15080 Conductivity Tester

Purpose: To qualitatively demonstrate the concept of conductivity in liquids.

Description:

This conductivity apparatus consists of a medium screw base socket to which are attached two electrodes, each covered with a protective plastic shield; a V clamp and a connecting plug.

Assembly:

Screw the bulb into the socket. Fill a beaker with distilled water. Attach the conductivity tester to the vertical post of a ring stand and adjust its height as necessary so that the electrodes are submerged in the beaker of water by 1/2 to 3/4 of their length.

Make sure no one is near the beaker of water. Plug the conductivity tester into a standard 110VAC outlet. Gradually add sodium chloride to the water. Observe how the brightness of the lamp changes as the concentration of sodium chloride increases.

Repeat the previous experiment with different salts or with a weak acid or base. The equivalent conductance of solutions may be found in the Handbook of Chemistry and Physics.

After each solution is used, it is important to rinse the container and electrodes with water to avoid contamination. Several beakers containing different liquids or liquids in different concentrations may be readied and a series of tests made in succession. The electrodes should, of course, be rinsed between solutions. The relative brightness of the lamp is an indication of the conductivity of the liquid. Also, two holes are drilled at the top of the tubing that surrounds each electrode. Check these holes after every use to be sure that they are clear.

Warning: This device uses 110 volts AC. The following precautions should be followed to avoid a shock.

- Unplug the device when not in use, or while changing solutions.
- Follow prudent laboratory practices, which include wearing safety glasses.
- Do not contact the solution while the device is operating
- Do not splash liquids on the bulb or use if the bulb is wet.
- Use only glass or plastic containers to hold the solutions.
- Do not operate unattended.

Time Allocation:

To prepare this product for an experimental trial should take less than five minutes. Actual experiments will vary with needs of students and the method of instruction, but are easily concluded within one class period. Allow ten minutes to clean and dry the unit for storage.

Feedback:

If you have a question, a comment, or a suggestion that would improve this product, you may call our toll free number.