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Development of the wear- resistant composite material containing the diamond powder particle using underwater shock wave SHIGERU TANAKA, KAZUYUKI HOKAMOTO, SHIGERU ITOH, Kumamoto University — Recently there has been an effort in the development of new composite materials possessing combined properties of high heat conductivity and friction resistant. In this study developing a composite material with such properties using underwater shock wave was attempted. Underwater shock wave can be used to penetrate hard powders into a metal base without decomposition of the base material. In this method, hard powders are penetrated into a soft metal base to obtain a composite with improved surface properties. The purpose of this research is to clarify the experimental conditions for obtaining a new composite material with unique properties. Attempt has been made to obtain aluminum-based and magnesium alloy-based composites by introducing micro/nano-sized diamond particles to the surface of the base metal. The recovered samples showed improvement of wear resistance.

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