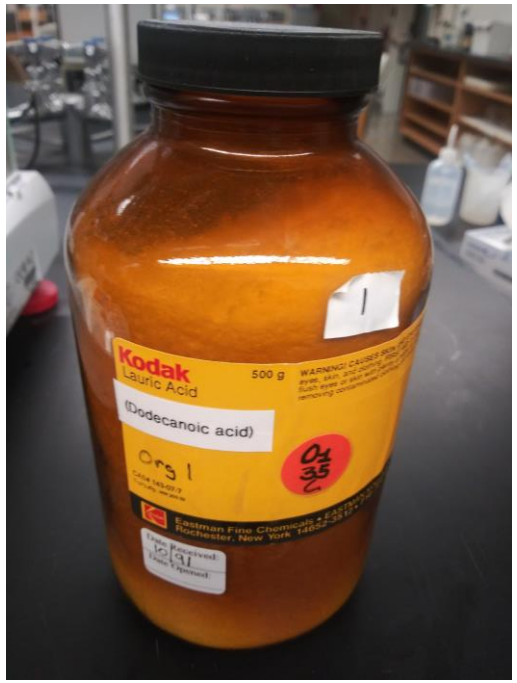
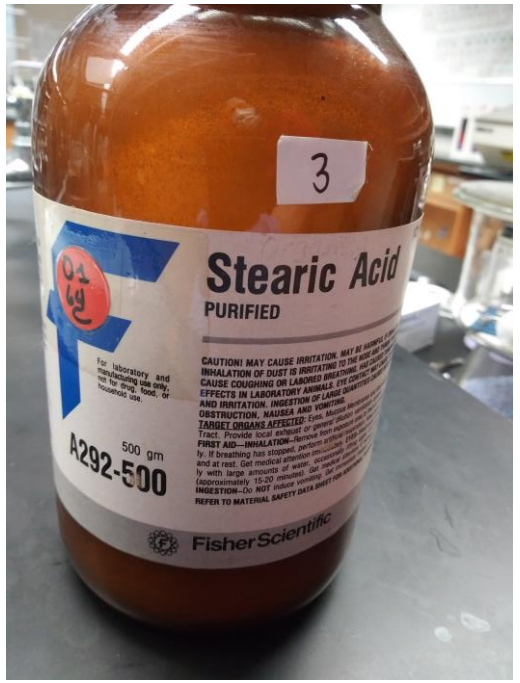
Laboratory No 4: **How Is The Freezing Point Of A Binary Mixture Of Solids Related To The Composition Of The Mixture?**

Chemicals used in this experiment:

Lauric Acid →



Stearic Acid →



Laboratory No 4: **How Is The Freezing Point Of A Binary Mixture Of Solids Related To The Composition Of The Mixture?**

Experiment Demonstration:

Video in 2D:

Part I https://youtu.be/G7gyzl402wc

Part II https://youtu.be/BgSJLSHWmro

Part III https://youtu.be/7p6XH0y-n0k

Close up video for part III click here

Video in 360:

Part I https://youtu.be/JjjHtX7iYw0

Part II https://youtu.be/XTF_aDzgqUE

Part III https://youtu.be/pgq8TGJqfMo

Experimental Data:

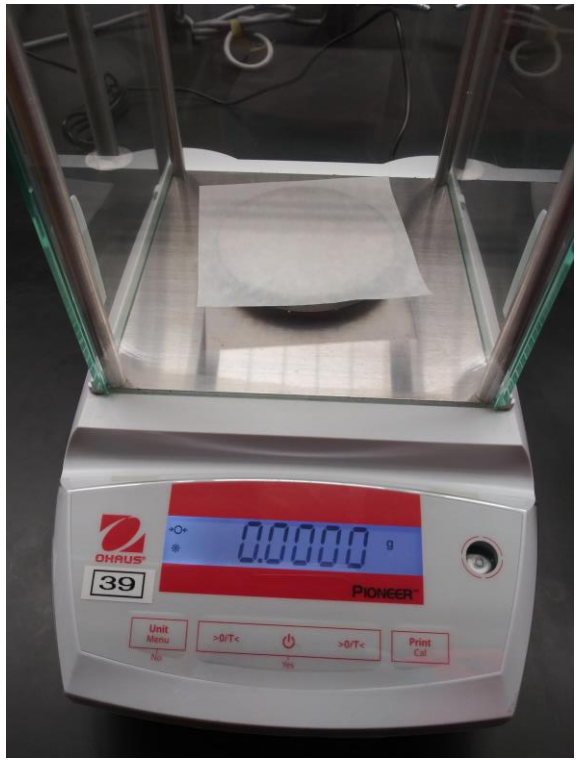
File name → LabNo4 _TempVsTime_Data.xlxs, download from the Lab Joule.

