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Selected Papers from ICIR EUROINVENT - 2023

International Conference on Innovative Research

Springer

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Foreword

This volume contains selected peer-reviewed articles presented at the International Conference on Innovative Research ICIR EUROINVENT 2023 Conference. The event was held in Iaşi, România, from the 11th to the 12th of May 2023.

The organizers are the Romanian Inventors Forum; Faculty of Materials Science and Engineering, The "Gheorghe Asachi" Technical University of Iasi, Romania; ARHEOINVEST Platform, Alexandru Ioan Cuza University of Iasi; Centre of Excellence Geopolymer and Green Technology (CEGeoGTech), Universiti Malaysia Perlis (UniMAP) and Department of Physics, Czestochowa University of Technology, Częstochowa, Poland, with the support of University Malaysia Terengganu.

The ICIR Conference is organized under the auspices of EUROINVENT. This is a joint event promoting creativity in a European context, by displaying the contributions of consecrated schools from higher education and academic research and also of individual inventors and researchers.

The EUROINVENT International Conference on Innovative Research (ICIR) brings together leading researchers, engineers and scientists who will present actual research results in the field of Materials Science and Engineering.

The conference aims to provide a high-level international forum for researchers, engineers and scientists to present their new advances and research results in the field of materials science and engineering.

The volume covers all the aspects of materials science, from synthesis and characterization of materials to procedures and technologies for materials engineering, as well as materials application and their involvement in the life sciences.

All the papers have been reviewed by at least two expert referees in their relevant topic disciplines, and only 18 were accepted. The papers selected for the volume depended on their quality and relevancy to the conference. All articles were checked with plagiarism software.

The conference was very dynamic with many questions and replies from the participants. At the conference closure ceremony, on the decision of the Scientific Board, Best Oral Presentation Award was presented next to two Best Poster Awards.

The editors hope that this volume will provide the reader with a broad overview of the latest advances in the field of materials science and engineering and that they will be a valuable reference source for further research.

The editors would like to express their sincere appreciation and thanks to all the committee members of the ICIR 2023 for their tremendous efforts.

Finally, the editors would like to thank all the authors for their contribution to this valuable volume.

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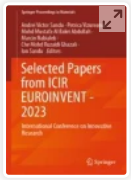

International Conference on Innovative Research

ICIR EUROINVENT 2023: **Selected Papers from ICIR EUROINVENT - 2023** pp 100–115

A Review on Concrete Performance Towards Incorporation of Recycled Material - Coal

Syuhaidah Azam, Afikah Rahim, Nazri Ali, Hamzah Hussin, Nor Shahidah Mohd Nazer, Agus Winarno, Deddy Tanggara & Asmawi Hisham

Conference paper | First Online: 24 October 2023

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Abstract

The use of coal additives in concrete has acquired popularity in recent years due to their potential performance-enhancing benefits. The ability to mitigate aggressive ion penetration, a chemical reaction that can cause concrete to degrade and potentially fail, is one of their most significant advantages. This literature review concentrates on the effect of coal additives, specifically coal fly ash and bottom ash, on the performance of concrete, with an emphasis on its strength and resistance to chemical attack. The review investigates several studies that investigate the properties of coal additive concrete, including its compressive strength, durability, and chemical penetration resistance. The findings indicate that the addition of coal to concrete can improve its properties, resulting in enhanced performance and durability. However, certain limitations must be considered, such as variations in the properties of coal residue based on the source and combustion process, for which geochemical analysis can provide insight into the causes. To fully comprehend the potential of coal additives in concrete and to address any limitations associated with their use, additional research is required.

Keywords

Coal **Bottom Ash** **Coal additive concrete**