



## **Ozonolysis of $\gamma$ -terpinene in the new indoor atmospheric chamber CHARME: analysis of gas-phase and particulate reaction products.**

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The study of atmospheric aerosols has been among the central topics in current environmental research. Aerosols are of fundamental importance as they influence the atmosphere, biosphere, climate and public health. The most direct and significant way to perform particle and gas phase studies and to investigate the gas-particle interactions is to simulate atmospheric processes under controlled and simplified conditions.

In this regard, a new simulation chamber has been developed in the LPCA (Laboratoire de Physico-Chimie de l'Atmosphère) laboratory in Dunkerque (France). CHARME (CHamber for the Atmospheric Reactivity and the Metrology of the Environment) is a cylindrical, stainless steel, indoor reactor with a volume of 9.2 m<sup>3</sup>. Experiments have been performed in CHARME at  $294 \pm 2$  K, atmospheric pressure and dry conditions (RH < 2%) to study the ozonolysis reaction of  $\gamma$ -terpinene, an important monoterpene containing two endo-cyclic double bonds. The rate constant as well as the gas-phase and particulate reaction products (secondary organic aerosol) were determined. The influence of the presence of (i) an OH radical scavenger and (ii) anthropogenic VOCs on the SOA formation yields, speciation and hygroscopic properties were also investigated. To our knowledge, this work constitutes the first study on the SOA formation from the  $\gamma$ -terpinene reaction with ozone.