



## Testing of Envirox™ to the European Diesel Fuel Standard EN 590:2000

Oxonica Energy is responsible for marketing Envirox™. Envirox™ is a diesel fuel borne catalyst that reduces fuel consumption by 5 to 10% and reduces both hydrocarbon and particulate emissions by up to 14%.

Envirox™ has been added at its recommended treat rate to reference diesel fuel RF-73-A-93. The fuel with added Envirox™ was independently tested against the European Diesel Fuel Standard EN 590:2000 and compared to the results obtained for the reference fuel.

The addition of Envirox™ to the diesel fuel had no effect on the fuels properties. The reference and Envirox™ treated fuels both fully met the EN590: 2000 specification:

General applicable requirements for EN 590:2000	Envirox™ <sup>A</sup>	RF-73-A-93	Limits		Test method	
			min	max		
Cetane number	51.7	✓	50.8*	51.0	-	ASTM D613
Cetane index	51.6	✓	-	46.0	-	ISO 4264
Density at 15 °C, kg m <sup>-3</sup>	836	✓	836**	820	845	ISO 12185
Polycyclic aromatic Hydrocarbons, % (m/m)	4.1	✓	3.5**	-	11	IP 391
Sulfur content, mg kg <sup>-1</sup>	<sup>B</sup>	✓	-	-	350	ISO 8754
Flash point, °C	70	✓	70**	55	-	ISO 2719
Carbon residue, % (m/m)	< 0.10	✓	< 0.10*	-	0.20	ISO 10370
Ash content, % (m/m)	< 0.001	✓	< 0.003*	-	0.01	ISO 6245
Water content, mg kg <sup>-1</sup>	39	✓	49*	-	200	ASTM D1744
Total contamination, mg kg <sup>-1</sup>	1.4	✓	-	-	24	IP 440
Copper strip corrosion, rating after 3 h at 50°C	1	✓	1b**	Class 1		ISO 2160
Oxidation stability, g m <sup>-3</sup>	10	✓	6*	-	25	ASTM D2274
Lubricity, corrected wear scar diameter (wsd 1,4) at 60°C, microns	233†	✓	424*	-	460	ISO 12156-1
Viscosity at 40 °C, mm <sup>2</sup> s <sup>-1</sup>	2.54	✓	2.52**	2.00	4.50	ISO 3104
Distillation		✓				ISO 3405
% (V/V) recovered at 250°C	38.8	✓	40**	-	< 65	
% (V/V) recovered at 350°C	97.2	✓	97**	85		
95 % (V/V) recovered at, °C	341.9	✓	335**	-	360	
Cold filter plugging point, temperate climate grade E, °C	-18	✓	-18**	-	-15	EN 116

<sup>A</sup> Tests carried out on CEC reference diesel fuel RF-73-A-93 containing Envirox™ at the recommended treat rate by Intertek Caleb Brett Ltd ([www.intertek-cb.com](http://www.intertek-cb.com)).

<sup>B</sup> The sulfur level depends on the sulfur in the fuel as Envirox™ contributes to less than 0.02ppm at the recommended treat rate.

Tests marked with \* were carried out by Saybolt UK Ltd.

Tests marked with \*\* were carried out by Petrochem Carless Ltd.

Test marked with † were carried out by the Associated Octel Co. Ltd in 15 ppm sulfur diesel fuel.

### For further information contact:

**Oxonica**

7 Begbroke Science Park, Sandy Lane, Yarnton,  
Kidlington, Oxfordshire OX5 1PF, United Kingdom

T +44 (0) 1865 856 728

F +44 (0) 1865 856 701

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