

# Electrolysed water

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**Electrolysed water** ("Electrolyzed Water") (**EOW** or **EO**, also known as **electrolyzed oxidizing water**, **electro-activated water** or **electro-chemically activated water solution**) is produced by the [electrolysis](#) of ordinary [tap water](#) containing dissolved [sodium chloride](#).<sup>[1]</sup> Typically, tap water has sufficient dissolved salts for the electrolysis of water. The electrolysis of such salt solutions produces a solution of sodium hypochlorite, which is the most common ingredient in store-bought household bleach. The resulting water is a known surfactant (soap) and sanitizer.

## Creation

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The electrolysis occurs in a specially designed reactor which allows the separation of the cathodic and anodic solutions. In this process, [hydrogen gas](#) and [hydroxide ions](#) are produced at the cathode, leading to an alkaline solution that consists essentially of [sodium hydroxide \(lye\)](#). At the anode, chloride ions are oxidized to elemental chlorine. If some of this chlorine is allowed to combine with some of the hydroxide ions produced at the cathode, it disproportionates into [hypochlorous acid](#), a weak acid and an oxidizing agent.<sup>[2]</sup> This "acidic electrolyzed water" can be raised in [pH](#) by mixing in the desired amount of hydroxide ion solution from the cathode compartment, yielding a solution of [sodium hypochlorite](#)  $\text{NaClO}$  which is the major component of ordinary household laundry bleach. A solution whose pH is 7.3 will contain equal concentrations of hypochlorous acid and hypochlorite ion; reducing the pH will shift the balance toward the acid.

## Efficient disinfectant

Both sodium hydroxide and hypochlorous acid are efficient [disinfecting](#) agents;<sup>[1][3]</sup> since the effectiveness of EOW seems to increase at low pH, the acidic form of EOW is usually preferred for rinsing food-preparation surfaces, fruits and vegetables.<sup>[2]</sup>

EOW will kill spores and many viruses and bacteria.<sup>[2]</sup>

Electrolysis units sold for industrial and institutional disinfectant use and for municipal water-treatment are known as *bleach generators*.<sup>[4]</sup> These avoid the need to ship and store chlorine gas, as well as the weight penalty of shipping prepared bleach solutions.