WODSS SCIENCE

SCH 4CI

Name: _____

Date: _____

Classifying Compounds Using Physical Properties

Question: How do ionic and molecular compounds compare on the basis of conductivity, solubility, hardness, and melting point?

Prediction: From its chemical formula, predict whether each solid is ionic or molecular.

potassium iodide (KI): _____   sodium chloride (NaCl): _____

sucrose ($C_{12}H_{22}O_{11}$): _____   sodium bicarbonate ($NaHCO_3$): _____

calcium chloride ($CaCl_2$): _____   olive oil ($C_{17}H_{20}O_5$): _____

isopropyl alcohol (C_3H_8O): _____

Hypothesis: Explain your prediction. _____

_____

Observations: _____

Compound	Part 1: Solubility (dissolves / does not dissolve)	Part 2: Conductivity (conducts electricity / does not conduct electricity)	Part 3: Hardness		Part 4: Melting Point (ºC)
			Description	Ranking	
potassium iodide (KI)					686
sodium chloride (NaCl)					801
sucrose ($C_{12}H_{22}O_{11}$)					185
sodium bicarbonate ($NaHCO_3$)					270
calcium chloride ($CaCl_2$)					772
olive oil ($C_{17}H_{20}O_5$)		Non-conductor of electricity **DO NOT TEST**			-6
isopropyl alcohol (C_3H_8O)					-89
Unknown					748

Discussion and Analysis:

1. **Compare the conductivity, solubility, state, hardness and melting points of ionic and covalent compounds. What is your unknown sample?**
2. **Which compounds are ionic and which ones are covalent?**
3. **Which physical property helped you distinguish between ionic and covalent compounds most clearly?**
4. **What other physical property could you investigate?**
5. **Suggest one possible source of error and explain its effect on your results. How could you modify the procedure to reduce these sources of error.**

Conclusion: Give a proper conclusion to your lab.