

## Sampling Device for the Measurement of Peroxy Radicals in Atmospheric Systems

### - SAMPLER -

A Project of the European Union Framework IV Programme for Research, Technological Development and Demonstration in the Field of Environment and Climate (1994-1998)

assigned to

Theme 2: Environmental Technologies

#### OBJECTIVES

The aim of the proposed work is the development of an instrument for the quantitative in-situ measurement of peroxy radicals in atmospheric systems under tropospheric conditions. In order to determine the concentration-time profiles of the peroxy radicals, a matrix-isolation cryosampler for the collection of air samples will be constructed and tested in outdoor chamber experiments. The samples will be analysed by electron spin resonance spectroscopy in the laboratory. The improved instrumentation will be tested in atmospheric chemical systems by using an outdoor simulation chamber. For this task, the oxidation of well known organic species under tropospheric conditions will be used as a controllable system, in order to validate the measured peroxy radical concentrations and to control the concentration-time profiles by chemical modelling. The final goal is the application of the new sampling facility in the investigation of the smog chamber oxidation of complex VOC mixtures which lead to photo-oxidant formation. This work - supported by chemical modelling - will also provide important data which enable the better mechanistic understanding of future field measurements towards specific atmospheric problems, a prerequisite for the application of chemical transport modelling.

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