

Case Study for the Soft Drink Industry: CIP with NADES



Customer example

Our customer is a manufacturer of a full range of sparkling carbonated beverages and still flavoured and non-flavoured water and represents a multinational operation with more than 70 plants in 28 countries.

Initial situation

The customer identified the need to improve the cleaning and sanitation processes in the plant and to take advantage of any potential savings from utilities and line utilization through time saving.

In addition, the requirement was to demonstrate the maintenance of the biocidal performance whilst not being detrimental to the processing plant or the product.

The existing CIP system serves approx. 36 tanks. Each tank holds a gross volume of 90 - 360 hectolitres. There are over 6,000 CIPs per year and up to 25 different recipes. Conventional disinfection was undertaken through hot sanitation.

Scope of tasks

1. Pre-plant survey to assess the viability and potential benefits of ECA on location
2. Definition of Key Performance Indicators
3. Installation and implementation of device and periphery
4. Internal / external analysis of possible sensory detrimental effects to the product [e.g. SGS Fresenius]
5. Customized corrosion test according to DIN/EN 50 905 (alternative immersion test) and Pitting Corrosion Resistance of Stainless Steel (ASTMG61)
6. Validating the parameters and optimizing the recipes
7. Training of all involved personal in CIP, syrup-room, quality department and technicians

Technical Data

DS-Device: aquagroup AG
Type of pump: Circulation Pump
ECA-Tank: 3,000 litre
Peripherie: Module

Parameter:

Medium used:

Customer pre-requisite:

3-4 ppm FAC Solution
[no trace in last rinse]
Biocide Registration
24/7 Service-Hotline
turn-key one source

Key Performance Indicators

Category	CIP	Criteria	Result
Cleaning performance/MiBi Index	MiBi Index equal or better than before introduction of NADES TVC: < 100 cfu / 100 ml Coliform: 0 cfu / 250 ml Yeast and Mold: < 5cfu/100 ml		Achieved ✓
Reduction of cleaning time	> 20% reduction in cleaning time		Achieved ✓ 48% reduction 2,502 hours
Reduction of water consumption	> 20% reduction in water consumption		Achieved ✓ 42% reduction

Pre-requisites Programm

- a 9-month analysis of the microbiological results in the CIP was compiled and used as a base line for references purposes
- all testing was undertaken by experienced plant personnel
- the microbiological testing methods complied with the requirements and specifications as set by the customer Head Office and agreed upon by the project team
- during the installation and validation period there was no disruption to production in the factory
- the installation was undertaken in accordance with the Legal and Health and Safety Requirements of the country
- ECA proven not to have any corrosion-accelerating effect in the recommended dosage under normal operating conditions

Your experience and our expertise

Benefits at a glance!

- The hygiene status could be maintained or even improved comparing to the previously used CIP-procedures
- Reduction in energy used (both electrical and thermal)
- Complete System Optimization, including caustic reduction, dosage, temperature and time
- Achieved 42 % saving in water usage
- No flavour carry-over
- Allowing more efficient line utilization: annual latent system line efficiency increase of 3.23%

	annual time					total
	filler			tank		
recipe	300	302	304	301	303	
with NADES [hrs]	640	614	282	536	686	2758
former recipes [hrs]	779	911	432	2128	1011	5260
saving potential	18 %	33 %	35 %	75 %	32 %	
with NADES [hrs]	1536			1222		
former recipes [hrs]	2121			3139		
saving potential	28 % [585 hrs]			61 %		48 %

- Standardization of the CIP recipes from a complex 25 recipes to a simplified 5 main recipes; the controlling PLC amendments were internally programmed with our experts through a parameter change rather than a software change by an external company.
- Reduced storage or handling of hazardous good
- Opportunities for multiple applications

The NADES effect

Savings

- Cost savings
- Time savings
- Reliable hygiene
- Resources savings

Turn Key Approach – hand in hand

- Extensive CIP expertise and support
- Effective integration into CIP operations
- Engineering support
- Continuous and consistent monitoring and control
- 24/7 service hotline
- Complete coverage throughout EMEA