

REVISED & UPDATED

15-September-2009

CHEM 302L—Organic Chemistry I Laboratory

Fall 2009

Instructor: David R. Myers, Ph.D.

Office: F119 Telephone: Ext. 7436 (528-7436)

Office Hours: M 2:00-3:00; W 1:00-3:30, or by appointment.

Course Location and Time: F128—Chemistry Laboratory; Tuesday 9:00 – 11:45 a.m.

Text: Pavia, Lampman, Kriz, Engel; “Introduction to Organic Laboratory Techniques: A Microscale Approach”; 4th Edition. (Abbreviated below as: PLKE)

Laboratory reports are due one week after the completion of the procedure. Late reports will receive a 5 pt/day late penalty. This really is for your own good!

You are expected to have done the reading for the laboratory procedure before coming into the lab. I will provide a brief ‘pre-lab’ lecture on some of the more interesting points, but understanding the procedure you follow is your responsibility. Much time can be saved by reading the procedure thoroughly, and thinking ahead *i.e.* what can I do/prepare now while I am waiting for what I am doing to finish?

Of course, the usual safety rules as outlined in General Chemistry apply, particularly the no contact lenses rule. This time I really mean it!

Week

Laboratory Procedure

1

**Check in. Introduction to some basic laboratory techniques.
Recrystallization of impure sulfanilamide (Exp. 3A);
Separation of a Three-Component Mixture. (Exp. 4D).**

Reading: PLKE: pp. 21-25; 32-33, 38-40; Techniques 8, 9, 11, 12; pp. 616-637; 647-693

2

Column Chromatography (Exp. 5D)

Reading: PLKE pp. 42-43; 48-50; Technique 19 (Sections 4-16), pp. 760-777.

3

Thin Layer Chromatography; Identification of an Unknown Analgesic Tablet (Exp. 11)

Reading: PLKE pp. 67-70, 80-87; Technique 19 (Sections 1-3), Technique 20; pp. 756-759; 777-792

REVISED & UPDATED

REVISED & UPDATED

15-September-2009

- 4 Essential Oils from Spices: Oil of Cloves (Exp. 14A)**
- Reading: PLKE pp. 108-115; Techniques 7 (Section 10), 18, 25; pp. 611-614, 750-755; 833-867. (much of this last reading section will be done again next term in Organic Chemistry II)
- 5 Nucleophilic Substitution Reactions of Alkyl Halides (Handout)**
- 6 Phase-Transfer Catalysis: Addition of Dichlorocarbene to Cyclohexene (Exp. 26)**
- Reading: PLKE pp. 217-223; review Techniques 12, 25 (pp. 674-675, 680-685, 834-836, 847-849.)
- 7 Evaluating a Mechanism of Dihydroxylation via TLC (Handout)**
- 8-9 Grignard Synthesis of Triphenylmethanol (Exp. 38A)**
- Reading: PLKE pp. 317-324.
- 10-11 N,N-Diethyl-*m*-toluamide: the Insect Repellent "OFF" (Exp. 47)**
- Reading: PLKE pp. 377-388
- 12-13 Sulfa Drugs: Preparation of Sulfanilamide (Exp. 48)**
- Reading: PLKE pp. 388-396
- 14 No laboratory—finish up Sulfa drugs (if needed)**

REVISED & UPDATED