

Low-chloride and low-chlorate disinfection – effective and safe

Economical disinfection with DULCO®Lyse



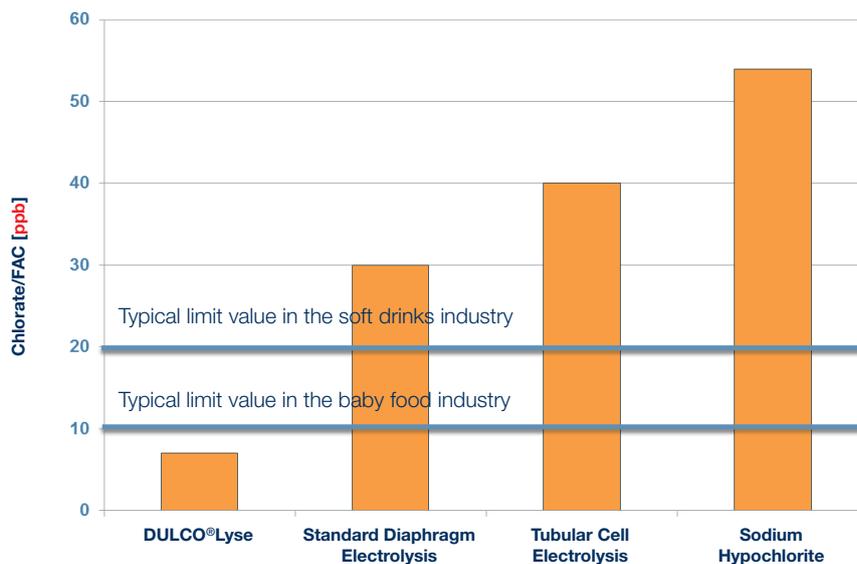
Minimal chlorate content with maximum effectiveness



With ready-to-use disinfectants, the chlorate content can more than double depending on the ambient temperature and storage period. By contrast, the amount of DULCO®Lyt 400 required is produced on site and metered directly into the process. The disinfectant is thus not exposed to temperature fluctuations and is not affected by long periods of storage.

Moreover, unlike other disinfectants produced by electrolysis, the chlorate concentrations of DULCO®Lyt 400 are many times lower. Less than 0.01 ppm (10 ppb) of chlorate is produced when metering 1 ppm of FAC (Free Available Chlorine).

It has also proved to have an optimum and reliable bactericidal, viricidal and fungicidal disinfection effect.



“Harmful substances found: one product fails”

“Chlorate. Testers found a substantial amount of chlorate in a further sample of milk. It can enter the product from the disinfectants dairies are using and prevent iodine being absorbed by the thyroid glands.”

“Substances harmful to health found in some colas”

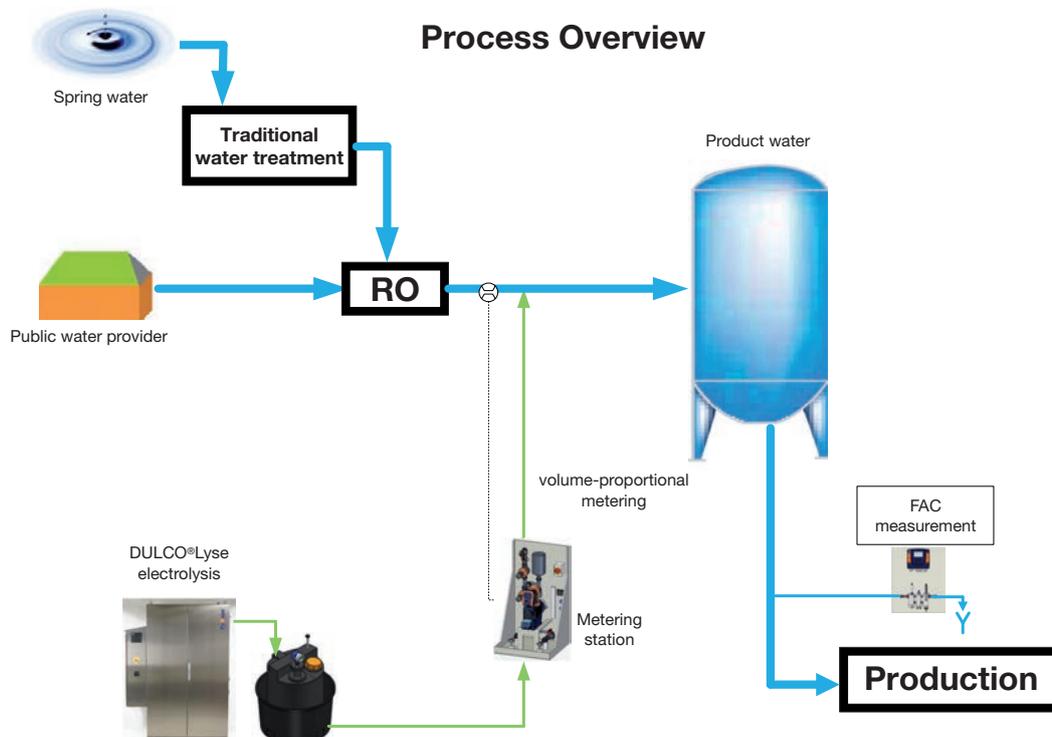
“Some colas contain substances harmful to health, such as chlorate, which may originate from residues of cleaning agents and disinfectants.”

