

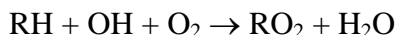
# The reaction of RO<sub>2</sub> radicals with OH

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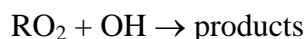
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Peroxy radicals, RO<sub>2</sub>, are key species in the atmosphere. They are formed from a reaction of OH radicals with hydrocarbons:



In polluted environments, RO<sub>2</sub> radicals react predominantly with NO, leading to formation of NO<sub>2</sub>, and eventually through photolysis of NO<sub>2</sub> to formation of O<sub>3</sub>.

At low NO<sub>x</sub> concentrations such as in the marine boundary layer or the background troposphere, the lifetime of RO<sub>2</sub> radicals increases and other reaction pathways become competitive. Atmospheric chemistry models have considered until recently only the self- and cross reaction with other RO<sub>2</sub> radicals or with HO<sub>2</sub> radicals as the major fate for RO<sub>2</sub> radicals under low NO<sub>x</sub> conditions. Recently, it was shown that the reaction of peroxy radicals with OH radicals



is very fast for CH<sub>3</sub>O<sub>2</sub> (1) and C<sub>2</sub>H<sub>5</sub>O<sub>2</sub> (2) radicals and might become competitive to other sinks (3).

A new experimental set-up combining laser photolysis with two simultaneous cw-CRDS detections in the near IR allowing for an absolute quantification of OH and HO<sub>2</sub> radicals has been used for a further investigation of this class of reactions. Different radicals precursors (RI, (COCl)<sub>2</sub> / RH, XeF<sub>2</sub> / RH) have been used for the generation of different RO<sub>2</sub> radicals. Results on the rate constants for larger peroxy radicals as well as attempts for the identification of reaction products will be presented.

## References

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