

## Chapter 10

# Adsorption/Desorption of Simple Pollutants

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**Abstract** This text reviews the possibilities to apply microcalorimetry and thermo-analytical methods of analysis in the fields related to the environment pollution. At the beginning, short overview of chemical species that can be found as common pollutants in the atmosphere, waters and soils is given. Further, it is shown how the mentioned techniques can be applied for direct investigation of some event that includes specific pollutants. The possibilities to use calorimetry and thermo-analytical methods for the characterization of substances used either as adsorbents or catalysts in the processes of pollutants' abatement are presented. Besides, it is shown how all mentioned methods can provide data useful in the removal of certain pollutant. The importance of microcalorimetry and thermo-analytical methods in environment protection is underlined.

### 10.1 Introduction

Nowadays, environment is in the middle of our concerns. The pollution of the environment is very complex problem: numerous chemicals that have been recognized as poisonous or dangerous in any other sense come in the environment; mainly as a result of anthropogenic actions. Atmosphere, waters and soils may contain a number of different organic and inorganic residues present in a wide range of concentrations. Therefore, their de-pollution has become one of the most important tasks worldwide, imposed also by legislative procedures for environment protection.

The drastic increase of fossil fuel consumption linked to the industrialization of the world is at the origin of the emission of the major part of **atmospheric pollution**. The energy stored in fossil fuels is freed mostly in air-combustion processes by flame. The operative temperatures thermodynamically favour the formation of

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