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About Tartaric Acid

Tartaric Acid is a white solid possessing two alcohol groups and two acid groups. The second and third carbons of the molecule are asymmetrical (these are called chiral centers). The naturally occurring form of **Tartaric Acid** is the L-isomer, which rotates light to the left. The D-form of the acid, which rotates plane-polarized light to the right (the D refers to dextro, or right hand direction) is far less common in nature and has almost no practical uses.

In general, where biological molecules have optical isomers, only one of the isomers or forms will be active biologically. The other will be unaffected by the enzymes in living cells. The meso form of the molecule is not affected by polarized light.

The fourth form — the DL mixture, is not a single molecule, but a mixture of equal amounts of D and L isomers. It does not rotate polarized light (like the meso form) because the rotation of light by the D and L forms is equal in amount but opposite in direction. It is possible to separate the DL mixture into the two isomers, each of which does rotate light. In the 1840s, Louis Pasteur determined that each of the two isomers of **Tartaric Acid** rotated light in opposite directions, and the meso form was inactive in this respect. He also separated by hand, crystals of the racemic mixture to show that it was made of equal amounts of the D and L forms, making it different than the meso form of **Tartaric Acid**.