Combusting Seawater

All of our initial experimentation with impact chamber geometry, injector pressure considerations and orifice diameters were performed using very pure fresh water. Our testing with the single impact chamber utilized hydraulic injectors with internal amplifier pistons. We were experimenting with various impact chamber designs, during the first few years, before we arrived at the current patented vortex configuration (U.S. Patent Number 9995479).

When it became clear to us that cavitation was playing a dominant role in the heating of the water to steam and that the momentary temperatures involved could be very substantial, it occurred to us that adding electrolyte to the water might produce some intriguing effects. Seawater being relatively abundant, it seemed that this would be a logical starting substance to inject. The first video involves the injection of a 2% solution of sea salt and a pressure relief setting of 900 psi and 620 degrees Fahrenheit (https://www.youtube.com/watch?time_continue=4&v=qTeKs_eAi6g). The second video uses a 5-6% solution at 450 psi pressure relief setting and 830 degrees Fahrenheit and shows superheated steam (https://www.youtube.com/watch?v=1B8hmfjkO_4).

What are observed are oxy-hydrogen or hydrogen chlorine explosions. The energy balance as documented by Florida Atlantic University increased from 4.95:1 to approximately 7 -9:1. In the first video there were five successive explosions until the pressure relief valve was destroyed, thereby eliminating the 900 psi chamber pressure. It remains to be determined whether this is electrodynamic, electrochemical or a result of the extreme momentary temperatures at the impact surface as predicted by theory.

Momentarily within collapsing cavitation bubbles we obtain temperatures in excess of 5000K (similar to the surface of the sun). In studying cavitation bubbles when they collapse exceed can exceed 5000 degrees C. See “Cavitation and Bubble Dynamics” by Christopher E. Brennan and the solutions to the Rayleigh-Plesset equation). (https://authors.library.caltech.edu/25017/1/cavbubdynam.pdf).

As the gas cools you obtain recombination and resulting explosion. Fukushima, Chernobyl and Three Mile Island experienced this type of catastrophic event. Using a technique employed by astronomers to determine stellar surface temperatures, chemists at the University of Illinois at Urbana Champagne have measured the temperature inside a single acoustically driven collapsing bubble. The temperatures measured were on the order of 20,000 degrees K.(https://news.illinois.edu/view/6367/207368).

We are constructing a version of the impact system which will produce continuous oxy-hydrogen or chlorine hydrogen explosions, the output of which will be applied to a rotary expander turbine or a linear generator of some variety. Such a configuration can be used to generate inexpensive power in coastal regions and would likely be employed in tri-generation wherein we produce electrical power and the excess heat for distillation (desalination) and absorption cooling.