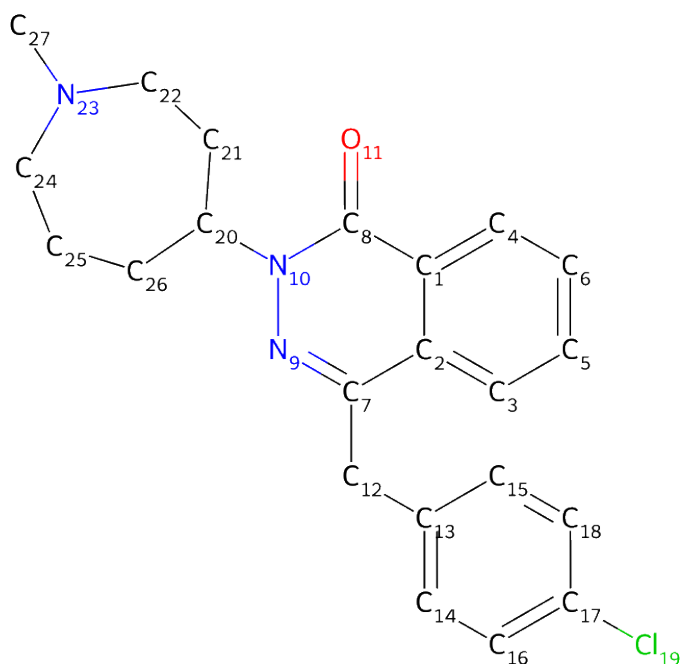


# C-oxidation BDE Energy Report for: 061\_azelastine-out

This report covers the results for bond dissociation enthalpies (BDE) and solvent accessible surface area (SASA) calculations performed for 061\_azelastine-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



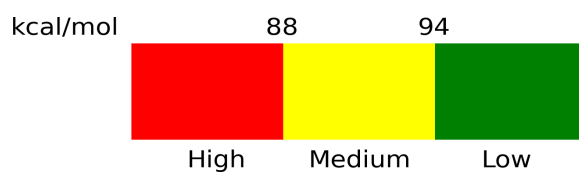
Atom	BDE (kcal/mol)	Propensity
C3	111.68	Low
C4	114.85	Low
C5	112.35	Low
C6	112.67	Low
C12	78.23	High
C14	112.24	Low
C15	112.23	Low
C16	113.68	Low
C18	113.68	Low
C20	90.16	Moderate

C21	96.27	Low
C22	91.14	Moderate
C24	90.15	Moderate
C25	97.48	Low
C26	96.2	Low
C27	92.32	Moderate

### **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.*