

Boundary film-forming polymer additives

Pr. Hugh Spikes, Imperial College London (UK)

Polymers have been widely used for many years as additives in engine and transmission oils in order to increase the viscosity index of their blends. However, in the 1990s it was shown at both ECL and Imperial College that some polymers can also adsorb on polar solid surfaces to form “immobile” layers, having much higher viscosity than the bulk lubricant. These films are able to reduce friction by promoting surface separation in slow speed conditions. These functionalised polymers are now recognised to be part of the tool box used by lubricant designers to develop fuel efficient lubricants. This presentation will review past research on polymer-based lubricant additives and describe how they have become an important component of the tool box used by lubricant designers to develop fuel efficient lubricants.