

A Review on Automotive Tires Significant Characteristic Identification for General Consumers



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Abstract A tire serves various types of services and distance over its lifespan. Moreover, for the safety and comfort of vehicle occupants, tire performance is critical. An assessment of literatures on tire-related properties that contribute to better safety performance was conducted in this study. The review elaborates on the most discussed topics from the overall reviewed articles. This study highlights the significant characteristics that be further implemented in tires for specific situations or general consumers. It was determined that tire wear is resulted from several factors. Increasing slip angles cause higher abrasion and temperature on tire surface. Modelling of wear rate can be done realistically with computation. From the review, it is also known that knowledge of tire-pavement and/or ice interactions behavior is improving. Semi-empirical methods in simulation of tire and terrain interactions are a promising candidate for use in multi-body dynamic software (MBS) simulation and vehicle simulations. Thermal aging in rubber tires will result in lower tensile strength. Production of tire wear particles increase 2–3 fold with abrasion from increased slip angles. Carbon black type N220 possess the best tensile, tear, and conductivity qualities. Overall, not much information was able to be obtained with regards to types of tires. Nonetheless research on tire safety performance should be extended so that each of tire component can be continuously improved to enhance tire safety criteria, particularly among the less discussed areas, such as commercial vehicle tires.

Keywords Automotive tire · Significant characteristic · General consumers

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