



Preserving Water Resources

Our Commitments to Pharmaceutical Lactose Production

How Lactalis Ingredients Pharma reduces water consumption through innovation and responsible practices in its factory of Retiers

The environmental imperative to preserve water resource



Less than **0.03%** of the planet's water is accessible freshwater

Climate change does not just reduce water availability

Rising temperatures declines water availability

+1°C → +7%

Global warming Water evaporation



Quantity

Freshwater availability continues to decrease



+

Snow and glacier melt accelerates threatening freshwater reserves

Water scarcity intensifies across agricultural and industrial regions



Quality

Water pollution adds pressure on usable resources

Lactalis commitments what technical solutions?



Water preservation is a core pillar of our CSR policy

Our objective in Retiers facility is to reduce our water withdrawals by 25% between 2024 and 2040

An opportunity: Producing pharmaceutical lactose and dairy ingredients powder means evaporating massive quantities of water.

Through concentration and spray drying, almost all water in liquid raw materials is removed to obtain powder.



90%

is evaporated during dairy powder ingredients production

For every

1kg of dairy ingredients powder produced

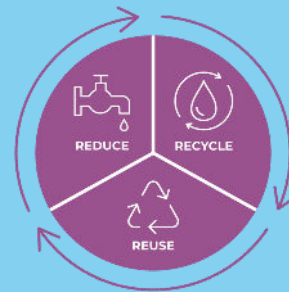


9 L of water evaporated



The question becomes obvious: Why not recover and reuse this water?

Our technological levers: The 3R framework



REDUCE

Water withdrawals from the natural environment

3 water sources: public network, surface water, groundwater



Optimize our processes of production and cleaning

- Map all water uses in our processes
- Improve washing efficiency
- Requalify cleaning processes (CIP — Clean-In-Place): qualify final rinses through conductivity monitoring

Target: 60% reduction in lactose unit CIP water consumption



RECYCLE

Types of water available for recycle:

- Water from the process: Sprout and rinse water
- Condensate of Whey Water (COWW)



Raw material of pharmaceutical lactose: liquid whey and permeate

Concentrator



Evaporation

Condensate of Whey Water (COWW)

Lactose crystals and WPC purification

Flooding of the facilities

Feeding our boilers

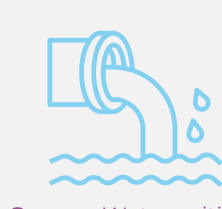
Target: +30% increase in COWW reuse between 2022 and 2025



REUSE

Reuse Treated WasteWater from Treatment Plant

Primary use: Water used to cool down our industrial installation (Cooling Towers...)



Source: Water exiting our WasteWater Treatment Plant (WWTP)



Water treatment/purification

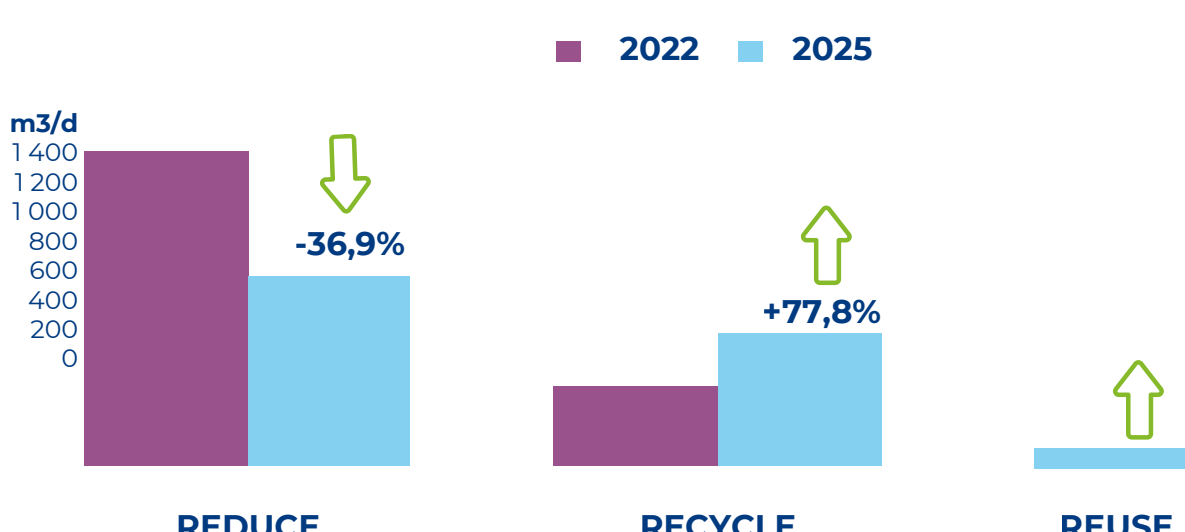


Benefit: Reduces freshwater demand for cooling operations

Target: 20% reduction in WWTP discharge

Our encouraging results

Evolution of the Water consumption in Retiers factory



Between 2022 and 2025, more than 100 000 m³ has been saved through:

REDUCTION actions

60%



40%

REUSE and RECYCLE programs

Glossary of Acronyms

CIP: Clean-In-Place (automated cleaning system)
COD: Chemical Oxygen Demand (water quality indicator)
COWW: COndensate of Whey Water
OI/RO: Osmose Inverse / Reverse Osmosis (water purification technology)
REUSE: Reuse of process wastewater within production cycles
REUTE: Reuse of treated wastewater (WWTP effluent)
WWTP: WasteWater Treatment Plant
Cooling Tower: Aero-refrigeration tower for process cooling

Sources

Climate data: - IPCC (Intergovernmental Panel on Climate Change) — Sixth Assessment Report, 2021-2023 - UN Water — World Water Development Report 2024 - European Environment Agency — Water scarcity and droughts in Europe, 2023 Lactalis operational data: - Retiers Dairy Center internal monitoring (2022-2024) - Lactalis Ingredients Pharma sustainability reporting

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