Chemistry 1210 Determination of Molar Mass by Freezing Point Depression

Date:_____ Partner:_____Lab day/time:_____

Partner:_____

Object:

Procedure:

Observations:

Data:

Test tube # _____

Mass of Diphenyl Ether (DPE) + Tube	_____
Mass of Tube	_____
Mass of Diphenyl Ether (DPE)	_____

Mass of Menthol + boat	_____
Mass of boat	_____
Mass of Menthol	_____

Data (Continued)

Pure DPE				**DPE plus Menthol**			
Run 1		Run 2		Run 1		Run 2	
Time	Temp	Time	Temp	Time	Temp	Time	Temp

Data (Continued)

Pure DPE				**DPE plus Menthol**			
Run 1		Run 2		Run 1		Run 2	
Time	Temp	Time	Temp	Time	Temp	Time	Temp

Data (continued) T_f of DPE _____

T_f of DPE + Menthol _____

Graph – On the same sheet, create two graphs of Temperature (in Celsius) vs Time (in seconds) using the best run for pure DPE and the best run for DPE + Menthol . Label T_f for both liquids and (by hand if you wish) any supercooling.

Calculations:
Calculate the ΔT_f :

Calculate the molar mass of Menthol

Calculate the %difference between your molar mass of menthol and the true value

Conclusion-

Discussion- (Compare your experimental value with the true one. Give two sources of experimental error and explain how each error would affect your final result.)

Question – If in determining the freezing point of pure DPE your uncertainty was ±0.05°C and in determining the freezing point of your Menthol-DPE solution the uncertainty was also ±0.05°C, calculate the resulting error in your molar mass of menthol for your set of experimental data. Show your calculations and express the answer as a range of possible calculated molar masses.