

Cleaning 4.0 – News from Membrane Cleaning

Ensuring flawless dairy products is the speciality of Horpovel® GmbH. As experts in the manufacture of cleaning and disinfecting products for the dairy industry, its focus is set on cleaning membrane filtration systems.



Horpovel® GmbH, manufacturer of membrane cleaning agents and cooperation partner of Koch Separation Solutions*, has been involved in the development and furthering of cleaning chemicals and strategies for the cleaning of membrane filtration plants in the food industry as well as the optimisation of CIP plants and standard cleaning processes for more than 25 years.

The driving force for Horpovel® GmbH is the implementation of a solution for resource-saving, effective and repeatable cleaning that is adapted to the respective application.

In addition to the further development of own cleaning strategies with simulation of the process on a laboratory scale, new cleaning processes for membrane systems can also be tested in laboratory trials for their cleaning success and membrane compatibility.

On this basis, Horpovel® GmbH was able to test a two-step cleaning strategy for various ultrafiltration processes in the field of ultrafiltration cleaning, for example, and later implement it on an industrial scale.

As a result, the cleaning time of the tested ultrafiltration systems could be reduced by up to 20 % and the amount of rinsing water by up to 33 %. In the example mentioned, the cleaning time was under three hours.



New CIP-Inline-analysis-technique for Membrane Systems

In addition, Horpovel® GmbH uses the latest CIP inline analysis techniques to further optimise existing processes.

In collaboration with ALPMA/LTH Dresden, Horpovel® GmbH has developed a CIP inline analysis tube. This analysis tube

can be installed in various cleaning processes with little technical effort in order to record the parameters for optimising the cleaning steps and rinsing phases in real time for a corresponding observation period.

In contrast to manual sampling for analyses or for the adjustment of rinsing phases, it is thus possible to record a large number of parameters exact to the second.



Photo: Koch Separation Solutions

This data acquisition option further makes it possible to record any fluctuations in the controlled area. A defined period of two weeks on average is set for this control segment.

The newly introduced cleaning concepts also provide a sustainability effect. The Horpovel® additive system (see technical article on www.horpovel.de/press/) can achieve a reduction in transport volumes of up to 25% and thus save CO₂.

Horpovel® GmbH currently introduces a new cleaning concept that is intended specifically for ultrafiltration membranes designed or suitable for high-temperature cleaning. The advantage of this new cleaning concept: It makes the addition of a single additive to the raw material components caustic soda and nitric acid in the application solution possible, if the technology is available in companies.

The reduction thus achieved in hazardous material storage and chemical supply speaks for itself. Not to be neglected is the cost saving that results from dispensing with the ready-made cleaning agents.

In addition to cost reduction and the reduced wastewater load, the Horpovel® additive system offers advantages both in the area of membrane cleaning and in general CIP cleaning. On the one hand, with the help of the additive system, it is possible to adapt the cleaning solution exactly to the existing fouling and technical conditions. On the other hand, additives can also be used in higher concentrations that are not stable in acidic or alkaline raw materials.

The market launch of the further developed enzyme generation in the cleaning concepts generated a reduction of enzyme consumption by up to 30 % and enzymatic cleaning times by up to 20 %.

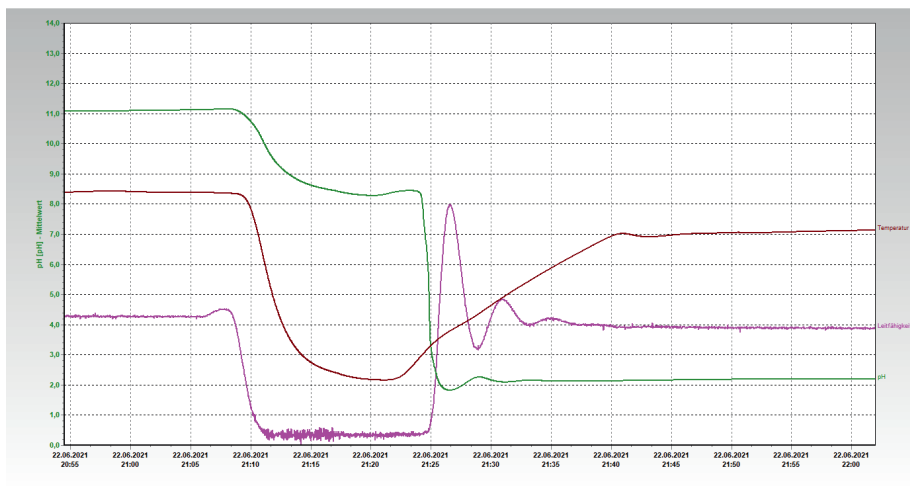


Image: Example curve analyser tube.

New phosphoric acid-free cleaning agent

In addition to the latest generation of enzymes, Horpovel® GmbH was also able to successfully launch the new, phosphoric acid-free cleaning agent for MF, UF, NF and RO plants.

By using the newly developed product (compared to many products containing phosphoric acid and low in nitric acid), a quantity saving of up to 25 % in the cleaning solution could be achieved.

At the same time, the introduction of the phosphoric acid-free product has led to a significant reduction in wastewater pollution from cleaning agents. The product therefore has no effect on the operational wastewater in terms of P input.

Horpovel® GmbH considers itself not only a manufacturer and supplier of cleaning agents and disinfectants, but also as a service provider in the field of cleaning and disinfection.

The company will be happy to advise you on cleaning concepts and hygiene monitoring, especially in combination with the persulphate technology used. With this technology, it is possible to detect the smallest organic residual contamination. Due to the high oxidation power of persulphate technology, it is also possible to detect biofilms.

Horpovel® GmbH also provides comprehensive staff training on cleaning-related topics. This can take place both within the framework of training courses held personally in your company, and as online training via our "e-Learning" training portal (to be found on homepage www.horpovel.de/e-learning/).

The training portal provides, among other things, training on the topics of haz-

ardous substances and hygiene as well as special presentations on CIP and membrane cleaning.

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