

PMO

 Food &  
Beverages Vermont, US

# Pasteurized Equivalent Water for AgriMark-Cabot Dairy in Vermont

## Background

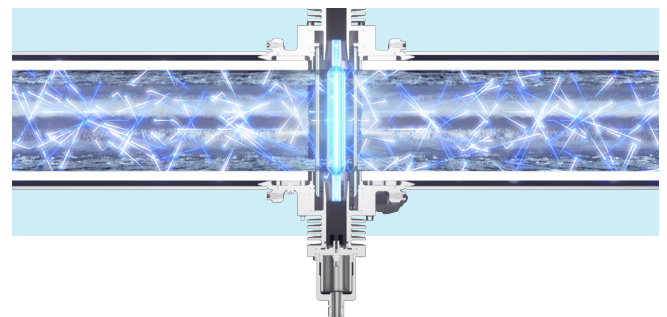
AgriMark, established in 1916, is a premier dairy farmer cooperative in the northeastern US. In 1992, they merged with the Cabot Creamery Cooperative. The AgriMark-Cabot dairy in Middlebury, Vermont, produces a variety of dairy products from the famous award-winning Cabot cheddar cheese to other popular products such as white and butter cream, world-class Whey Protein Concentrate (WPC) and dairy product solids (whey permeate) that are shipped to customers in over 40 countries worldwide. All of the milk used at AgriMark-Cabot's manufacturing facilities is Grade A, the US FDA quality standard for fluid milk in the USA. Their Middlebury facility is inspected and approved by the FDA, USDA, European Union, Kosher and Halal authorities.

The AgriMark-Cabot Middlebury plant processes approximately 4 million pounds (2,000 tons) of whey every day. The production process includes separation of lactose and minerals from the protein using a series of UF, RO, evaporation, and polishing technologies. They had large quantities of cow water at their disposal (a by-product of whey production). In keeping with their sustainability goals, they wanted to reuse it for heat exchange and process line rinsing & flushing to significantly reduce energy and water consumption. As a PMO Grade A manufacturer, AgriMark-Cabot needed to pasteurize the cow water before reusing it in the process line.

## The Solution

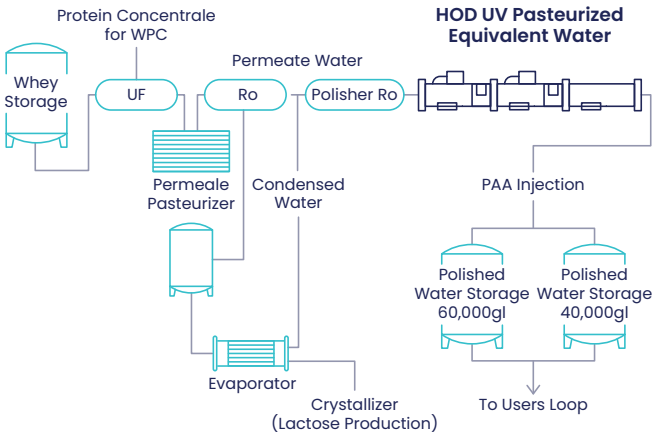
An Atlantium RZ Series PMO HOD™ (Hydro-Optic Disinfection) UV system was installed in 2010 for the pasteurized equivalent water application in the cow water process line. Atlantium HOD UV systems effectively inactivate pathogens by combining ultraviolet water disinfection technology with hydraulic and optic principles. The HOD UV system features the unique Total Internal Reflection (TIR) technology that recycles UV light energy, ensures homogenous UV dose distribution, provides superior power (kW) efficiency compared to traditional UV, and achieves unprecedented micro-organism inactivation.

The polished water is treated with the HOD UV system before being used for different processes such as final rinse, sanitation, and saline solution dilution. The RO polisher and polished water piping and silos are maintained daily with 0.25-0.5% caustic soda and 0.5% acid at 140°F (60°C) for 30-40 minutes. The pasteurized equivalent water is tested every day at several sampling points (including HOD UV outlet, silos, and loop end users) and must show Total Counts (SPC) which are lower than 10 CFU in 1ml.



## Results

Atlantium's PMO HOD UV system provides AgriMark-Cabot with a truly sustainable solution that complies with PMO Grade A criteria assuring production quality and microbiological integrity. It supplies them with pasteurized equivalent water on-demand that enables them to reuse their cow water in the process line. They use cow water for heat exchange, rinsing, and flushing, saving energy, and water consumption. By replacing heat pasteurization with pasteurized equivalent water, they save additional energy and water as well as downtime. Last but not least, they are assured that waterborne spores or pathogens won't infiltrate their production line – including the heat-resistant ones that heat pasteurization can't kill.

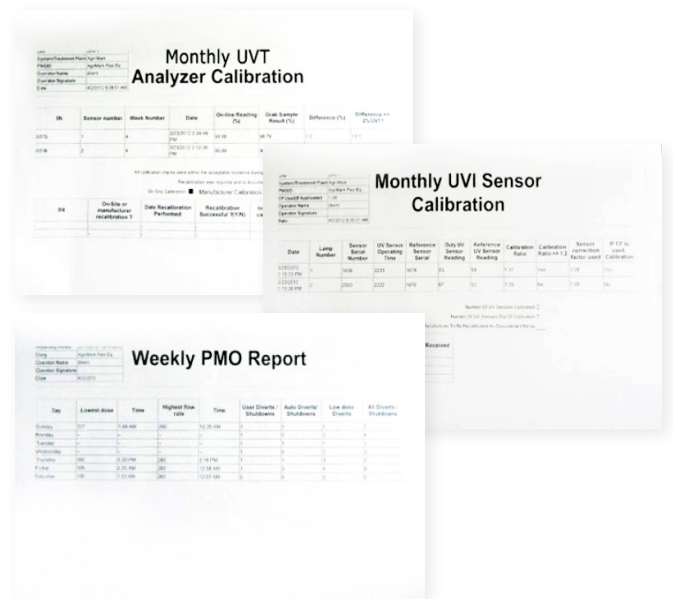


The polished water is treated with HOD UV system before being used for the plant CIP system (rinsing, flushing, etc.).



We are very pleased with the Atlantium systems that we have installed – not only in Middlebury but also in our Cabot facility. Since installing Atlantium, we have credit for pasteurized equivalent water without the high cost. Water quality is consistently within specifications and plant personnel are operating and maintaining the system with ease. We are planning to install additional Atlantium systems for other applications: in Middlebury, a new unit will shortly be installed at the incoming well water to replace chlorine disinfection.

Mr. Ray Dyke, Vice President of Technology AgriMark-Cabot



Push-of-the-button generated regulatory reports

## About us

For more than two decades, Atlantium Technologies has helped to ensure water safety with its innovative HOD™ (Hydro-Optic Disinfection) UV technology and novel approach to performance, monitoring, and control. Atlantium's superior, environmentally friendly water treatment solutions ensure stable, efficient, and dependable production.

With thousands of full-scale installations for leading brands in various industries globally, we're committed to consistently meeting our customers' water quality needs, ensuring pure results.

