

**Fuel/Water Separability On Emulsified Water Filtration**

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**Abstract:** It's been well recognized that IFT (interfacial tension) alone is not sufficient as a control to conduct emulsified water filtration test per either SAE J1488 or ISO 16332/CD. Fuel/water separability characterized by MSEP (micro separator rating) per ASTM D3948, or by WS per ASTM D1401, is an additional fuel-driven property that decides a fuel/water separator's performance. However, the separability doesn't necessarily correlate to IFT and vice versa, due to the complexity of fuel blending chemistry. Bearing this in mind, in this paper, we conducted a series of market fuel sampling and measured their IFT, MSEP and WS, and showed their relevance. We then demonstrated the performance difference of reference filters using SAE specified fuel, ISO 16332 specified fuel and market fuel. We conclude that a better approach is necessary to re-define fuel/water's separability for standardized emulsified water filtration test.

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**Bio-Sketch**

Dr. Yang is a senior scientist at Donaldson Company. He obtained his Ph.D. in fouling heat transfer in Chemical Engineering. Before coming to the US, he was a researcher at the Chinese Academy of Sciences, Beijing. He then joined the Dept. of Chem. Eng & Material Science of the University of Minnesota as a visiting scholar and a research fellow. He has 40 peer-reviewed journal publications, a number of patents and over 30 presentations at national and international conferences. His research covers heat and mass transfer, nanomaterials, solvent extraction, colloid and surface science, membranes and membrane separation, as well as liquid and air filtration. He is an active member of AIChE and AFS.