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Case Study

Improved Condensate Recovery in a Dairy Industry

Main activities	The plant produces milk chocolate crumbs, which are the main input to milk chocolate.
Region	EU
Energy Consumption	NA

Project goals

During the manufacturing process, milk is evaporated and the released water vapour is condensed. In the past, the condensate was used for cleaning purposes but this was discontinued in the 1980s for fear of contamination with milk solids. Instead it was discharged, resulting in effluent disposal penalty charges.

The purpose of the investment was to reclaim the hot condensate for use in the extensive steam heating processes, or for cleaning, thus making more efficient use of this waste product.

Main investments

A new system was installed which allows the steam condensate to be recovered for use without risk of contamination.

As a first step, three existing storage tanks were reconfigured to hold steam condensate, untreated milk condensate and treated milk condensate.

Further monitoring equipment was installed throughout the system to ensure that any contamination is immediately detected and discharged.

The main investments for the new condensate recovery system involved three conductivity-testing systems with associated drain valves, tank level indicators, some simple pipework modifications and a chlorine dioxide sterilisation system.

Benefits

The investment recovered condensate for use in the boilers and for cleaning purposes and also reduced effluent volume and load.

Some 3,500 GJ of heat energy is recovered each year, resulting in annual savings of €61,000. Improved condensate recovery at the site has reduced water use by 30,000 m^3/year.

Application

Any industry using steam systems without condensate recovery.

Investment type	Cost (€)	Energy saved (GJ/year)	Saving achieved (€/year)	Payback period from energy saving
Condensate recovery	57000	3500	61000	11 months