Original
Received December 25, 2017
Accepted for Publication February 19, 2018

Tribology Property in Oil-Impregnated Porous Carbon Materials made from Rice Hull

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Rice hull, which is one of the agricultural waste in Japan, has been required for reuse from the viewpoint of environment protection. Rice hull has the porous structure that originates from plants. Rice hull silica carbon (RHSC) material is manufactured by mixing and impregnating the rice hull with a phenol resin, and then carbonizing it in a nitrogen gas atmosphere at high temperatures. RHSC has core competencies such as low friction coefficient and water resistance, and it is expected to be applied to linear guide elements and sliding bearing. Moreover, an improvement in friction property is expected by keeping the lubricating oil in the natural porous structure. In this study, the friction and wear mechanisms of RHSC are discussed from the tribology properties obtained by block-on-ring test and the worn surfaces observed with a laser microscope.

Keywords : Rice hull, Porous carbon material, Friction and wear, Recycle