



Faculty of Engineering
University of Kragujevac



Ministry of Science, Technological
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10th International Congress Motor Vehicles & Motors 2024

ECOLOGY - VEHICLE AND ROAD SAFETY - EFFICIENCY

Book of abstracts



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and Motors



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MODERN MATERIALS IN AUTOMOTIVE INDUSTRY-REVIEW

ABSTRACT: Progress in the automotive industry increasingly depends on the use of advanced materials that enable the improvement of performance, worthiness and sustainability of vehicles. This review paper explores the wide range of advanced materials used in automotive manufacturing, as well as their key characteristics, applications and advantages. In the introduction, the relevance of new materials in the automotive industry, as well as their role in increasing vehicle performance will be highlighted. Following that, the basic properties of several materials will be investigated, including metals, plastics, composites, ceramics, glass, and nanomaterials. Furthermore, the applications of these materials in various parts of the car, including the body, chassis, interior, electrical systems, tires and other components, will be described in detail. Concrete examples of materials and their application will be illustrated in order to better understand their function and benefits. The advantages of using modern materials include weight reduction, greater performance, fuel economy, sustainability, and other aspects, while identified challenges include high costs, manufacturing complexity, environmental and health risks, and lack of standardization. Finally, this review paper is completed with an overview of advanced technologies and innovations in the development of modern materials for the automotive industry, as well as a discussion of current trends and future perspectives. The conclusion summarizes the key points of the paper and highlights the importance of using modern materials for the future of the automotive industry.

KEYWORDS: advanced materials, automotive industry, weight reduction, economic feasibility, sustainability

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