



# Food Industry: Water as a Strategic Raw Material

Water treatment, polishing, and recycling for product quality, cost savings, and operational reliability. In food production, water is more than just a utility — it shapes taste, aroma, stability, safety, and production economics.

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# Water That Shapes the Taste of Your Success

- Whether you produce beer, malt, dairy, juice, or bottled beverages, water shapes product quality in ways that aren't always obvious.
- It shapes taste, aroma, color, texture, stability, shelf life, and operational reliability.
- That is why simply using water isn't enough — it has to be managed.
- Water is not just a cost line. It is a raw material, a processing input, and a quality driver.





# When Water Goes Unmanaged, the Problem Ends Up in Your Product

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- **Taste and aroma:** chlorine, organic compounds, and other impurities can compromise the flavor of beer, soft drinks, dairy, and processed foods.
- **Microbiological risk:** poor water quality promotes biofilm growth, equipment fouling, and process contamination.
- **Operating costs:** frequent filter changes, unplanned downtime, and waste handling drive up costs and cut into efficiency.



# Solutions for Water-Critical Operations

- Breweries, maltings, dairies, soft drink producers, and bottled water plants.
- Fruit and vegetable processors, and meat processing plants.
- Food processing operations with high water consumption.
- Operations with in-house wastewater treatment or high wastewater costs.
- Every operation has a different water profile. That is why we don't start with an off-the-shelf filter — we start by assessing the actual water, process, costs, and end use.



RAW WATER  
CLEAN INPUT WATER

# Two Paths, One Goal: Water Under Control

## ACDeC FOOD

- ACDeC FOOD — water treatment for production: for feed, process, or utility water where taste, stability, microbiological safety, and product quality are critical.

## AC Malt

- AC Malt — recycling of process water and wastewater: for streams that currently go to drain but can be reused — after appropriate polishing — where quality, hygiene, and end-use requirements allow.

- Not every water stream belongs in the drain. But not every stream can go back into production either. The decision comes down to analysis, technology, and hygiene requirements.



RECYCLED  
PROCESS WATER  
RECYCLED PROCESS WATER



# System Configuration by Water Type and End Use

The solution isn't a single universal technology — it's a combination of stages:

- 1 Water and process analysis** — water composition, volume, quality fluctuations, current costs, and end use.
- 2 Pre-treatment** — mechanical pre-filtration, removal of coarser impurities, equalization tank, and pH adjustment if required.
- 3 Ceramic ultrafiltration** — removal of turbidity, suspended solids, and microbial load; a robust physical barrier.
- 4 ART CARBON® adsorption** — advanced polishing with carbon nanotubes: removal of organic compounds, off-tastes, off-odors, and micropollutants.
- 5 Monitoring and quality control** — verifying output parameters against end-use requirements.
- 6 Reuse or safe discharge** — technical applications, auxiliary processes, recycling, or reduced load on the downstream WWTP.

# The Patented Adsorption Power of Carbon Nanotubes

- ART CARBON® uses the distinctive structure of carbon nanotubes: contaminants adsorb on the readily accessible outer surface. Adsorption is significantly faster than with conventional granular activated carbon (GAC).
- Fast kinetics mean a smaller filter bed — the same effect in a smaller volume, with a smaller on-site footprint.
- Effective at very low micropollutant concentrations, with regenerable media and low pressure drop when properly designed.
- Preserves the water's natural minerals, unlike blanket reverse osmosis.
- Actual performance depends on inlet water quality, contact time, flow rate, and operating conditions.





# ACDeC FOOD: When Water Affects Taste, Stability, and Brand

A solution for operations where water is a direct or indirect component of product quality. The goal: stabilize water quality, reduce unwanted effects on taste and aroma, and eliminate operational issues caused by contaminants, microbial growth, or frequent filter maintenance.

- More consistent water quality
- Protected product taste and aroma
- Less biofilm and fouling
- Lower maintenance overhead

Technical parameters: 4 bar operating pressure (with pressure booster) | food-grade stainless steel | DN50/d40 inlet and outlet flanges | multi-tray column with slotted screens and regeneration ports on each tray.

# AC Malt: Wastewater as a Second Chance

Food processing generates water streams — process water, steeping water, rinse water — that after appropriate polishing can be reused. The goal is not to promise universal recycling of every stream, but to identify streams where recycling makes technical, hygienic, and economic sense. Example — steeping water recycling in a malting:

- 1 TK1A/B (min. 35 m<sup>3</sup>): collection tank for filtered steeping water, aerated and inoculated with a bacterial culture to reduce BOD<sub>5</sub>.
- 2 TK2 (10 m<sup>3</sup>): CTR bioreactor with aeration, supplementary heating in winter if required.
- 3 Ceramic ultrafiltration with automatic CIP → TK3 (5 m<sup>3</sup>) → ART CARBON® polishing → TK4 (15 m<sup>3</sup>) clean water for distribution.



# Want to know if water recycling or treatment pays off for your operation?

- 1 Send us basic details about your operation, water volumes, and how you currently manage water.
- 2 We'll prepare an initial techno-economic assessment with recommended next steps and projected benefits.
- 3 I want an assessment for my food processing operation.

**DANIEL-LM s.r.o.** / AquaTech NorthBohemia Division | [info@aquananotech.eu](mailto:info@aquananotech.eu) | [www.aquananotech.eu](http://www.aquananotech.eu)

|                  |                     |
|------------------|---------------------|
| +420 777 321 846 | (Management)        |
| +420 777 919 877 | (Technical Support) |
| +420 773 992 321 | (Sales)             |
| +420 730 330 353 | (Export Sales)      |