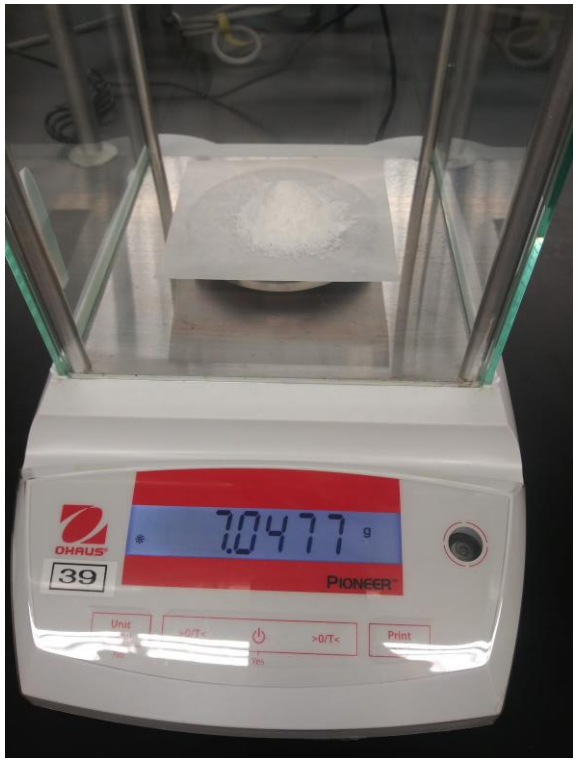
Experiment Part One

Starting with Lauric Acid

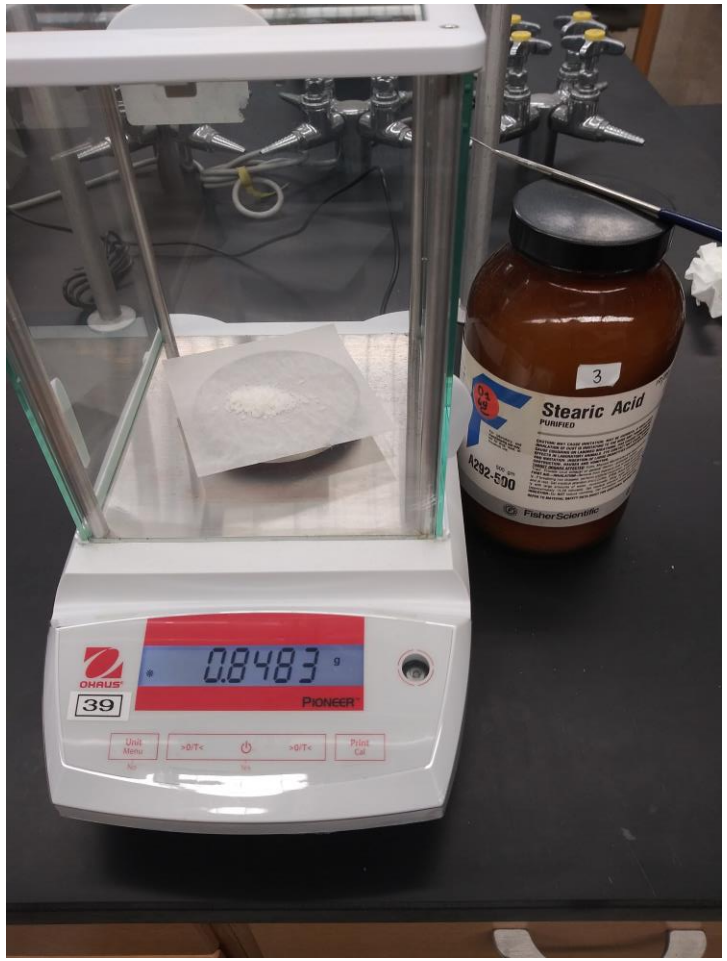
The balance was tared with the weighing paper for each measurement.

