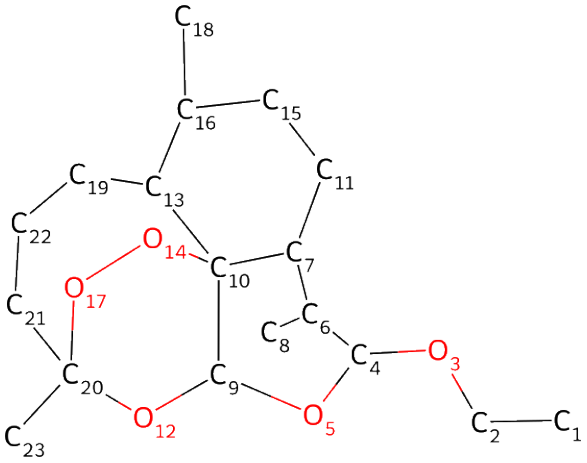
C-oxidation BDE Energy Report for: 063_beta_arteether-out

This report covers the results for bond dissociation enthalpies (BDE) and solvent accessible surface area (SASA) calculations performed for 063_beta_arteether-out. Oxidation propensity is established using C-H BDE. The lower the C-H BDE values the higher the propensity for C-oxidation. Details for the density functional theory (DFT) calculations and overall workflow are explained at the end of this document.

BDE and SASA



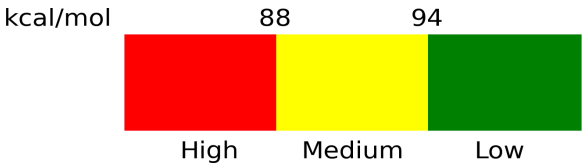
Atom	BDE (kcal/mol)	Propensity
C1	102.64	Low
C2	95.62	Low
C4	95.02	Low
C6	91.43	Moderate
C7	83.73	High
C8	99.58	Low
C9	77.75	High
C11	98.99	Low
C13	95.21	Low
C15	96.76	Low
C16	93.49	Moderate
C18	100.61	Low
C19	93.58	Moderate
C21	97.05	Low

C22	94.76	Low
C23	102.99	Low

Missing Sites:

None

Risk Scale:



Calculation Details

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.*