

envirolyte[®]

INNOVATING FOR A BETTER WORLD



**DesiStation-120 – generator
of hypochlorous acid (HClO)**

On-site hypochlorous acid generator



Front view

Cleaning, sanitizing, and disinfecting products are used throughout the world on a daily basis, both in homes and in commercial settings. The use of these products has always posed a threat to consumers and to our environment. Regulatory authorities, including EPA, have issued repeated warnings about the toxic chemical-based products in use and have recommended looking for greener alternatives. Every year that passes sees more damage to the eco-system from the use of these products, and without making some drastic changes in the products we use, we will continue to damage the environment and pose health threats to consumers.

There is a viable option that gives us a safe cleaning option and non-toxic sanitizing capabilities. It's called electrolyzed water for disinfection and cleaning (also known as hypochlorous acid - HClO or Anolyte), or on-site generation technology.

On-site generation technology lets us create powerful cleaners and sanitizers capable of killing 99.999% of common germs in less than 60 seconds, including Listeria, MRSA, Staph, VRE, Pseudomonas, Norovirus, H1N1, Salmonella, and E.coli O157:H7 bacteria. Hypochlorous acid is a part of this process.

The Envirolyte DesiStation-120 is a stand-alone, on-site device optimized to produce hypochlorous acid at consistent HClO concentration, using Envirolyte technology. The systems convert salt, water and electricity into

an effective solution that can substitute for a number of conventional chemicals used on a daily basis.

Reliability

Envirolyte DesiStation-120 produces HClO from the electrochemical reaction of water, salt and electricity. Envirolyte has profound experience in designing and manufacturing of on-site generators, using our patented cells and time-tested components.

When supply chains are stretched thin, having the ability to produce your own sanitizer and disinfectant at your facility means you no longer have to rely on third party suppliers. Raw materials for the production of HClO are easy to find and readily available from your local hardware stores. Producing hypochlorous acid on-site saves time and money. Why rely on supply chains for your

sanitizing and disinfecting needs, when you can produce all the sanitizer you need, on-site, on-demand and at low cost.

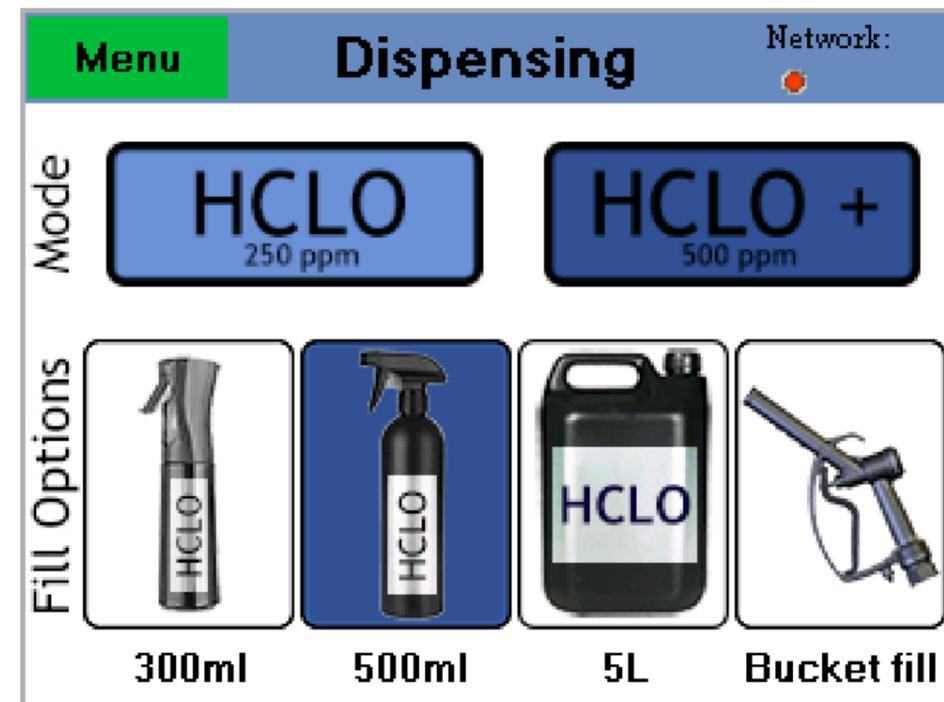
Provides the method to decontaminate easily without:

- Monthly Deliveries
- Dilution
- COSHH Administration
- HClO Cleans & Disinfects All-in-One removing a process

Operational details

The Envirolyte DesiStation-120 generator produces active chlorine in the form of HClO at 500 ppm and 250 ppm with 300ML, 500ML, 5L or continues production outputs. The system utilizes flow, pressure, brine concentration sensors and level switches to automate the production process.

