

1.7: Alcohols

Learning Objective

- How to name alcohols and phenols.

In organic chemistry, any **alkyl group** can be abbreviated as **R**. An **alcohol**, in which a **hydroxy (-OH)** group is attached to a carbon of the alkyl group, can be abbreviated as **R-OH**.

Practice Questions

- The name of this molecule is ethanol.



Figure 1.7.1: ethanol

What is the name of Molecule A?

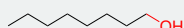


Figure 1.7.2: Molecule A

- This molecule is named 2-butanol.



Figure 1.7.3: 2-butanol

This molecule is named 6-isopropyl-5-nonanol. Number the carbons.

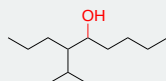


Figure 1.7.4: 6-isopropyl-5-nonanol

Number the carbons. What is the name of Molecule B?

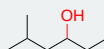


Figure 1.7.5: Molecule B

- The name of this molecule is 3-propyl-2-octanol. Number the carbons.

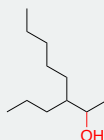


Figure 1.7.6: 3-propyl-2-octanol

- Number the carbons. What is the name of molecule C?

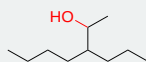


Figure 1.7.7: Molecule C

- This molecule is named 3-fluorocyclohexanol. Number the carbons.



Figure 1.7.8: 3-fluorocyclohexanol

- Number the carbons. What is the name of Molecule D?

Molecule D

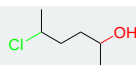


Figure 1.7.9.

7. This molecule is named 4-hexen-2-ol. Number the carbons.

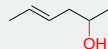


Figure 1.7.10: 4-hexen-2-ol

8. Number the carbons. What is the name of Molecule E?



Figure 1.7.11: Molecule E

9. This molecule is named 2,3-pentanediol.



Figure 1.7.12: 2,3-pentanediol

What is the name of Molecule F?

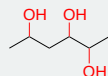


Figure 1.7.13: Molecule F

If a **hydroxy (-OH)** group is attached to an aromatic ring system, it is called a **phenol**.

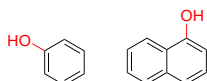


Figure 1.7.14: Two phenols

This molecule is named 2-chlorophenol or o-chlorophenol.



Figure 1.7.15: 2-chlorophenol / o-chlorophenol

Practice Questions

1. Name Molecule G using 1) numbers and 2) the o/m/p nomenclature.

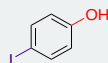


Figure 1.7.16: Molecule G

2. What additions do we make to our existing naming rules to name alcohols?

3. Write the steps that you use to name an alcohol in order, as instructions for a student who doesn't know how to do it.

4. Draw any alcohol and go through the steps in naming your molecule.

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