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Atmospheric Measurement Techniques Discussions

Interactive comment on "A new method for total OH reactivity measurements using a fast Gas Chromatographic Photo-Ionization Detector (GC-PID)" *by* A. C. Nölscher et al.

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The referee is thanked for this interesting feedback regarding the catalytic converter which was used for CRM total OH reactivity measurements. The Comparative Reactivity Method compares the reaction of a reagent (here pyrrole) with OH alone in clean air (C2) with the reaction in the presence of a reactive air sample (C3). Therefore, it is indispensable to provide a clean C2 level with ambient humidity levels. "Clean" in the case of total OH reactivity means, that no reacting compounds should be present for this measurement, otherwise the loss rate of OH would be underestimated due to an

enhanced C2 level. Using a catalytic converter for this measurement provides several advantages: 1) humidity levels during C2 equal C3 measurements, 2) less synthetic air is needed and transportation of gas bottles into the field is minimized, 3) no handling of the scrubbed air is necessary. Experience showed that compared to synthetic air, which needs to be humidified by bubbling through water, the chances for contaminations get reduced. The referee has a point when mentioning the inorganics SO2 and NO2, which cannot get scrubbed by a typical catalytic converter. The CRM build here, is optimized to operate in natural, biogenically influenced, low reactivity environments. At such sites, tests showed an overall excellent scrubbing efficiency of the catalytic converter in terms of total OH reactivity. Nevertheless, the manuscript will be revised at that point. It should be kept in mind, that the use of a catalytic converter has advantages but also drawbacks. For different needs, it is easy to implement e.g. a supply of humidified synthetic air, which gets automatically adjusted to ambient humidity levels.

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