

A Method for Producing Free Energy

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The secret to creating free energy electrolytically lies in creating and sustaining an anode glow and doing so under the highest pressure possible.

The useful anode glow for creating free energy can be created as described in <http://www.mtaonline.net/~hheffner/GlowExper.pdf>, but it is desirable to do so under the highest pressure possible. The higher the pressure the more the free energy gained and the higher the coefficient of power (COP).

Ideally, the anode glow is comparable in color to the green color of sonoluminescence, as seen in: <http://www.nature.com/news/2006/060109/full/060109-5.html>

Obtaining a high signal to noise ratio for heat production, useful for proof of principle, requires obtaining a high voltage drop through the anode interphase in proportion to the current density of the anode.

It takes patience and time to reach the highest cell potential that sustains the green anode glow, and how that is obtained depends on the electrode metal, the electrolyte and the electrolyte concentration. It can take a long time to reach maximum operating voltage.

A procedure useful for amateurs to create the green anode glow follows. To avoid the need for extra resistance in series with the cell adjust the electrolyte (titrate) conductivity by gradually adding more of the electrolyte acid, base, or salt to distilled water to the point a desirable current is obtained, i.e. one which is appropriate for the power supply in use. It is useful not to exceed 0.1 mA/cm^2 for initial current density.

The process then is this:

1. Gradually increase the voltage to an acceptable current for your supply and then hold the voltage constant.
2. Call the initial current, I_{step} . Monitor the current. If the current is increasing or arc spots or electrosplarks appear, reduce the voltage (and thus current I_{step}) and repeat this step.

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3. If current is decreasing then let $I_{start} = I_{step}$. Give the cell some minutes decreasing current (optimize timing by feel and by patience!) and then increase the cell voltage until the the new current I_{step} is no more than I_{start} and go to step 2. When you get to the point the anode can not be further conditioned, you are there.

4. At this point, or even sooner, since cell conductivity is low, more electrolyte acid, base, or salt can be added, and the process begun over.

Using a very dilute electrolyte, e.g. 0.01 g/l NaOH, with aluminum electrodes, the maximum anode glow producing cell potential can be well over 500 volts. As the electrode is conditioned the current is reduced. This is desirable for excess energy experiments not only because the voltage is maximized, but the expected signal/power is maximized. It is also desirable to reduce the cell resistance to the lowest possible value that permits sustaining cell operation. This then maximizes the percentage of potential drop across the anode interphase, and thus provides the highest signal to noise ratio, i.e. coefficient of power (COP). Obtaining maximum cell conductivity and cell life may mean operating with an electrolyte different from the one used for initial conditioning. It may be desirable to buffer the pH with a salt, for example, and to raise conductivity.

It may be much easier to condition using a fixed current power supply, because that for the most part automatically handles steps 2 through 3, except for monitoring for arc spots (or orange glow). In that case the current is set and incremented instead of the voltage.

A conditioning current density of about 0.1 mA/cm^2 of a weak electrolyte like sodium metasilicate works well in various situations, but it depends on many factors what current density is best, like electrolyte makeup and concentration and electrode material used. The conditioning method provided above compensates for a wide variance of these variables.

The objective of conditioning is creating a coating over the anode which prevents conduction by anions except at a high voltage drop across the anode interphase, i.e. except at a gradient sufficient to ionize H_2O and OH . Such a potential drop is typically over 100 volts.

The key free energy lies beyond merely creating the oxide film of a passivated anode,

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as described by Bockris. [J. O'M Bockris and A.K.N. Reddy, Modern Electrochemistry, Plenum Press, p.1319 ff.] The process of conditioning the anode must proceed to the point where an insulating barrier is created that permits an electrostatic field intensity sufficient to ionize an OH or H₂O molecule. In other words, the surface barrier of the oxide film must be thick enough that electron tunneling to the anode only occurs at a voltage gradient exceeding about 10¹¹ V/m.

The slow conditioning recommended above is not necessary with all electrolytes and plate combinations, but is useful because it tends to achieve a uniform conditioning. If thin or bare spots exist in the anode coating, then shorts can occur through the anode coating which include arcs in DC mode, and arcs or sparks (electrosparks) in AC mode. Such shorts, which are to be avoided, can be created by impurities in the electrodes, or by increasing the voltage to the point the coating is ruptured by sparks or arcs, and the anode then destroyed by corrosion from the resulting arcs. These shorts diminish the current passed through the green glow areas which are effective in creating the free energy, by means discussed in :

<<http://www.mtaonline.net/~hheffner/BlueAEH.pdf>>

<<http://www.mtaonline.net/~hheffner/GlowExper.pdf>>

<<http://mtaonline.net/~hheffner/HeisenbergTraps.pdf>>

Improperly conditioned electrodes have arc or spark spots and often take on a red or orange hue before eventually disintegrating due to corrosion. An example of this is explored in:

<<http://www.mtaonline.net/~hheffner/OrangeGlow.pdf>>

It is useful that gas evolution in a closed high pressure cell be controlled. One means of doing this is to make the (each) anode concave down, insulated on the top, and oriented so as to trap bubbles coming from the cathode. The anode interphase in glowing mode is effective at recombining the evolved gasses provided the evolution rate is not too high.

Not much to it. Free energy by simply producing the right anode glow at high pressure.