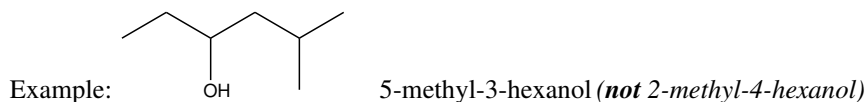


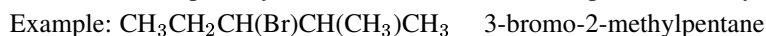
CHEM 20481 - Basic Organic Chemistry - Chapter 4 Review Properties and Reactions of Alcohols and Alkyl Halides

Nomenclature

Alcohols: Primary chain should contain O-H group. Suffix changes from *-ane* to *-ol*, and number to indicate position of OH group. Chain should be numbered such that OH group has the lowest value.



Alkyl Halides: After primary carbon chain found, indicate position of alkyl groups.



Classification: Alcohols and alkyl halides classified by the classification of the carbon the group is bonded to.



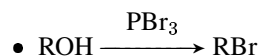
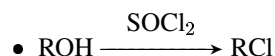
Properties: Alkyl halides are slightly polar, and have limited solubility in water. Alcohols are very polar, much more water soluble, and have relatively high boiling points (due in part to hydrogen bonding).

Reactions

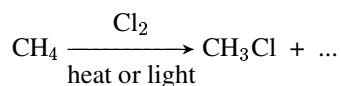


1° alcohols by $\text{S}_{\text{N}}2$ mechanism.

Rate: $\text{CH}_3\text{OH} < \text{primary (1°)} < \text{secondary (2°)} < \text{tertiary (3°)}$



Radical Halogenation



These reactions very important in industry, but usually present a mixture of products when applied to most non-trivial compounds in the laboratory. Mechanism involves formation of a chlorine (or bromine) radical [**initiation**], followed by reaction of this radical with an organic compound to yield the product and a new radical [**propagation**]. The product distribution obtained depends to some extent on the reactivity of different types of C-H bonds. The rate of halogenation generally follows the order:

tertiary > secondary > primary