Towards sustainable automobiles-advancements and challenges

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Abstract: The growing energy demands and the negative ecological impact of the industrialisation have led to increased focus towards sustainability. This paper presents different strategies being adopted to mitigate the environmental degradation caused due to automotive sector. A systematic approach is adopted to present all the environmental conscious technologies in vogue in the automotive sector. The paper focuses on the production processes adopted, materials used, fuels, recyclability issues and the environmental hazard mitigation during the operation of the automobiles. An overview of the potential of natural fibre reinforced composites in the automotive sector is also included. Moreover, recent advances in automobile tribology, fuel efficient engines, hybrid electric cars and technologies which aid in the treatment of the exhaust gases are also discussed. The paper also presents the scope of vegetable oils as bio-fuels and their use as sustainable lubricants. A summary of the global market trends with regard to use of greener vehicle alternatives is also provided in this work.

Keywords: design; automobiles; environment; lightweight materials; tribology; engine emissions.

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