

3D TRASAR™ Cooling Water Technology and Expertise Improve Sustainability Performance and Reduce Water and Energy at Danone Industria, Tchehov plant in Russia

NALCO Water
An Ecolab Company

CASE STUDY - FOOD & BEVERAGE

CH-1881E

INTRODUCTION

Danone is a worldwide company leader in food and drink processing, especially in the milk industry.

The development of the Danone group around the world, in particular the emerging markets, constitutes a key mechanism by which the group successfully carries out its mission of “bringing health through food to as many people as possible” while ensuring its long-term growth.

Since 2007, this mission has been implemented through four Divisions:

- The Fresh Dairy Product Division, the largest division -production and distribution of yogurts, fermented dairy products and other specialties of fresh dairy products, the largest division.

- The Waters Division production and distribution of packaged natural, flavoured and vitamin-enriched water
- The Early Life Nutrition Division - production and distribution of specialized food for babies and young children to complement breast-feeding
- The Medical Nutrition Division - production and distribution of specialized food for people afflicted with certain illnesses or frail elderly people

In 2000, Danone decided to build a new dairy plant in Tchehov, Russia, with a capacity of 100,000 tons of finished products per year. In 2008, the production was close to 430,000 tons and now the plant capacity has reached up to 480,000 tons of finished products per year.

CUSTOMER IMPACT

16,568 m³/year (-28%) of fresh water savings in cooling water application



WATER

622,315 KW/year (-9,9%) of electricity saved due to scale control in the chiller



ENERGY

No chemical cleaning required during the year



ASSETS

ECONOMIC RESULTS

Water savings of €1,557 per year

Energy savings of €14,000 per year

Savings of € 1,000 per year

Improved Total Cost of Operation of €16,557 per year

All savings certified by the customer

eROI is our exponential value: the combined outcomes of improved performance, operational efficiency and sustainable impact delivered through our services and programs.

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The Tchehov plant produces dairy products under different brands for the whole of Russia and CIS countries.

The group's strategy increasingly relies on the upstream segment of its activity (environment management, raw materials, industrial processes and logistics' supply), not only to manage costs but also to turn it into a genuine mechanism for creating value and standing apart from the competition.

Finally, in order to reduce the environmental footprint of its activities, the Danone group is rethinking its product packaging, energy and water consumption, transportation, etc.

All of these initiatives contributed to the implementation of Danone's environmental policy, while meeting economic benefits.

BACKGROUND

The Danone Tchehov plant is specialized in yogurt and cheese production. Nalco Water was not the preferred supplier for the plant as they worked with other competitors.

Danone makes a strong commitment to improve water and energy savings at the plant level.

A long term project (2020) defines specific objectives linked to water and energy:

- CO₂ reduction > 50%
- Energy reduction: 60%
- Water reduction: 60%
- Clean water guideline: 100% in conformity

CURRENT SITUATION

Due to the production expansion, the plant had bought a new chilled water system called "New system", used for production of cold process water. Source of new evaporative condensers is well water. A basic, non-automated program was implemented in 2012, with poor results: high water consumption, scale formation, regularly cleaning of the cooling system.

Nalco Water was asked by Danone to visit the plant and to identify a different solution to avoid these problems and optimize energy and water consumption.

CUSTOMER'S GOALS

The customer's goals and KPIs for this project included:

- Reliability of treatment and monitoring improvement
- Chemical consumption optimization
- Energy & Water savings
- Cooling system efficiency: improve TCO.

SOLUTION

The Danone and Nalco Water teams worked together to carry out a full Mechanical, Operational, Chemical and Sustainability (MOCS) audit of the water treatment system. The combined team reviewed all aspects of treatment plant operation, to identify areas for improvement

which would positively impact upon the customer's operations and any new opportunities to better achieve the KPIs with advanced technologies and using their water treatment expertise.

Nalco Water recommended the implementation of the 3D TRASAR Cooling Water Technology along with the treatment program to control the system parameters and more accurately manage the system. The Nalco Water 3D TRASAR Cooling Water Technology delivers on-demand control and optimization of the cooling system and the water chemistry, continuously protecting the system from corrosion and scale formation. Moreover, the system was connected to the Nalco Water System Assurance Center to ensure that Nalco Water Experts would continuously monitor the system, responding to any variances and alarms. Systems are constantly monitored and recommendations are provided for fine-tuning 24 hours a day, 7 days a week, all year long. Immediate alarm response leads to faster problem identification and improved system operations, saving water and energy, while making efficient use of chemistry.

The main system objectives were the following:

- Blowdown regulation
- Chemical regulation
- Avoid scale formation
- Bio-control
- Web transfer
- Service

eROI: EXPONENTIAL VALUE

With the implementation of the 3D TRASAR Cooling Water Technology, the plant was assured a better control by monitoring the system performance at all times. The results were:

- Scale control and energy optimization
- Save water and optimize the chemical usage
- Less maintenance (no cleaning)
- Environmental impact minimization.

During the first year of treatment, the Tchehov plant was able to save 16,568 m³ of water and 622,315 KW of electricity.

After one year, system cleanings were no longer necessary. The total savings, calculated and validated together with Danone, amounted to 16,557€ per year.

These savings were signed off by the customer.

CONCLUSIONS

The close cooperation between Danone and Nalco Water forged a clear action plan to meet the water, energy and cost reduction requirements of the plant, and enabled the management to work towards improving sustainability performance.

This has built a strong business partnership between Danone and Nalco Water, based upon a joint commitment to continuous improvement.

Nalco Water would like to thank Danone Industria for their permission to publish the information contained in this Case History.