

SulNOx Group Plc  
 10 Orange Street  
 Haymarket, London  
 WC2H 7DQ

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## CERTIFICATE OF QUALITY No. L 53498-1


Vessel/Operation : <b>Sample and Analysis</b>	Job Number : <b>IM 44730</b>
Product/Grade : <b>Gasoline</b>	Sample Number: <b>85863</b>
Location : <b>Immingham</b>	Date of Sampling : <b>22/02/2021</b>
Sample Origin : <b>Service Station Pump Fuel with the addition of SulNOxEco™ Petrol Conditioner</b>	Date Received : <b>22/02/2021</b>
	Date Tested : <b>22-24/02/2021</b>

Test	Method	Unit	Result
Density @ 15 Deg C	IP 365	kg/ltr	0.7261
Dry Vapour Pressure Equivalent (DVPE)	EN 13016-1	kPa	96.7
Appearance	* D4176 Procedure 1	-	Clear & Bright
Free Water	* D4176 Procedure 1	-	None Visible
Suspended Matter	* D4176 Procedure 1	-	None Visible
RON	* IP 237	ON	95.0
MON	* IP 236	ON	87.0
Antiknock Index	* ASTM D4814	-	91.0
Colour	Visual	-	Undyed
Copper Strip Corrosion (3hrs @ 50 Deg C)	IP154	-	1a
Silver Corrosion (3hrs @ 50 Deg C)	* IP154	-	0
Doctor Test	IP30	-	Negative
Driveability Index	* ASTM D4814	-	474.7
Existent Gum (Unwashed)	* IP131	mg/100ml	<1
Existent Gum (Solvent Washed)	* IP131	mg/100ml	<1
Oxidation Stability	* ISO 7536	Mins	>360
Lead	* IP428	mg/kg	<2.5
Manganese	* EN16136	mg/kg	<0.1
Hydrogen Sulphide	* IP 342	mg/kg	<1
Mercaptans	* IP 342	mg/kg	5

Latest issue of test methods used unless stated otherwise.  
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 No Measurement Uncertainty (MOU) has been applied to the reported results. The MOU is available via the reference standard or via request directly from the Laboratory.  
 Where sampling performed by Bureau Veritas, it is outside the scope of UKAS accreditation  
 \* denotes test is outside laboratories scope of UKAS accreditation  
 Product meets EN 228 specification (both E5 and E10) based on tests performed and results obtained only with no MOU applied  
 Product meets most US specifications based on tests performed and results obtained only with no MOU applied

Chemist

Richard Blyth
Ian Savage

  
 M. Hollingsworth      UK Laboratory Manager  
 Authorised Signatory for Bureau Veritas



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## CERTIFICATE OF QUALITY No. L 53498-2

Vessel/Operation :	<b>Sample and Analysis</b>	Job Number :	<b>IM 44730</b>
Product/Grade :	<b>Gasoline</b>	Sample Number:	<b>85863</b>
Location :	<b>Immingham</b>	Date of Sampling :	<b>22/02/2021</b>
Sample Origin :	<b>Service Station Pump Fuel with the addition of SulNOxEco™ Petrol Conditioner</b>	Date Received :	<b>22/02/2021</b>
		Date Tested :	<b>22-24/02/2021</b>

Test	Method	Unit	Result
Total Oxygenates	EN 22854	%Vol	4.62
MTBE	EN 22854	%Vol	<0.01
DIPE	EN 22854	%Vol	<0.01
ETBE	EN 22854	%Vol	<0.01
TAME	EN 22854	%Vol	<0.01
Methanol	EN 22854	%Vol	<0.01
Ethanol	EN 22854	%Vol	4.62
n-propanol	EN 22854	%Vol	<0.01
i-propanol	EN 22854	%Vol	<0.01
n-butanol	EN 22854	%Vol	<0.01
i-butanol	EN 22854	%Vol	<0.01
s-butanol	EN 22854	%Vol	<0.01
t-butanol	EN 22854	%Vol	<0.01
2-methyl-2-butanol	EN 22854	%Vol	<0.01
Oxygen Content	EN 22854	%Mass	1.76
Aromatics	EN 22854	%Vol	26.76
Olefins	EN 22854	%Vol	4.99
Naphthalenes	EN 22854	%Vol	2.51
Benzene	EN 22854	%Vol	0.46

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## CERTIFICATE OF QUALITY No. L 53498-3

Vessel/Operation : <b>Sample and Analysis</b>	Job Number : <b>IM 44730</b>
Product/Grade : <b>Gasoline</b>	Sample Number: <b>85863</b>
Location : <b>Immingham</b>	Date of Sampling : <b>22/02/2021</b>
Sample Origin : <b>Service Station Pump Fuel with the addition of SulNOxEco™ Petrol Conditioner</b>	Date Received : <b>22/02/2021</b> Date Tested : <b>22-24/02/2021</b>

