

Hands-on Experiments in Chemistry

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ABSTRACT

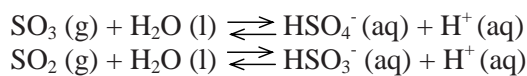
Seven chemical reactions were chosen:

1 – A chemical reaction that happens by mechanical action.

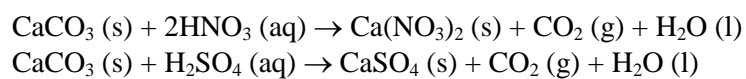
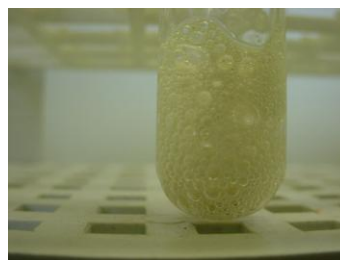
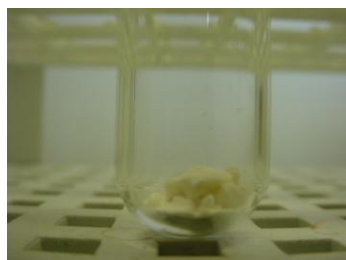
Two solids mixed yielding new products in different states.



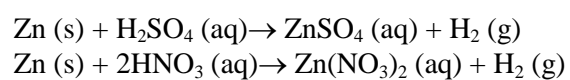
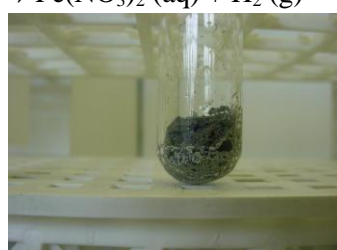
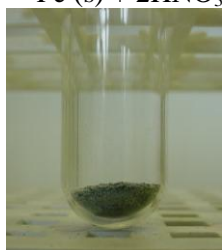
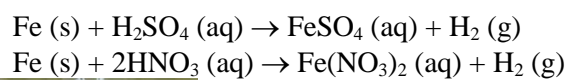
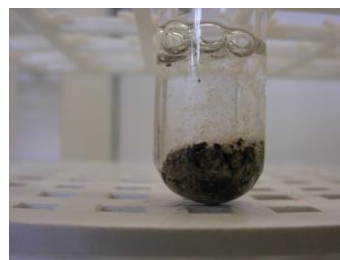
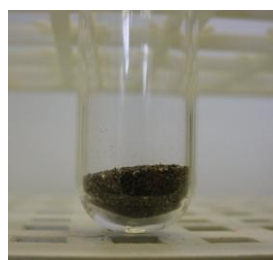
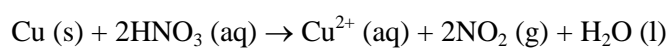
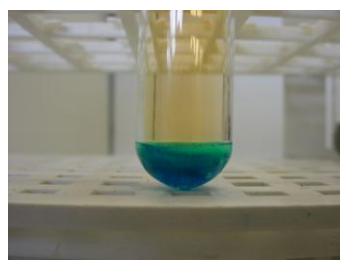
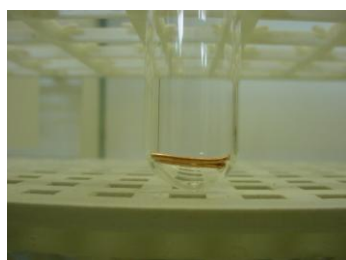
2 – Simulation of how acid rain is formed



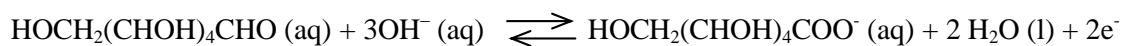
3 - Simulation of the impact of acid rain on marble



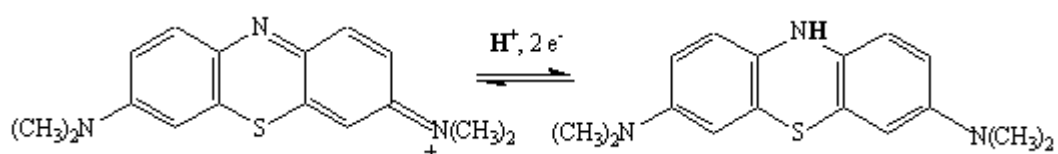
4 - Simulation of the impact of acid rain on metals (copper, lead and zinc)



5 – Blue bottle experiment - oxidation / reduction

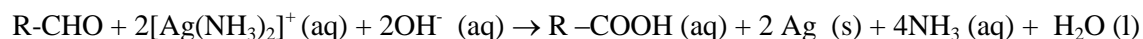
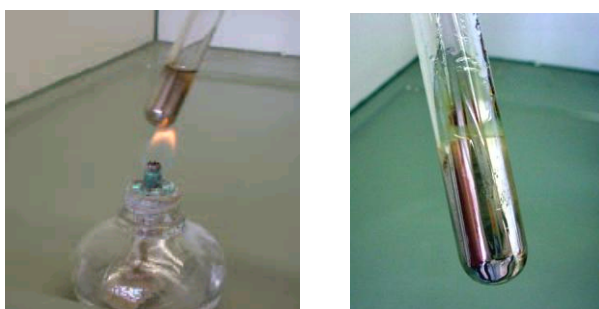


In alkaline solutions, glucose is oxidized to D-gluconic acid or alpha-D-gluconolactone. In the course of this reaction, methylene blue is reduced from the blue (oxidized) form to the colorless (reduced) form.



Shaking the flask O_2 dissolves in the solution, which oxidizes the indicator back to the blue (oxidized) form.

6 – Silver mirror



The inside surface of the test tube is coated with a silver amine $[\text{Ag}(\text{NH}_3)_2]^+$. This compound is reduced to form silver. Because the ions of the silver solution and the reducer only touch each other on the inside surface of the flask, the inside surface is the only place where silver metal forms

7 – Electrolysis of copper (II) chloride

