**Formal Report of Group II**

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| **Scoring Rubrics for Formal Reports** | Points | Score |
| The question to be answered during the laboratory is stated |  |  |
| The hypothesis clearly shows it is based on research |  |  |
| Research references to prepare the lab are listed |  |  |
| Results of procedure are clearly stated |  |  |
| Summarize the essential laboratory data |  |  |
| State how the essential data answers the lab questions |  |  |
| Report is neatly printed with ink, with no visible corrections |  |  |
| The lab report is written in such a way that others could accurately duplicate the experiment |  |  |
| **TOTAL** |  |  |

|  |  |
| --- | --- |
| Physical Properties of Organic Compounds | Description: C:\Users\Alleta\Desktop\folders\jrl.jpg |

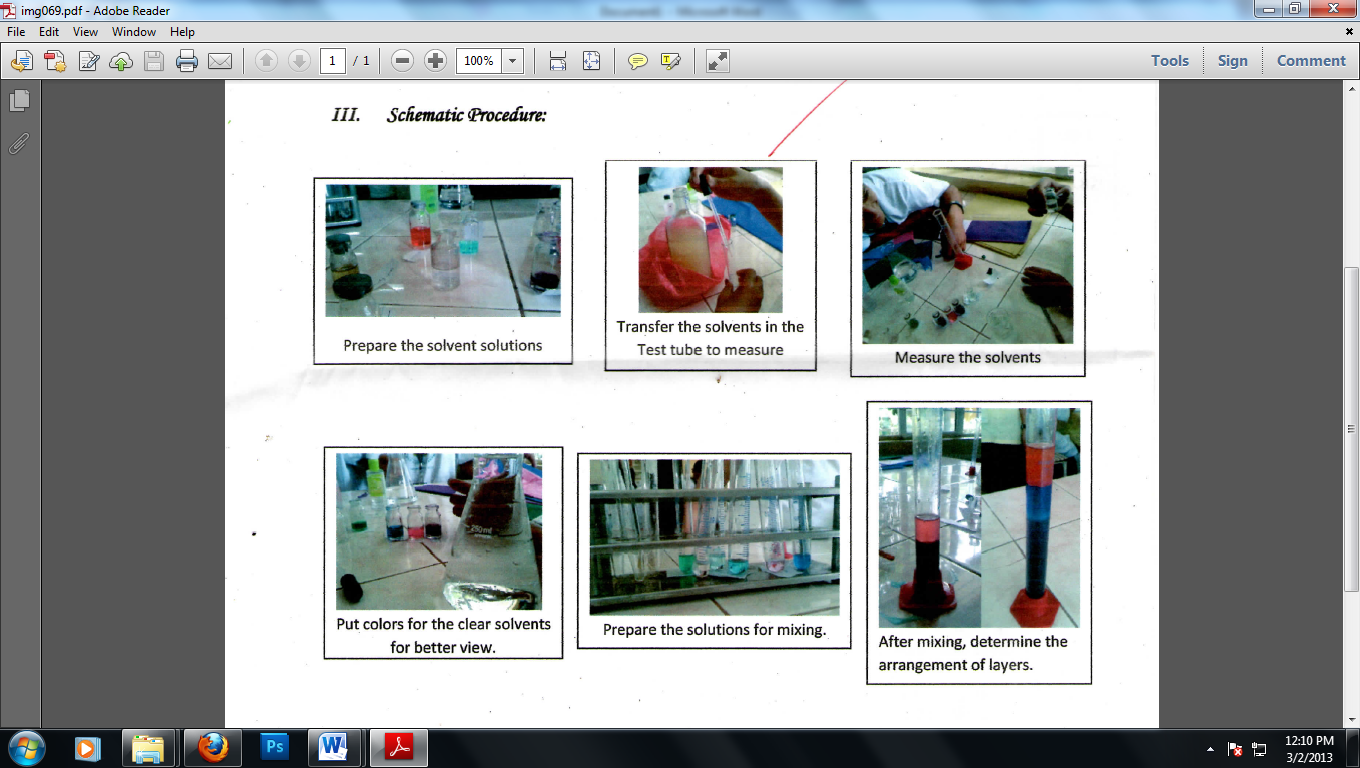
1. **Objectives** :

