



# Preserving Water Resources

## Our Commitment 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

**Quantity**

Freshwater availability continues to decrease



+

Rising temperatures declines water availability

**+1°C → +7%**

global warming    Water evolution



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 strategy

Our objective in Retiers facility : Reduce total water withdrawals by 20% vs 2023 baseline

**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 solid ingredients production

For every

**1kg** of dairy ingredients powder produced

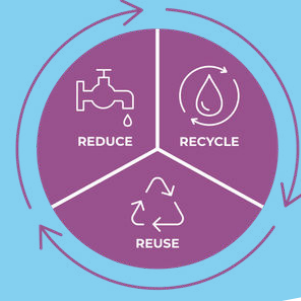


**9 L** of water evaporated



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 icleaning

- 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



#### REUSE

Types of water available for reuse :

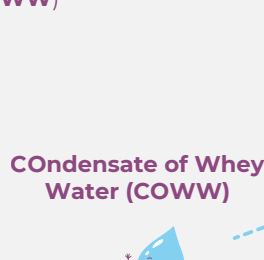
- Water from the process : Sprout and rinse water
- COndensate of Whey Water (**COWW**)



raw material of pharmaceutical lactose : liquid whey and permeate

Concentrator

Evaporation



Lactose crystals and WPC purification

Flooding of the facilities

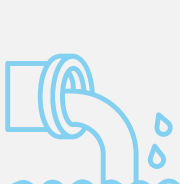
Feeding our boilers

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

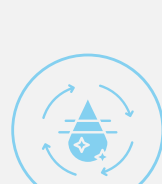


#### RECYCLE

Recycled Treated Waste water from Treatment Plant



Source: Water exiting our wastewater treatment plant (WWTP)



Water treatment/purification



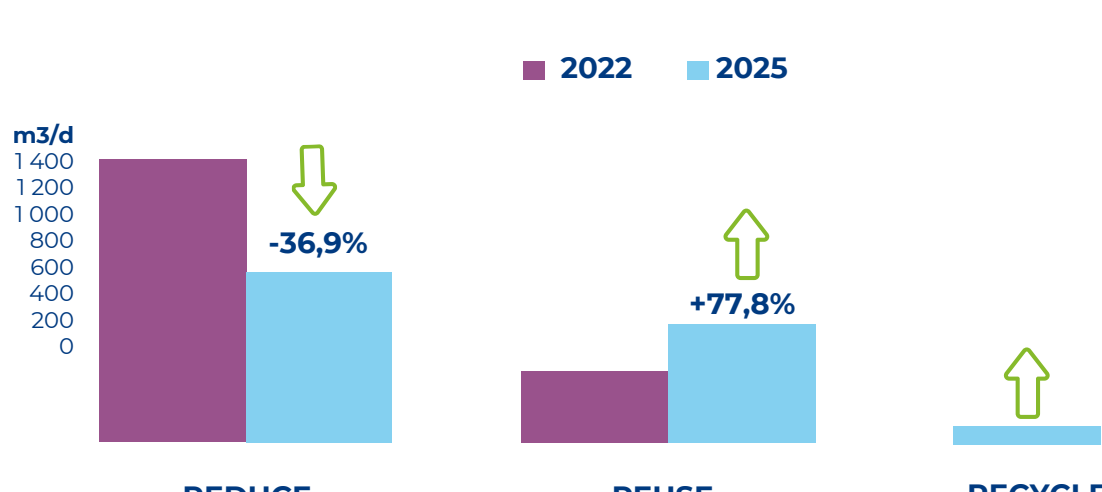
Primary use: Water used to cool down our industrial installation (Cooling Towers...)

Benefit: Reduces freshwater demand for cooling operations

Target: 20% reduction in WWTP discharge

### Our encouraging results

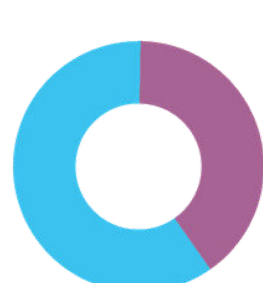
#### Evolution of the Water consumption in Retiers factory



Between 2022 and 2025, more than 100 000 m<sup>3</sup> has been saved through:

REDUCTION actions

60%



40%

REUSE and RECYCLE program

#### 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 water 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

LACTALIS  
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