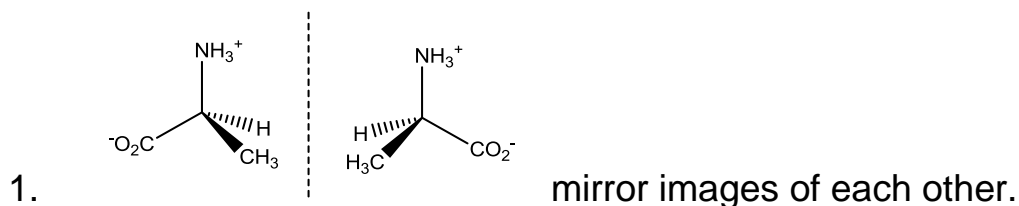


1. Open up the WebCSD in two separate tabs of your internet browser and arrange them so you can see both 3D structure viewers on the screen at the same time (you may find it helpful to watch video V7 'How to view a pair of enantiomers (optical isomers)' to see how to do this). In one tab search for the refcode LALNIN23 in the other ALUCAL05. Rotate each molecule so the hydrogen atom on the central carbon is pointing away from the screen. Draw the mirror images.
2. Using the molecules in the previous example can you explain the term stereoisomer and state the relationship between the two molecules.
3. Using the following refcodes draw out the displayed molecule and highlight any chiral centres (there may be more than one);
(a) DLASPA02 (b) ADEZUF (c) DLHIST (d) EPHEDR01
4. Using two tabs like in question 1 can you prove with a diagram that DLMALC and DLMALC11 are optical isomers? (ignore any hydrogen atoms on oxygen atoms).
5. COCAIN10 contains the crystal structure for the illegal drug cocaine. Use the refcode to draw the molecule and highlight any chiral centres (again, there may be more than one!).

F2- Optical Isomers Worksheet

Answers



2. A stereoisomer is when molecules have the same molecular formula and structural formula, but cannot be superimposed on each other. The pair of molecules are called enantiomers (optical isomers).

