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(Moderators: [Scott Sanders](#), [Jeff Friend](#))

Electrolysis power supply (Read 1165 times)

Pete Rector

Electrolysis power supply

Oct 5th, 2011, 8:37pm

Posts: 151

I need something a little better than the battery charger than I am using right now. I was surfing Ebay looking at all kinds of DC power supplies and ran across a switching power supply for computers, mainframe no doubt, rated at 100 amp output for around \$50. You can buy a volt and ammeter for about \$20-\$25. So, if it would work, the set up would run around \$100 by the time it was all said and done.

Anybody know of any reason why a switching power supply shouldn't work?

Sam Roberts

WAGS member

★★★★★

Posts: 3672

Re: Electrolysis power supply

Reply #1 - Oct 5th, 2011, 8:48pm

Just my own preference but i would stick with something we know that works good. Sears often has sales on their manual battery chargers for less than \$100.00.

http://www.sears.com/shc/s/search_10153_12605?keyword=automotive+battery+charger s

Jerry Cermack

Global Moderator

WAGS member

★★★★★

Collector

Posts: 5810

Re: Electrolysis power supply

Reply #2 - Oct 5th, 2011, 9:39pm

If you happen to have a Sams Club near you, they have Schumacher chargers at a very good price. The one on wheels is a 20/40/65 amp model with a timer for auto shutoff. Its a little different than mine, but prices havent changed all that much on them at Sams over the years since I got mine. It's 89.99 I think, in store or online.

<http://www.samsclub.com/sams/shop/product.jsp?productId=195257>

Cheryl Watson

Forum Administrator

WAGS member

★★★★★

Posts: 4009

Re: Electrolysis power supply

Reply #3 - Oct 6th, 2011, 1:43am

That is what I am using... and the beauty of Sam's club is... that when my first one malfunctioned<timer stopped working>... I just returned it for a new one!! No Hassles!!!

P.S. Pete.. what are you using now??? I started with a table top automatic that was a dismal failure!!

[battcharge_001.JPG](#)



Tom Neitzel

Forum Administrator

★★★★★

Posts: 4559

Re: Electrolysis power supply

Reply #4 - Oct 7th, 2011, 10:35am

Pete, you can't beat the Sears, Sams Club or Harbor Freight chargers. Sometimes you see them as cheap as \$69. Make sure it is manual and not automatic.

I have used my DC arc welder . Works wonderfully fast, but boils away 10 gallons of water in no time. Any electricity you use to heat the water is just wasted. The water in my setup (Sears charger) now runs warm but not hot.

Tom

Pete Rector

Re: Electrolysis power supply

Reply #5 - Oct 7th, 2011, 11:26am

Posts: 151

Guys I am not trying to reinvent the wheel here. Battery chargers work just fine but the DC that comes out of them is not true DC. Although most battery chargers have a very high amp rating if you check the duty cycle rating on them they can only sustain them for very short periods of time. I didn't mention it initially but I am looking to do more than one piece at a time which could easily exceed duty cycle the rating of most of the chargers, if not all, mentioned here.

The possible advantages I see in these types of power supplies are;

1. They are far more efficient, less electrical loss converting 120 VAC to 12 VDC
2. They have a 100% duty cycle. They will put out 100% of their rating without shutting down. Of course like most electrical equipment it is wise not to exceed 80%
3. They output it true DC, no AC ripples. In electrolysis the cleaner the sine wave the more efficient the process.
4. It certainly appears you can purchase these less expensively than battery chargers.

On the down side, the questions I have, these are plug in units and I'm sure I will have to tear into it to make the connection. No volt or ammeter, easily and cheaply remedied. Even if this does work it is not a solution for everyone.

Sandy Glenn

Forum Administrator

WAGS member

★★★★★

Posts: 6499

Re: Electrolysis power supply

Reply #6 - Oct 7th, 2011, 12:13pm

[Quote from Tom Neitzel on Oct 7th, 2011, 11:47am:](#)

One thing with multiple items is you need to be careful that you don't get shadowing, make sure nothing is between the piece and the sacrificial item.

Can't arcing also be a problem when you electro multiple items? Seems like I've read warnings about it on this board.

