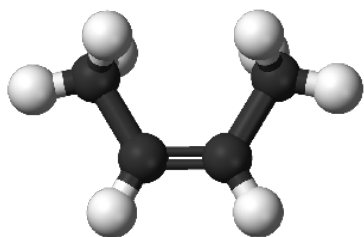


HL Questions on Stereoisomerism

- Deduce how many different four-membered ring isomers exist for dichlorocyclobutane and name each isomer.
- Explain why 1,2-dichloroethane cannot exhibit *cis/trans* isomerism whereas 1,2-dichloroethene can.
 - Explain whether or not 1,2-dichloroethane can show conformational isomerism.
- Explain why *cis*-butenedioic acid reacts to form a cyclic compound with the loss of water when heated whereas *trans*-butenedioic acid does not.
- 2-amino acids have the general formula $\text{H}_2\text{NCH(R)COOH}$. Explain why glycine, $\text{H}_2\text{NCH}_2\text{COOH}$, the simplest 2-amino acid, does not exist in two enantiomeric forms whereas all the other 2-amino acids do.
- Three of the first four compounds shown in Section 37 of the IB Chemistry data booklet are the 'over the counter' pain killers, aspirin, paracetamol (acetaminophen) and ibuprofen.
 - Identify which, if any, can show optical isomerism.
 - The fourth is penicillin. Explain whether or not this is optically active?
- The straight chain structural formula of glucose is given in Section 34 of the IB Chemistry data booklet. Explain why glucose can have diastereomers.
- Name the following compounds, **A** and **B**, using *E/Z* nomenclature.

A



B