Source: Warentest Foundation, test.de

Minimisation of chlorine content in the product water thanks to optimised process control

Soft drinks, dairy products, baby food and fruit and vegetables often reveal excessive concentrations of chlorate. Chlorates are salts of chloric acid, which can be harmful to the health of humans: higher absorption of chlorate can lead to the membranes of red blood cells being destroyed. The World Health Organisation (WHO), the European Food Safety Authority (EFSA) and also the US Environmental Protection Agency (EPA) have been drawing attention to the harmful effects of higher quantities of chlorate on health

and publish recommended limits in their reports. According to Directive (EC) No. 396/2005, a maximum content of 10 ppb of chlorate/kg is recommended for plant-based foods, 25 ppb of chlorate/kg for vegetables and 20 ppb of chlorate/kg for carrots. The chlorate issue is also intensively discussed in the beverage and dairy industry, as publications from the Warentest Foundation in 2016 illustrate.



Integration of DULCO®Lyse into the entire process

Electrolysis system DULCO®Lyse

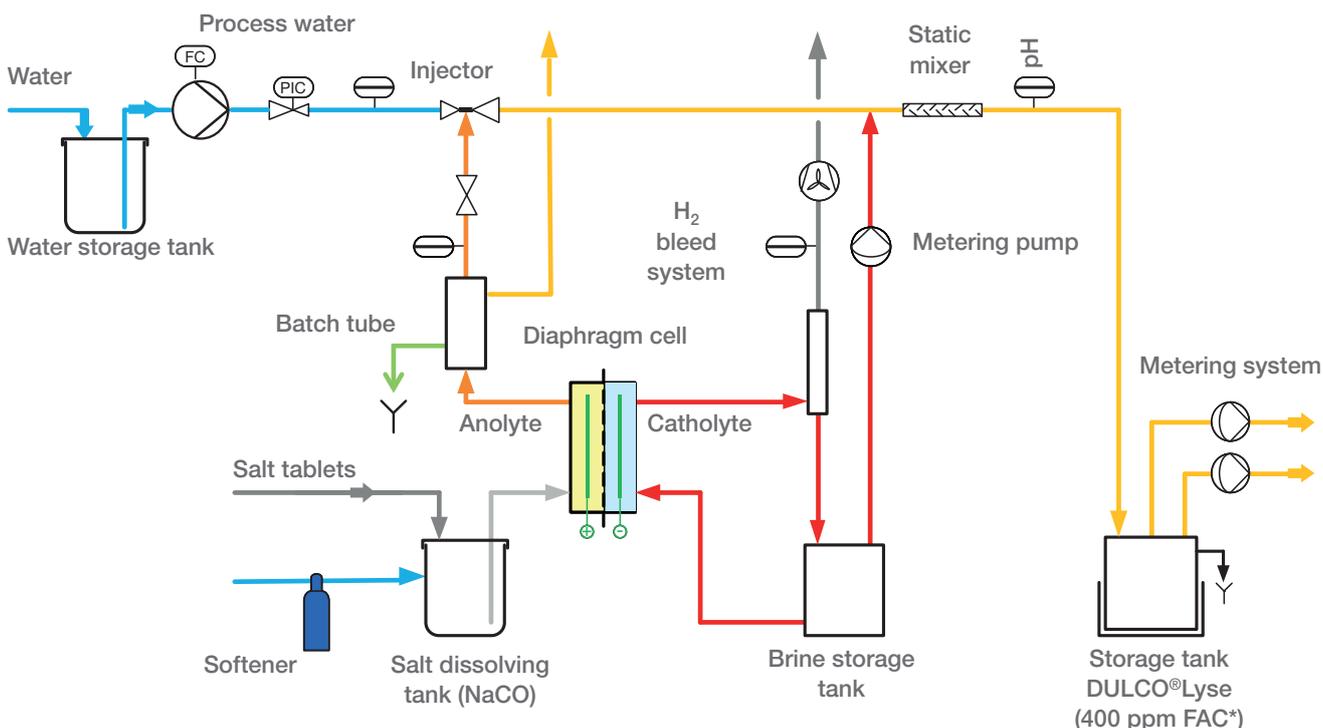
Innovative disinfection

Technical solution: the diaphragm electrolysis process DULCO®Lyse

The system generates the highly effective disinfectant DULCO®Lyt 400 from sodium chloride and water. Absolute reliability is guaranteed by ensuring consistent parameters within the process, while the concentration of the disinfectant always