aldehydes include the reactions of ozone and OH radicals with hydrocarbons, and radical decomposition products. In addition, aromatic aldehydes can be formed as an ultimate consequence of the reaction of OH with aromatics, e.g. benzaldehyde. The aldehydic hydrogen-carbon bond in aldehydes is relatively weak (CH bond strength is 86 $kcal/mol^{-1}$). Consequently, this hydrogen atom will be susceptible under atmospheric conditions to attack by radical species, such as $O(^3P)$, $O(^1D)$, HO, and HO_2. Of these HO is by far the most dominant. Hydroxyl radicals are generally thought to abstract a H-atom from aldehydes -- chiefly the aldehydic H-atoms, i.e.

$$HO + RCHO \rightarrow H_2O + RCO \qquad (6\text{-}32)$$

If one assumes an atmospheric concentration of 10^6 radicals cm^{-3}, the rates of decay of HCHO and CH_3CHO by reaction with OH are approximately 4.2 percent and 5.8 percent per hour, respectively.[16]

The photodissociation of aldehydes is an important radical generation mechanism in the formation of photochemical air pollution. The reactions that are most significant can be generalized in terms of a radical and a molecular route:

$$RCHO + h\nu \rightarrow R + HCO \qquad (6\text{-}33a)$$

and

$$\rightarrow RH + CO \qquad (6\text{-}33b)$$

(Reaction 6-33a was previously given as reaction 6-25.) The radical route is the more important one from the point of view