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TRIBOLOGICAL CHARACTERIZATION OF ELECTRONIC GRADE LUBRICANTS USING BALL-ON-DISK TRIBOMETER

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Abstract

In microelectronic industry, the lubricants are used in the wafer-to-chip grinding and lapping processes before device assembly step. The based lubricant and additives play important roles in the product quality and reliability for those nano-scale fabrications. In this study, the tribological behaviors of AlTiC surface that sliding against AISI304 balls were studied in electronic-grade ethylene glycol (EG) based and mineral oil lubricants by using ball-on-disk Tribometer. The friction force and coefficient of friction of different lubricants are measured and calculated. The results showed the COF depends on many factors such as types of lubricant, load and speed. The different additives in lubricant also play an important role to the friction force. It showed that an increasing sliding speed can also decrease COF. The different in contact mechanic results in different material removal rate.

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