

American Filtration and Separation Society, 2009 Spring Conference

Emerging Challenges of Fuel Filtration

Debra Wilfong, Andrew Dallas*, Chuanfang Yang*, Philip Johnson,
Karthik Viswanathan, Mike Madsen, Brian Tucker and John Hacker

Donaldson Company, Inc.
Minneapolis, MN 55431

Abstract

Tougher environmental regulations, a move toward energy security and sustainability and emerging green initiatives are significantly impacting the fuel industry. Removal of sulfur from traditional diesel fuels to produce a cleaner burning fuel and the introduction of biofuels derived from non-fossil fuel sources are leading to new challenges in particle, water and soft organic contaminate filtration. In addition, new engine designs developed to meet environmental concerns require higher levels of fuel cleanliness. Thus, providing higher performance fuel filtration to achieve these new cleanliness standards is further exacerbated by the complex nature of the evolving diesel fuels.

An emerging challenge for filter manufacturers is designing systems which retain filtration performance under actual operating conditions. Historically, filters were evaluated using standard lab tests that do not necessarily reflect real world driving conditions, where cyclic flow and vibration are common phenomena.

There is also a trend toward fuel system flexibility which helps manufacturers integrate multiple functions into a fuel filter module. A modular design is a cost effective means for providing a variety of performance features which allows individualization of the fuel filtration system.

Keywords: ULSD, Biofuel, Fuel Filtration, Fuel Systems, Fuel Filters, Filter Plugging

* Corresponding authors: andrew.dallas@donaldson.com and ted.yang@donaldson.com