**Copper Plating a Coin (Galvanisation)**



The copper plating solution contains sulphuric acid. If spilled, it should be rinsed with water, and then neutralized with sodium hydrogen carbonate (NaHCO3). If sulphuric acid gets into your eyes, rinse them in an eye douche for 15 min then consult a doctor.

**Avoid skin contact with the solution, electrodes or the unwashed coin!**

**Equipment:** power supply, rectangular galvanisation beaker, beaker (50 ml), 2 cables, sockets and cramps, copper electrode, 2 alligator clips, a coin (your own), polishing agent and cloth, tweezers

**Chemicals:** acetone, NaOH(aq) (conc.), copper plating solution

**Procedure:** • The copper electrode is placed into the galvanisation beaker   
(anode = positive pole).

* Fill the beaker up to 3 cm under the rim with copper plating solution.
* Wash the coin well, using detergent and water, then rinse it thoroughly with lots of water and dry it with a paper tissue.
* Put your coin in a 50 ml beaker and add four dropping pipettes of acetone. Remove your coin using the tweezers. Your fellow can reuse this acetone.

**From now on you must not touch the coin anymore!**

* Determine the weight of the coin with a precision of 3 decimal places.
* Attach the coin to the negative pole of the power supply and place it into the copper plating solution.

Set the voltage to maximum and the current to 0.25 A. **Avoid short-circuiting!**

* Let it run for 10 minutes. You will have to interrupt the process once or twice to turn the coin so it gets copper plated everywhere.
* Polish the coin to obtain a nice gloss.

**Disposal:** The copper plating solution can be poured back into the supply bottle.

**Lab report:** Write down the equation of the process and explain.

How does the copper plating solution change during the process?

Weigh the coin again and determine by how much the mass has increased.

Additional Task: How thick is the applied copper layer?