Whenever you may require the solution, the system can be launched instantly to start production. The Envirolyte DesiStation-120 system utilizes scale control, so cleaning of the cells is done on need-to-do bases.



Interface of DesiStation-120 generator

Production cost

Envirolyte DesiStation-120 requires very little raw materials to produce HClO and can generate a liter of the solution for less than 1 cent. Compare that with the cost of sanitizing and disinfecting solutions purchased each month for your facility.

- Small footprint, easy to install and operate with minimal maintenance hours required
- Remote monitoring and control capability helps ensure optimal operation and reduced time on-site
- Systems optimized for ease of use, reliability, and performance
- Pre-assembled and factory tested package ensures simple installation and small footprint

The on-site generation of hypochlorous acid provides a safe, economical, and effective solution for the disinfection of surfaces, materials, equipment and furniture. Usage areas include, inter alia, swimming pools, aquariums, bathing and other waters; air conditioning systems; and walls and floors in private, public, and industrial areas and in other areas for professional activities. For a variety of applications from human hygiene purposes to microbiological control in food processing and cooling towers, on-site generation lets you generate the chemistry you need when you need it. This powerful and highly effective HClO solution is generated without creating or transporting hazardous chemicals, ensuring the safety of personnel and the surrounding community.



Side view

Benefits of HClO

COMPARATIVE ANALYSIS: HClO VS. CHLORINE

Efficacy Against Pathogens

HClO: Electrochemically activated solutions, containing hypochlorous, is effective against a broad spectrum of pathogens, including bacteria, viruses, fungi, and spores. HClO is especially potent at low concentrations due to its ability to penetrate microbial cell walls effectively.

Chlorine Disinfectants: Traditional chlorine is effective against many pathogens, but its efficacy can be influenced by factors such as pH, temperature, and the presence of organic matter.

Safety and Environmental Impact

HClO is safer for human contact and the environment compared to traditional chlorine. HClO is non-toxic, non-irritating, and does not produce harmful by-products. On-site generation of HClO reduces risks associated with storing and transporting hazardous chemicals. Chlorine can cause respiratory irritation, coughing and severe lung damage if inhaled. Chlorine degrades relatively quickly in the environment and forms chlorite and chloride ions, however these by-products also they may be less harmful requires careful management.

Cost and Convenience

HClO's on-site production offers cost advantages by eliminating the need for purchasing, storing, and transporting traditional disinfectants. This approach ensures a continuous supply of fresh disinfectant, maintaining its effectiveness over time.

While chlorine is readily available and relatively inexpensive, the costs associated with its safe handling, storage, and potential environmental remediation can be significant. Additionally, chlorine solutions degrade over time, which can reduce their effectiveness.

Contribution to Antimicrobial Resistance (AMR)

The rapid and non-specific action of HClO in the Electrochemically activated process reduces the likelihood of contributing to antimicrobial resistance. Mainly due to its pH neutral charge, it carries a completely different charge than pathogens because HClO has a neutral charge compared to pathogens who have a negative charge. So it means that having any resistance would be very unusual, as they get attracted to each other having opposing charge and HClO breaks down the pathogen cell very fast.

Chlorine Disinfectants: The extensive use of chlorine has raised concerns about its role in antimicrobial resistance. Chlorine-resistant bacterial strains have been documented, particularly in environments with frequent chlorine use. This is due to its charge being same the negative charge as pathogens causing them to over time have resistance and the only way of mitigating this is to up the strength, but as seen in a number of hospitals, this causing more trouble, due to estates being damaged and further issues of resistance forming with higher concentrations.