Chris Stairs

Forum Administrator

★★★★★

Posts: 2863

Re: Electrolysis power supply

Reply #7 - Oct 7th, 2011, 12:52pm

Pete,

It sounds like you have a background in understanding how power supplies work. One thing to keep in mind is that if you use a common ground, the multiple items may well draw at different rates, due to variables such as the size of the item, and distance from the sacrificial item.

The difference in the different circuits will sometimes be "balanced out" by current flowing between items that you want to clean, making one of your good pans into a sacrificial item for the other.

Here is an example. One of my favorite old computer hardware hacking "tricks" was to install larger fans in my home built PCs, and run them at 7 volts, instead of the normal 12, to make them quieter, and still run cool. The power supplies had an output of 12 volts on one circuit, and 5 volts on another. I got the 7 volts by connecting the fan to the positive leads on both the 12 and 5 volt circuits. The difference in the two voltages resulted in a potential value of 7 volts. The fans ran quiet and slow on this 7 volts.

You want to make sure that your are not sacrificing one good item to clean another. One at a time is the simplest way to guarantee it.

If you mainly want to increase your output, pre-cleaning in lye will greatly reduce time required in electro, in some cases, if there is no rust, the electro process can be skipped altogether.

Chris

Jerry Cermack

Global Moderator

WAGS member

★★★★★

Collector

Posts: 5810

Re: Electrolysis power supply

Reply #8 - Oct 7th, 2011, 1:03pm

What very few times I tried more than one item at a time in my electro over the years, on rusty tools too begin with, then later on cast iron banks and cookware, it seemed to operate like a microwave oven. Two pieces in a microwave, especially if they were different foods, do not come out the same, in the same time.....

My charger I have now that I got from Sams Club is a 10/40/200 amp, but I never run it on 200 either.

Chris Stairs

Forum Administrator

Re: Electrolysis power supply



Reply #9 - Oct 7th, 2011, 1:32pm
Jerry,

Posts: 2863

That makes sense, as electricity follows the path of least resistance, one of the multiple items is bound to offer less impedance than the others, and get the majority of the current flow. Especially after it is clean, it will be robbing the flow from the other items. I'm not sure how they could be balanced to correct this. Maybe a separate gauge for each item, and move them around til they all read the same? Then this would change as the crud was removed, the impedance values would again be different.

It would be interesting to hear from someone who does do multiple items regularly.

Chris

Pete Rector

Re: Electrolysis power supply

Posts: 151

Reply #10 - Oct 7th, 2011, 1:54pm

I have no experience with doing multiple items at once but here is what I surmised. If all of the items are hooked to the same source and voltage, as they would be in this case, there can be no flow between like items as they are all exactly the same potential. Since all pieces are the same potential all of the flow should be between the piece (anode) and the sacrificial (cathode).

The set up I have planned would have a bus bar (common ground rod) hooked to the negative side allowing individual pieces to be clamped to the source. The sacrificial would be connected through wire connections. The tank will be two feet wide, two feet deep, and four feet long. Pieces would be placed in such a way that none of them would be in the way of the other and the flow from anode to cathode.

Sandy Glenn
Forum Administrator
WAGS member
★★★★★

Re: Electrolysis power supply

Reply #11 - Oct 7th, 2011, 2:07pm

[Quote from Pete Rector on Oct 7th, 2011, 1:54pm:](#)

Since all pieces are the same potential all of the flow should be between the **piece (anode)** and the **sacrificial (cathode)**.

Posts: 6499

For the sake of accuracy, don't you have that turned around?

Roger Barfield
Forum Administrator
WAGS member
★★★★★

Re: Electrolysis power supply

Reply #12 - Oct 7th, 2011, 2:42pm

Pete, don't know the technical reasons for it, but if you hang two pieces closely together they can interfere with each other. Some refer to it as shadowing, but it will leave a design on one of the pieces you are trying to clean. I always leave about 8 inches or so between pieces and haven't had any problems.

Pete Rector

Re: Electrolysis power supply

Reply #13 - Oct 7th, 2011, 3:00pm

[Quote from Sandy Glenn on Oct 7th, 2011, 2:07pm:](#)

[Quote from Pete Rector on Oct 7th, 2011, 1:54pm:](#)

Since all pieces are the same potential all of the flow should be between the **piece (anode)** and the **sacrificial (cathode)**.

