Pheromone: from Greek "pherein horman" meaning to carry excitement



Only about 50 % of the population can smell this compound

What is the R/S configuration of the carbon attached to OH?

Revie





S configuration of stereogenic center

Review of Optical Rotation and Enantiomeric Excess



So if the R and S enantiomers have 1:1 mixture, the $[\alpha]_D = 0^{\circ}$, and the mixture is called racemate

R	S	Rotation (⁰)	Optical Purity (%)
100 %	0 %	-100 °	100 %
75 %	25 %	-50 °	50 %
50 %	50 %	0 °	0 %
25 %	75 %	+50 °	50 %
0 %	100 %	$+100^{\circ}$	100 %

For this example for R and S-carvone, assume the pure S enantiomer has +100° rotation

Formula for Calculating Optical Purity (%)

Optical Purity = $\frac{[\alpha] \text{ observed}}{[\alpha] \text{ pure enantiomer}} \times 100$

Resolution – separation of enantiomers Requires chiral process or reagent Separated by chromatographic methods Formation of diastereometric salts

e.g. two carboxylic acid = lactic acid



Stereospecific Reactions – process where stereochemistry of the starting material determines the stereochemistry of the product

Epoxidation - three membered ring ether formation



cis or syn addition

another example



Alkene and Alkyne Nomenclature

Alkene = double bond = olefin (oleum facere = to make oil) Alkyne = triple bond = acetylene (as functional group, not compound)



Alkene Nomenclature

Find longest chain, number from end to contain both ends of C=C and give lowest number to 1^{st} C of C=C

Change "ane" to "ene" precede with number to indicate first double bond position





Below are two structural isomers of 1-butene

