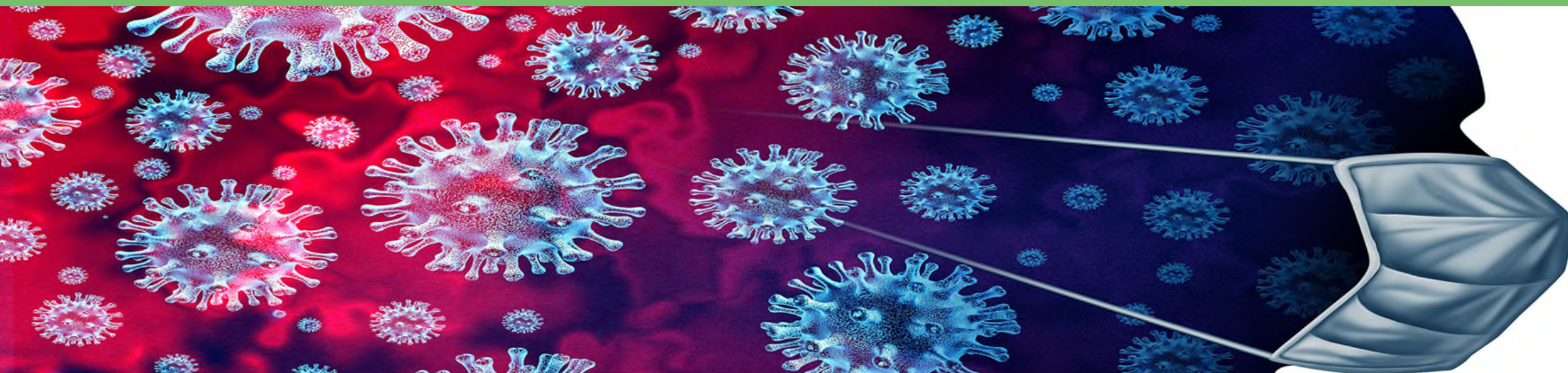


Onsite Hypochlorite (Bleach) Generation to Combat COVID-19

De Nora Water Technologies

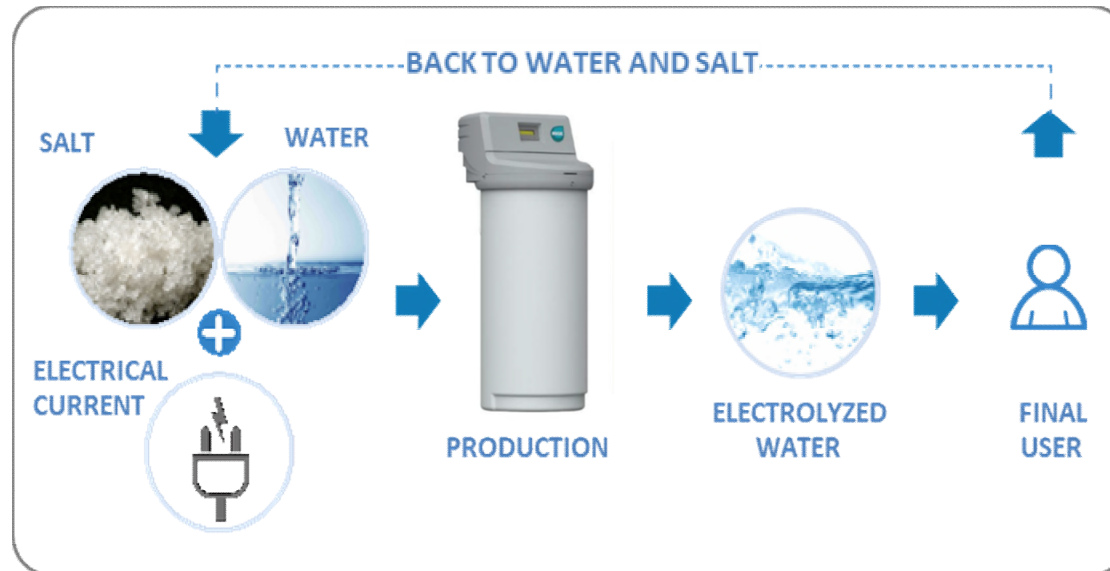


The “new normal” includes an elevated needs for disinfected surfaces



- ④ A New Reality – Elevated need & expectations for hard surfaces cleaning to combat viruses and infections
- ④ Empowering our customers - providing customers with an autonomous, self-sufficient supply of hypochlorite
- ④ Providing peace of mind - eliminating the fear of running out or facing supply chain issues.
- ④ A sustainable solution – no plastic bottles, chemical transportation, etc.

