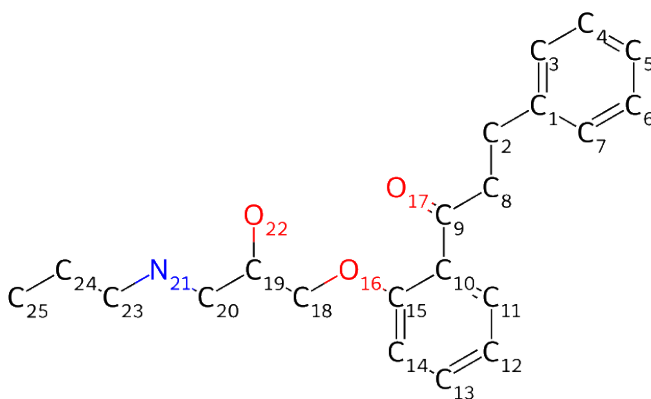


# C-oxidation BDE Energy Report for: 240\_propafenone-out

This report covers the results for bond dissociation enthalpies (BDE) and solvent accessible surface area (SASA) calculations performed for 240\_propafenone-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	SASA (Å <sup>2</sup> )
C2	85.65	High	18.47
C3	112.69	Low	16.96
C4	111.87	Low	29.70
C6	111.71	Low	31.03
C7	111.43	Low	17.40
C8	88.52	Moderate	14.09
C11	113.47	Low	15.63
C12	113.27	Low	35.30
C13	111.99	Low	35.07
C14	111.24	Low	13.79
C18	94.65	Low	14.27
C19	88.64	Moderate	13.00
C20	90.42	Moderate	13.59
C23	91.3	Moderate	16.71
C24	97.68	Low	22.62

C25	100.64	Low	28.63
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**Missing Sites:**

C5.

**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.*