

How the Pen Plater Works

Electricity flows in a direction as you may already know. In this case, it flows from the pen tip to the alligator clip or...to whatever the alligator clip is attached to. If the alligator clip is attached to a PMC object for instance, then electricity can flow from the pen tip to wherever the pen tip makes contact. Right out of the box, you can clip the alligator clip to a PMC object and touch the pen tip to it and nothing happens because there is no conductivity through the dry fiber tip. There is a wire INSIDE the pen tip housing. When you dip the fiber tip in the plating solution, electricity can then flow from the wire inside the housing tip, through the solution and to the contact point on the PMC object. If it were just water, nothing would happen except a flow of electricity. However, when the fluid you wet the fiber tip with contains gold that is in solution in the form of molecules, the electricity picks up these gold molecules and carries them in the direction of the electricity flow...to the contact point on the PMC object. The electricity of course continues to flow through the ring, into the alligator clip and back up to the battery thus completing the circuit and perpetuating the flow. However, when the gold molecules hit the surface contact point, they stick at the point of contact.

Now you know how the plating pen works.

The point of explaining the process is that the battery is only being discharged when it is in contact with whatever the alligator clip is attached to.

As for battery life, if you touched the wire inside the tip directly to the PMC object, nothing would happen by way of plating because the electricity is going to follow the path of

least resistance and wouldn't pick up any gold molecules. It is only when the electricity has to flow through the solution in the pen tip to get to the PMC object that the gold pickup and deposit takes place. Now that you know that, the last piece of the puzzle will fall into place.

The electricity flow from direct contact between the wire inside the tip, if it were touching the object directly, is very high. As a matter of fact it is as high as it can get - it is a dead short. The opposite of that is true when the electricity is forced to flow thru the solution held in the fiber of the tip of the pen. The moisture that the gold molecules are suspended in is actually a fairly inefficient conductor of electricity. It does conduct enough to carry gold molecules however. Because the solution is a poor conductor, it doesn't conduct much electricity, therefore it doesn't use up battery life near like a dead short would. I suspect that the life of the battery, probably a AA size, is actually quite long. A wild guess would say that if you were to plate continuously, only interrupting the process long enough to redip the tip in the solution*, then it might last a week, maybe two. Folks, that would be a LOT of plating. We must say that because of all the variables involved we cannot put a specific time on how long the pen will last but you will get a lot of usage from this device.

*It has probably has already occurred to you that the reason you have to redip the tip periodically (when you notice not much action taking place at the pen tip) is because you have drawn out most of the suspended gold molecules since the last dip in the solution.