CHARLES FARRIS
CHANDLERS 1845

Electrox
STERILISING WATER

The Science behind Electrox Sterilising Water

Electrox is created using water, table salt and our unique 4 chamber technology. This advanced, patented technology with its innovative production process creates Electrox – an incredibly powerful disinfectant that eliminates 99.99% of viruses, bacteria, spores, and fungi.

What is electrolysis?

Electrolysed water is produced when an electric current is passed through water and mixed with table salt. Why do we need table salt? We need it because water on its own does not conduct electricity well enough to create electrolysed water. It therefore needs something dissolved in it that does. It needs an electrolyte. Electrolytes are salts and minerals like sodium chloride, potassium, and calcium, amongst others. Tap water generally contains tiny amounts of these substances, but not enough to make electrolysis work, so we add a very small amount of table salt (sodium chloride) to tap water to create a solution that conducts electricity very well.

How does electrolysis create Electrox electrolysed water?

Electrolysed water is produced in an electrolysis chamber which is basically a vat of the water and salt solution with two electrodes in it, called the anode and the cathode. The anode is positively charged, and the cathode is negatively charged. The chamber contains water (H20) and salt (NaCl) molecules and when the electric current moves though the water, is causes the breakdown of the water and salt and the creation of hypochlorous acid and trace amounts of hydrochloric acid and chlorine gas at the anode and sodium hydroxide and hydrogen gas at the cathode.

Electrox uses the solution from the anode – called the anolyte solution which is 99.9624% water, 0.03% hypochlorous acid and 0.0076% hydrochloric acid and chlorine. The small amount of hypochlorous acid produced is what kills microorganisms like bacteria and viruses.

How does Electrox kill germs?

Electrox is many times more effective than at killing bacteria, viruses, spores, fungi and microbes than other disinfectants, because it contains more hypochlorous acid which has a higher Oxidation Reduction Potential (ORP). It is the hypochlorous acid that makes Electrox so effective at killing micro-organisms.

Hypochlorous acid has no electric charge and has a relatively low molecular weight. As a result, it penetrates the cell walls of microorganisms much more easily than other chlorine-based substances such as hypochlorite (found in bleach).

Hypochlorous acid steals electrons from bacterial cell membranes which causes the cells to destabilise, and ultimately kills them. Bacteria cannot develop resistance to Electrox as they have done with other disinfectants because it attacks at a cellular level so making hypochlorous acid a powerful germicide, biocide and sporicide.

Our own immune systems produce hypochlorous acid

When the human body is attacked by invading bacteria or viruses, our immune system immediately send a type of white blood cell called a neutrophil to the invasion site. The neutrophil produces similar hypochlorous acid which acts as a rapid action antimicrobial agent and destroys the attacking microbes or pathogens. Electrox acts in much the same way; after exposure to Electrox, microbes, pathogens, fungi, spores, moulds, bacteria, and viruses are destroyed – safely and without large amounts of harsh chemicals like chlorine bleach and other household cleaners.

How does Electrox maintain a neutral pH?

Hypochlorous acid has a low pH of around 4 - because it is an acid. So how does Electrox manage to contain an acidic substance while maintaining a neutral pH? It is quite clever, as mentioned earlier tiny amounts of sodium hydroxide are also produced during electrolysis. Sodium hydroxide is alkaline with a high pH. As this is produced as part of the electrolysis process anyway, a miniscule amount of this alkaline substance is used, to increase the pH to a more neutral 6.5-7.5.

The rest of the alkaline components are syphoned off leaving a safe solution that contains hypochlorous acid at around 90% strength and is pH neutral. All this is achieved without adding anything to the water other than a small amount of table salt.

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