfectant. A central photograph shows a worker in a white protective suit and cap cleaning a piece of industrial machinery. To the right, a yellow lightning bolt icon points towards a blue wave icon representing water.

**Diversey** Environmental impact of hygiene-related activities

Waste water

- F&D sector: one of the main producers of wastewater
- Main pollutants: organic matter (as DOC, BOD), oils and fats, suspended solids, nitrate, chloride, phosphates, ammonium and nutrients as N and P
- Example: waste water discharge in market milk production: average of 2 liters per liter of raw milk processed

**Energy and CO2 emissions**

The slide includes a photograph of a large, rectangular wastewater treatment tank with a metal walkway and railings. The water in the tank is a milky, greyish color. The EHDG logo is visible in the bottom left corner.

**Diversey** Environmental impact of hygiene-related activities

Water consumption. Some figures

- European food industry ⇒ **12%** of total industry water consumption
- **C&D**: main water consuming operations in most food sectors
- Average water consumption in European industries:
  - Dairies: 0.33-12.6 l of water/kg milk for market milk (around 25-40% of the total water consumption is related with equipment sanitation processes)
  - Fish industry: 3-32 l/kg (around 10-50% related with equipment sanitation processes)
  - Fruit juices 6.5 l/kg
  - Frozen vegetables 5,0-10,5 l/kg
  - Meat processing: 3-5 l/kg

The EHDG logo is located in the bottom left corner of the slide.

**Diversey** Hygienic design as an environmental impact reduction strategy

Hygienic design ...

- Reduces soil accumulation
- Improves cleanability

⇒ Contributes to an environmental impact reduction

**Obvious!!, but ...**

Can we show it?

- lack of experimental and consistent data

The slide features a blue arrow pointing from the text 'Hygienic design ...' to 'Contributes to an environmental impact reduction'. Below this, there is a green chalkboard icon with a white bar chart showing an upward trend. The EHDG logo is in the bottom left corner.

**Diversey**

**Mechanical action and time**

**mechanical cleaning**

■ time  
■ action  
■ temperature  
■ chemical

**Need for compensation !!**

**Example: effect of dead areas**

Source: Hygiene in Food Processing, CRC Press

**Diversey**

**Research initiatives**

**LIFE ECODHYBAT- Demonstration of hygienic eco-design of food processing equipment as Best Available Technique (LIFE12 ENV/ES/001070)**

**Need for compensation !!**

**Example: effect of dead areas**

Source: Hygiene in Food Processing, CRC Press

**Diversey**

**Temperature**

Temperature sensor installed in a T-piece (L= 2.6Ø).  
CIP temp of 85°C

**Need for compensation !!**

**Example: effect of dead areas**

Source: Andreas Dörner

**Diversey**

**Need for compensation !!**

**Example: effect of dead areas**

Source: Andreas Dörner

**GRUPO PISCANOVA**

- Batter tank mixer
- Viscosity measuring system
- Batter mix pumping system

**aseptic tank**

- Conveyer belts
- Tank Cleaning devices (SSB vs RSH)
- Equipment for packaging disposal

**aiania** centro tecnológico

- Pressure sensors
- Centrifugal pump
- Load cells
- T connections
- Valve



**Design and sustainability results**

Equipment	Cleaning time (min)	Water savings (%)
Sensor (conventional)	17.5	38
Sensor (hygienic)	10.7	
Centrifugal pump (conventional)	20.3	39
Centrifugal pump (hygienic)	13.3	
T piece (l>1,5d)	21.7	60
T piece (l<d)	9	
Load cell (conventional)	4.7	29
Load cell (hygienic)	3.2	

**Design and sustainability results**

Equipment	Cleaning time (min)	Water savings (%)
Aseptic tank lid. Conventional	2.5	40
Aseptic tank lid. HD improved	1.5	
Static Spray Ball. Tank 7000 l	19	42
Rotary Spray Head. Tank 7000 l	11	
Eq. packaging disposal (inside). Conventional	10	75
Eq. packaging disposal (inside). HD improved	2.5	
Eq. packaging disposal (outside). Conventional	22	9
Eq. packaging disposal (outside). HD improved	20	
Conveyor belt. Conventional	27	37
Conveyor belt. HD improved	17	

- Design and sustainability results**
- **Water consumption:** An overall average of 44% estimated savings in water consumption. For the dairy processing industry, the project tests achieved up to 50% savings and in the fish processing industry up to 28% savings were obtained;
  - **Energy and CO2 emissions:** Dairies use 80% of their energy as thermal energy to generate steam and hot water from fossil fuels. An average 21-33% reduction in energy consumption was obtained, equating to a reduction of 20- 49% of CO2 emissions; and
  - **Wastewater:** The new designs reduced the quantity of sanitation chemicals used and the quantity of wastewater produced in volume. Overall, on average, wastewater was reduced by 36%.




### 'Green' cleaning


**Definition**

The use of cleaning products, tools, equipment and methods that protect the health of the end user, lower the total cost of cleaning, and prevent environmental damage







### On chemistry



**Responsible Chemistry Policy**


- Banned all alkylphenol ethoxylates since 2006
- Products that could present unacceptable risks are not approved for production.
- Products approved for sale must also meet local and global regulations, such as the Globally Harmonized System (GHS)
- A new range of plant-based, 100% biodegradable products

### What is happening

**Company goals**

- Achieve a Net Positive impact with products that eliminate waste, conserve energy, save water, and lower greenhouse gas emissions;
- Ensure that 100% of our packaging contributes to the circular economy;
- Have 100% of our innovations offer sustainability benefits greater than the solution they replace;
- Follow our Responsible Chemistry Policy to manage materials of concern in our formulas




### Labeling








### On packaging



- Incorporating over 60% recycled paper board in our global cardboard packaging, saving 8.2M kg of wood fiber annually
- Minimizing the amount of plastic in our bottles and canisters through light weighting, which reduces the amount of plastic used in production.
- Using recycled plastics in many of our bottles
- Increasing chemical concentrations in our super concentrate products which avoids more than 170 million kg of plastic versus single-use, ready to use bottles on an annual basis.



**Thanks**

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