

## 4.1: INTRODUCTION

### OBJECTIVES

After completing this section, you should be able to use the terms “ether,” “diethyl ether ” and “ethyl ether ” appropriately in context.

### KEY TERMS

Make certain that you can define, and use in context, the key terms below.

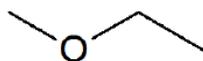
- ether ( $R-O-R'$ )
- sulfide ( $R-S-R'$ )
- thiol ( $R-S-H$ )

### STUDY NOTES

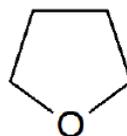
As defined in the textbook, an “ether” is a substance with the general formula ( $R-O-R'$ ) where R and R' are alkyl, aryl, vinyl or allyl groups. However, the word “ether” is also commonly used to refer to the specific compound,  $CH_3-CH_2-O-CH_2-CH_3$ , which is correctly called “diethyl ether.” Further confusion can arise because some chemists refer to “diethyl ether ” as “ethyl ether.” In this course, “ether ” will be used to refer to the class of compounds with the structure ( $R-O-R'$ ); diethyl ether will refer to the compound,  $CH_3-CH_2-O-CH_2-CH_3$ ; and “ethyl ether ” will not be used.

## ETHERS AND EPOXIDES

While the general formula for **ethers** is  $R-O-R'$ , keep in mind that there also **cyclic ethers** like tetrahydrofuran (a common organic solvent) or even **epoxides** which you first encounter in Section 8.7 in synthesizing diols from alkenes.



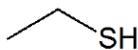
ethyl methyl ether



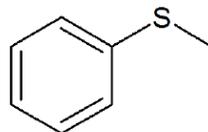
tetrahydrofuran

## THIOLS AND SULFIDES

**Thiols** (thio alcohols or mercaptans) and **sulfides** (thioethers) are the sulfur analogues of alcohols and ethers and have the general formulas of  $R-S-H$  and  $R-S-R'$ , respectively.



ethanethiol



methyl phenyl sulfide

## CONTRIBUTORS AND ATTRIBUTIONS

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