- Run #1: pure Lauric Acid

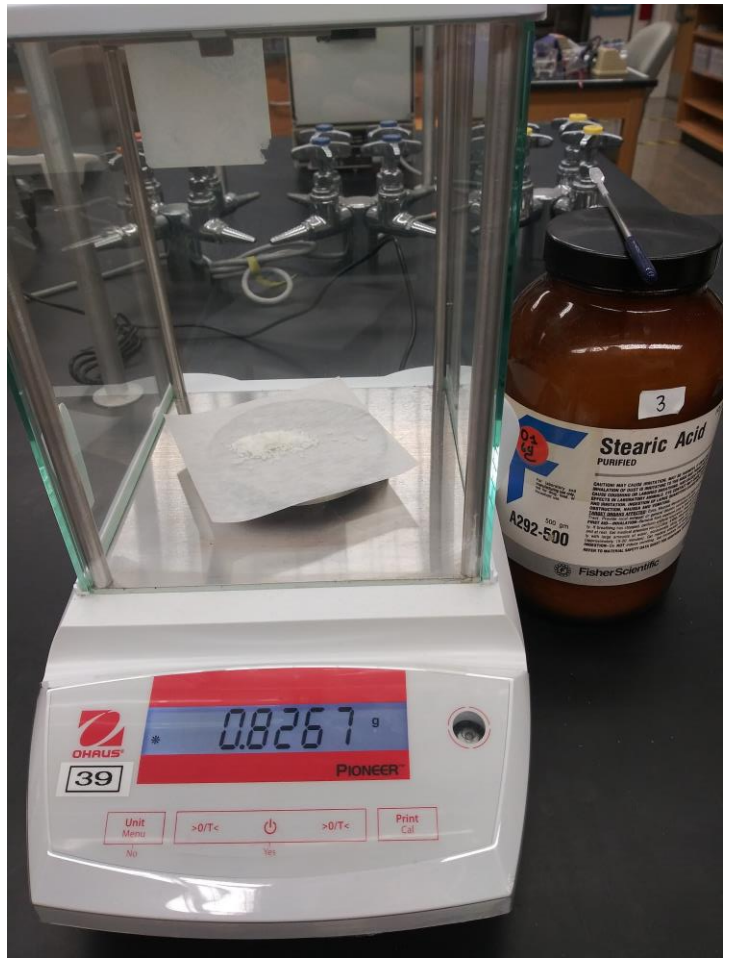




- Run #2: pure Lauric Acid + 1st addition of Stearic Acid



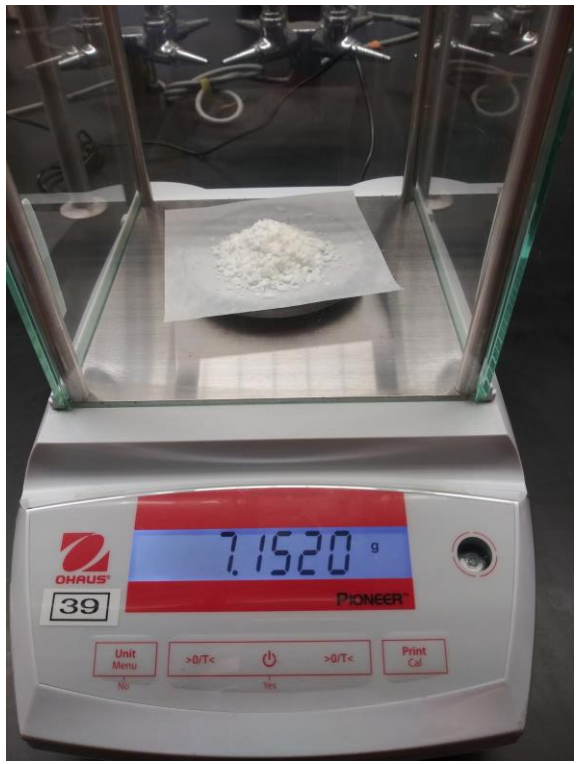
- Run #3: pure Lauric Acid + 2nd addition of Stearic Acid



