

Additive development for the lubes, fuels and crude oil

To meet the increasing demands of increased fuel economy, a wide range of new tribo-materials, tribo-coatings and surface treatment techniques for engine tribo-components have been introduced in IC engines like alloys, ceramics composite materials, titanium and new types of steel. This has ruled out the utilities of most of the lube additives designed and tailored to work mainly on Fe-based materials, used traditionally in engines.

With growing environmental awareness and move towards using 'Green lubes and fuels', chemical additives must also be selected very judiciously to minimize adverse health related problems and bioaccumulation. According to European legislation many of the additives currently being employed must be classified as 'dangerous'. As a result problematic chemical additives need to be carefully substituted with environment friendly compounds, without however compromising on the performance aspects.

In pursuing of advanced environment friendly lubricating oils, renewable raw materials like vegetable oils, sugars, polysaccharides and polyols etc, have been used as base oils. However, it should be noticed that many traditional multifunctional lubricating additives responding well in conventional mineral oil base stocks do not have good compatibility with these base stocks.

