

Complete range of disinfectants from a single source



> The disinfectant	> Our product	> The process	> The preferred application
Chlorine gas	Vaccuperm VGA-111/-113/-117 VGB-103 up to 10 kg/h 	Vacuum chlorine gas dosing	<ul style="list-style-type: none"> ▶ Drinking water: Independent water supply ▶ Waste water: Industrial waste water ▶ Public swimming pools
	Vaccuperm VGS 140 up to 200 kg/h 	Fully automatic vacuum chlorine gas dosing	<ul style="list-style-type: none"> ▶ Drinking water: Municipal waterworks ▶ Waste water: Municipal sewage purification plants
Onsite generation of sodium hypochlorite	Selcoperm SES up to 2 kg/h higher capacities on request 	Electrolytic chlorine production	<ul style="list-style-type: none"> ▶ Drinking water: Independent water supply ▶ Waste water: Industrial waste water ▶ Public swimming pools ▶ Marine - application specific
Chlorine dioxide	Oxiperm OCD-164 OCC-164 OCG-166 up to 10 kg/h 	Chlorite / hydrochloric acid (diluted or concentrated) or chlorite/chlorine	<ul style="list-style-type: none"> ▶ Drinking water: Municipal waterworks ▶ Food and drinks industry: Brewing water, bottle washing, CIP systems, etc. ▶ Cooling circuit water
	Oxiperm OCD-162 up to 60 g/h 	Chlorite / hydrochloric acid (diluted)	<ul style="list-style-type: none"> ▶ Drinking water: Hotels, hospitals, retirement homes, protection against legionella ▶ Shower facilities in swimming pools ▶ Cooling circuit water ▶ Commercial buildings

Water is life
Disinfection is health



++++ chlorine ++++ chlorine electrolysis ++++ chlorine dioxide ++++

Chlorine gas



Vaccuperm
Chlorine gas systems



Chlorine

Selcoperm
Onsite generation



Chlorine dioxide

Oxiperme®
Chlorine dioxide systems



Chlorine – the no. 1 disinfectant worldwide

Chlorine has been used to treat drinking water for more than 75 years. Thanks to its high safety standards, it is the most widely used disinfectant worldwide:

- When dissolved in water, the actual disinfectant – hypochlorous acid (HClO) – is produced
- HClO is most effective at a pH value around 5.

The most frequently used procedures are the following:

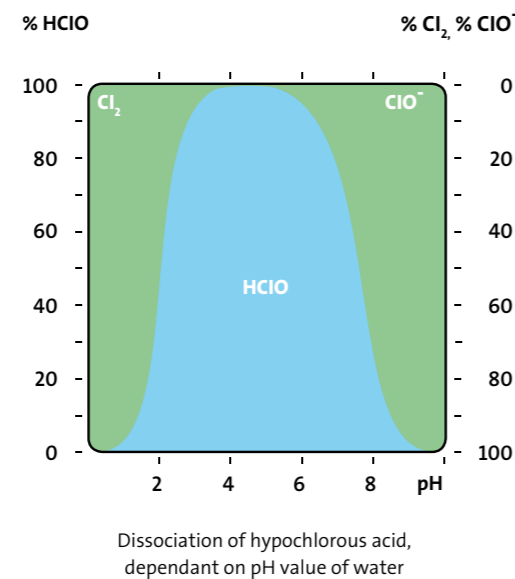
- Dosing of chlorine gas
- Dosing of liquid sodium/calcium chlorite solution
- Electrolytic production and dosing of sodium hypochlorite solution.

Dosing of chlorine gas

Vaccuperm gas dosing systems work in accordance with the tried-and-tested full-vacuum principle, which regulates the addition of gaseous chlorine reliably and precisely.

Our product range is extensive:

- Compact units of up to 4 kg/h for installation on cylinders
- Fully automatic high-performance system of up to 200 kg/h.



Electrolytic production and dosing of sodium hypochlorite solution

Grundfos Water Treatment Selcoperm electrolyzers produce sodium hypochlorite electrolytically, directly from a solution of common salt using electricity.

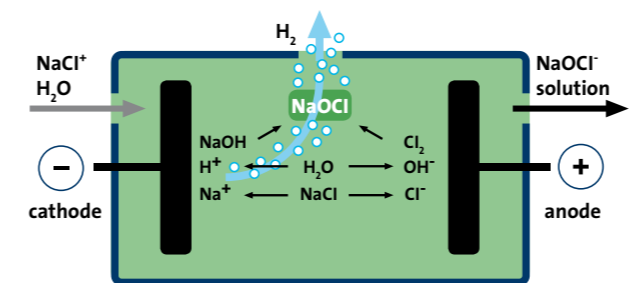
In the electrolytic cell, caustic soda solution, chlorine and hydrogen are generated. The chlorine produced reacts immediately with the caustic soda solution, resulting in a sodium hypochlorite solution, which is the disinfectant. The solution generated has a pH value between 8 and 8.5, and a chlorine concentration of less than 8 g/l.

