

## Rubric for Identification of Unknowns Paper – Summer 2017

Name: \_\_\_\_\_

Section: \_\_\_\_\_

Date: \_\_\_\_\_

Vial Number: \_\_\_\_\_

What compounds do you think you have?

Alcohol: \_\_\_\_\_

Ketone: \_\_\_\_\_

Typed prelab (containing introduction, physical data, and procedure) is due at start of experiment. Data & observations are handwritten during experiment. Before you leave lab, your TA will initial your prelab and data & observations. Three lab periods after the Identification of Unknowns lab ends, turn in your paper as a single stapled document containing, in this order: 1) Copy of this rubric 2) Initialed prelab 3) Data & observations 4) Typed paper 5) All spectra

Item	Max Score	Your Score
Introduction	6	
Physical Data	6	
Procedure	6	
Data & Observations	6	
Introduction	12	
Body	24	
Conclusion	12	
IDs	24	
Technique	12	
Format	12	
<b>RAW TOTAL</b>	120	
<b>Points lost due to lateness (10%/day)</b>	-	
<b>Points lost due to taking pure compounds (4 pts/vial)</b>	-	
<b>FINAL GRADE</b>	120	

	Full points	Two-thirds points	One-third points	No points
<b>Introduction (6 pts)</b>	<ul style="list-style-type: none"> <li>○ Purpose is stated clearly and correctly in a few sentences</li> <li>○ Structures are drawn in ChemDraw (or similar program) with no errors</li> </ul>	<ul style="list-style-type: none"> <li>○ Purpose has minor errors, is incomplete or far too wordy</li> <li>○ Structures are drawn in ChemDraw with minor errors or omissions</li> </ul>	<ul style="list-style-type: none"> <li>○ Purpose is stated vaguely or incorrectly</li> <li>○ Structures are drawn in ChemDraw with major errors or omissions</li> </ul>	<ul style="list-style-type: none"> <li>○ Purpose is not stated</li> <li>○ Structures are not shown at all, or are copied from another source, or are hand-drawn</li> </ul>
<b>Phys Data (6 pts)</b>	<ul style="list-style-type: none"> <li>○ All compounds used in experiment are listed</li> <li>○ All relevant physical properties are given for each compound</li> </ul>	<ul style="list-style-type: none"> <li>○ Most compounds are listed</li> <li>○ Most physical properties are given for each compound</li> </ul>	<ul style="list-style-type: none"> <li>○ Under half of compounds are listed</li> <li>○ Some physical properties are given for each compound</li> </ul>	<ul style="list-style-type: none"> <li>○ Few or no compounds are listed</li> <li>○ Few or no physical properties are given</li> </ul>
<b>Proced. (6 pts)</b>	<ul style="list-style-type: none"> <li>○ All steps are listed clearly, in correct order</li> </ul>	<ul style="list-style-type: none"> <li>○ Most steps are listed clearly, in correct order</li> </ul>	<ul style="list-style-type: none"> <li>○ Most steps are listed incorrectly, unclearly, or in wrong order</li> </ul>	<ul style="list-style-type: none"> <li>○ No steps are listed</li> </ul>
<b>Data &amp; Obs (6 pts)</b>	<ul style="list-style-type: none"> <li>○ Data and observations are present, clearly labeled and organized</li> <li>○ All TLC plates are drawn</li> <li>○ R<sub>f</sub> values are clearly and correctly calculated</li> <li>○ Data is handwritten clearly on carbon-copy paper during experiment</li> </ul>	<ul style="list-style-type: none"> <li>○ Data and observations are mostly present, but disorganized or not labeled</li> <li>○ Most plates are drawn</li> <li>○ R<sub>f</sub>s are calculated incorrectly or without showing work</li> <li>○ Data is handwritten sloppily on carbon-copy paper during experiment</li> </ul>	<ul style="list-style-type: none"> <li>○ Data and observations are mostly missing, or so disorganized that they are useless</li> <li>○ Plates are not drawn</li> <li>○ R<sub>f</sub> values are not calculated</li> <li>○ Data is either not written during lab, or very sloppy</li> </ul>	<ul style="list-style-type: none"> <li>○ Data and observations are missing</li> </ul>

