post-gazetteNOW
Pittsburgh Post-Gazette
News

Salt water as fuel? Erie man hopes so

Sunday, September 09, 2007
By David Templeton, Pittsburgh Post-Gazette

For obvious reasons, scientists long have thought that salt water couldn't be burned.

So when an Erie man announced he'd ignited salt water with the radio-frequency generator he'd invented, some thought it a was a hoax.

John Kanzius, a Washington County native, tried to desalinate seawater with a generator he developed to treat cancer, and it caused a flash in the test tube.

Within days, he had the salt water in the test tube burning like a candle, as long as it was exposed to radio frequencies.

His discovery has spawned scientific interest in using the world's most abundant substance as clean fuel, among other uses.

Rustum Roy, a Penn State University chemist, held a demonstration last week at the university's Materials Research Laboratory in State College, to confirm what he'd witnessed weeks before in an Erie lab.

"It's true, it works," Dr. Roy said. "Everyone told me, 'Rustum, don't be fooled. He put electrodes in there.' "

But there are no electrodes and no gimmicks, he said.

Dr. Roy said the salt water isn't burning per se, despite appearances. The radio frequency actually weakens bonds holding together the constituents of salt water -- sodium chloride, hydrogen and oxygen -- and releases the hydrogen, which, once ignited, burns continuously when exposed to the RF energy field. Mr. Kanzius said an independent source measured the flame's temperature, which exceeds 3,000 degrees Fahrenheit, reflecting an enormous energy output.

As such, Dr. Roy, a founding member of the Materials Research Laboratory and expert in water structure, said Mr. Kanzius' discovery represents "the most remarkable in water science in 100 years."

But researching its potential will take time and money, he said. One immediate question is energy efficiency: The energy the RF generator uses vs. the energy output from burning hydrogen.

Dr. Roy said he's scheduled to meet tomorrow with U.S. Department of Energy and Department of Defense officials in Washington to discuss the discovery and seek research funding.

Mr. Kanzius said he powered a Stirling, or hot air, engine with salt water. But whether the system can power a car or be used as an efficient fuel will depend on research results.

"We will get our ideas together and check this out and see where it leads," Dr. Roy said. "The potential is huge.

"In the life sciences, the role of water is infinite, and this guy is doing something new in using the most important and most abundant material on the face of the earth."

Mr. Kanzius' discovery was an accident.

He developed the RF generator as a novel cancer treatment. His research in targeting cancer cells with metallic nanoparticles then destroying them with radio-frequency is proceeding at the University of Pittsburgh Medical Center and at the University of Texas' MD Anderson Cancer Center in Houston.

Manuscripts updating the cancer research are in preparation for publication in coming months, Mr. Kanzius said.

While Mr. Kanzius was demonstrating how his generator heated nanoparticles, someone noted condensation inside the test tube and suggested he try using his equipment to desalinate water.

So, Mr. Kanzius said, he put sea water in a test tube, then trained his machine on it, producing an unexpected spark. In time he and laboratory owners struck a match and ignited the water, which continued burning as long as it remained in the radio-frequency field.

During several trials, heat from burning hydrogen grew hot enough to melt the test tube, he said. Dr. Roy's tests on the machine last week provided further evidence that the process is releasing and burning hydrogen from the water. Tests on different water solutions and concentrations produced various temperatures and flame colors.

"This is the most abundant element in the world. It is everywhere," Dr. Roy said of salt water. "Seeing it burn gives me chills."

First published on September 9, 2007 at 12:00 am