

Name : \_\_\_\_\_ Per. \_\_\_\_\_

Date: \_\_\_\_\_

## Lab 1 Comparing Ionic & Molecular Compounds

### Purpose

To compare and contrast some physical properties of ionic and molecular compounds, such as state at room temperature, melting and boiling points, smell, conductivity when dissolved in water, and solubility in water.

### STATION #1:

1. Observe the **state of matter** of the substances. Record the observations in the chart.
2. Record the **melting point** and **boiling point** of the substances.
3. **SMELL:** Wave your hand over the top of the container with the substance, and record if you smell anything.

Substance (Name & Formula)	State (Solid / liquid / gas)	Melting Point (°C)	Boiling Point (°C)	Smell (No smell / Strong smell)
magnesium Oxide (MgO)				
copper Chloride (CuCl <sub>2</sub> )				
calcium Chloride (CaCl <sub>2</sub> )				

### STATION #2:

1. Observe the **state of matter** of the substances. Record the observations in the chart.
2. Record the **melting point** and **boiling point** of the substances.
3. **SMELL:** Wave your hand over the top of the container with the substance, and record if you smell anything.

Substance (Name & Formula)	State (Solid / liquid / gas)	Melting Point (°C)	Boiling Point (°C)	Smell (No smell / Strong smell)
propanol (C <sub>3</sub> H <sub>8</sub> O)				
butanol (C <sub>4</sub> H <sub>10</sub> O)				

**STATION #3:**

1. Fill half of the **large well (A)** in the **spot plate** with **water**.
2. Place **2 scoops of the substance** into the well with a **wooden splint**.
3. **Stir until dissolved**.
4. Place the **conductivity probe** into the solution.
5. Press the black button (**B**) and observe (**C**) whether there is light.
6. Record the results.



Substance (Name & Formula)	Conductivity (No light / bright light)
dextrose (C <sub>6</sub> H <sub>12</sub> O <sub>6</sub> )	
sodium thiosulfate (Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> )	
potassium Chloride (KCl)	

**STATION #4:**

1. Fill half of the wells **1, 2, 3, 4, 5** of the spot plate with **water**.
2. Place **1 small scoop of each substance** into separate wells.
3. Record **how easily the substance dissolves in water**.



Substance (Name and Formula)	Solubility (Dissolved / Did not dissolve)
dextrose (C <sub>6</sub> H <sub>12</sub> O <sub>6</sub> )	
sodium thiosulfate (Na <sub>2</sub> S <sub>2</sub> O <sub>3</sub> )	
potassium Chloride (KCl)	

**DISCUSSION QUESTIONS:**

1. Which type of compounds (**ionic or molecular**) **melts or boils at lower temperatures?**
2. Which type of compounds (**ionic or molecular**) **melts or boils at higher temperatures?**
3. Which type of compounds (**ionic or molecular**) **dissolves in water?**
4. Which type of compounds (**ionic or molecular**) **conducts electricity** when dissolved in water?
5. Use the chart to compare the **common properties** of **ionic** and **molecular compounds**.

<b>Properties</b>	<b>Ionic Compounds</b>	<b>Molecular Compounds</b>
<b>State at room temperature</b>		
<b>Melting point</b>		
<b>Boiling point</b>		
<b>Smell</b>		
<b>Solubility in water</b>		
<b>Conductivity</b>		