



Lubricant Additives and Ash: Do We Know Enough?

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Message from the Guest Editors

Dear colleagues,

Friction, the resistance to motion, is ubiquitously present at the interface of surfaces in contact and is often a destructive force that causes significant wear and hardware durability issues. Understanding friction and its mitigation requires significant effort from industry and academia across many disciplines. It is estimated that roughly 10-30% of energy produced in internal combustion engines (dependent on many factors) is required to overcome friction and can be alleviated by low-viscosity lubricants and additive designs, combustion and engine designs, and materials and surface engineering strategies. Lubricant additives provide many vital functions to current lubricants, including (but not limited to) viscosity modifiers, friction modifiers, pour point depressants, anti-wear, detergents, dispersants, oxidation inhibitors/antioxidants, antifoam, corrosion inhibitors, extreme-pressure additives, and demulsifiers/emulsifiers. Additives aid by enhancing desirable or suppressing undesirable base oil properties or by adding new properties, and they are consumed via decomposition,

