Briotech: Meet the Company That's a Real Son of a Bleach

By Alex Berezow, PhD — October 30, 2020

A Seattle area company is selling a dilute solution of bleach and pretending that it has a world-changing technology to rescue us from COVID.

I was somewhat intrigued when I got a LinkedIn invite from a person in the Seattle area who is working for a company that is helping to fight the coronavirus pandemic. And then I actually looked at the company. Oh my. She’s going to regret contacting me.

The company, called Briotech, markets itself this way on its website:

“Briotech is the major manufacturer of Hypochlorous Acid (HOCl). Our formulations are HOCl in the purest form... The Briotech vision has always been focused on what HOCl can do for the good of mankind, in medicine and in healthcare. In a mission as pure as our HOCl, we have set a goal to make a lasting and positive impact in health, healing, and sanitization, worldwide, by revolutionizing the delivery of healthcare and infection control measures.”

Wow! What is this amazing thing called HOCl? Well, it's bleach. They're selling bleach. They're
calling it HOCl or hypochlorous acid because they think you're too dumb to realize it's bleach. The company's big selling points, according to them, are the manufacturing methods and the imagined purity of its product. Their website says:

"Our formulations never contain additives, buffers, or preservatives, and remain free of alcohol, oil, parabens, sulfates, or added fragrance"

Well, why would it contain alcohol or sulfates or anything else? It's bleach. It doesn't matter how you make it. The only thing that matters is the concentration.
The

BRIOTECH
MULTI-SURFACE SANITIZER

KILLS 99.99% OF BACTERIA
sanitize on the go
0% alcohol
0% bleach

ready to use no rinsing

2 fl. oz.
company has one more trick up its sleeve. Briotech claims that its products don't contain "toxic chemicals" or "bleach." Well, bleach is a toxic chemical (at a high enough concentration, anyway), and their products absolutely do contain bleach, no matter what they claim. So, how can they say otherwise?

Whenever somebody says the word "bleach," a specific chemical compound is usually implied: Sodium hypochlorite (NaOCl). When NaOCl is dissolved in water, this is what happens:

\[
\text{NaOCl} \rightarrow \text{Na}^+ + \text{OCl}^-
\]

The important ion is the hypochlorite (OCl\textsuperscript{-}). That's what kills microbes. The company claims that it doesn't use bleach because it doesn't use NaOCl. (This is also probably untrue, as I'll show below.) Instead, Briotech says it uses HOCl or hypochlorous acid. But this is what happens when you put HOCl in water:

\[
\text{HOCl} \rightarrow \text{H}^+ + \text{OCl}^-
\]

The same hypochlorite ion forms. That's the same active ingredient in bleach.

**How to Make Bleach (Don't Try This at Home)**

Bleach is normally made by mixing chlorine gas with a strong base called sodium hydroxide (NaOH). (NaOH is the active ingredient in many drain cleaners.) The unbalanced equation for the production of bleach is:

\[
\text{NaOH} + \text{Cl}_2 \rightarrow \text{NaOCl} + \text{NaCl} + \text{H}_2\text{O}
\]

In other words, if drain cleaner is mixed with chlorine gas, the reaction produces bleach, salt, and water. Briotech claims that it can make HOCl (which, remember, is the same thing as bleach) using a new, revolutionary method: They mix water and salt, zap it with electricity, and bingo! Magical HOCl.
Under strict quality-control procedures, we use water (H2O) and salt (NaCl) to create a specific brine solution, and then pass the brine through a proprietary, electrolytic chamber. The finished Hypochlorous Acid is a weak acid solution with powerful benefits. Throughout the world, commercial industries such as hospitality, janitorial, food and water processing, agricultural, animal husbandry, and health and public safety have adopted ECA Technology for use, eliminating the need for harmful, toxic chemicals.

If Briotech has developed a proprietary electrolytic chamber, good for them. But the chemical reaction they’re bragging about is well known. It’s called electrochlorination. If salt water is zapped with electricity, it really does produce bleach (and, incidentally, hydrogen gas):

NaCl + H2O + Electricity --> NaOCl + H2

Notice that the final product is NaOCl, which is bleach, the very ingredient Briotech claims not to use. Perhaps their proprietary technology performs some sort of ion exchange and swaps out the Na+ for H+. But I doubt it. That seems really unlikely. It’s also pointless.

The likeliest explanation is the simplest: Briotech is selling a dilute solution of bleach and pretending that it has a world-changing technology to rescue us from COVID. I’m so glad they reached out!