This is a very important process in the chemical industry. You are going to simulate this process in the lab.

Method:

1. Set up the electrolysis cell as shown in the diagram below:

to powerpack (via bulb)

graphite electrodes in a rubber bung

glass tube containing NaCl Solution

ignition tubes containing NaCl solution

1. Set the voltage to 6V and turn on the power.
2. Allow the ignition tubes to fill with gas, make observations and copy and complete the table below:

|  |  |  |
| --- | --- | --- |
|  | Anode | Cathode |
| pH of gas |  |  |
| Test for each gas |  |  |
| Identity of each gas |  |  |

Questions:

1. Why does sodium chloride conduct as a solution but not as a solid?
2. Give the names and formulae of each of the 4 ions present in NaCl(aq).
3. Which of these ions are used to produce the products at
   1. the anode (+ve electrode)?
   2. the cathode (-ve electrode)?
4. Give an equation, including electrons, for the production of the gas at
   1. the anode;
   2. the cathode. **These are called half-equations.**
5. What solution is left in the cell after electrolysis? How do your observations confirm this?