

# The Science and the Technology

The Science: The technology is based on the science of Electro-Chemistry, similar to that used in the Lead-Acid, Nickel-Cadmium, and Lithium Ion batteries which help power our everyday lives.

When two dissimilar metals are brought together, a reaction called Oxidation-Reduction takes place. In solution, one element gives up electrons and other receives electrons causing electrons to flow, and the creation of electro-chemically charged ions. However, we are not capturing the electrons for external use like in batteries but instead allowing abundance of electrons to stay in solution creating charged water or water with a negative Oxidation-Reduction Potential (ORP), which fundamentally changes the original water chemistry.

Our scientist and engineers have applied this science by selecting the most advantageous metal alloys to achieve a water treatment environmental that executes predetermined reactions that effectively solve the problem of cooling tower water treatment by prohibiting scale formation, bacteria growth, and corrosion. The technology is so non-toxic that the EPA rates it as a mechanical device. Because of its prohibitive effect on scale, fouling, corrosion, and biofilm, it provides for substantial blowdown water savings, energy savings, and capital equipment saving. Not only is the product 100% green and chemical free, its use conserves vital natural resources, and provides the user a smaller carbon footprint, and thereby, making the world a greener place.

The Patented ReDOX KDF technology consists of a scientifically balanced and formulated Cu-Zn alloy uniquely plated onto a reticulated foam delivery system that provides for a minuscule .2 wg pressure drop. The amount of Zn and Cu ions, and electrons required, are calculated for each application, and the media sized accordingly. Each water system no matter how large is custom sized to create the required ORP, and Zn and Cu ions to achieve the specific treatment goals.

The ReDOX System produces an electrode differential potential of 1.10 V between the copper and zinc atoms which creates a – 300mV ORP in the treated water which is highly reducing, producing an excess of free electrons to make a highly reactive water. This highly reducing environment acts to gather more electrons producing various ions and reactions beneficial in treating water. The patented reticulated foam media provides the millions of contact points for the water molecules to be effectively and beneficially treated and transformed; eliminating scale, killing bacteria, and prohibiting corrosion, in the treated water.