(Reaction 62a was previously given as reaction 44.) The radical route is the more important one from the point of view of atmospheric chemistry. Considerable attention has been given to formaldehyde photolysis in recent years. There appears to be general agreement that the primary paths are:

$$HCHO + h\nu \longrightarrow H + HCO, \qquad (63a)$$

and

$$\longrightarrow H_2 + CO. \qquad (63b)$$

To compare the rates of photolysis with the depletion of formaldehyde by HO reaction, one can calculate a photolysis rate of approximately 13% h^{-1} for a solar zenith angle of 20 degrees using the value of the photodissociation rate given by Horowitz and Calvert (1978).

The interaction with NO and NO_2 of the organic free radicals produced by hydrocarbon oxidation represents an extremely important aspect of the chemistry of the oxides of nitrogen in the polluted atmosphere. The radicals can be classed according to:

R	alkyl	$\mathrm{R\overset{O}{\overset{\|}{C}}O}$	acylate
RO	alkoxyl	$\mathrm{R\overset{O}{\overset{\|}{C}}OO}$	peroxyacyl
ROO	peroxyalkyl		
$\mathrm{R\overset{O}{\overset{\|}{C}}}$	acyl		

In air it can be assumed that combination with O_2 is the sole fate of alkyl (R) and acyl (RCO) radicals and that the reaction is essentially instantaneous. Consequently, in reactions with alkyl or acyl radicals as products, these products are often written as the corresponding peroxy radicals. Also, acylate radicals will decompose rapidly to give an alkylradical and CO_2. Therefore, only alkoxyl, peroxyalkyl, and peroxyacyl radicals need to be considered explicitly in terms of NO_x chemistry.