Fourier Transform Infrared Spectrometry Prelab

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Recommended reading:

AirUCI Lab Manual:	FTIR L	Lab
Environmental Chemistry Text:	Pages:	6, 7, 13–16 on Light Absorption
	Pages:	175–177, 184, 185 on Molecular Vibrations
	Pages:	247–249 and 319 – 320 on Fuel & MTBE
	Pages:	295–302: Ethanol
Online: www.whfreeman.com/envc	hem5e	Organic Review on Alcohols and Ethers
		(Pages: Ap7 and AP8)

Prelab Questions:

1) What is the overall goal of this lab?

2) Draw the molecular structures for Ethanol and MTBE (see the Appendix in your Text for help). Circle the IR active functional groups that distinguish these molecules.

3) What is the ethanol volume percentage of 80 proof vodka?

4) Define wavelength, frequency and wavenumber, and how they are related. Convert wavenumber value of 2000 cm^{-1} into wavelength in nm and in frequency in s⁻¹.

5) List as many different types of molecular vibrations as possible. Which types of vibrations can an ethanol molecule have?

6) Write the Beer–Lambert Law. A form of the equation that is useful for experimental plots is: "y = mx + b". Identify each parameter (y, m, x, and b) for Beer's Law plots.