

## TRIBOLOGY OF EMERGING WATER BASED LUBRICANTS AND LOW VISCOSITY OILS E-FLUIDS TECHNOLOGIES IN ROLLING/SLIDING CONTACTS

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### KEYWORDS

*Green Tribology; Friction; Wear; Electrical Vehicles*

### ABSTRACT

The development of electric vehicles (EVs) is facing today different challenges mainly related to the extension of driving range, availability of charging point, increasing of charging time and effecting the overall vehicle and ownership cost. Reducing friction and securing cooling capacity is a key enabler to minimize energy loss and increase the performance of EVs. In order to meet the demands in terms of lubrication, lubricant manufacturers are exploring two mainly different e-fluids technologies: Low viscosity oils and Water based lubricant fluids. These technologies need new formulations with new additive packages, and, they are tailored mainly for sliding contacts. The influence of these new formulations on rolling/sliding contacts is not known and need to be explored. In this talk, we will present the cutting edge testing methodology used to explore the influence of these new technologies on rolling/sliding contacts.



Fig.1 Emerging E-fluids: Water Based Lubricants and Low Viscosity oils

Table 1 Screening and Evaluation Methodologies

Physico-Chemical characterization	Tribology Testing
Viscosity and Wettability	Film Thickness and Friction
Corrosion	Micro-pitting and Wear
Elemental Composition	Bearing testing

### REFERENCES

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