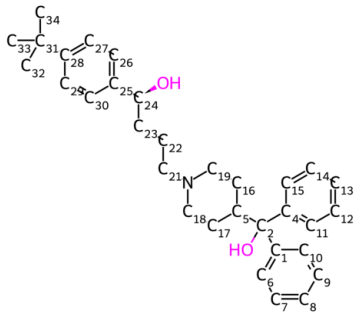
C-oxidation BDE Energy Report for: 290_terfenadine-out

This report covers the results for BDE calculations performed for: 290_terfenadine-out. Oxidation propensity is established using C-H Bond Dissociation Enthalpies (BDE). The lower the C-H BDE values the higher the propensity for C-oxidation. Details for the DFT calculations and overall workflow are explained at the end of this document

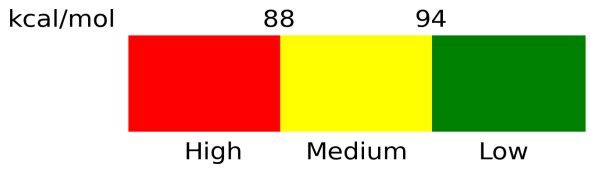
Bond Dissociation Energies (kcal/mol)



Atom	BDE (kcal/mol)	Propensity
C5	95.11	Low
C6	111.82	Low
C7	111.96	Low
C8	112.62	Low
C9	112.02	Low
C10	109.57	Low
C11	112.66	Low
C12	111.89	Low
C13	112.51	Low
C14	112.06	Low
C15	110.17	Low
C16	99.52	Low
C17	97.42	Low
C18	92.95	Moderate
C19	93.12	Moderate
C21	93.2	Moderate

C22	95.95	Low
C23	97.36	Low
C24	77.43	High
C26	112.76	Low
C27	109.79	Low
C29	110.12	Low
C30	110.98	Low
C32	101.46	Low
C33	101.45	Low
C34	101.92	Low

Risk Scale:



Calculation details and output files

Conformational search calculations were performed only for the base ground state molecule. The lowest energy conformer was selected to generate radicals and run optimization DFT calculations. DFT calculations were performed using Gaussian with B3LYP level of theory and 6-31G(d,p) basis set. The BDE protocol was adapted from: *Lienard, P., Gavartin, J., Boccardi, G., & Meunier, M. (2015). Predicting drug substances autoxidation. Pharmaceutical research, 32, 300-310.*