Our products produce sodium hypochlorite (bleach) onsite



- Using salt, water, and electricity to generate bleach
- When you need it, where you need it.
- No dependence on external sources for supply

De Nora is able to offer batch and continuous on-site hypochlorite production systems with generators capable of producing from 26 gallons to over 25,000 gallons of bleach per day. Once diluted to EPA, CDC, or WHO guidelines, creates 300 to 150,000 gallons of disinfectant.

Effectiveness of De Nora's sodium hypochlorite is in agreement with EPA, CDC & WHO guidelines

SANITIZING 0.05% hypochlorite solution (classification based on EPA guidelines)

- ☑ Suitable for hard, non-porous surfaces, environmental and food contact surfaces
- ☑ Active against gram-positive and gram-negative bacteria
- ☑ Cleans and sanitizes in one step

DISINFECTANT - greater than 0.1% (classification based on EPA & CDC guidelines)

- greater than 0.5% (classification based on WHO guidelines)

- ☑ Suitable for hard, non-porous surfaces, environmental and non-critical care equipment surfaces
- ☑ Active against bacteria, viruses, fungi and spores
- ☑ Eliminates bacterial and viruses loads in one step

Onsite sodium hypchlorite: contains active ingredients to combat the COVID-19 Virus

Infection prevention and control during health care when novel coronavirus (nCoV) infection is suspected

Interim guidance
25 January 2020



Table 1. Active Ingredients and Their Working Concentrations Effective Against Coronaviruses

S/N	Active Ingredient (A.I.)
1	Accelerated hydrogen peroxide (0.5%) ⁵
2	Benzalkonium chloride (0.05%)* ⁴
3	Chloroxylenol (0.12%) ³
4	Ethyl alcohol (70%) ¹
5	Iodine in iodophor (50 ppm) ⁴
6	Isopropanol (50%) ⁴
7	Povidone-iodine (1% iodine) ¹
8	Sodium hypochlorite (0.05 – 0.5%) ^{1,2}
9	Sodium chlorite (0.23%) ⁴



Source: World Health Organization (WHO) www.who.int
“Infection prevention and control during health care when novel coronavirus (nCoV) infection is suspected”



Source: National Environmental Agency (Singapore) www.nea.gov.sg
“Interim List of Household Products and Active Ingredients for Disinfection of the COVID-19 Virus”

- ☑ Effective against bacteria, viruses, fungi and spores
- ☑ Strong deodorizer and cleaner
- ☑ Not hazardous for people
- ☑ No caustic stabilizers
- ☑ No chemical residues left on surfaces

https://www.cdc.gov/coronavirus/2019-ncov/prevent-getting-sick/cleaning-disinfection.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fcoronavirus%2F2019-ncov%2Fprepare%2Fcleaning-disinfection.html

Example of De Nora hypochlorite COVID-19 uses

Italian Civil Protection

Cleaning public facilities, streets, and buildings



Italian Hospitals

Providing a supply of hypochlorite for surface cleaning in hospitals



Assisting disinfection efforts in China

Hypochlorite generated from De Nora products used for cleaning facilities in communities



Deployment of mobile units – USA Only

Support local authorities with hypochlorite for first responders and the public



Surface Disinfection Product & Service Offering

ClorTec® Home
26 gal. at 0.45%



ClorTec® 2 lb.
60 gal. at 0.5%



**ClorTec® 50 or
100 lb. series**
1,500 or 3,000
gal. at 0.65%



**Deployment of Mobile
Technology Units**
25,000 gal at 0.8%



Product Service Offering Details

- ☎ Each ClorTec® 2 is the size of a water cooler and generates 60 gallons of bleach/day. Perfect for jails, hospitals, schools, light manufacturing, cleaning service companies, and municipal offices. Includes an oxidant tank and RO filter.
- ☎ The ClorTec® Home are for use in smaller facilities, nursing homes, and doctor offices. The ClorTec® Home generates a 26 gallon batch of bleach every four hours.
- ☎ The ClorTec® 50 or 100 generates 1,500 or 3,000 gallons of bleach/day. For use in large facilities such as stadiums or convention centers. Each ClorTec® 50 or 100 is configured per the customer's requirements.
- ☎ Mobile Technology Units for daily rental basis in the USA only. MTU's produce up to 25,000 gallons of 0.8% sodium hypochlorite, equivalent to 150,000 gallons of disinfectant, per EPA guidelines. Best used as a regional hub to supply bleach to many facilities.

About De Nora

- De Nora Water Technologies is part of Industry De Nora S.p.A; a \$500 million global technology company and market leader in the manufacture of electrodes for the electrochemical processes in Chlorine & Caustic, Electronics & Surface finishing, and Renewable Energy Storage.
- The electrochlorination business of De Nora Water Technologies is headquartered in Sugar Land, TX. Our onsite sodium hypochlorite generators are manufactured in Tamworth, UK, and Sugar Land, TX.
- Over 3,500 municipal water plants use De Nora's equipment to disinfect drinking water for over 500 million people worldwide.