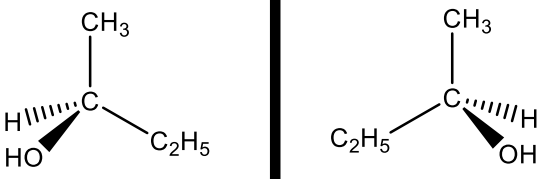
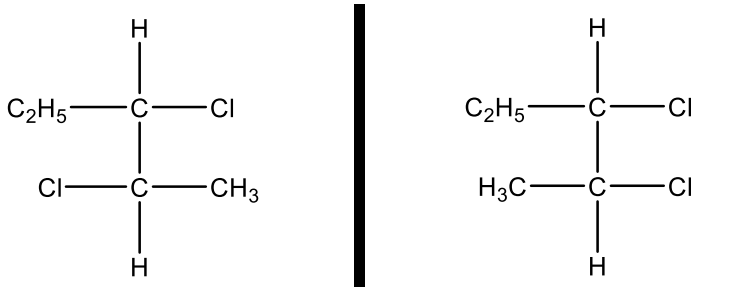
What are enantiomers and diastereomers?

Enantiomers are a type of stereoisomer that are mirror images of each other but are non-superimposable, meaning that they cannot be placed on top of each other to create an exact match. Enantiomers have the same physical and chemical properties, except for the direction in which they rotate plane-polarized light. They also have opposite configurations at every chiral center in the molecule.



(*S*)-2-butanol (*R*)-2-butanol

Diastereomers are a type of stereoisomer that are not mirror images of each other and are also non-superimposable. Diastereomers have different physical and chemical properties and do not have the same configuration at every chiral center in the molecule.



(2*R*,3*R*)-2,3-dichloropentane (2*S*,3*R*)-2,3-dichloropentane

Both enantiomers and diastereomers are important in the fields of chemistry and biology because they can have different biological activity and reactivity. For example, certain drugs may have different effects depending on whether they are in the enantiomer form or the diastereomer form.