Test	Method	Unit	Result
Distillation @ 760 mmHg - IBP	IP 123, ISO 3405	Deg C	24.7
10% Evaporated	IP 123, ISO 3405	Deg C	38.6
20% Evaporated	IP 123, ISO 3405	Deg C	46.6
30% Evaporated	IP 123, ISO 3405	Deg C	54.0
40% Evaporated	IP 123, ISO 3405	Deg C	63.0
50% Evaporated	IP 123, ISO 3405	Deg C	87.2
60% Evaporated	IP 123, ISO 3405	Deg C	106.6
70% Evaporated	IP 123, ISO 3405	Deg C	119.2
80% Evaporated	IP 123, ISO 3405	Deg C	133.1
90% Evaporated	IP 123, ISO 3405	Deg C	155.2
Final Boiling Point	IP 123, ISO 3405	Deg C	201.6
Evaporated at 70 Deg C	IP 123, ISO 3405	%Vol	43.5
Evaporated at 100 Deg C	IP 123, ISO 3405	%Vol	55.9
Evaporated at 150 Deg C	IP 123, ISO 3405	%Vol	88.0
Residue	IP 123, ISO 3405	%Vol	1.1
Phosphorous	* ASTM D3231	g P/ US Gal	<0.0001
Sulphur content (UV)	IP 490	mg/kg	5.1
Vapour Lock Index (VLI)	* Calculation	-	1271.5

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## CERTIFICATE OF QUALITY No. L 53229-1

Vessel/Operation : <b>Sample and Analysis</b>	Job Number : <b>IM 44596</b>
Product/Grade : <b>Diesel - EN590</b>	Sample Number: <b>85136</b>
Location : <b>Immingham</b>	Date of Sampling : <b>08/01/2021</b>
Sample Origin : <b>Service Station Pump Fuel with the addition of SulNOxEco™ Fuel Conditioner</b>	Date Received : <b>08/01/2021</b>
	Date Tested : <b>08-18/01/2021</b>

Test	Method	Unit	Specification	Result
Density @15 Deg C	IP365 ISO 12185	kg/ltr	<b>0.8200 - 0.8450</b>	0.8392
Appearance @ 15 Deg C	* D4176	-		Clear & Bright
CFPP	IP 309 EN116	Deg C	<b>Minus 15</b>	Minus 20
Viscosity @ 40 Deg C	IP71 ISO 3104	cSt	<b>2.000 - 4.500</b>	2.465
Derived Cetane Number	sc IP 498	-	<b>51.0 Min</b>	51.5
Cetane Index	* IP380 ISO 4264	-	<b>46.0 Min</b>	49.1
%Recovered @ 250 Deg C	IP123 ISO 3405	%Vol	<b>65 Max</b>	40.9
%Recovered @ 350 Deg C	IP123 ISO 3405	%Vol	<b>85 Min</b>	96.3
95% Recovered	IP123 ISO 3405	Deg C	<b>360 Max</b>	356.4
Pensky Martens Flash Point (Method A)	IP34 (A) ISO 2719 (A)	Deg C	<b>55.0 Min</b>	65.0
Carbon Residue 10% Bottoms	* EN10370	%wt	<b>0.30 Max</b>	0.05
Water Content	IP438 ISO12937	mg/kg	<b>200 Max</b>	51
Lubricity @ 60 Deg C	* ISO12156-1	um	<b>460 Max</b>	223
Poly Aromatic Hydrocarbons	* IP391	%wt	<b>8.0 Max</b>	3.0
Oxidation Stability	* D2274 ISO 12205	g/m <sup>3</sup>	<b>25 Max</b>	<1
Oxidation Stability	* EN 15751	Hours	<b>20 Min</b>	>40
Ash Content	IP4 ISO 6245	%wt	<b>0.010 Max</b>	<0.001
Sulphur Content	IP490	mg/kg	<b>10.0 Max</b>	6.2
Copper Corrosion 3 hr @ 50 Deg C	* IP154 ISO2160	Class	<b>Class 1</b>	1a

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 Product meets EN 590 specification based on tests performed and results obtained only with no MOU applied. Based on EN590 results SulNOxEco Fuel Conditioner should also be valid for use in High Fame Diesel Fuel (B20 and B30) as per EN 16709 specification.

Chemist

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## CERTIFICATE OF QUALITY No. L 53229-2

Vessel/Operation : <b>Sample and Analysis</b>	Job Number : <b>IM 44596</b>
Product/Grade : <b>Diesel - EN590</b>	Sample Number: <b>85136</b>
Location : <b>Immingham</b>	Date of Sampling : <b>08/01/2021</b>
Sample Origin : <b>Service Station Pump Fuel with the addition of SulNOxEco™ Fuel Conditioner</b>	Date Received : <b>08/01/2021</b>
	Date Tested : <b>08-18/01/2021</b>

Test	Method	Unit	Specification	Result
Total Contamination	EN 12662	mg/kg	<b>24 Max</b>	12.9
Fatty Acid Methyl Ester Content	* EN14078	%vol	<b>7.0 Max</b>	6.7
Manganese	* EN16579	mg/l	<b>2.0 Max</b>	<1
Filter Blocking Tendency	* IP 387 - B	-	<b>2.52 Max</b>	1.04
- Sample Temperature	* IP 387 - B	Deg C		20.0
- Volume Pumped	* IP 387 - B	ml		300
- Initial Pressure	* IP 387 - B	kPa		16
- Final Pressure	* IP 387 - B	kPa		31
Cold Filter Blocking Tendency	* IP 618	-		1.15
- Sample Temperature	* IP 618	Deg C		Minus 1.0
- Volume Pumped	* IP 618	ml		300
- Initial Pressure	* IP 618	kPa		25
- Final Pressure	* IP 618	kPa		59

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