

Intertek Fuel Tests

Following on from CFCS emission study and fuel savings trial, and referring to a point that was raised during the trial, “if Aquasolve effects the fuel specification”. Please find attached Intertek’s fuel specification results with the use of the fuel additive Aquasolve.

The product meets the EN 590:2013 Specification to which it was tested against and has not changed the fuel specification to become out of specification, therefore will in no way effect any warranty.

It can be said that the effects of Aquasolve have had the following improvements to the fuels’ quality and characteristics.

1. Carbon residue reduced 50%

This will reduce the carbon deposits within the engine and reduce particulate exhaust emissions

2. Flash Point improved

The effects are a safer stored hazardous product

3. Water Content reduced

Reducing corrosion and the effects of water freezing within the fuel system.

4. Cetane Number Increased

This improves the efficiency of the engine

5. Oxidation Stability Increased By 50%

This has the positive effects of stabilizing degradation of the fuel, due to improved quality, “the lower the number the better the fuel quality is”.

Summary Report a sample C-187819 treated with Fuel Additive Aquasolve Compound C

Intertek has tested a fuel sample additivised with Aquasolve Compound C and can confirm that results obtained meet EN590:2013 fuel specification based on the handblend tested, it was noted that the following occurred

1. Carbon residue decreased
2. Flash Point increased
3. Water Content decreased
4. Cetane Number Increased
5. Oxidation Stability Increased
6. FBT decreased

This is an observation of the fuel testing results only, and some results may be within reproducibility and repeatability of the methods.

ANALYSIS RESULTS

F.A.O. - Kevin Harrison - Contaminated Fuel Conditioning Services

Material : Diesel
Sample Submitted By : Aquasolve
Sample description : C-186940 ULSD with No additive
Testing performed at : Intertek, Seal Sands, Middlesbrough, UK, TS21UB
Tested By : MF/MS/EW/SL
Completed on : 02-Apr-19

TEST	METHOD	SPECIFICATION EN 590:2013	RESULTS
Density @ 15°C (kg/m ³)	EN ISO 12185	820.0 - 845.0	838.3
Ash Content (%m/m)	EN ISO 6245	0.010 Max	<0.01
Carbon Residue on 10% Res. (%m/m)	EN ISO 10370	0.30 Max	0.02
Flash Point, PMCC (°C)	EN ISO 2719	56 Min	65.0
Sulfur Content (mg/kg)	EN ISO 20846	10.0 Max	7.1
Manganese Content (mg/kg)	EN 16576	2.0 Max	<2.0
CFPP (°C)	EN 116	-5 Max Summer Grade / -15 Max Winter Grade	-20
Cloud Point (°C)	EN 23015	+5 Max Summer Grade / -5 Max Winter Grade	-8
Viscosity @ 40°C (mm ² /s)	EN ISO 3104	2.000 - 4.500	2.849
Water Content (mg/kg)	EN ISO 12937	200 Max	61
Calculated Cetane Index	EN ISO 4264	46.0 Min	53.1
Cetane Number**	EN ISO 5165	51.0 Min	54.6
Distillation Recovery @ 250 °C (%v/v)	EN ISO 3405	65 Max	31.5
Distillation Recovery @ 360 °C (%v/v)	EN ISO 3405	85 Min	98.7
Distillation Temp. @ 95% Rec. (°C)	EN ISO 3405	360 Max	349.2
Oxidation Stability (g/m ³)	EN ISO 12205	25 Max	12
Oxidation Stability (Hours)	EN 15751	20 Min	>20
Copper Corrosion Strip	EN ISO 2160	Class 1	1a
Total Contamination (mg/kg)	EN 12662	24 Max	5
Polycyclic Aromatics (%m/m)	EN ISO 12916	8.0 Max	3.4
Lubricity, HFRR @ 60°C (Microns)	EN ISO 12156-1	460 Max	328
FAME Content (%v/v)	EN 14078	7.0 Max	6.3

** Test subcontracted to Intertek -West Thurrock

Tested By: MF/MS/EW/SL Signed: _____

Checked By: A.Littlefair Signed: _____
Lab Manager

ANALYSIS RESULTS

F.A.O. - Kevin Harrison Contaminated Fuel Conditioning Services

Material : Diesel

Sample Submitted By : Aquasolve

Sample description : C-187819 - ULSD With Component C additive, Ration (1/750)

Testing performed at : Intertek, Seal Sands, Middlesbrough, UK, TS21UB

Tested By : SB/SL

Completed on : 15-Apr-19

TEST	METHOD	SPECIFICATION EN 590:2013	RESULTS
Density @ 15°C (kg/m ³)	EN ISO 12185	820.0 - 845.0	840.2
Ash Content (%m/m)	EN ISO 6245	0.010 Max	<0.01
Carbon Residue on 10% Res. (%m/m)	EN ISO 10370	0.30 Max	<0.01
Flash Point, PMCC (°C)	EN ISO 2719	56 Min	67.5
Sulfur Content (mg/kg)	EN ISO 20846	10.0 Max	7.7
Manganese Content (mg/kg)	EN 16576	2.0 Max	<2.0
CFPP (°C)	EN 116	-5 Max Summer Grade / -15 Max Winter Grade	-16
Cloud Point (°C)	EN 23015	+5 Max Summer Grade / -5 Max Winter Grade	-5
Viscosity @ 40°C (mm ² /s)	EN ISO 3104	2.000 - 4.500	2.759
Water Content (mg/kg)	EN ISO 12937	200 Max	48
Calculated Cetane Index	EN ISO 4264	46.0 Min	52.1
Cetane Number **	EN ISO 5165	51.0 Min	WT
Distillation Recovery @ 250 °C (%v/v)	EN ISO 3405	65 Max	31.1
Distillation Recovery @ 360 °C (%v/v)	EN ISO 3405	85 Min	98.5
Distillation Temp. @ 95% Rec. (°C)	EN ISO 3405	360 Max	349.9
Oxidation Stability (g/m ³)	EN ISO 12205	25 Max	5
Oxidation Stability (Hours)	EN 15751	20 Min	>20
Copper Corrosion Strip	EN ISO 2160	Class 1	1a
Total Contamination (mg/kg)	EN 12662	24 Max	15
Polycyclic Aromatics (%m/m)	EN ISO 12916	8.0 Max	3.4
Lubricity, HFRR @ 60°C (Microns)	EN ISO 12156-1	460 Max	454
FAME Content (%v/v)	EN 14078	7.0 Max	7.0

** Test subcontracted to Intertek -West Thurrock

Tested By: SB/SL Signed: _____

Checked By: A.Littlefair Signed: _____
Lab Manager