Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Lab Day & Time: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_

## Data Sheet

### Part I, Freezing Point of Pure Solvent

Mass of test tube with alcohol \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Mass of empty test tube \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Mass of alcohol \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Determination | | | | |
|  | First | |  | Second | |
| Freezing point of *t*-butyl alcohol |  | |  |  | |
| Mean freezing point |  |  | | |  |

### Part II, Freezing Point of the Mixture, and Molar Mass of Unknown

Mass of solid unknown \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |  |
| --- | --- | --- | --- |
|  | Determination | | |
|  | First |  | Second |
| Freezing point of mixture |  |  |  |
| Freezing point depression, Δ*T*f |  |  |  |
| Molality |  |  |  |
| Moles of unknown |  |  |  |
| Molar mass of unknown |  |  |  |

Mean molar mass \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Actual molar mass (from instructor) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Percent error \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

## Post Lab Questions

1. When you add your unknown, if a small drop of water gets into your test tube, will the Δ*T*f increase or decrease or stay the same? Why?
2. If black rubber particles dropped into the test tube during stirring, would the freezing point increase, decrease, or stay the same? Why?