Pharmaceutical molecules degradation in water by non-thermal plasma and heterogeneous catalysis coupling

Pharmaceutical substances are present in aquatic natural environments due to the low efficiency of wastewater treatment plants for these species. To improve the removal of these molecules, Advanced Oxidation Processes (AOP) as Non-Thermal Plasma (NTP) processes are studied. The plasma reactor used in GREMI is a DBD plasma with a multiple needle-to-plate discharge configuration with possible coupling with heterogeneous catalysts. Chemical, optical and electrical diagnostics are performed.to study the effects of the operating conditions (HV waveforms, discharge regime, inlet gas composition,…) on the degradation of the pollutants (paracetamol or esomeprazole), the mechanisms to produce generated species, mineralization … are studied.