

## **Temperature effect on tribological properties of polyol ester-based environmentally adapted lubricant**

### **ABSTRACT**

The production of pentaerythritol ester (PE) as food grade lubricant base oil was investigated. The properties of formulated lubricant (AWCI) and neopentyl glycol ester (NPGE) were tested – density, viscosity, total acid number, flash point, copper strip corrosion and NOACK. Wear scar diameter (WSD) and coefficient of friction (COF) were analyzed and compared to commercial lubricant (CL). AWCI which comprised of 0.15% Irgalube 349, 0.15% Irgalube TPPT, and 0.1% Irgamet 39 showed excellent lubricant properties with high flash point, low WSD and low COF at all temperatures despite its lower viscosity than the commercial lubricant, CL.

**Keyword:** Polyol ester; Tribology properties; Pentaerythritol ester; Lubricant regime