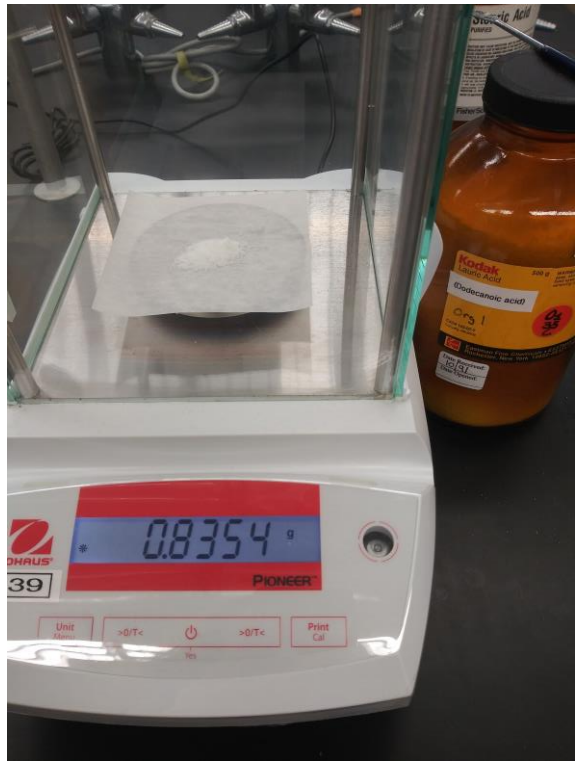
Experiment Part One

Starting with Stearic Acid

- Run #4: pure Stearic Acid



- Run #5: pure Stearic Acid + 1st addition of Lauric Acid



- Run #6: pure Stearic Acid + 2nd addition of Lauric Acid

Tube #	Run No	Mass of Lauric Acid Added (g)	Mass of Stearic Acid Added (g)	Mass of Lauric Acid Total (g)	Mass of Stearic acid Total (g)	Moles of Lauric Acid Total	Moles of Stearic Acid Total	Mole Fraction Lauric Acid	Freezing Point (°C)
I	1	**7.0477**	0						
	2	0	0.8483						
	3	0	0.8267						
II	4	0	**7.1520**						
	5	0.8354	0						
	6	0.7946	0						

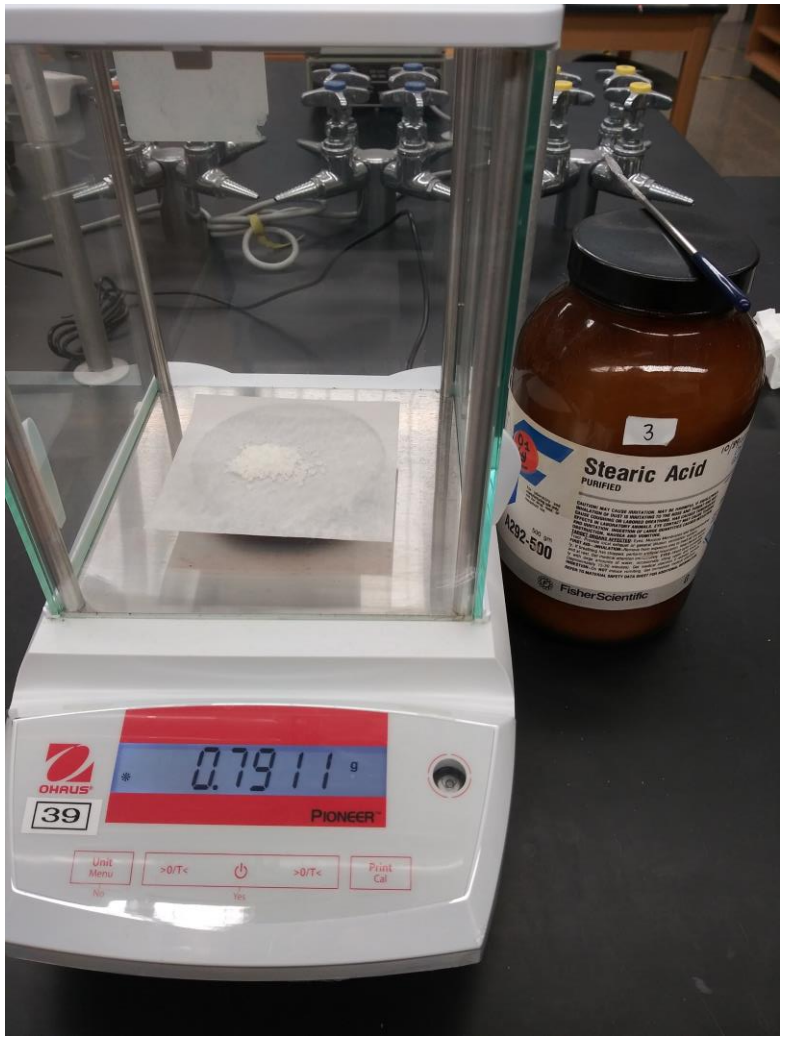
Experiment Part Two

Pre-Experiment Questions

Numeral 11.

