



Cleaning Tomorrow's Air Today

VISCON

Technical Data Sheet #1103

Viscon for Diesel Applications

How it functions

Viscon's proprietary technology improves the performance of compression ignition engines. It is well known that the physical properties of diesel fuel interfere with creating a uniform air/fuel mixture in the cylinder. Viscon, unlike other fuel additives, modifies the physical behavior of diesel fuel during injection creating a more uniform air/fuel mixture at ignition and during burn.

Diesel fuel is a Newtonian Fluid and as such has physical properties which work against preparation of a uniform air/fuel mixture:

- Spray from an injector nozzle contains a population of superfine, vapor-like droplets which ignite in advance of the main body of fuel and prior to complete spray droplet penetration and mixing.
- The outer edge of the injector spray cone shears into smaller droplets which lose momentum and have poor penetration into the pressurized gas in the cylinder.
- Droplets in the center area of the injector spray cone grow by collision and coalescence as they contact the slower moving droplets at the leading edge of the spray.
- Droplets which reach the cylinder walls splatter and coat creating a cooled liquid film.

Viscon technology uses a scientific phenomenon called extensional viscosity to modify the physical properties of diesel fuel during injection and mixture formation. Viscon eliminates the formation of superfine satellite droplets which cause early ignition before spray jet penetration and mixing has progressed. Diesel fuel droplets containing Viscon resist shear on the edge of the spray cone and therefore maintain momentum for better penetration. Viscon containing droplets resist growth by collision and have a tendency to rebound and reflect from the cylinder wall back into the gas in the cylinder limiting wall coating.

Benefits

Viscon increases engine power, reduces combustion gas temperatures, reduces fuel consumption and reduces particulate and NOx emissions.

Attachment: University of Illinois – Drop Size Distribution Results

UNIVERSITY OF ILLINOIS
AT URBANA-CHAMPAIGN

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140 Mechanical Engineering Building, MC-244
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April 13, 1998

Dr. Bob Dillaway
Potomac Interface, Inc.
1925 N. Lynn St.
Suite 602
Arlington, VA 22209

Dear Bob:

Please find enclosed the drop size distributions obtained at various radial positions in a spray of gasoline with and without your additive. As I mentioned before, these results were obtained for a production port fuel injector spraying into quiescent air.

Sincerely,



J. E. Peters
Professor of Mechanical Engineering

JEP:alh
Enclosures

Phone (217) 333-1176 • Fax (217) 244-6534

Sauter Mean Diameter vs. Radial Position

