

Content

- Cahn-Ingold-Prelog Rules are used to assign the chirality (R or S) of organic molecules.
 1. Assign priority to each substituent attached to the stereogenic carbon:
a (highest) > b > c > d (lowest)
 - Highest atomic number = highest priority
 - Lowest atomic number = lowest priority
 2. In case of a tie, move to the next atom and compare
 3. If an atom is doubly or triply bonded, count it 2x, 3x
 4. Arrange the molecule such that the lowest priority group is pointing away from you
 - Trace a path from a → b → c (highest to lowest priority)
 - If the path is clockwise, the molecule has the configuration R (Latin *rectus*, right)
 - If the path is counterclockwise, the molecule has the configuration S (Latin *sinister*, left)

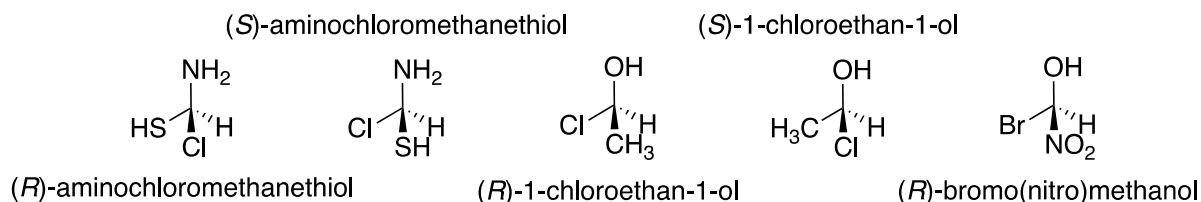
Objectives

- Students will understand the Cahn-Ingold-Prelog Rules for chirality assignment.
- Students will be able to assign the chirality of molecules.

Assessments

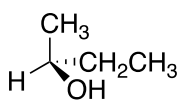
Formative

- Molecular Model Kits:
 - In pairs, students will determine the chirality of a given molecule, using a molecular model of that molecule to visualize the molecule in space. The instructor will walk around and make sure students are progressing.
 - Models:

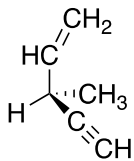


Summative

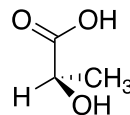
- Assign the absolute configuration (R or S) of the following molecules:



S



R



R

What we would already know

- Chiral molecules contain a stereogenic carbon, which has four different substituents attached to it.
- Chiral molecules rotate plane-polarized light.
- Enantiomers are chiral molecules which have opposite geometry (R/S).

Activities with labels

Activity	Function	Time	Representation of Science
Review	Activate prior knowledge, reinforce recently learned information	1 min.	Definition
Explanation/Example	Transmission of information Model the ideas	2 min.	Definition/Example
Small Group Activity Formative Assessment	Practice the concept Assess learning	4 min.	Example
Small Group Activity Formative Assessment	Practice the concept Assess learning	3 min.	Example