**Properties of ionic and covalent bonds**

**Introduction**

Physical properties of a substance such as melting points, conductivity and crystal structure can help a chemist to classify compounds as ionic or covalent. Ionic compounds are compounds with bonds between a metal (cation) and nonmetal (anion) in these compounds the anion usually steals an electron form the metal. Compounds with high melting points very crystalline or organized structure, and that conduct are usually ionic in nature. Covalent compounds are compounds with bonds between two anions in these compounds the anions share electrons. Covalent compounds that have low melting points, lack clear crystals, and do not conduct are usually covalent in nature.

**Procedure**

1. Obtain a small sample of each compound. Record a brief observation of each compound in the data table.

2. Draw each compound as it views under a microscope set at low power. Place these drawings on the next page. (Take your time and make good drawings)

**I**

**6 1**

**5 2**

**4 3**

3. Place a small amount of the compounds on a metal disk as shown to the right.🡪

4. Heat the metal disk with the compounds on it with a low flame (gentle heat), it should not smoke or catch fire. Record the order they melt on your data table. If the substance has not melted after three minutes place and “N” in the data table to indicate that it did not melt.

5. Test for conductivity in distilled water will be done as a class demo. Record the result you view on your data table.

6. Use the data you have to determine whether each compound is ionic or covalent.

Compound data table

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Compound #** | **Description** | **Melting order** | **Conductivity** | **Covalent or Ionic** |
| **1** |  |  |  |  |
| **2** |  |  |  |  |
| **3** |  |  |  |  |
| **4** |  |  |  |  |
| **5** |  |  |  |  |
| **6** |  |  |  |  |

**Analysis question**

1. What does Evansville water do in the conductivity test? What does this tell you about our city water supply? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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Compound 3

Compound 2

Compound 1

Compound 6

Compound 5

Compound 4