

OPERATING INSTRUCTIONS

Compact Electrolysis Apparatus No. 32207

1. Introduction

This unit is designed for ease of use when conducting electrolysis of water or other experiments. The 32202 Genecon Hand Electric Generator can be used as a power source.

2. Description

The apparatus is a 12 x 8 x 10cm molded plastic tank, set on end pillars, with a pour lip for electrolyte disposal. It can be stacked for storage. Two stainless steel electrodes extend through the bottom of the tank for easy attachment of alligator clips. Also included are a plastic test-tube holder and two 15mm diameter x 105mm-long test tubes, graduated every 5ml to read from the top when the tubes are inverted.

3. Operation

The following student procedure is suggested for the electrolytic analysis of water:

Caution! Sodium hydroxide will not only make your hand feel slimy should you touch it, but it will also hurt your skin. Wash your hands well if you happen to accidentally touch the sodium hydroxide solution.

- Pour diluted sodium hydroxide solution into the plastic tank to a depth of about 1cm above the top of the electrodes. Use a concentration of about 5% to 10%.

Note: Dilute (2% concentration) sulfuric acid can be substituted for the dilute sodium hydroxide. If sulfuric acid is used, it will corrode the electrodes slightly, and the ratio of hydrogen to oxygen produced will not be exactly 2:1 by volume.

- Immerse one of the test tubes into the sodium hydroxide solution until it is filled.
- While the test tube is still submerged, grip it with the test tube holder and place it over the electrode. Do not allow the mouth of the tube to leave the water.
- Place the second tube over the second electrode in the same manner as you placed the first.
- Connect the leads from the Genecon Hand Electric Generator, one to each electrode, and begin to turn the handle. (A different power source, one that supplies about 4-10 volts, may be substituted. If dry cells are used, three or four 1.5V cells connected in series will do the job.)
- Turn the handle of the generator (or turn on the power source). As electricity is generated, oxygen will be produced at one test tube and hydrogen at the other, in the respective ratio of 1:2 by volume.

- When all of the solution in one test tube has been displaced by gas, quit turning the handle of the Genecon (or turn off the power supply).
- Note the graduation mark on each test tube where the gas and liquid phases meet.
- Light a taper and rest it on an ash tray.
- Lift the test tube with the larger quantity of gas from the solution. While it is still in an inverted position, move its mouth over the lighted taper. A pale blue flame indicates the gas is hydrogen.
- Blow out the flame on the taper but leave the taper glowing.
- Move the other test tube over the taper's glowing end. The taper bursts into flame, indicating that the gas in the test tube is oxygen.
- Properly dispose of any remaining solutions, following your teacher's instructions.

4. Maintenance

The Compact Electrolysis Apparatus needs no special maintenance. If you should experience any difficulty with an electrolysis apparatus, please contact Central Scientific Company, giving details of the problem. To ensure better service, please do not return any apparatus to Central Scientific Company until we have sent you authorization.

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