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<b>Introduction (12 pts)</b>	<ul style="list-style-type: none"> <li>○ Procedure is briefly discussed, with brief explanation of why it was performed</li> <li>○ Brief explanation of solvent choice is given</li> <li>○ Brief explanation of choice of which fractions to combine is given</li> </ul>	<ul style="list-style-type: none"> <li>○ Procedure is discussed with partial explanation</li> <li>○ Incomplete explanation of solvent choice</li> <li>○ Incomplete explanation of choice of which fractions to combine</li> </ul>	<ul style="list-style-type: none"> <li>○ Experimental procedure is discussed with incorrect/no explanation</li> <li>○ Incorrect or missing explanation of solvent choice</li> <li>○ Incorrect or missing explanation of choice of which fractions to combine</li> </ul>	<ul style="list-style-type: none"> <li>○ Experimental procedure is not discussed</li> </ul>
<b>Body (24 pts)</b>	<ul style="list-style-type: none"> <li>○ A detailed description is given of how the data (TLC, MP, IR, and NMR) lead you to identify each compound (1 paragraph per compound)</li> <li>○ All required spectra are attached and interpreted correctly. All relevant peaks are labeled.</li> <li>○ Writing is clear</li> <li>○ Writing is in third-person past tense</li> </ul>	<ul style="list-style-type: none"> <li>○ A detailed description is given of how the data lead you to identify each compound, with minor errors</li> <li>○ All required spectra are interpreted mostly correctly, with most peaks labeled.</li> <li>○ Writing is fairly clear</li> <li>○ Writing is mostly in third-person past tense</li> </ul>	<ul style="list-style-type: none"> <li>○ A detailed description is given of how the data lead you to identify each compound, with significant errors</li> <li>○ All required spectra are interpreted with significant errors, or some spectra are missing</li> <li>○ Writing is fairly confusing</li> <li>○ Writing is mostly in wrong tense</li> </ul>	<ul style="list-style-type: none"> <li>○ No description is given of how the data lead you to identify each compound</li> <li>○ All required spectra are missing or not interpreted</li> <li>○ Writing is very confusing</li> <li>○ Writing is in wrong tense</li> </ul>
<b>Conclusion (12 pts)</b>	<ul style="list-style-type: none"> <li>○ Findings are summarized clearly and concisely</li> </ul>	<ul style="list-style-type: none"> <li>○ Summary has minor errors, is incomplete or far too wordy</li> </ul>	<ul style="list-style-type: none"> <li>○ Findings are summarized with significant errors</li> </ul>	<ul style="list-style-type: none"> <li>○ Findings are not summarized</li> </ul>
<b>IDs (24 pts)</b>	<ul style="list-style-type: none"> <li>○ Alcohol identified correctly</li> <li>○ Ketone identified correctly</li> </ul>			<ul style="list-style-type: none"> <li>○ Alcohol not identified correctly</li> <li>○ Ketone not identified correctly</li> </ul>
<b>Technique (12 pts)</b>	<ul style="list-style-type: none"> <li>○ Student was prepared for lab and understood procedure &amp; technique</li> <li>○ Student followed correct safety procedures throughout experiment</li> </ul>	<ul style="list-style-type: none"> <li>○ Student was mostly prepared for lab and mostly understood procedure &amp; technique</li> <li>○ Student violated safety rules once or twice (no goggles, shorts, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>○ Student was unprepared for lab and understood procedure &amp; technique poorly</li> <li>○ Student violated safety rules several times</li> </ul>	<ul style="list-style-type: none"> <li>○ Student was completely unprepared for lab and had no understanding of experiment</li> <li>○ Student committed significant violations of safety rules</li> </ul>
<b>Format (12 pts)</b>	<ul style="list-style-type: none"> <li>○ Report is typed (except for data) and turned in as paper copy, with good spelling, formatting, and grammar</li> <li>○ All parts of lab report are present in correct order</li> <li>○ All parts of lab report have identifying information</li> <li>○ Font is correct (10- or 12-point, 1.5- or 2-spaced)</li> <li>○ Paper is under three pages (not including prelab, spectra or observations)</li> </ul>	<ul style="list-style-type: none"> <li>○ Report is typed but has some spelling, formatting or grammatical errors</li> <li>○ All parts are present but not in correct order</li> <li>○ Lab report has most of identifying info</li> <li>○ Font is nearly correct</li> <li>○ Paper is 3-4 pages</li> </ul>	<ul style="list-style-type: none"> <li>○ Report is typed but has significant spelling, formatting or grammatical errors</li> <li>○ Rubric sheet is not attached</li> <li>○ Lab report has little identifying info</li> <li>○ Font is very incorrect</li> <li>○ Paper is 5-6 pages</li> </ul>	<ul style="list-style-type: none"> <li>○ Entire lab report is handwritten, or not turned in as hard copy, or has terrible spelling or grammar</li> <li>○ Multiple sections of lab report are missing</li> <li>○ Lab report has no identifying info</li> <li>○ Font is so incorrect that paper cannot easily be read or graded</li> <li>○ Paper is 7 pages or more</li> </ul>