

Ionic vs Molecular Compounds Lab

Required sections

Header, title, purpose, procedure, data, questions, conclusion

Materials

Foil	Stir rod	Distilled water
Crucible tongs	Hot plate	Four samples (A, B, C, D)
Beaker—50 mL	Conductivity meter	

Safety

Caution with hot objects. Do not touch them! Do not put cold water on hot glass. Wear eye protection.

Procedure

Melting:

Preheat your hot plate so that it is already hot when you begin. On a piece of foil shaped into a dish, place a *small* sample of each of 4 substances. Put the foil on a hot plate set at medium. Record what happens over the next 3 minutes. Use crucible tongs to handle hot things.

Dissolving:

Using a 50 mL beaker, add a *small* spatula of one substance to 10 mL of *distilled* water; see if it dissolves.

Test the conductivity of plain distilled water as a control.

Conductivity:

Test each dissolved sample with a conductivity meter to see if it conducts electricity. Repeat for the other substances. See chart for conductivity.

Data

Create a chart in your lab for all four substances.

Substance	Melting observations	Dissolving observations	Conductivity observations
A			

Disposal procedures

- A, B, C, and D in solid form can be placed in the trash can
- Liquid C should be allowed to cool and solidify, then scraped into the trash.
- Dissolved solutions can be safely disposed of in the sink.

Clean up

All *cool* glassware should be washed and scrubbed with soap and a brush, dried, and returned. Make sure hot plates are cool before returning to cupboard.

Questions

1. Which substances are ionic compounds? How did you arrive at this conclusion?
2. Which substances are molecular compounds? How did you arrive at this conclusion?
3. What are the general properties of molecular and ionic compounds?
4. *Explain* the melting point of ionic compounds.
5. *Explain* the melting point of molecular compounds.
6. *Explain* the differences in conductivity of ionic and molecular compounds.

Conclusion

Include a description of the intermolecular forces in ionic compounds and molecular compounds. Explain how these forces affect the properties of the compounds. Identify each substance in your lab as ionic or molecular. Also include errors that may have occurred (be specific!), how those errors affected your results, and possible improvements to the lab.