



Water Solutions for the Dairy Industry



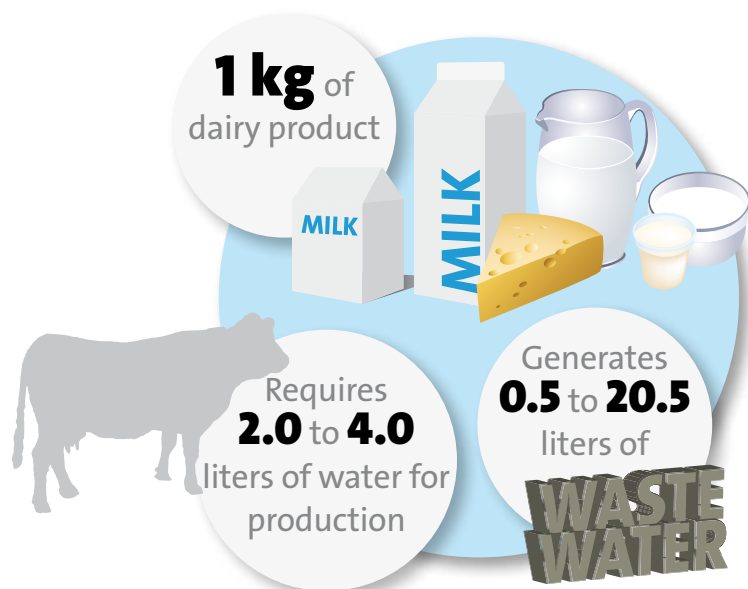
Solutions & Technologies

Water revolution **in dairy**

As global demand for milk, cheese, yogurt and other dairy products continues to grow, new technologies are helping to optimize and control major costs for dairy plants: **water usage and energy consumption**.

Veolia Water Solutions & Technologies offers industry leading technologies for the reduction of water use and wastewater treatment improvement while ensuring continuous water supply compliant with state-of-the-art hygienic standards and regulatory requirements.

Our solutions are able to optimize energy usage inside the process and promote green gas production. They also can ensure by-products valorisation (animal feed, fertilizers, bioplastics) and improve some production yields.



“Water usage, energy costs and recovery of lost products are the key forces shaping modernization of the dairy industry.”

INDUSTRY CHALLENGE

Meet water requirements



VEOLIA'S RESPONSE

- > Continuous water supply to the plant
- > Respects 'state-of-the-art' hygienic standards
- > Treatment of wastewater to meet regulations

Improve water reuse



- > Water refreshment from internal processes
- > Water minimization and water usage optimization
- > Water reuse from wastewater to utilities

Reduce energy consumption



- > Produce energy / biogas from wastewater and/or cow manure
- > Treatment of hot contaminated condensates from evaporators back to boilers or process

Environmental impact, sustainability regulatory and consumer risks



- > Reduced impact and load on the natural environment
- > Control water and carbon footprints
- > Reduced regulatory and consumer risks
- > Products and resource recovery (composting, cattle feed, bioplastics, N/P for fertilizer productions)

