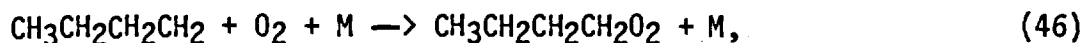
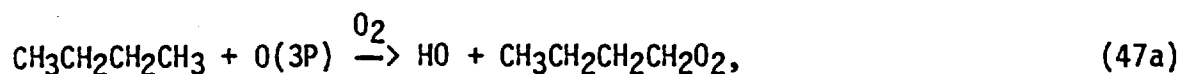


The alkyl radicals will rapidly add  $O_2$  to form the corresponding peroxyalkyl radicals, e.g.,



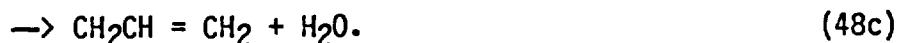
(subsequently the third body M will not be indicated). A reaction of substantially lesser importance is with oxygen atoms,



and



The importance of both the HO and  $O(^3P)$  reactions with alkanes is the generation of the peroxyalkyl radical  $RO_2$ , which plays a substantial role in the conversion of NO to  $NO_2$ . Rate constants for alkane reactions are summarized by Baulch et al. (1980). The atmospheric chemical reactions involving olefins have been widely studied (Demerjian et al., 1974; Carter et al., 1979; Niki, 1978). The most important reactions in which olefins participate are with HO radicals, ozone, and atomic oxygen, in that order. The reaction of HO with an olefin, such as propylene, may proceed by addition of OH to the double bond or by abstraction of an H-atom from the olefin. For propylene, for example, the reaction paths with HO are:



In each case the free radical product will quickly react with  $O_2$  to produce a peroxyalkyl radical that is capable of converting NO to  $NO_2$ .

Ozone-olefin reactions are a source of free radicals and stable products in air pollution chemistry. The initial attack of  $O_3$  on an olefin