

# Preface

Many industrial activities utilize organic compounds as a key chemical in the production of chemicals; hence, a wide range of organic compounds is detected in industrial effluents. Advanced oxidation processes (AOPs), characterized by the generation of highly reactive free radicals, which can unselectively oxidize and mineralize organic compounds, are widely used for the treatment of industrial wastewaters. Using catalyst is a key strategy in these treatment processes since they change the operating conditions and also enhance the treatment efficiency. Hence, there is an ever-present need for developing new environmentally friendly methods toward “greener” catalyst production processes.

The main goals are technologies of the invention, design and application of catalysts and processes to reduce or to eliminate the use and generation of hazardous substances, and where possible utilize renewable raw materials. This book will offer comprehensive overview of the most recent developments in catalysts used for advanced oxidation of organic pollutants. The novel catalysts used in AOPs will be mainly investigated in two categories: homogeneous and heterogeneous catalysts. Among these catalyst categories, it will be mainly focused on nanocatalysts, perovskite-type catalysts, and green catalysts used in several types of advanced oxidation processes, such as those based on Fenton chemistry and photocatalytic oxidation, or hybrid technologies that combine different processes. Topics outlined will be described in terms of both catalyst preparation and characterization and reaction chemistry, and process technology.

This book also will present case studies highlighting the application of advanced oxidation processes for wastewater treatment using the above-mentioned catalysts.

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Pollutants

Atalay, S.; Ersöz, G.

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