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**SYNTHESIZE AN IONIC COMPOUND**

Ionic compounds are brittle solids, arranged in crystal lattices. The ionic bound is a very strong electrostatic attraction between ions. When these ionic substances are dissolved, they form conducting solutions known as electrolytes.

**OBJECTIVES:**

to form two compounds and test them to determine some of their properties; to identify whether these compounds are ionic.

**MATERIALS:**

1. magnesium ribbon (25 cm)
2. burner
3. crucible tongs
4. ring stand and ring
5. 100-mL beaker
6. crucible
7. clay triangle
8. stirring rod
9. balance
10. distilled water
11. conductivity meter

**PROCEDURE:**

* 1. Record all measurements in your data table.
  2. Position the ring on the ring stand about 7 cm above the top of the Bunsen burner. Place the clay triangle on the ring.
  3. Measure the mass of the clean, dry crucible.
  4. Roll 25 cm of magnesium ribbon into a loose. ball. Place it in the crucible. Measure the mass of the magnesium and crucible together.
  5. Place the crucible on the triangle, and heat it with a hot flame. The flame tip should be near the bottom of the crucible. *See page 230 of your text for a picture of the set-up.*
  6. Turn off the burner as soon as the magnesium ignites and begins to burn with a bright white light. ***Warning: Do not stare at the burning magnesium.*** Allow it to cool, and measure the mass of the magnesium product and crucible.
  7. Place the dry, solid product in the beaker.
  8. Add 10 mL of distilled water to the beaker and stir. Check the mixture with a conductivity meter.

**Analysis:**

1. **Analyze Data** Calculate the mass of the ribbon and the product. Record these masses in your table.
2. **Classify** the forms of energy released. What can you conclude about the stability of the products?
3. **Infer** Does the magnesium react with air?
4. **Predict** the ionic formulas for the two binary products formed, and write their names.
5. **Analyze and Conclude** The product of the magnesium-oxygen reaction is white, whereas the product of the magnesium-nitrogen reaction is yellow. Which compound makes up most of the product?
6. **Analyze and Conclude** Did the magnesium compounds conduct a current when in solution? Do these results verify that the compounds are ionic?
7. **Error Analysis** If the results show that the magnesium lost mass instead of gaining mass, cite possible sources of error.