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Chemistry

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Ionic and Covalent Compound Lab

Research Question: How can we experimentally determine the difference between ionic and covalent compounds?

Intro: Ionic bonds only form between metals and nonmetals, while covalent bonding forms between nonmetallic elements. Ionic compounds are solid at room temperature whereas covalent compounds are liquid or gas at room temperature. Ionic bonds do not have a definite shape, but covalent bonds do have a definite shape.

Procedure: Begin by pouring approximately 100-150 mL of distilled water into each beaker. Next, mix one spatula of baking soda into one beaker and, using the other spatula, mix one spatula of sugar into the other beaker. Then prepare the battery with the lead attachment. Insert the leads into the sugar water, and observe and record. Finally, insert the leads into the baking soda water and observe and record.

Observations: Nothing happened when we put the wires into the sugar water. When we put the wires into the baking soda water, the ends of the wires bubbled. When we pulled the wires out, the red lead was discolored. The red wire is the positive wire.

Conclusion” Water has a slight charge. We broke the water into hydrogen and oxygen. The bubbles (the oxygen) is negative charge. Oxygen reacts with metals. It oxidizes them. The oxygen went to the positive charge wire and made bubbles. The hydrogen went to the negative wire. We split the water. The baking soda is the ionic compound, and ionic compounds conduct electricity whereas the sugar (covalent compound) did not conduct the electricity.

Vocab:

Compound- Substance that can be decomposed into elements by chemical means.

Chemical reaction- a process in which one or more substances, the reactants, are converted to one or more different substances, the products.

Ionic compound- A compound formed by ions.

Covalent compound- A compound formed by atoms that share electrons

Electrolysis- Chemical change, especially decomposition, produced in an electrolyte by an electric current.

Mixture- A substance that contains different compounds and/or elements

Solution- The result of one or more solutes being dissolved in a solvent.





