

SOLUTIONS MANUAL

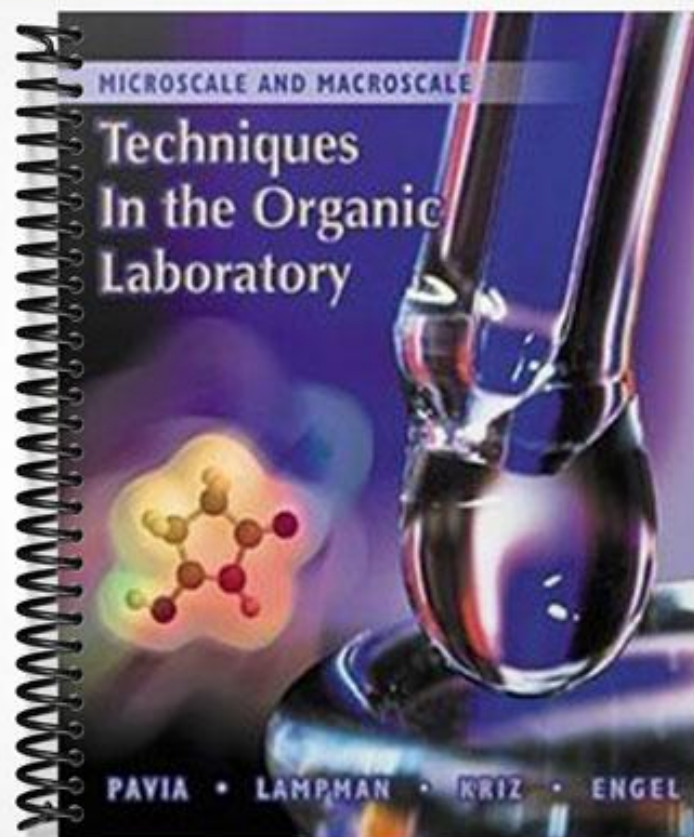


TABLE OF CONTENTS

Answers to Problems
Microscale and Macroscale Techniques in the Organic Laboratory
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Chapter 1	Laboratory Safety	2
Chapter 2	Advance Preparation and Laboratory Records	2
Chapter 3	Laboratory Glassware	2
Chapter 4	How to Find Data for Compounds	3
Chapter 5	Measurement of Volume and Weight	4
Chapter 6	Heating and Cooling Methods	5
Chapter 7	Reaction Methods	6
Chapter 8	Filtration	8
Chapter 9	Physical Constants of Solids: The Melting Point	9
Chapter 10	Solubility	9
Chapter 11	Crystallization: Purification of Solids	10
Chapter 12	Extractions, Separations, and Drying Agents	12
Chapter 13	Physical Constants of Liquids: The boiling point and density	16
Chapter 14	Simple Distillation	17
Chapter 15	Fractional Distillation, Azeotropes	19
Chapter 16	Vacuum Distillation; Manometers	21
Chapter 17	Sublimation	22
Chapter 18	Steam Distillation	22
Chapter 19	Column Chromatography	23
Chapter 20	Thin-Layer Chromatography	25
Chapter 21	High-Performance Liquid Chromatography (HPLC)	26
Chapter 22	Gas Chromatography	27
Chapter 23	Polarimetry	28
Chapter 24	Refractometry	29
Chapter 25	Infrared Spectroscopy	30
Chapter 26	Nuclear Magnetic Resonance Spectroscopy	31
Chapter 27	Carbon-13 Nuclear Magnetic Resonance Spectroscopy	32
Chapter 28	Mass Spectrometry	32
Chapter 29	Computational Chemistry	32
Chapter 30	Guide to the Chemical Literature	32

If you have suggestions for improving this book, please contact us.