PATHOGEN EFFECTIVENESS

Bacteria: HClO is effective against a wide range of bacteria, including common hospital pathogens like Escherichia coli, Staphylococcus aureus, and Pseudomonas aeruginosa. HClO disrupts bacterial cell walls effectively, even at low concentrations.

Chlorine Disinfectants are effective against most bacteria, though some strains, such as Mycobacterium, can exhibit resistance, particularly with lower concentrations.

Viruses: Chlorine disinfectants are effective against many viruses, though some efficacy can be compromised by organic matter, which may protect viruses from disinfection. HClO demonstrates stronger antiviral properties against both enveloped viruses (e.g. influenza, coronavirus) and non-enveloped viruses (e.g. norovirus).

Fungi: HClO is effective against various fungi, including Candida species, making it useful in environments prone to fungal contamination. Chlorine Disinfectants generally are effective against many fungi but often requires higher concentrations or longer contact times to achieve full disinfection.

Spores: Chlorine is moderately effective against bacterial spores, but higher concentrations and longer contact times are often necessary to achieve significant spore inactivation. Chlorine bleach, in particular, is used in higher concentrations for spore decontamination due to its strong oxidative properties. However, concerns about residue and environmental impact remain.

HClO is highly effective against bacterial spores, including Clostridium difficile, even at concentrations as low as 200 ppm. Despite the inherent resistance of spores to disinfectants, HClO demonstrates significant spore decontamination capabilities. Its efficacy in reducing spore viability makes it a powerful agent for spore control.

HClO provides significant benefits over traditional chlorine disinfectants, especially regarding safety, environmental impact, and broad-spectrum pathogen efficacy. HClO is a superior choice for most disinfection needs, particularly in hospital settings where safety and efficacy are critical.

By implementing well-designed disinfection protocols and ensuring proper use through training and monitoring, hospitals can significantly reduce infection rates and enhance overall health outcomes.



Back view

So what are the recommendations for Hospital Implementation?

Hospitals or similar facilities should install DesiStation-120 system which through electrochemically activation generates hypochlorous acid disinfectant and cleaning solution on-site. This ensures a consistent and fresh supply of decontamination solutions, reducing reliance on hazardous chemical storage and enhancing safety.

HClO is advantageous for its high efficacy and safety profile, making it suitable for frequent use in sensitive areas like operating rooms and patient care areas. Hospitals should implement protocols incorporating HClO for decontaminating surfaces, hand hygiene, and equipment sterilization. Regular monitoring and adjustment of disinfectant concentration is essential for optimal performance.

APPLICATION METHOD

Dispense

Using DesiStation-120 system, press a button and dispense into your bucket or bottle until filled.