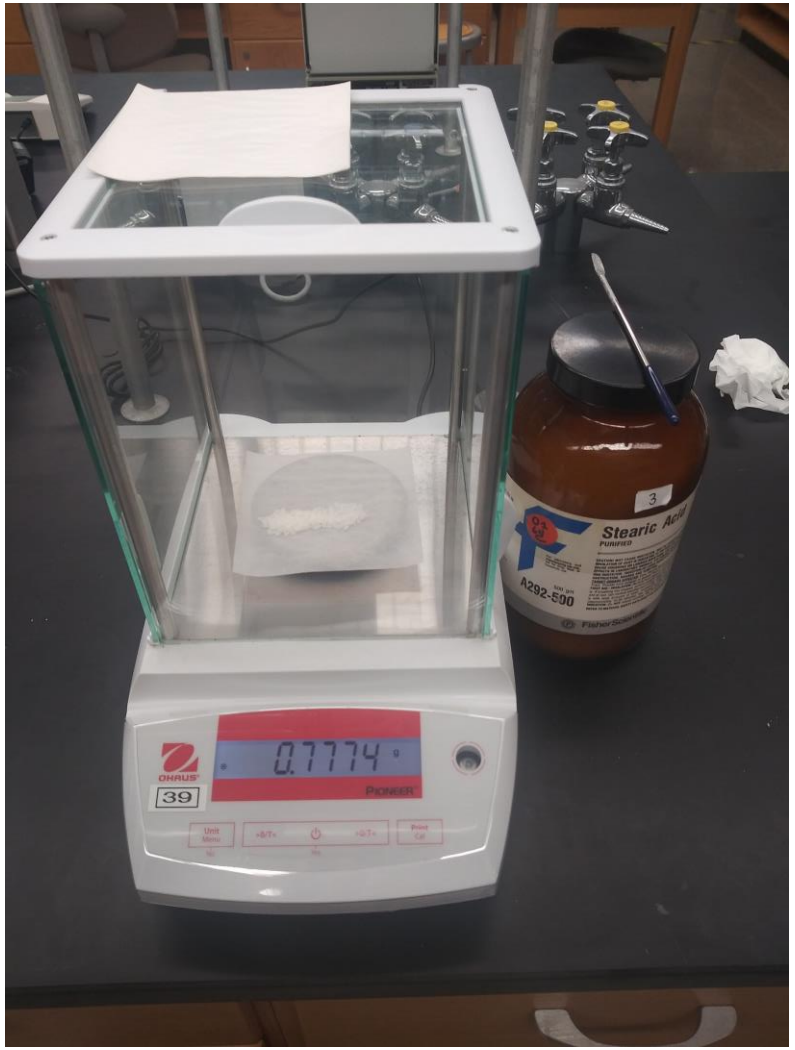
Tube#	Run No	Mass of Lauric Acid Added (g)	Mass of Stearic Acid Added (g)	Mass of Lauric Acid Total (g)	Mass of Stearic acid Total (g)	Moles of Lauric Acid Total	Moles of Stearic Acid Total	Mole Fraction Lauric Acid	Freezing Point (°C)
I	7	0	0.7911						
	8	0	0.8410						
	9	0	0.7774						
II	10	0.8530	0						
	11	0.8172	0						
	12	0.7121	0						
	13	0.7987	0						

- Run #7: pure Lauric Acid + 3rd addition of Stearic Acid



- Run #8: pure Lauric Acid + 4th addition of Stearic Acid

- Run #9: pure Lauric Acid + 5th addition of Stearic Acid



- Run #10: pure Stearic Acid + 3rd addition of Lauric Acid

- Run #11: pure Stearic Acid + 4th addition of Lauric Acid

- Run #12: pure Stearic Acid + 5th addition of Lauric Acid

- Run #13: pure Stearic Acid + 6th addition of Lauric Acid