

Name _____

Section _____

Aldehydes and Ketones

Experiment #4

Pre-Lab Exercise

1. Describe the difference between an aldehyde and a ketone, and indicate how each differs from an alcohol.
2. Name one aldehyde or ketone that is used widely by consumers. Be sure to give the correct name and indicate its use.
3. Describe what is meant by oxidation and reduction in relation to organic compounds, giving one example of oxidation of an organic compound and one example of reduction of an organic compound. The compound you use for the example may be the same or different for the oxidation and the reduction reactions. Be sure to indicate what oxidizing agent is used and what reducing agent is used for each example.

4. The simplest aldehyde, formaldehyde (methanal), is a common aldehyde found in our food and environment. Give at least one source of human exposure to formaldehyde and indicate at least one health condition that can result from this aldehyde. (See supplement to chapter 15 or internet sources and cite your source).

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Aldehydes and Ketones**Experiment #4****Data & Report Sheet**

Table 1. Tests for Aldehydes and Ketones. [indicate whether you observed a positive reaction (+) or no reaction (-) in each test **and** note any color changes or other changes].

Unknown # _____

	Tollens Test	Fehling's Test	Chromic Acid Test
Acetone			
Benzaldehyde			
Acetaldehyde			
Cyclohexanone			
Unknown # _____			

Questions

1. After looking at the results in Table 1, to what class of compound would you conclude your unknown belongs? (Aldehyde, ketone, or aromatic aldehyde)

2. Which one of the tests performed in this experiment would be most useful in differentiating butanal (a straight chain aldehyde) and benzaldehyde (an aromatic aldehyde). Which of the test compounds (acetone, acetaldehyde, benzaldehyde or cyclohexanone) should react in the same way as butanal in these tests? Explain your answer.

3. Did any of these three reagents (Tollens, Fehling's or chromic acid) react differently with benzaldehyde than it did with other aldehydes? Which one?

4. Why would benzaldehyde react differently than other aldehydes?