remains stable. DULCO®Lyse produces precisely the quantity of disinfectant needed for immediate use, thereby avoiding long storage periods, during which chlorate can form, and also obviating the need for large storage tanks.



DULCO®Lyt production with extremely low chloride content



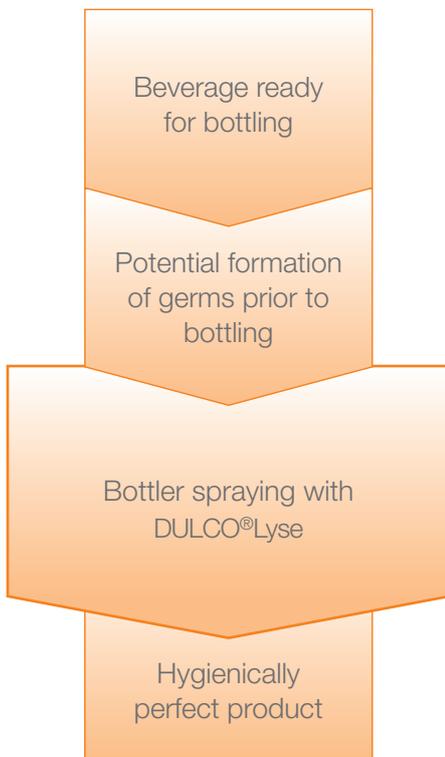
*FAC: Free available chlorine

Bottler spraying

The environmentally-friendly disinfection system



Disinfection with added value



Increasing consumer expectations and growing competition is forcing soft drinks manufacturers to produce high-quality products more economically – a trend that is being additionally intensified by the boom in organic beverages. Purification plays a key role in beverage production processes. Extremely high demands made on the shelf-life and flavour of products in the beverage industry can now be ideally satisfied thanks to the use of electrolytically produced disinfectants (DULCO®Lyt). This applies equally to bottler disinfection as well as to CIP (cleaning in place).

The ProMinent electrolysis system DULCO®Lyse offers a convincing set of advantages in terms of this:

- Shorter cleaning times
- Safe on-site production of DULCO®Lyse
- Cost savings thanks to avoidance of preservatives in the bottling process

Last but by no means least, DULCO®Lyse also fulfils the extremely high demands of ProMinent's "Smart Disinfection" concept, as an economical, environmentally-friendly and safe alternative to conventional disinfection methods.

