

# Cleaning optimization OptiCIP®: Reduce cleaning time and production costs

Cleaning in Place (CIP) is one of the most frequently used, but also one of the most overlooked unit-operations within the food industry. Do you want to determine whether your cleaning processes can be improved?

NIZO food research assists you in increasing food safety and sustainability, while reducing product losses, water and energy use and cleaning times.

Team up with NIZO and together we will bring your CIP-system up to the next level!

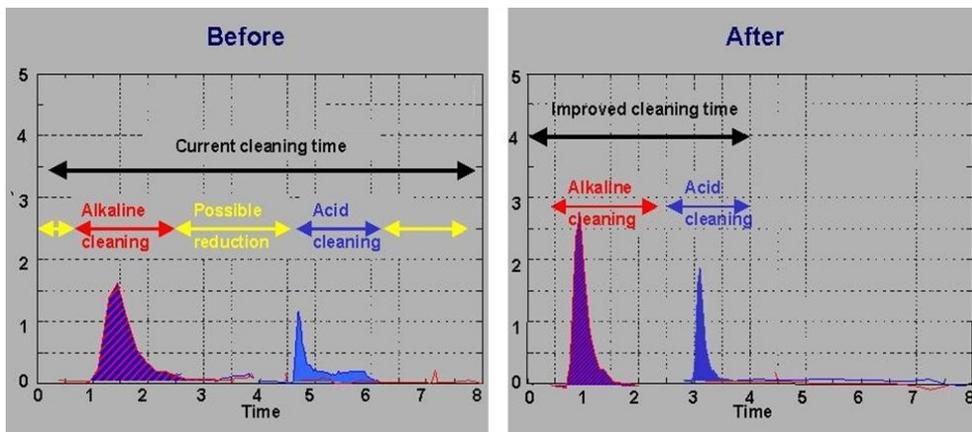
## What:

Optimize your Cleaning in Place (CIP). Aim at minimum cleaning time and lowest cost.

- Reductions in cleaning time of up to 30%
- € 50.000 to € 250.000 earnings

## The NIZO approach/ OptiCIP®:

- Audit the current situation of your system.  
*Assessment of your system, including processing conditions and removal of fouling.*
- Estimate the potential for improvement.  
*Go / No go decision based on NIZO's proven knowledge and experience.*
- Optimize the cleaning procedure together with you.
- Implementation & evaluation.



*Example before and after optimization: the peaks are higher and narrower, meaning that alkaline and acid cleaning is done more effectively and in a shorter time span resulting in substantial cost and time savings.*

# Monitoring the CIP-parameters

The cleaning cycle consists of several alternated phases: rinsing and then flushing with different cleaning liquids at certain temperatures. The sequence is the so called 'CIP-recipe'.

The key parameters:

- *Temperature* - the temperature of the cleaning media used during the process
- *Turbulence* - flow rate measurement (as measure for shear rate – mechanical action)
- *Titer* - conductivity measurement to determine the concentration of cleaning liquid during the process
- *Time* - the duration of each step in the cleaning process
- *Turbidity* - turbidity measurement to monitor fouling layer removal

The first 4T's are the parameters measuring the *processing conditions* in the cleaning cycle. The fifth 'T' (turbidity) controls the *quality of the cleaning*.

The monitoring can be done either off-line or on-line.

## Off-line measurements

Data is collected from your system and samples are taken manually.

This procedure is applicable for stand-alone systems and for most optimization activities on a project basis.

## On-line and Continuous monitoring – NIZO/Schneider approach

Continuous monitoring of the cleaning cycles can also be executed automatically. NIZO is partnering with Schneider Electric, who have developed a tool that will be connected with the process automation system of your production facility. This tool measures and automatically displays the key parameters.

**Together we deliver traceability and facilitate optimization of your CIP.**

For more information, please contact:

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