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Chapter 1

LABORATORY SAFETY

No problems

Chapter 2

ADVANCED PREPARATION AND LABORATORY RECORDS

No problems

Chapter 3

LABORATORY GLASSWARE

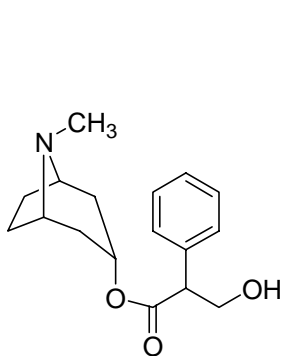
No problems

Chapter 4

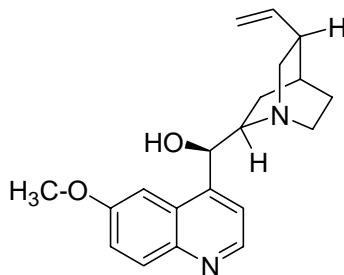
HOW TO FIND DATA FOR COMPOUNDS: HANDBOOKS AND CATALOGS

Answers to Problems

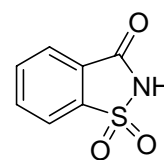
1.



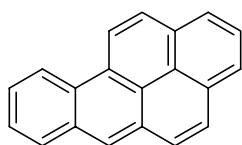
atropine



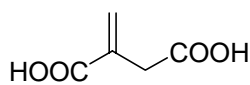
quinine



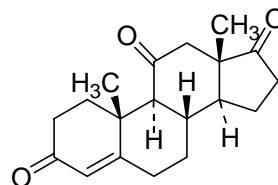
saccharin



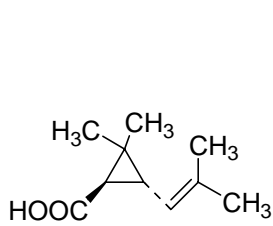
benzo[a]pyrene



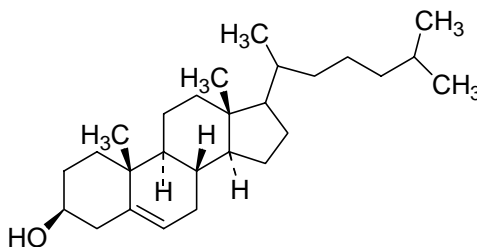
itaconic acid



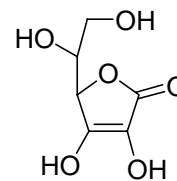
adrenosterone



crysanthemic acid



cholesterol



ascorbic acid

2. Biphenyl: mp 69-72 °C (Aldrich Handbook)
4-Bromobenzoic acid: mp 252-254 °C (Aldrich Handbook)
3-Nitrophenol: mp 96-98 °C (Aldrich Handbook)
 3. Octanoic acid: 110-111 °C at 4mm pressure (CRC Handbook)
Acetophenone, 4-chloro: 273 °C at 760mm and 124-126 at 30mm (CRC)
2-Heptanol, 2-methyl: 156 °C at 760mm (CRC Handbook)
 4. Octanoic acid: density 0.8615; index of refraction 1.4278
Acetophenone, 4-chloro: density 1.1922; index of refraction 1.5550
2-Heptanol, 2-methyl: density 0.8142; index of refraction 1.4238 (CRC)
 5. (*R*)-Camphor: +44.1°
(*S*)-Camphor: -43°
 6. Poisoning may occur by inhalation, ingestion or skin absorption.
High concentrations results in depression of the central nervous system.
Inhalation may cause pulmonary edema.
-

Chapter 5

MEASUREMENT OF VOLUME AND WEIGHT

Answers to Problems

1. (a) Graduated cylinder
(b) 5.0 mL graduated pipet or dispensing pump
(c) Automatic pipet
(c) Graduated cylinder
2. You should preweigh the round-bottom flask and add the specified volume.
The flask should then be reweighed. The difference gives the actual weight of the limiting reagent.
3. (a) Diethyl ether, $d = 0.71 \text{ g/mL}$
weight = $(0.71 \text{ g/mL})(2.5 \text{ mL}) = 1.8 \text{ g}$
(b) Methylene chloride, $d = 1.32 \text{ g/mL}$
weight = $(1.32 \text{ g/mL})(2.5 \text{ mL}) = 3.3 \text{ g}$