EPA Seeks Comments on its Reevaluation of the Chemical Perchlorate

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WASHINGTON – U.S. Environmental Protection Agency Administrator Lisa P. Jackson announced that the agency is taking an important step to ensure children's health is taken into account when evaluating the chemical perchlorate. To enhance transparency, the agency is seeking public comment on its re-evaluation of the scientific information on perchlorate in drinking water. Under the previous administration, EPA made a preliminary decision not to regulate perchlorate. Administrator Jackson directed EPA staff to review that decision and, as part of that review, the agency is putting special emphasis on evaluating the impact of perchlorate on infants and young children.

"It is critically important to protect sensitive populations, particularly infants and young children, from perchlorate in drinking water," said EPA Administrator Lisa P. Jackson. "As we re-evaluate the science around perchlorate, we will seek public input before making a regulatory determination based on the best science."

The analysis presented in the notice announced today more directly evaluates children's exposure to perchlorate. This step takes into account the fact that infants and children consume more water per body weight than do adults. EPA is now considering a broader range of alternatives for interpreting the available data on the level of health concern, the frequency of occurrence of perchlorate in drinking water, and the opportunity for health risk reduction through a national primary drinking water standard. These alternative interpretations may impact the agency's final regulatory determination for perchlorate.

In response to a 2008 preliminary determination not to regulate perchlorate, EPA received and reviewed comments from more than 32,000 individuals and organizations. EPA will consider those comments, as well as new comments received during the 30-day comment period on the current notice, before making a final decision on whether to regulate perchlorate under the Safe Drinking Water Act.

Perchlorate is both a naturally occurring and man-made chemical. Perchlorate is used in the manufacture of fireworks, flares and solid rocket propellant. The current notice will be available for public comment 30 days after publication in the Federal Register.

More information:

Federal Register Notice: PDF version (21pp, 391K, About PDF)

Fact Sheet: Perchlorate Supplemental Request for Comments
August 19,2009, EPA 815-F-09-004

http://www.epa.gov/safewater/contaminants/unregulated/perchlorate.html

Study: Bacteria can make salt water drinkable

Scientists modify electricity generated by bacteria to clean dirty water

By Eric Bland

Discovery Channel

updated 5:22 p.m. CT, Tues., Aug 25, 2009

Bacteria can be used to turn dirty salt water into electricity and drinkable water, according to new research from scientists at Penn State University and Tsinghua University.

The research presents a new spin on microbial fuel cells, which have been used in the past to produce electricity or store it as hydrogen or methane gas.

"The idea of a microbial fuel cell is based on taking organic waste and turning it into a source of energy," said Bruce Logan, a scientist at Penn State and co-author of a paper in the journal Environmental Science and Technology.

"In this newest discovery, we figured we would desalinate water by modifying the electricity generated by the bacteria."

The researchers start with a cup full of water from a pond or other natural source. Among the millions of microbes in the sample, some of the bacteria (scientists haven't identified the specific species) will naturally produce electrons and protons inside their cells and transport them outside themselves.

Other bacteria scavenge those free electrons and protons and use them as fuel to create hydrogen, methane or other chemicals, which can serve as energy sources.

Using only two thin pieces of plastic, the researchers have discovered the key to harnessing the power of these microbes. The membrane created by the Penn State scientists can draw away the electrons, ions or gases created by the microbes, towards an anode or a cathode, which are positively and negatively charged electrodes.

Anode, cathode and membranes are all encased within a clear plastic case about the size of a small tissue box. Add a cupful of pond water between the two membranes, and the bacteria start their jobs. The entire process leaves almost pure -- about 90 percent -- water behind.

The exact purity of the water can be changed depending on the needs of the scientists or the desalination industry, if the process is scaled up commercially. These microbial fuel cells can create pure, drinkable water. It may also remove most of the salt from water to make conventional purification methods cheaper by reducing the amount of electricity necessary.

"For now, microbial fuel cells, whether they desalinate water, generate electricity or create hydrogen, methane or other gases, are limited to small-scale laboratory devices." That will change next month, however, when Logan and his colleagues install a larger microbial fuel cell to turn waste water from a Napa Valley winery into hydrogen gas.