

PROGRESSIVE AUTOMOTIVE WASTE UTILISATION TECHNOLOGIES AS DRIVING FORCES OF SUSTAINABLE DEVELOPMENT

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Foreword

Dear readers,

The current era brings new challenges for the environment and economy, which are in many cases interlinked and interacting. The dynamic changes in the automotive industry, including the advent of e-mobility and increasing demands for sustainability, are driving the need for innovative approaches to waste utilization and recovery. This publication focuses on advanced waste recovery technologies that are becoming a key pillar of the circular economy.

The aim of the publication is to provide a comprehensive view of waste management in the context of the automotive industry, which is one of the main driving forces of the global economy. Rapid technological progress, increasing demand for electric vehicles and ever-changing legislative requirements strongly demand changes in the approaches to waste treatment and recycling. The output hereof should also be an optimized design of the material (or energy) technology recovery of various types of automotive waste (glass, batteries, foam, rubber, plastic). The publication provides a detailed overview of current strategies, technologies and trends shaping the future of waste recovery.

At the same time, this book is the result of an extensive collaboration between universities, research institutions and industrial partners. This collaboration has been key to gathering the latest knowledge and examples of good practice that can serve as an inspiration for further development in this area. Thanks to this, the publication offers not only theoretical foundations, but also practical solutions that are applicable in real conditions.
An important part of this publication is the reference to socio-economic implications of the transition to electric mobility, which are the subject of extensive analysis in individual chapters. Electric mobility, which is closely linked to the concept of the circular economy, brings new challenges but also opportunities for sustainable development. The book also addresses employment issues in this sector, the potential of recycling, and the economic challenges that the European Union and Slovak Republic are facing.

UNIVNET currently represents an important research infrastructure in the field of circular economy across sectors with a national scope, and with initiatives and activities in research projects and collaborations on a European scale. It has ambitions to become a National Circular Economy Platform and to initiate the creation of a new European Research Infrastructure in the framework of ESFRI (European Strategy Forum on Research Infrastructures). The aim of this initiative will be to minimize the negative environmental impact and save primary energy sources and raw materials at an EU level. The UNIVNET association will strive to ensure in the future, in addition to research and development activities, also professional and educational activities based on the achieved results of the implemented activities, for example in the form of workshops

with the authors and researchers of UNIVNET topics. One such activity is the presentation of results at the international scientific conference Environmental Protection Technology – TOP.

Dear readers, professionals in the field, dear students,
UNIVNET has published several publications over the period of its existence. You are now getting your hands on the sixth publication as a thematic continuation of the monographs
published since 2020. We believe that this publication will also be positively received by the professional as well as non-professional public and will provide you with the necessary information and answers to your questions.
Finally, we would like to thank all those who contributed to this publication, whether as authors, reviewers or supporters. We believe it will provide valuable information to readers and contribute to the development of new approaches in the field of sustainability and waste recovery. It is our sincere wish for this publication not only to be a source of knowledge, but also an impetus to further innovation and improved practices in the environmental management of automotive waste recovery.

In Zvolen, 13 November 2024

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