

Abstract Submitted
for the GEC08 Meeting of
The American Physical Society

Development of a new plasma reactor for propene removal LINDA OUKACINE, JEAN-MICHEL TATIBOUËT, Université de Poitiers — The purpose of the study is to develop a new plasma reactor being applied to gas phase pollution abatement, involving a surface dielectric barrier discharge (SDBD) at atmospheric pressure. Propene was chosen as a model pollutant. The system can associate a SDBD with a volume dielectric barrier discharge (VDBD). A specific catalyst can be placed in post-plasma site in order to destroy the residual ozone after use it as a strong oxidant for total oxidation of propene and by-products formed by the plasma reactor. A comparative study has been established between the propene removal efficiency of these two plasma geometries. The results demonstrate that SDBD is a promising system for gas cleaning. The experiments show that ozone production depends on plasma system configuration and indicate the effectiveness of combining SDBD and VDBD. The NO_x formation remains very low, whereas ozone formation is the highest for the SDBD. The influence of some materials on the propene removal and the ozone production were studied.

Linda Oukacine
Université de Poitiers

Date submitted: 13 Jun 2008

Electronic form version 1.4