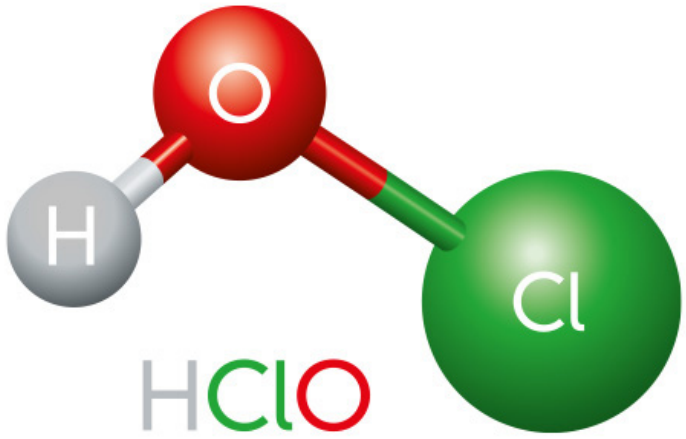
What Is Hypochlorous Acid (HOCl) And Where Does It Come From?



Electrolysed water is not always the same!

There are several different types of electrolyzed water on the market, also known as EVA water. The most common types are the so-called MOW water (Mixed Oxidized Water), which typically has a pH value above 7.5 and contains Sodium Hypochlorite. Sodium hypochlorite is the active substance known as alm. chlorine - a substance that is on the Danish Environmental Protection Agency's list of undesirable substances.

ProtoxDES, on the other hand, has a pH of 6-7 (corresponding to the skin's natural pH) and contains only Hypochlorous acid as active substance. This type of product is also known as SAEW (Slightly Acidic Electrolysed Water), which is also called superoxidized water.

Hypochlorous acid is more effective as a disinfectant than hypochlorite (common chlorine) and the European authorities have approved it for all purposes where sodium hypochlorite has been used in the past. The European Ecolabel also recommends hypochlorous acid for disinfection tasks in organic farming and food production.

Hypochlorous acid is formed by a process that mimics what happens when lightning strikes the ocean. This is one of the reasons why the American Ecolabel USDA Organic classifies hypochlorous acid formed by electrolysis as a **naturally occurring substance**.

However, only products with a pH <7.5 are covered! Other types of electrolysed water (eg MOW or EVA water) with pH> 7.5 are considered as sodium hypochlorite (chlorine).

Chemists and environmental scientists also distinguish between the 2 different types of electrolyzed water.

It is therefore important that you choose electrolysed water with great care - both in terms of efficiency, safety and the environment.

Nature's own weapon against infections

As mentioned, hypochlorous acid is formed naturally by lightning strikes in the sea, but it is also found naturally in other places where it has a natural protective effect on life - that includes human life.

Hypochlorous acid makes an active contribution in the defense against infections in the body in all mammals.

Hypochlorous acid is formed naturally by the white blood cells (also called T cells or T lymphocytes) which is the first process in our immune system that starts when unwanted bacteria and viruses try to invade mammalian (and human) bodies.

Hypochlorous acid is also used for medical purposes in connection with the treatment of eye and wound infections, eczema and similar skin disorders. But here again, it is very important that the pH is kept at or just below the skin's pH of around 5.5. This achieves the desired effect without further irritating the skin or eyes.

Hypochlorous acid is used where antibiotics fail today, as it is very effective in the treatment of wounds infected with, for example, antibiotic-resistant bacteria such as Methicillin-Resistant Staphylococcus Aureus (MRSA) and Pseudomonas Aeroginosa.

Hypochlorous acid: Mild and effective

Hypochlorous acid acts like other oxidizing agents by breaking down proteins and cell membranes. Oxidizing agents are very effective disinfectants that kill bacteria, viruses, molds and spores.

Compared with other common oxidizing agents such as sodium hypochlorite (chlorine) and hydrogen peroxide, hypochlorous acid is distinguished by not being required to be labeled according to the CLP Regulation (formerly the Classification Order).

Since hypochlorous acid has no "electric" charge, and it also has a relatively low molecular weight, it is better to penetrate the cell walls of microorganisms compared to, for example, ordinary chlorine. Therefore, hypochlorous acid exhibits a more effective disinfectant compared to other more common disinfectants - even at low concentrations.

Tests show that hypochlorous acid is typically 80-120 times as effective as hypochlorite (chlorine) in terms of fighting bacteria.

In June 2020, the Japanese authorities tested the effect of various types of disinfectants against the "coronavirus" SARS-CoV-2 (which causes COVID-19). They found that weakly acidic hypochlorous acid is the most effective disinfectant against this particular virus.

Summary of the effects of various disinfectants against SARS-CoV-2 (COVID-19):

	ppm, mg/l
Benzalkonium chloride	500
Dialkyldimethylammonium chloride	100
Sodium dichloroisocyanurate	100
Hypochlorous acid	35

Source: National Institute of Technology and Evaluation, June 2020, Japan.

Like other oxidizing agents, hypochlorous acid is a very effective and broad-spectrum disinfectant - and it does not damage textiles or other surfaces, as it has no bleaching effect.

Where and when can it be important to disinfect?

In most situations, we disinfect to prevent or minimize the risk of spreading the infectious diseases, which for the most part are caused by bacteria and viruses.

It is extremely important to disinfect surfaces with special focus on contact points (handles, shared keyboards, touchscreens, etc.) during ongoing disease outbreaks or epidemics.

The extent of disease outbreaks requires a varying degree of hygiene control.

In the event of sporadic outbreaks of disease that have affected a single household or specific locality, it will usually be sufficient to establish stricter hygiene control at the locality, whereas epidemics and pandemics require involvement and efforts across society as a whole.

It may also be a good idea to introduce preventive hygiene controls to protect particularly vulnerable populations, as we know them from clinics and hospitals. If anything, the COVID-19 pandemic has taught us that preventive measures limit infection.

The corona crisis is also characterized by the absence of the “normal” flu activity, which otherwise tends to have a massive intake in large parts of the population every year from week 40 to week 20.