

COW WATER REUSE



Providing Creative Solutions



OVERVIEW

Condensate of Whey (COW) water is a byproduct of milk processing, resulting from the evaporation of dairy products such as skim milk, whole milk, sweet whey, and acid whey. Unfortunately, COW Water is frequently not recycled and is instead regarded as wastewater. However, considering that milk comprises approximately 90% water, there exists ample opportunity to reuse COW water.

Feed Water for Boilers

Condensate of Whey (COW) is the water recovered from the evaporation of whey or milk during the production of dairy products like cheese, milk powder, and whey protein concentrates. This water, though initially containing traces of organic matter, minerals, and other components, can be treated and reused in various applications, including boiler and cooling tower systems in dairy processing facilities. Before using this valuable COW water in the plant, it needs to be treated to eliminate any bacteria or organic material. Chlorine and chlorine dioxide are commonly used as disinfectants and oxidizing agents in the treatment of COW water for reuse in boiler and cooling tower systems.

The condensate can be treated to remove impurities, making it suitable as feed water for boilers. Typical treatments include filtration, reverse osmosis, and softening. Using treated COW water as feed water can improve boiler efficiency by reducing scaling and corrosion caused by impurities. The lower mineral content in the condensate compared to raw water helps maintain boiler integrity. Reusing COW water can lead to significant energy savings, as it is already at an elevated temperature compared to cold make-up water, thus reducing the energy required to heat the water to the necessary temperature for steam generation.





BENEFITS

Boiler Blowdown Reduction

Treated COW water can help in maintaining higher cycles of concentration in boilers, reducing the frequency and volume of blowdowns needed to control the concentration of dissolved solids.

Boiler Water Products

Boiler operators are constantly battling issues that plague their boiler system processes. Hydrite offers products that address these issues in a variety of industries:

Hydricare 3121: Scale and deposition in a boiler that quickly robs heat transfer efficiency, resulting in increased fuel costs while increasing the potential for damaging under deposit corrosion and boiler tube overheating and failure.

Hydricare 3144: Oxygen corrosion and attack can cause swift and severe damage in a boiler system, resulting in equipment failure, unplanned downtime, and significant costs in lost production and equipment repair.



Make-Up Water for Cooling Towers

Using COW water as make-up water for cooling towers helps in conserving fresh water, aligning with sustainability goals. The condensate often requires treatment to remove organic matter, dissolved solids, and any residual lactose or proteins that could promote biological growth. Treatments include filtration, UV sterilization, and chemical dosing. Peracetic Acid (PAA) is a powerful disinfectant in cooling towers due to its high oxidizing potential, effectiveness against a broad range of microorganisms and its favorable environmental profile. PAA harnesses the power of oxygen for the treatment of effluent wastewater, secondary disinfection, combined sewer overflows and other non-potable water applications.



For over 90 years, Hydrite has been providing creative solutions and creating unique formulations for the food industry. Learn more about how Hydrite can help you simplify your chemical program, streamline logistics and improve your quality in applications.



Biocides: Oxidizing & Non-Oxidizing

Microbiological control is a critical yet often overlooked component of a cooling water treatment program. Hydrite carries a range of both oxidizing and non-oxidizing biocides and has the experience to select and apply the proper program using best practices to minimize concerns and maintain control over microbiological populations, translating to high operating efficiency, asset protection, and dollars in your pocket.

Biocide Mistreatment Concerns

- Uncontrolled Microbiological Growth
- Loss of heat transfer Efficiency
- Corrosion
- Health and Safety Concerns
- Equipment Failure

Biological Control

Since COW water can contain organic compounds, proper treatment is essential to prevent microbial growth in the cooling system, which could lead to biofouling and decreased efficiency. Biocides, dispersants, and anti-scaling agents may be used to maintain the cooling tower's performance and prevent the growth of algae and bacteria.





SERVICE AND SUPPORT

Hydrite excels in understanding customer needs, providing creative solutions and customized programs. With a strong emphasis on employee training and technical expertise rooted in food industry experience, we ensure consistent product quality and exceptional customer service.

Digital Technology & Equipment: Ackumen

With Ackumen, you can dramatically simplify cooling water management and optimize performance around the clock. Ackumen provides 24/7 monitoring and program adjustment through the Insights Lab, a team of water experts trained to deal with events as they happen, assessing alarms and taking the appropriate action. These experts, working closely with data scientists, enable us to see around the bend and analyze patterns that are not visible to the naked eye.

The RITE Team™

The Hydrite RITE Team™ consists of a network of individuals strong in microbiology, membranes, CIP performance, product selection, equipment, and troubleshooting. This collaborative team supports our customers and our field to provide technical training, program development, and adjacent technology.

Sustainability

We at Hydrite actively seek ways to decrease waste generation for both ourselves, and our customers by offering customized services tailored to their unique needs and specifications. Hydrite aims to achieve zero landfill waste status by providing a comprehensive array of treatment and disposal solutions, including recycling, energy recovery, fuel blending, incineration, wastewater treatment, and lab packing. Effective treatment and management of COW water can enhance operational efficiency, reduce costs, and support sustainable dairy processing practices.

- **Water Reuse:** Reduces the demand for fresh water and lowers the environmental impact of dairy processing facilities.
- **Cost Savings:** Decreases water and energy costs by recycling condensate water within the facility.
- **Regulatory Compliance:** Helps in meeting environmental regulations regarding wastewater discharge and water usage.

Contact us about how we can help your plant treat and reuse your COW water.



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