* To know the:
* Water solubility of organic solvents.
* Density of organic solvents.
* Boding points of organic solvents
* Melting point of organic solid.
* Solubility of organic compounds in organic solvents and water

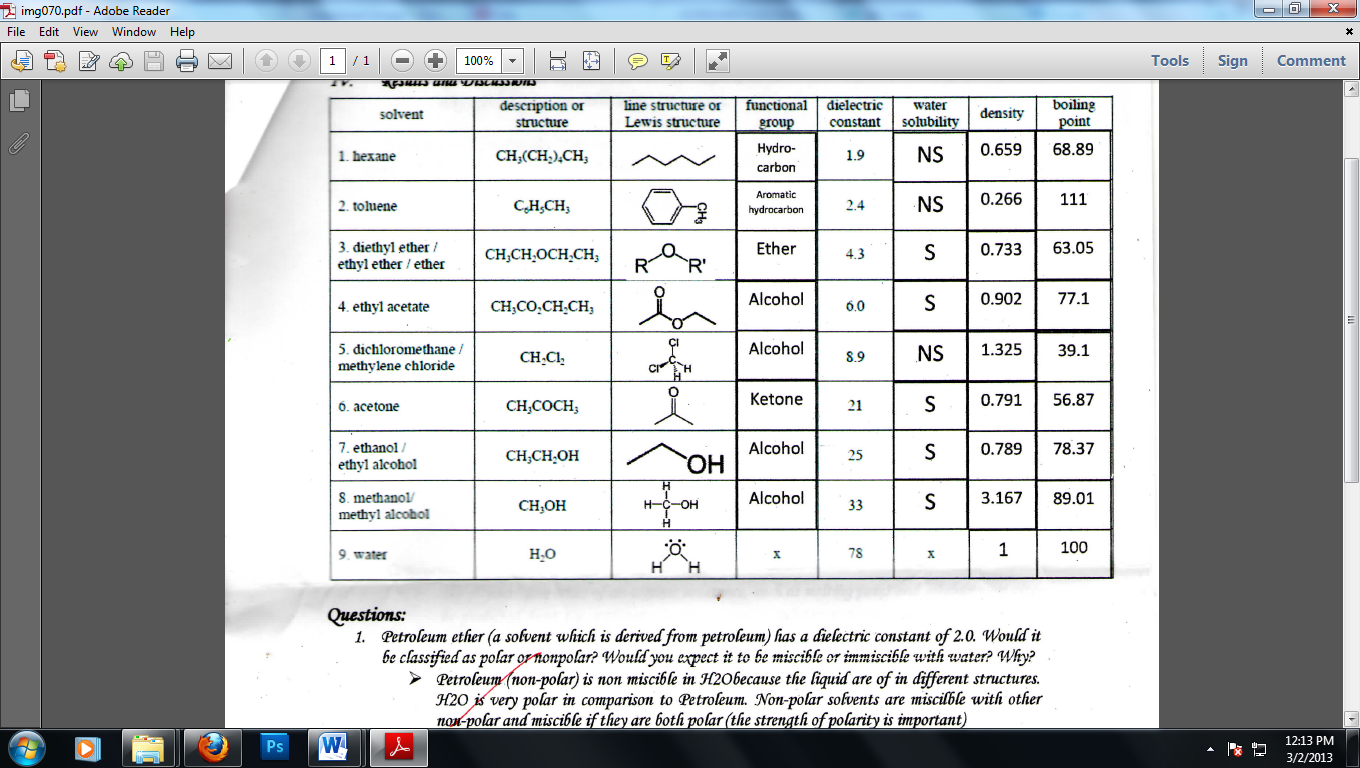
1. **Science Concepts:**

* Hexane is an alkane of six carbon atoms, with the chemical formula CSH14. The term may refer to any of the five structural isomers with that formula, or to a mixture of them.
* Toluene, formerly known as toluol, is a clear, water-insoluble liquid with the typical smell of paint thinners.
* Ethers are a class of organic compounds that contain an ether group — an oxygen atom connected to two alkyl or aryl groups — of general formula R-O-R
* Ethyl acetate is the organic compound with the formula CH3COOCH2CH3. This colorless liquid has a characteristic sweet smell and is used in glues, nail polish removers, decaffeinating tea and coffee, and cigarettes.
* *Dichloromethane —or methylene chloride—is an organic compound with the formula CH2Cl2. This colorless, volatile liquid-with a moderately sweet aroma is widely used as a solvent.*
* *Alcohol is an organic compound in which the hydroxyl functional group (-OH) is bound to a carbon atom.*
* *Acetone (systematically named propanone) is the organic compound with the formula (CH3)2CO. It is a colorless, mobile, flammable liquid, and is the simplest Ketone.*

1. **Schematic Procedure:**



1. **Results and Discussions:**



Questions:

1. *Petroleum ether (a solvent which is derived from petroleum) has a dielectric constant of 2.0. 'Would it be classified as polar or non-polar? Would you expect it to be**miscible or immiscible with water? Why?*

* *Petroleum (non-polar) is non-miscible in* H2O because *the liquid are of in different structures. H*2*O is very polar in comparison to (Petroleum. Non-polar solvents are miscible with other nonpolar and miscible if they are both polar (the strength of polarity is important)*

1. *Only one of the common solvents is denser than water. Which is it? 'Explain why it triads sense that this solvent should be unusually dense.*

* *Naphthalene is the only solution denser than H2O, therefore it will sink.*

