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Reactions of HO2 Radicals with Organics at low NOx

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Much of the focus on tropospheric peroxy radical chemistry has been in the high-NO_x regime, where ozone production occurs. However, there has recently been renewed interest in peroxy radical self reactions, which are assumed to occur mostly under conditions of low NO_x. In particular, the involvement of such reactions in the regeneration of OH in hydrocarbon rich environments has been inferred from a number of field studies. We will report on laboratory experiments designed to study the reactions of HO_2 radicals in the presence of atmospherically relevant carbonyl compounds. The studies involve both reactions of HO_2 with aldehydes, and also reactions of HO_2 with peroxy radicals derived from carbonyl compounds. It is found that OH is formed from the reactions of HO_2 with a number of peroxy radicals containing carbonyl functionalities adjacent to the carbonyl group.