

## Report Guidelines The Oxidation of Borneol to Camphor

**Note: The experimental procedures for this experiment are provided as a handout, which was included into the same email**  
**You will start this experiment on May 19, 2016 or May 20, 2016 and it will take TWO lab periods: May 19 or May 20 (synthesis) and May 31 or June 1 (characterization).**

### Pre-lab Report Guidelines

1. Title of the experiment
2. Introduction – outline the techniques (including any synthesis, purification and identification) that you will be using in this experiment.
3. Provide a procedure in flowchart format (*for the entire experiment - except for the section on optical rotation*)
4. Reference of the experimental procedures
5. Pre-lab exercise questions #1 to #6 (*refer to the experimental handout*)
6. Pre-lab exercise questions #1 & #2 (*refer to you lab manual – page 108*)

You can use **TWO** different sites **within** the SDS on the Web for question 1 of the pre-lab (refer to the SDS handout for more details).

Note: web site for SDS is <http://www.msdssearch.com>. Click on “DB” to start using the SDS databases.

Two other excellent web sites that will also link you to SDS are: <http://www.chemnetbase.com>  
Click on the “Combined Chemical Dictionary” to start the search.

### **Post lab (Both period 1 & 2) (This is an Individual Report)**

1. Abstract – summarize goal(s) of the experiment, your experimental results as well as the experimental techniques that you used that enable you to achieve such goal(s).

2. Data & Data Analysis

Write balanced chemical equations describing what happen during various steps of the experiment

**Note: Use the experimental handout as a guide when writing various chemical reactions.**

3. Calculate the theoretical yield of camphor

4. Calculate the percentage yield for the crude product

5. Calculate the percentage yield for the sublimed product

6. Conclusion

- Comment on percentage crude yield
- Interpretation of camphor sublimed product composition and purity by comparing the infrared spectrum for PURE camphor with the EXPERIMENTAL Infrared spectrum. **Explain** all your reasoning.

You can download a copy of the infrared spectrum for PURE CAMPHOR and PURE BORNEOL from the SDBS Website.

[http://sdb.sriodb.aist.go.jp/sdb/cgi-bin/direct\\_frame\\_top.cgi](http://sdb.sriodb.aist.go.jp/sdb/cgi-bin/direct_frame_top.cgi)

1. Enter “Camphor” in the *Compound Name* box
2. Pick (+)-camphor
3. Pick IR: KBr disc (not Nujol null or CCl<sub>4</sub> solution because they have additional peaks or certain ranges are removed)
4. Repeat the process for “Borneol”

If the SDBS website is not available (as it is as of today (5-6-2016)), you might be able to get the reference spectrum from Sigma-Aldrich as well.