1. *Organic liquids A, B, and C have densities of 0.69 0, 0.955g/ml and 1.126g/ml. A and C are low polarity solvents, while (B is a high polarity solvent. When each is added to water, how would you expect them to behave?*

* *Organic liquid C with the density of 1.126 g/ml wilt be on followed by Organic liquid B with density of 0.955 g/ml organic liquid JZ with 0.690 g/ml will rise at the top. The last 2 will just float in H20.*

1. *Why are the boiling points we measured in. the lab lower than the ones in the catalogue? Are melting points affected by this issue? Why or why not?*

* The boiling point measured in the laboratory is different from the given because some factors may affect the temperature in the laboratory.

1. Explain the following observations:
2. Ethyl acetate has a higher boiling point than hexane, even though they are approximately the same molecular weight

* Molecular weight doesn’t affect the boiling point of a substance.

1. Methanol has a lower boiling point than ethanol even though it is more polar

* Polarity doesn’t affect the boiling point of the substance.

1. Ethanol has a higher boiling point than ethyl ether even though ethyl ether is heavier

* Weight cannot affect the boiling point.

1. The known melting point of 2-methylbenzamide is 140.20C. If you took the melting point of a sample of this compound, how would you interpret the following results?

***a.)*** *139.2-140J°C* ***b.)****137.7-143.2°C* **c***)149.1-150.3°C*

* *The result melting point result depends on the amount of sample of the tested compound*

1. *2-MethyIbenzamiae and 3-nitrobenzoic acid both have a melting point of 140.2°C However, if you mixed them together and tookj,he melting point, it would not bel40.2°C. Why not?*

* *Even they have the same melting point, different polarities will affect the melting point of the substance*

1. **Conclusion:**

* The physical properties of an organic substance, such as melting point and solubility are often be predicted from the structure. In most cases, a substance density, molecular weight and functional group are sufficient information to determine the melting and boiling point of solubility.

1. **References:**

* <http://jefstaines.weebly.com/worksheetsactivity-sheets.html>

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