

IS THERE A CREDIBLE BASIS FOR MAGNETIC DEVICES TO REPRESENT GREEN TECHNOLOGY? (Excerpt)

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Over the years, numerous articles have been published on magnetic devices and their negative performance aspects. Articles have appeared in publications such as: Wall Street Journal, AARP Newsletter, Popular Mechanics and the like. In some cases, the reporter contacts a professor at a local university and he relates that there is no foundation in science for these devices to work, hence such articles arise. Few professors even check their scientific guide, the CRC Handbook of Chemistry and Physics. Located within is the Magnetic Rotary Power Index which relates the degree of effect that a magnetic field has on a specific dipole and hydro carbon molecule. Also many professors never check their peers to see if there are any colleges or universities engaging in this research.

As a result names and organizations such as: Professor Rongjia, Tao of the Physics Department of Temple University; Professor Raymond Cho of the Physics Department of Drexel University; Professor Samuel Sami, Department of Mechanical Engineering University of Moncton; Professor Ken Busch of the Mechanical Engineering Department at Baylor University; Professor Klaus Kronenberg of California Polytechnical- Pomona; Professor Arthur Kney at Lafayette College; Professors Simon Parsons and Simon Judd at Cranfield University, United Kingdom; and Professor Michael Coey of the Physics Department of Trinity College, Dublin, Ireland are never found nor their positive research papers on the positive effects of magnetic treatment reported in the press or on television.

Needless to say there are a number of journal articles, research papers, doctoral thesis, patents and the like that are never presented to the public. A google search of the names cited above will relate their favorable research efforts in this field. Magnetic or electrostatic fields can be utilized to reduce mineral scale from boilers, furnaces, water heaters and heat exchangers and significantly reduce energy cost. As cited by the US Bureau of Mines a .25 inch layer of mineral scale can reduce heat transfer by 28%, thus increasing energy costs. Magnetic devices can reduce toxic emissions from boilers, furnaces and the like as well as increase the performance of refrigerants used to cool buildings.

Also, it should be noted that the use of ion exchange softeners that discharge brine into the aquifers should not be considered green technology. Magnetics offer a far more environmentally acceptable means for the elimination of hard water deposits.

In the magnetic treating of tower water, it should be noted that the pH of the water tends to stabilize around a neutral pH of 7.0. The pH scale is logarithmic and obviously highly acidic or high highly alkaline waters cannot be neutralized by effects, but waters that are in the low to mid-range 6.0 readings or mid to high 7.0 readings can find that the water will tend to stabilize at a pH of 7.0. Non-neutral waters, either of the hydroxyl or hydronium ion species, have ions in excess and by binding up the "excess" ions, water neutrality tends to be established. This effect is most pronounced in recirculation magnetic water systems.

In the patent of Hirama, a magnetic treatment device - 493515, he relates the conversion of red iron, FeO, to black iron, Fe₂O₃. In the change from FeO to Fe₂O₃ were iron is oxidized; there is a change in the valence of iron from +2 to +3 and a lowering of the oxidation number. The black form of iron (Fe₂O₃) is passive in that it has less of a tendency to corrode, while red iron (rusted material) can continue to the point of decomposition of the initial structure. The practical result is that iron piping can be retarded without chemicals. Also, red iron is soluble while black iron is insoluble and precipitable (and thus, filterable).

Magnets can change the morphology of scale. In fact the webpage by Professor Simon Parsons of Cranfield University <http://www.cranfield.ac.uk/sas/researchthemes/p9408.jsp> shows the effect of a static magnetic field on water: before the crystalline scale structure in cubic, and after a brief exposure to the field the mineral scaling structures become spherical, non-scaling. Magnetic treatment of water to decrease scale has been documented by many notable Professors such as: Kronenberg, Parsons and Coey.

What is most disturbing is that a paper like one by Mike R Powell in the Skeptical Inquirer is used to debunk magnetic water treatment.

A google search of "Mike R. Powell" engineer produces hits that are mainly related to debunking magnetic water studies. There are no "google scholar" papers published by him on any topic. His work at Pacific NorthWest Labs/PNNL/PNWL cannot be documented. No patents are issued to him. Anyone with a few minutes of time can check this out via google. Yet, this article in the Skeptical Inquirer tried to debunk Professor Coey of Trinity College.

Coey is very favorable on magnetic water treatment. His website depicting his academic credentials <http://www.cranfield.ac.uk/sas/researchthemes/page9408.jsp>. Professor Coey, Magnetic Water Treatment, Physics Department, Trinity College Dublin, Ireland Journal of Magnetism and Magnetic Materials 2009 (2000) 71-74.

Abstract: Carbonates formed by heating water containing 120 mg (Ca)/liter are characterized by X-Ray diffraction and electron microscopy. Tests on 32 pairs of samples establish at the 99.9 probability level that drawing of water through a static magnetic field (B=0.1 Tesla, 10T/m) increases the aragonite/calcite ratio in the deposit. There is an incubation period of several hours, and the memory of magnetic treatment extends beyond 200 hours. (Elsevier Publications).

Cited in his CV: Cambridge University BA with his PhD from University of Manitoba visiting professor: IBM Yorktown Heights, John Hopkins, University Paris, and Institute of Physics Peking.

Honors: Member Royal Irish Academy, Fellow of the Institute of Physics, and Fellow of the Royal Society. All of this information can readily be verified- and yet the paper by Mike Powell, engineer, published in the Skeptical Inquirer is used to debunk scholarly work. Magnetic devices do not represent a "panacea" for the environment, but they do have utility in improving the quality of our air and water, providing the limitations of this technology is viewed in a reasonable performance framework.