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Hydrophilic/Hydrophobic Fiber media for Liquid-Liquid Coalescence

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Abstract

The separation of liquid-liquid emulsions using coalescing filters has received much attention in automotive, aviation and petrochemical industry. Wettability of the filter media has significant influence on separation efficiency. The wettability of the filter media depends on surface properties of fiber materials and porosity of filter medium. The filter media can be designed using hydrophilic and hydrophobic fibers in different compositions to achieve range of wetting properties. The wettability of the filter media is characterized using modified Washburn's equation and expressed in terms of *Lipophilic to Hydrophilic (L/H) ratio*. The wettability of all the filter media are measured using water and Viscor-1487 as reference liquids. The wettability characterization result shows that by varying the composition of hydrophilic and hydrophobic fibers, media with different wetting properties can be prepared. The liquid-liquid coalescence experiments to study the effect of wettability on filter performance are in progress and results will be presented.

Keywords: Wettability, modified Washburn's equation, liquid-liquid coalescence

Bio

Prashant is Graduate student at The University of Akron working with Prof. George Chase since fall 2007. He has B.S. in Chemical Technology from Amravati University, Maharashtra, India. Before joining The University of Akron, he worked two years at National Chemical Laboratory, India as Research Project Engineer.