FOOD & BEVERAGE

Generating a valuable water resource from milk evaporator condensate

New regulations meant a German dairy approached Ecolutia to help reduce its site discharge of wastewater. A modular treatment solution proved recovery of milk evaporator condensate to reduce discharge volumes but also create a new recoverable water source.



CLIENT
Dairy and milk products manufacturing plant

LOCATION
Germany

SERVICE
Temporary: Condensate recovery

DURATION
Two years

20 m³/h	<5 ppm	5	12+ mth
PILOT PRODUCTION FLOW	PRODUCT WATER COD	STAGE TREATMENT TRAIN	PILOT EXTENDED

THE CHALLENGE

New discharge limits put production water under pressure

Incoming environmental regulations limited the wastewater discharge for a dairy manufacturing a variety of milk products. Encouraging results from a bench-scale study and discussions with Ecolutia led to the installation of a temporary service solution to recover milk evaporator condensate.

Proving the long-term case and economic viability of the solution was essential for compliance with the new regulations. However, recovery of the condensate needed to be on a modest footprint, sufficiently reduce wastewater discharge, adaptable for upgrades, suitable for future site growth plans, and a quality of condensate usable onsite.

PROJECT SNAPSHOT

Feed source
Milk evaporator condensate (≤150 ppm COD)

Output quality
<5 ppm COD · <0.5 ppm NH_3

Flow delivered
20 m³/h

Technologies
MMF, UF, BWRO, GAC, UV

THE SOLUTION

A modular solution, fine tuning each variable and configuration

With project goals set, Ecolutia deployed its mobile modular containerised and skid-mounted treatment systems. The small footprint and modular design made the systems ideal for the planned configuration work and adjustments to be tested by the project engineers — equipment could be reset swiftly between configurations to find the optimum setup while minimising non-production periods.

- ✓ Two-stage pre-treatment — multi-media filtration, then ultrafiltration as an absolute barrier to larger organic molecules
- ✓ Reverse osmosis removing remaining dissolved organics and ammonia, with activated carbon polish for taste and odour
- ✓ Strict cleaning and sanitisation regime controlling biological fouling from milk proteins and fats

TREATMENT FLOW PATH



THE RESULTS

Reuse proven — and the pilot extended beyond a year

Initial findings showed that recovered condensate could lower freshwater consumption and wastewater discharge costs, while reducing the dairy's environmental impact against the impending regulations.

The original installation was a pilot plant that proved the full-flow viability of the bench-scale study. This successful pilot led to an extension to test other complementary water treatment options — adding UV disinfection and chlorination trials for microbiological purity as well as firming up additional economics as part of the dairy's permanent long-term solution.

PLANNING A WATER REUSE PROJECT?

Full flow pilot to prove the concept.

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Talk to us about a similar project
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