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عنوان مقاله:

Dry Sliding Behaviour Study of Novel Low-metallic Friction Materials by using DoE-Taguchi Method

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خلاصه مقاله:

With the plethora of automobiles introduced in the last Y decades, brake emissions have been a notorious contributor to overall emissions. In the present work, the low-metallic friction material is developed (for Ψ samples accounting for 1° different ingredients) to reduce non-exhaust emission. The friction materials are manufactured by the compression molding method and various samples are required for physical, mechanical and tribological characterization are prepared as per ASTM standards. The tribological performance is tested by a 'pin on disc' apparatus. The tribological parameters such as speed, load and sliding distance is selected by considering for the scooter application. Taguchi Design of Experiment (DoE) is used to find optimal operating parameters. Additionally, ANOVA and regression analysis are also done. Results reveal that the wear rate is minimum at the optimal operating parameters. The average wear rate obtained from sample Ψ is less than samples 1 and Y. The higher and lower wear rate and coefficient of friction for sample Ψ are $\circ.\circ\circY$ and $\circ.\circ\circ\circ\Psi''$ mg/m and $\circ.FFY$ and $\circ.\Psi\circ1$, respectively. The morphological behaviors are studied with the help of SEM. Moreover, Thermo gravimetric analysis (TGA) is carried out to explore the thermal behavior of friction material samples. Results illustrate that sample Ψ proves to be a potential substitute as a novel .brake friction material

كلمات كليدى:

Non-exhaust pollution, Friction Materia, Design of experiment, Thermo gravimetric analysis, ANOVA

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