Magnesium: Alternative Power Source

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A small amount of magnesium ribbon burns in a flame with a satisfying white heat.

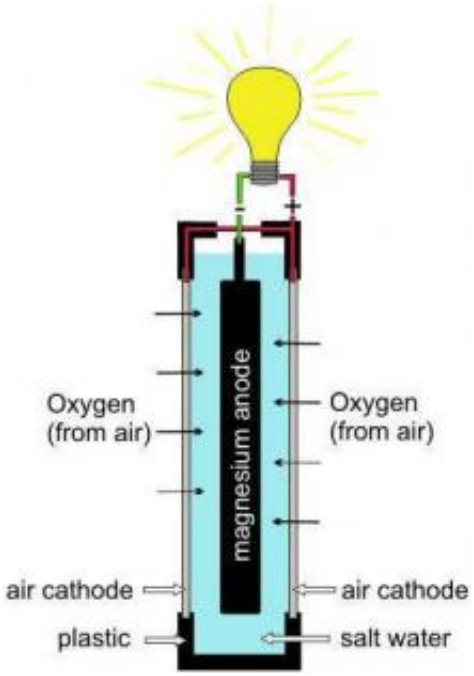
(PhysOrg.com) -- There is enough magnesium to meet the world's energy needs for the next 300,000 years, says Dr. Takashi Yabe of the Tokyo Institute of Technology.

Magnesium is abundant in the world; however the production of magnesium is neither cheap or clean. There are various ways of extracting magnesium, ranging from an electrolytic process to high temperature method called the Pidgeon process.

Dr. Yabe has devised a high temperature solution by concentrating solar collectors and a solar-pump laser to reach a temperature of 3,700 degrees centigrade. This high heat method is used to burn magnesium oxide extracted from seawater. The solar-pumped laser is necessary to help obtain this high temperature because concentrated solar energy

alone would not be enough to generate 3,700 degrees C.

Engineers at MagPower have developed a metal-air cell that uses water and ambient air to react with a magnesium anode, to generate electricity. A magnesium based version of the lithium-ion rechargeable cell has been created by Dr. Doron Aurbach at Bar-Ilan University in Israel.



Magnesium + Oxygen + Water + Salt + Additive = Direct Current Credit: MagPower Systems, Inc

The MAFC (magnesium-air fuel cell) has the electrolyte versatility of using a common saline (salt) solution or ocean water. The performance capabilities of the MAFC can be enhanced through the addition of MagPower's hydrogen inhibitors.

According to MagPower Systems, by using hydrogen inhibitors the

MAFC has increased power efficiency, lower cell resistance, and the reduction or elimination of pressure and/or volume increase due to hydrogen gassing resulting in smaller metal-air fuel cells, and batteries.

Magnesium is highly reactive and stores a lot of energy. Researchers are now devising ways to extract energy from magnesium in a more controlled method.

More information: www.magpowersystems.com/