Electrolysis of Water Experiment

Introduction:

-Energy is stored in the bonds of molecules and when these water bonds split apart there is energy that is released. This can create electricity!

-To break these bonds, an amount of energy is required to get the atoms in water molecules active enough to break apart from each other. For instance, we supply energy with batteries.

-All batteries have two terminals

-a positive terminal and a negative terminal. Water can connect these terminals allow energy to flow between them.

-In this experiment, we will use baking soda to create an electrolyte solution.

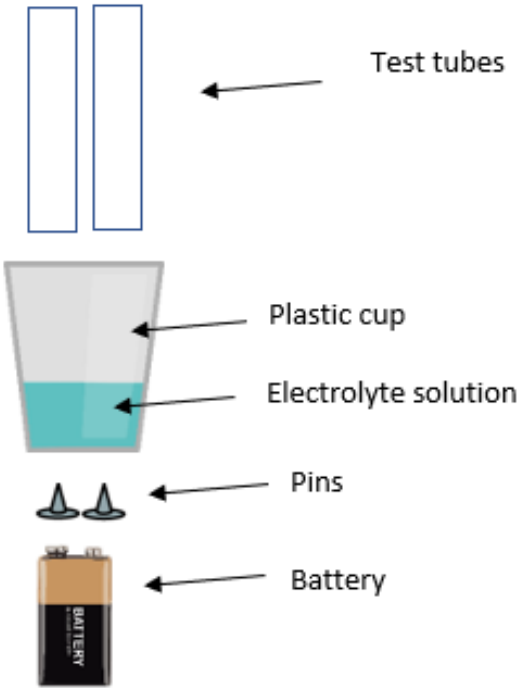
- An electrolyte produces an electrically conducting solution when dissolved in a polar solvent, such as water.

-Electro *refers to energy and electricity and* -lysis *refers to splitting apart.*

Materials:

- 9V battery
- 2 silver-colored thumb tacks
- Distilled water
- Stopwatch
- Small clear plastic container
- 2 test tubes
- Baking soda
- Table salt
- Lemon
- Dish soap

Experiment Step-up:



Procedure:

1. Place the thumb tacks into the bottom of the plastic container so that the points push up into the container. They should be the same distance apart as the two terminals of the 9V battery.
2. Place the plastic container with the thumb tacks over the terminals of the battery.
3. Slowly fill distilled water into the container
4. Add a small pinch of baking soda.
5. Hold two test tubes above each push pin to collect the gas being formed. Record your observations.
    - *What is happening? Does one tube have more gas than the other? What gases do you think are forming?*
6. Discard the solution, and repeat the steps with a different combination:
    - Distilled water and dish soap
    - Distilled water and table salt
    - Distilled water and lime juice

Results:

What results did you see? Why do you think different amount of gases were produced for the reactions?

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*Ans *The solution with baking soda will facilitate a good amount of electrolysis. The solution with table salt will facilitate electrolysis the best. Different amounts of gas are produced from each reaction because each reaction carries a different amount of current. The amount of gas produced is proportional to the current that flows in within the experimental system.*