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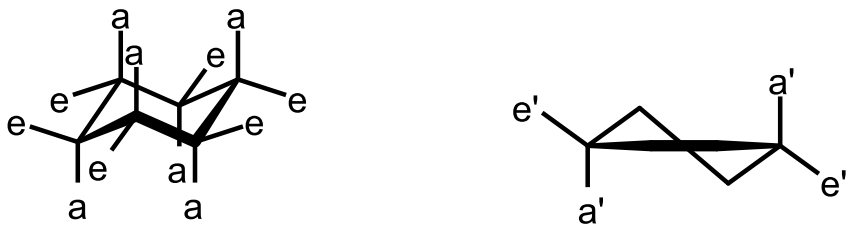
axial (equatorial)

Also contains definitions of: pseudo-axial, pseudo-equatorial, quasi-axial, quasi-equatorial

In the chair form of cyclohexane ring bonds to ring atoms (and molecular entities attached to such bonds) are termed axial or equatorial according to whether the bonds make a relatively large or small angle, respectively, with the plane containing or passing closest to a majority of the ring atoms. Thus the axial bonds are approximately parallel to the C_3 axis and the equatorial bonds approximately parallel to two of the ring bonds. These terms are also used for the chair form of other saturated six-membered rings. The corresponding bonds occurring at the allylic positions in mono-unsaturated six-membered rings are termed pseudo-axial (or quasi-axial) and pseudo-equatorial (or quasi-equatorial). The terms axial and equatorial have similarly been used in relation to the puckered conformation of cyclobutane, crown conformer of cyclooctane, etc. and the terms pseudo-axial and pseudo-equatorial in the context of the non-planar structures of cyclopentane and cycloheptane.



a = axial

e = equatorial

a' = pseudo-axial

e' = pseudo-equatorial

See apical (basal, equatorial) for an alternative use of axial and equatorial with bipyramidal structures.

Source:

PAC, 1996, *68*, 2193 *(Basic terminology of stereochemistry (IUPAC Recommendations 1996))* on page 2200