Profitability

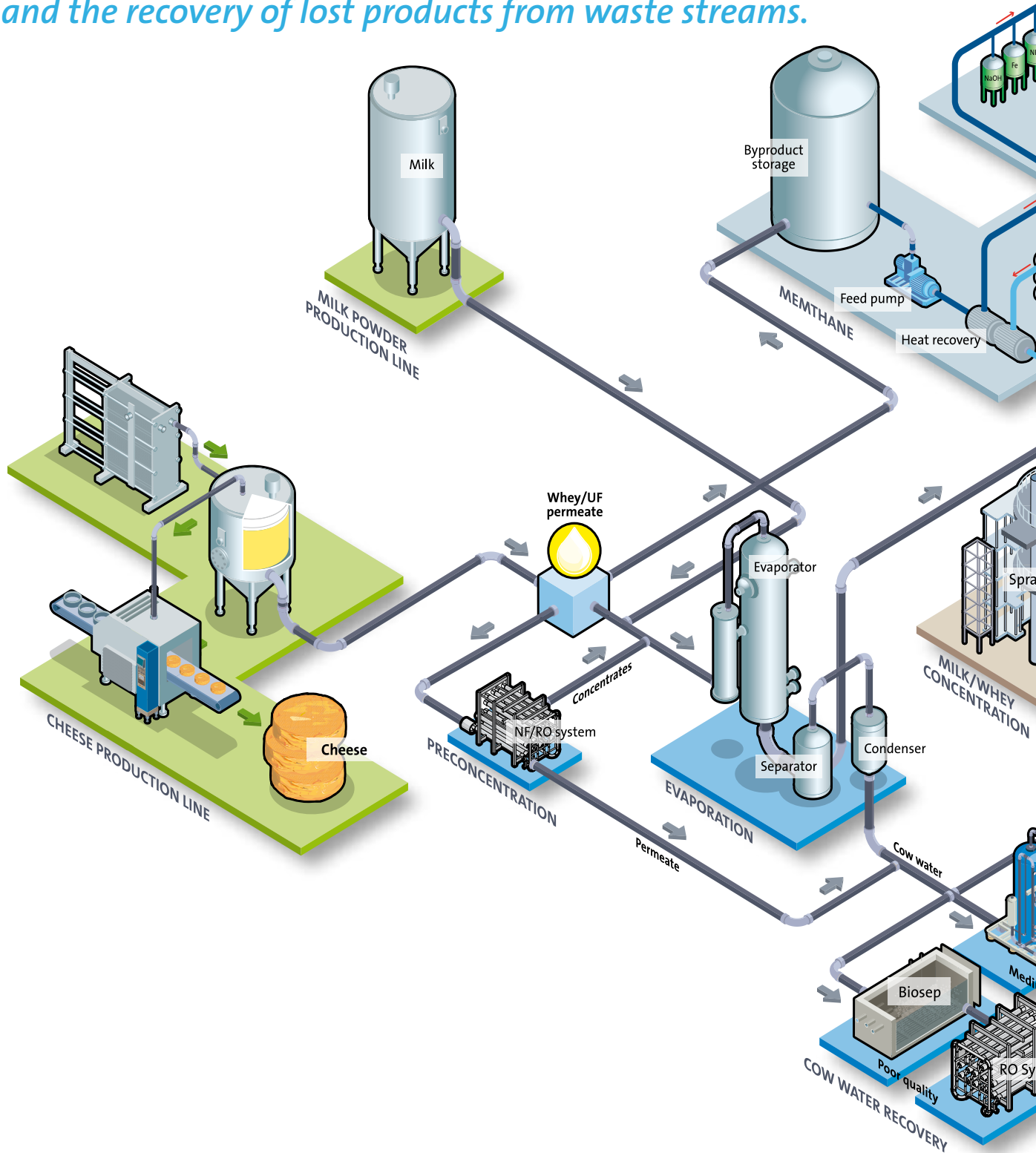


- > Lower energy costs
- > Better water management
- > Process yields improvement

