

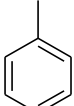
Name: _____

Section: _____

Data and Calculations for Experiment 12**Physical Properties of Hydrocarbons**

Solubility: Does the hydrocarbon mix with the solvent, *soluble*, or not mix with solvent, *insoluble*? Use the observations you make for the solubility tests and determine whether the hydrocarbons are polar or nonpolar substances.

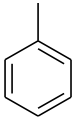
Density: For water, is the density *greater* than water (sinks) or *less* than water (floats)? For ligroin, can you tell anything about the relative densities?

<i>Hydrocarbon</i>	H₂O		Ligroin	
	<i>Solubility</i>	<i>Density</i>	<i>Solubility</i>	<i>Density</i>
Hexane				
Cyclohexene				
Toluene, 				
Unknown A				
Unknown B				
Unknown C				

Name: _____

Section: _____

Chemical Properties of Hydrocarbons

<i>Hydrocarbon</i>	<i>Bromine Test*</i>	<i>KMnO₄ Test</i>	<i>H₂SO₄ Test</i>
Hexane	Red		
Cyclohexene	Colorless		
Toluene, 	Red		
Unknown A	Red		
Unknown B	Colorless		
Unknown C	Red		

**The results of the bromine test have been provided for you.*

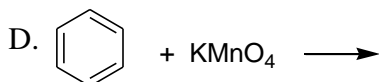
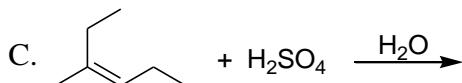
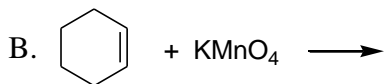
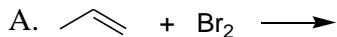
Unknown A is _____.

Unknown B is _____.

Unknown C is _____.

Questions

1. Below are four organic compounds. The reagent shown is added to the compound. Based on your studies in this lab, determine the products (if any) that you should observe when the reactants below are mixed together:

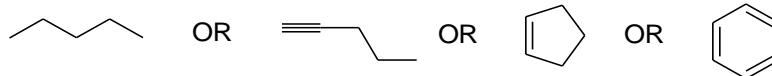


2. A student has two compounds in two separate bottles but with no labels on either one. One is an alkane, octane (C₈H₁₈); the other is 1-hexene (C₆H₁₂), an alkene. Based on your observations in this experiment, what should you see in the following tests?

Octane

1-Hexene

- A. Water solubility
- B. Ligroin solubility
- C. Density versus water
- D. Bromine test
- E. Permanganate test
3. An unknown compound, believed to be a hydrocarbon, showed the following behavior: no heat or color appeared when sulfuric acid was added; permanganate solution remained purple; and the red color of bromine solution was lost only after a catalyst was added. From the compounds below, circle the ONE that fits the observations.



4. In your own words, write a one-half page, well-written abstract of the entire experiment, making sure to briefly state the overall purpose or goal as well as any conclusions. (For additional guidelines on writing this abstract, please refer to the **Moorpark College Chemistry Department Laboratory Report Rubric** found in the lab manual and department website.)