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OH reactivity and concentrations of biogenic volatile organic compounds in a Mediterranean forest of downy oak trees

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Figures 12 and 13 in this supplementary material help the reader to understand how the correction for deviation from pseudo first order kinetics in the reactor is performed on our comparative reactivity method instrument. This type of correction represents an experimental way to correct the raw values of reactivity as it has been reported in Michoud et al., 2015 and Zannoni et al., 2015. Figure 12 reports the results of the calibration tests performed on the field (28/05/2014- 12/06/2014) at the forest site of Observatoire de Haute Provence, France. The calibrations were conducted using standard reactive test gases whose concentration has been certified. Specifically, we used isoprene and propane. A known amount of reactivity was injected in our instrument (here reported on the x axis), and the resulting reactivity was determined using eq. (1) (here reported on the y axis), over the range 0-500 s⁻¹. Calibrations were performed at different pyrrole/OH ratio, and the inverse of the slope obtained from each test was used to correct the OH reactivity values (figure 13).

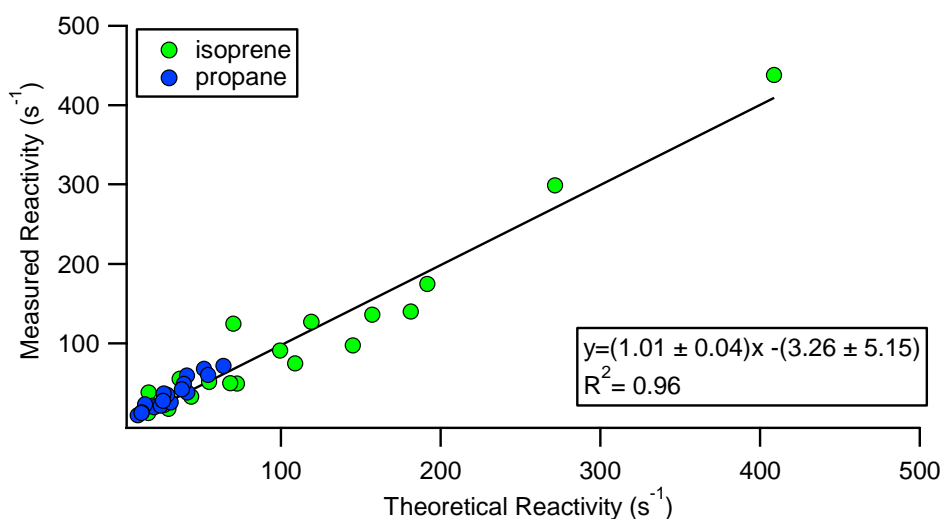


Figure 12. Measured reactivity versus theoretical reactivity reported from our comparative reactivity method instrument obtained from different calibrations performed on the field using certified standards of isoprene and propane.

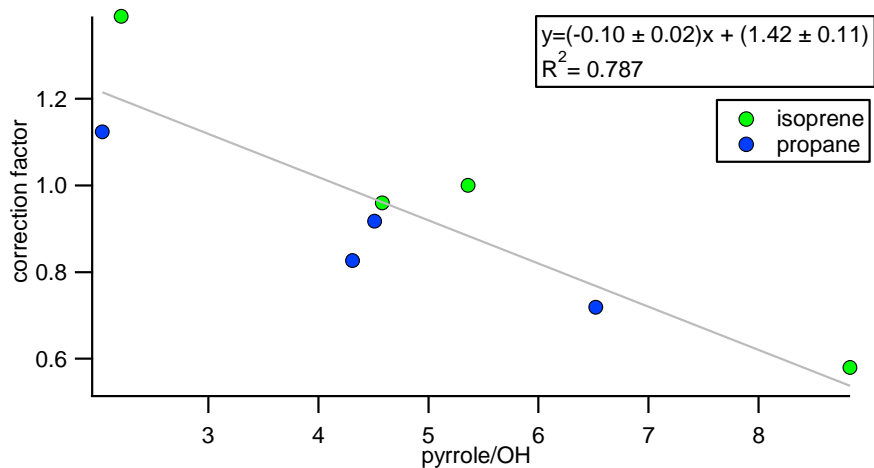


Figure 13. Correction factor for kinetics regime correction of OH reactivity values measured by our comparative reactivity method instrument versus pyrrole/OH ratio inside the reactor. The correction factor is obtained from fitting the different values calculated as inverse of the slope of each calibration test performed on the field.