

Classification of Lubricants Base Oils for Nanolubricants Applications—A Review



G. Kadirgama, Mohd Kamal Kamarulzaman , D. Ramasamy ,
K. Kadirgama , and Sakinah Hisham 

Abstract Lubricants are derived from biological or non-biological sources. However, the use of stand-alone lubricants lacked desirable tribological properties and had hit their performance limit. A frequent solution to this obstacle is introducing a few but effective additives in the base oil lubricants. These formulations significantly enhance the lubricants, especially in thermal properties, tribological characteristics, and anti-oxidation capability. Advancement in nanotechnology offers the potential to enhance the performance of the lubricant base oil using nanoparticles additives. Introducing lubricant base oils with nanoparticles is critical to improving lubricant characteristics, mainly resistance to wear and friction. Understanding the base oil lubricants commonly used with nanoparticles is vital as the initial guidance in solving these obstacles. Therefore, this review paper aimed to highlight the classification of lubricants base oils for nanolubricants applications. A good understanding of the base oil lubricants leads to the quickly discovering of novel nanolubricants formulations.

Keywords Lubricants · Nanoparticles · Nanolubricant

G. Kadirgama · M. K. Kamarulzaman (✉) · D. Ramasamy (✉)
College of Engineering, Universiti Malaysia Pahang, 26600 Pekan, Pahang, Malaysia
e-mail: kamalkz@hotmail.com

D. Ramasamy
e-mail: deva@ump.edu.my

M. K. Kamarulzaman · D. Ramasamy · K. Kadirgama · S. Hisham
Automotive Engineering Centre, Universiti Malaysia Pahang, 26600 Pekan, Pahang, Malaysia

K. Kadirgama · S. Hisham
Faculty of Mechanical and Automotive Engineering Technology, Universiti Malaysia Pahang,
26600 Pekan, Pahang, Malaysia