- Offers health and safety benefits for operators.
- With no expenditure required on safe transport of the disinfectant, and its storage and handling being easy, operating costs remain low.
- Peaks in demand can be handled effortlessly, because the disinfectant generated is very easily stored in buffer tanks for long periods of time.

The disinfectant is dosed from the buffer tank directly into the piping system with a dosing pump.

Selcoperm standard systems are available for capacities of 125, 250, 500 1000 and 2000 g Cl₂/h. Higher capacities are possible on demand.

Selcoperm Pro systems are available for capacities of 25 or 50 g Cl₂/h.



Generation of sodium hypochlorite solution in an electrolytic cell

Chlorine dioxide – effective even against biofilms

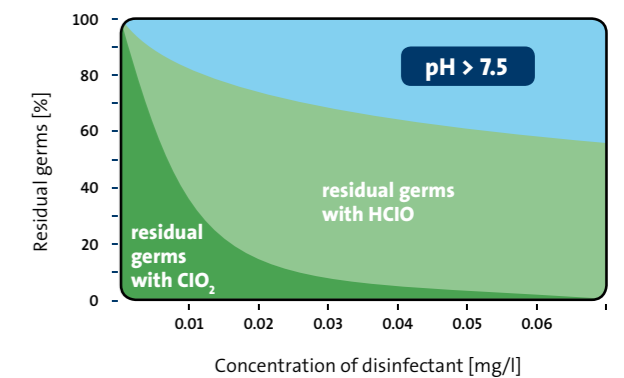
In the past few years, the demand for Grundfos Water Treatment Oxiperme® chlorine dioxide generators has increased dramatically. On the one hand, this is because chlorine dioxide is an extremely long-lasting and effective disinfectant:

- Even relatively small quantities of chlorine dioxide display high disinfecting properties against all critical and chlorine-resistant germs, almost regardless of the pH value
- Chlorine dioxide can be used to successfully reduce the formation of biofilms in water pipes. This removes the life source for harmful germs such as legionella, which has a significant impact on the durability of the disinfection.

On the other hand, our Oxiperme® chlorine dioxide generators are outstandingly easy to use. Other important factors include:

- The effective interplay of precise dosing technology, an ideal mixture of components, quick chemical reactions with maximum conversion rates.
- Outstandingly reliable and effective disinfection, which

saves time and operating costs. The compact Oxiperme® Pro OCD-162 has been developed for applications in building services. This disinfection system is specifically designed for fighting Legionella in drinking water installations.



➤ Vision for water technology

In line with our mission statement, we at Grundfos Water Treatment rely on our many years' experience and comprehensive range of products and systems to provide continually innovative solutions. This enables us to be up to all important tasks in water treatment:

- Treated **waste water** must be pumped back into the natural circuit without any danger of contamination.

- Sufficient quantities of **industrial water** that is suitable for processing should be available at all times.
- The quantity of the disinfectant in **swimming pool water** has to be regulated precisely – depending on the type of pool or the number of users.
- The chief objective of water treatment is to provide safe **drinking water** for everybody in the world.

➤ Disinfectant	➤ Features	➤ How you benefit
Chlorine	<ul style="list-style-type: none"> ➤ Low-cost chemicals ➤ Proven procedure worldwide ➤ High safety standards 	<ul style="list-style-type: none"> ➤ Chemical cost savings ➤ Process and operating cost savings ➤ Reliable and safe disinfection process
Chlorine dioxide	<ul style="list-style-type: none"> ➤ Sustained release action ➤ No formation of biofilms in pipes ➤ Highly effective against all germs ➤ No AOX/TMH formation 	<ul style="list-style-type: none"> ➤ Low level of chemical consumption, long-lasting disinfecting effect ➤ No additional disinfecting procedure required ➤ Highly effective disinfectant that avoids reinfection with germs ➤ No effect on odour or taste

➤ System	➤ Features	➤ How you benefit
Vaccuperm	<ul style="list-style-type: none"> ➤ Reliable full-vacuum method with chlorine gas ➤ Very straightforward handling an operation 	<ul style="list-style-type: none"> ➤ Reliable disinfection process ➤ You save time and therefore running costs
Selcoperm	<ul style="list-style-type: none"> ➤ Generates chlorine on site according to your requirements ➤ Requires only salt, water and electricity 	<ul style="list-style-type: none"> ➤ You save on transportation and storage costs ➤ Low-cost generation of your disinfectant
Oxiperme	<ul style="list-style-type: none"> ➤ Innovative dosing and calibration technology ➤ Complete chemical reaction in a minimum of time 	<ul style="list-style-type: none"> ➤ Always the optimum solution for your specific application ➤ Reduced taste & lower THM formation of Cl₂