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## Appendix A:

Optimized structures and geometrical parameters of various species involved in the reaction of BTP with OH radicals at the B3LYP/6-311++G ( $\mathrm{d}, \mathrm{p}$ ) theory level. Bond distances and angles are in angstroms and degree, respectively.


## $\mathrm{CF}_{3} \mathrm{CBrCH}_{2} \mathrm{OH}\left(\mathrm{P}_{1-1}\right)$


$\mathrm{CF}_{3} \mathrm{CBrCH}_{2} \mathrm{OH}\left(\mathrm{P}_{1-3}\right)$


$\mathrm{CF}_{2} \mathrm{CBrCH}_{2}\left(\mathrm{P}_{4}\right)$
$\mathrm{CF}_{2}(\mathrm{OF}) \mathrm{CBrCH}_{2}\left(\mathrm{P}_{5-1}\right)$

$\mathrm{CF}_{2}(\mathrm{O}) \mathrm{CBrCH}_{2}\left(\mathrm{P}_{5-2}\right)$

$\mathrm{CF}_{2}(\mathrm{OF}) \mathrm{CBrCH}_{2}\left(\mathrm{P}_{5-3}\right)$




$\mathrm{TS}_{11}$

$\mathrm{TS}_{12}$


## Appendix B:

Optimized structures and geometrical parameters of various species involved in the subsequent degradation reaction of $P_{1-1}$ at the B3LYP/6-311++G $(d, p)$ theory level. Bond distances and angles are in angstroms and degree, respectively.