For the sake of accuracy, don't you have that turned around?

I am pretty sure I have it right but I have been wrong before. The link below is to a Wikipedia article discussing anodes as it relates to electrolysis. Under the heading of Etymology it states "the anode is where the current enters the electrolyte". This would be the piece since the flow of electrons is from negative to positive and this flow, of course, is what makes electrolysis work.

<http://en.wikipedia.org/wiki/Anode>

Roger, I have read some about pieces interfering. I think that if one piece is in the path of the flow of electrons it could cause some problems. I can see where a round, or totally encompassing metal enclosure could cause that sort of problem. My tank will be rectangular and sacrificial will be down the four foot side. I was hoping that by having a rectangular tank with the cathode only on two opposite sides this sort of problem might be minimized.

Last, but certainly not least, I want to thank everyone for their input. What a great bunch of people.

Scott Sanders
Moderator
★★★★★

Re: Electrolysis power supply

Reply #14 - Oct 7th, 2011, 3:29pm

Hi Pete.....I don't know if I sent this link to you before or not. Here is an electro set up for doing mutiple pieces that was put together by an ex Forum member. Maybe you can get some ideas there. Also, note that Michelle uses a stainless steel hydrotherapy tank (which is long and narrow). She didn't post pictures, but I think you can get the idea.

<http://www.griswoldandwagner.com/cgi-bin/yabb/YaBB.pl?num=1199253741>

Scott

Pete Rector

Re: Electrolysis power supply

Reply #15 - Oct 7th, 2011, 5:33pm

Thanks Scott, great thread.

Posts: 151

While it's true that electricity take the path of least resistance it also is attracted to the greatest difference in potential. That means that the electricity entering your piece will be attracted to the point where it sees the greatest difference in voltage. If you placed three electrodes in the electrolyte, one being negative, one being positive six volts, and one being positive twelve volts, the electricity would flow primarily, not entirely, to the twelve volt electrode. I suspect that is where "ghosting" comes from. The electricity flowing through one piece is attracted to the greatest difference in potential even if it has to go through another piece to get to it.

That is a great set up he had. Mine will be a bit smaller and homemade. I worked construction most of my life and used to bring home all the "good stuff" that was being thrown away. I finally had to give that up because it was too much accumulation. The one thing I didn't give up on collection was steel so I have more than what I need to build the tank I spoke about earlier.

Anyway, thanks Scott, and everybody else

Chris Stairs
Forum Administrator
★★★★★

Re: Electrolysis power supply

Reply #16 - Oct 7th, 2011, 8:28pm

[Quote from Pete Rector on Oct 7th, 2011, 3:00pm:](#)

[Quote from Sandy Glenn on Oct 7th, 2011, 2:07pm:](#)

[Quote from Pete Rector on Oct 7th, 2011, 1:54pm:](#)

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<http://en.wikipedia.org/wiki/Anode>

Pete,

I think Sandy has it right. This is a quote from the link you posted.

Quote:

Consequently, as can be seen from the following examples, in a device which consumes power the anode is positive, and in a device which provides power the anode is negative

I can see how this can get confusing. I tend not to use those terms for this reason, and instead specify by saying "the item being cleaned", and "the sacrificial item."

Chris

Pete Rector

Re: Electrolysis power supply

Reply #17 - Oct 7th, 2011, 10:01pm

Ladies and gentlemen, I stand corrected.

Posts: 151

I guess I'm just gonna have to scrounge a power supply somewhere and see what happens. Keep your fingers crossed. 😊 I'll keep you updated

Cheryl Watson
Forum Administrator
WAGS member
★★★★★

Re: Electrolysis power supply

Reply #18 - Oct 8th, 2011, 8:23pm

I always use the 20 Amp setting.... everyone here taught me well.... any higher is just going to be an expensive water heater!! 😊

Pete Rector

Re: Electrolysis power supply

Reply #19 - Oct 9th, 2011, 9:10pm

Now that is some great insight Cheryl. I never thought about the increased current and the effects on the liquid.

Posts: 151