Immerse

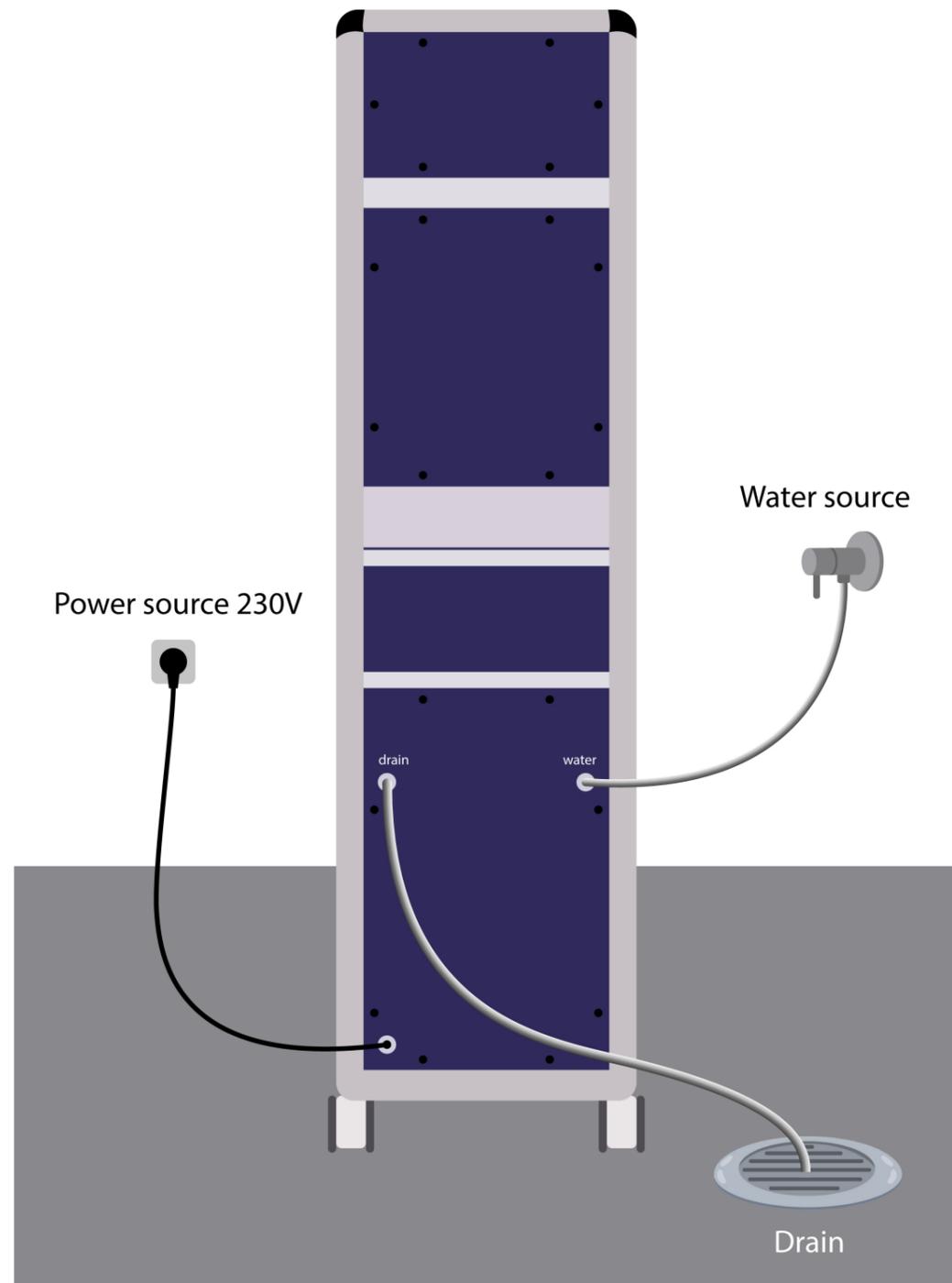
Take your cloth or mop and immerse it in the HClO solution.

Decontaminate

Taking the cloth or mop, clean and disinfect as a 2-in-1 process using the 'S' shaped method of wiping to ensure all the surface area has been touched by the HClO solution, so that the area has been decontaminated.

HClO represents advanced and effective decontamination solutions that offer a safer, more sustainable approach to infection control compared to traditional chlorine. Their adoption in healthcare environments is recommended to achieve higher standards of sanitation and improve patient safety.

Typical installation of DS system for in-site production of disinfecting fluid



Specifications of DesiStation-120

Anolyte (HClO) output	120 LPH
Anolyte concentration	250 ppm and 500 ppm
HClO outputs	- 300 mL at 250 ppm or 500 ppm - 500 mL at 250 ppm or 500 ppm - 5 L at 250 ppm or 500 ppm - continues production via gun dispenser
pH of anolyte	8-8,5
Power source	SMPS
Power consumption	<1000VA
Salt consumption	<1.8 g/l
Integrated brine tank (salt hopper)	+
Unitronics / Vision 570 PLC	Touch screen, multi color
Remote control capability (ethernet/Modbus)	+
Main water input valve	+
Mains water flow sensor	+
Mains water pressure sensor	+
Temperature control on the cell	+
Control of the brine concentration	+
Integrated cell flushing	+
Water softener	+
Pressure regulator	+
Water filter 20micron	+
Automatic flow adjustment	+
Water inlet	3/8"
Flush inlet	1/4"
Drain outlet	1/2"
Dimensions, HxDxW (mm)	1500 x 400 x 400
Weight	99 kg
Crated dimensions, HxDxW (mm)	1750 x 800 x 600
Crated weight	135 kg



Envirolyte Industries International Ltd.

Sarruse 16
13816 Tallinn
Estonia

Phone: +372 6626 630
Fax: +372 6626 631
E-mail: envirolyte@envirolyte.com

www.envirolyte.com