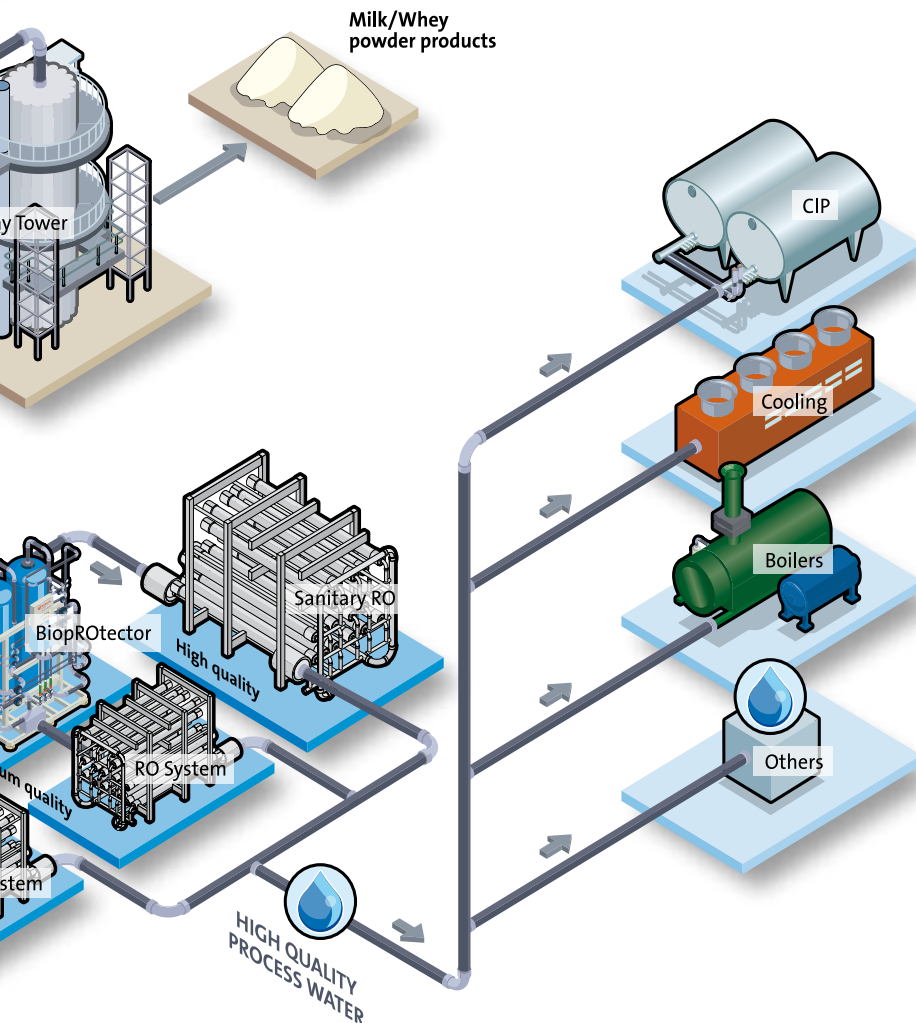
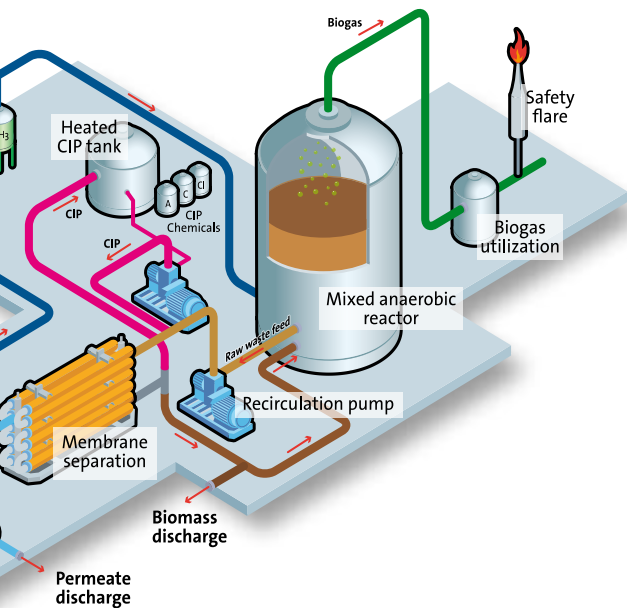


Innovative **technologies...**

Veolia offers innovative, cost-effective solutions for the reduction of water usage and energy consumption and the recovery of lost products from waste streams.



... for dairy processing



Innovative technologies include:

Memthane® Anaerobic MBR

- Converts organics from high strength streams into sustainable energy (biogas) and improved profitability
- Achieves >98% COD and TSS removal for exceptional effluent quality
- Savings of 80-90% of operating costs compared to other traditional processes

Biobed® Advanced

- Anaerobic granular sludge bed
- Improved biomass inventory
- Up to 30 kg COD/m³ per day
- Better performance results in lower operating and post treatment costs

BiopROtector®

- Removes specific components that are responsible for membrane biofouling
- Minimized Reverse Osmosis systems downtime
- Reduced chemical and energy usage
- Extends membrane lifetime



Addressing **challenges...**

Veolia's differentiating technologies provide solutions for:

RINSE MILK RECOVERY

- Significant reduction of the effluent strength and load to the wastewater treatment plant (WWTP)
- Substantial energy saving for the aeration of the biomass in the WWTP
- Product recovery increasing the production yield



COW MANURE CO-DIGESTION

- Production of green energy using liquid, pasty or solid entrants with higher methanogen value
- Added value returned back to farmers through compost, cattle feed and fertilizer creation



PHOSPHATE RECOVERY

- Production of fertilizer as by-product from waste stream through the addition of lime



UPGRADING OF SECONDARY EFFLUENT

- Reuse for utility water, CIP water, and irrigation
- Packaged plant availability
- Towards a water positive dairy plant (depending on process)

COW WATER REUSE

- Reduction of mains supply water
- Reduction of wastewater production
- Better CIP performance due to low conductivity
- Reuse of the heat from warm condensate



Veolia Water Solutions & Technologies is the leading global water and wastewater treatment technology company. We provide a full range of services including engineering, project management, design-build and maintenance services as well as long-term operation.

We understand the specific needs of the dairy industry and help clients reach their goals by providing innovative water treatment solutions in line with the highest quality standards.



Service Value Responsibility

We are committed to offering the highest standards of **S**ervice and creating added **V**alue for our clients while being socially and environmentally **R**esponsible.



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