Low Impact

- Gentle on people, machinery, and your product

Less Cost

- Cost savings with preservatives and chemicals

High Efficiency

- Reduced water consumption and time saving

Cost-efficient disinfection with CIP saves time and energy

DULCO®Lyse with CIP: safe and environmentally friendly

Optimum plant availability as well as chemical and energy savings are decisive factors for the beverage industry in terms of considering new methods for CIP cleaning processes. It is essential to find and use new technologies for improving of the overall process. The use of DULCO®Lyse offers users clear advantages for this:

DULCO®Lyse – economical and environmentally-friendly disinfection

Electrolysis systems of series DULCO®Lyse are ProMinent's answer to the increased demands made on CIP processes.

Hygienic, efficient and safe – the use of DULCO®Lyse offers clear advantages over conventional CIP methods in terms of cost and environmental friendliness:

- Environmentally-friendly, highly effective disinfectants
- Cost-effective production on-site from water and sodium chloride
- No storage requirements and no risks involved in handling chemicals
- No corrosion thanks to extremely low chloride content
- Energy savings as no hot water is required
- Significantly reduced water consumption due to shorter rinsing times
- Higher productivity thanks to shorter CIP cleaning cycles
- Additional use of sodium hydroxide solution produced on-site

CIP savings with DULCO®Lyse

Time	30–50 %
Energy	50–70 %
Costs	20–70 %

Technical Data DULCO®Lyse

Type	Production capacity	Production capacity	Concentration	Dimensions	Volume	
	g/h	22 h operation g/day				l/h
DULCO®Lyse 100	100	2200	250	400	2,100 x 1,200 x 600	130
DULCO®Lyse 200	200	4400	500	400	2,100 x 1,200 x 600	130
DULCO®Lyse 300	300	6600	750	400	2,100 x 1,200 x 600	200

A worthwhile investment with added value



“We reduce costs and protect the environment”

DULCO®Lyse systems, like the ProMinent DULCO®Lyse electrolysis system are increasingly coming to the attention of the beverage industry when looking for technologies for efficient, sustainable processes.

Increasing costs for cleaning agents and disinfectants, as well as for energy and water, are an unfortunate reality for many bottling plants. However, the example of one of the biggest German drinks producers, which operates a ProMinent the DULCO®Lyse system proves that this does not have to be the case. An existing bottling plant for soft drinks in PET bottles was fitted with a spraying system for DULCO®Lyse systems for this customer. The customer talks about his experiences in an interview.

What are the main advantages of an DULCO®Lyse system, in your opinion?

Customer: An extremely important point is, of course, the cost savings of up to 1.5 cents per bottled litre, which results from the reduction in preservatives as well as energy savings for hot water rinsing. An additional advantage is its ecological sustainability, as this is an extremely environmentally compatible and energy-saving process. The fact that chemicals no longer have to be transported additionally improves our company's life cycle assessment. Last but not least, we can also make use of the DULCO®Lyse process for marketing purposes – the ecological aspect is attractive to many consumers due to the fact that the bottling process requires no preservatives.

What difference does DULCO®Lyse make?

Customer: Definitely the low chloride content without any restrictions in terms of effectiveness. Comparisons show that the DULCO®Lyt from the ProMinent system has a significantly lower chloride content than the systems we had used previously.

Does the ProMinent DULCO®Lyse system offer any additional advantages?

Customer: The low energy and salt consumption is an additional selling point for ProMinent systems engineering.

That covers the systems technology aspect. What do you most appreciate about ProMinent?

Customer: In my opinion, ProMinent is a competent and reliable partner in all matters relating to demanding process technology. The company provides complete solutions covering everything from the installation of spray nozzles through to full integration of DULCO®Lyse systems into our bottling plant.

Contact worldwide



Ready for you. Anytime, anywhere.

ProMinent is at home in more than 100 countries across the globe. This guarantees the worldwide availability of our products and comprehensive expertise on the ground with short distances to our customers.

We offer the same high quality standards for our solutions and services all over the world. And we work day in, day out to keep our promise:
Ready for you. Anytime, anywhere.

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