

products are often written as the corresponding peroxy radicals. Also, acylate radicals will decompose rapidly to give an alkyl radical and CO₂. Therefore, only alkoxy, peroxyalkyl, and peroxyacyl radicals need to be considered explicitly in terms of NO_x chemistry. Table 6-1 shows the various reaction combinations that are important between these radicals and NO and NO₂.

The reactions of HO with NO₂ and NO are reasonably well understood and have been previously listed as reactions 6-18 and 6-19. Rate constants for these two reactions are available.⁹

The rate constant for the reaction of HO₂ and NO has recently been determined by direct means and is substantially larger than previously calculated indirectly.¹⁹ The HO₂-NO reaction, as noted earlier, is a key reaction in the atmospheric conversion of NO to NO₂.

The reaction of HO₂ and NO₂ has the following two possible mechanisms.²⁰ Reaction 6-35b is not considered to be important in atmospheric chemistry:



and



In addition, the peroxyntic acid formed in reaction 6-35a thermally decomposes as follows:²¹



At the present time it appears that, at the temperatures prevalent in summer smog episodes (>20°C), peroxyntic acid