



### HVO Fuel

An environmentally sustainable, high performance fuel, suitable for use with RVT's Climex Indirect Oil-Fired Heaters and other on site machinery, including generators.

Hydrotreated Vegetable Oil (HVO) is a fossil-free, paraffinic fuel made from 100% renewable raw materials. It is a sustainable, high quality fuel, suitable for use in most diesel powered machinery. HVO is cleaner than diesel, it's FAME free, and complies with EN15940 & ASTM D97 5. Unlike biodiesel it does not deteriorate over time and can be used in temperature extremes.

HVO is available in different grades; however RVT Group will only be offering Grade D+ which has been tested and verified as being the most suitable for use with our machinery, and will not affect the performance in any way.

With the Government's pledge to reduce carbon emissions by up to 80% by 2050, the need for sustainable fuels has never been greater. RVT Group would encourage all customers to consider switching to HVO fuel.

#### Features & Benefits

- ✓ Made from sustainable and renewable raw materials.
- ✓ Reduces CO<sub>2</sub>e by up to 90% compared to regular diesel.
- ✓ Reduces NO<sub>x</sub> levels by up to 30% compared to regular diesel.
- ✓ Reduces particulate matter by over 86% compared to regular diesel.
- ✓ Low viscosity, means it has excellent cold weather performance.
- ✓ Improved safety, shelf life and storage compared to regular diesel.
- ✓ HVO is compatible with RVT's Climex Indirect Oil-Fired Heaters.
- ✓ Noise levels in some engines can be reduced by 1-4 dB.



- ✓ **Compliant with EN 15940 standards and the Fuel Quality Directive 2009/30/EC Annex II**





## HVO Fuel

Properties	Test Method	Unit	EN590	ASTM D975	EN15940	HVO min	HVO max
Cetane number	ASTM D4737	-	> 51	> 40	> 70	70	-
Density at 15°C	ASTM D1298	kg/m <sup>3</sup>	820 - 845	-	765 - 800	770	790
Sulfur content	EN ISO 20846	mg/kg	> 10.0	> 15.0	> 5.0	-	5
Flash point	ASTM D975	°C	> 55	> 52	> 55	61	-
Carbon residue (on 10% distillation residue)	ASTM D4530	% (m/m)	> 0.30	> 0.35	> 0.30	-	0.1
Ash content	ASTM D482	%mass	> 0.010	> 0.010	> 0.010	-	0.001
Water content	EN ISO 12937	mg/kg	> 200	-	> 200	-	100
Total contamination	EN ISO 12662	mg/kg	> 24	-	> 24	-	10
Copper strip corrosion (3h at 50°C)	EN ISO2160	Rating	Class 1	Class 3	Class 1	Class 1	
Oxidation stability	EN ISO 12205	g/m <sup>3</sup>	> 25	-	> 25	-	25
Lubricity, corrected wear scar diameter (wsd 1.4) at 60°C	EN ISO 12156-1	mm	> 460	> 520	> 460	-	400
Viscosity at 40°C	EN ISO 3104	mm <sup>2</sup> /s	2.0 - 4.5	1.9 - 4.1	2.0 - 4.5	2	4
Distillation							
IBP		°C	-	-	-	180	-
% (V/V) recovered at 250°C	EN ISO 3405	% (V/V)	< 65	-	< 65	-	< 65
% (V/V) recovered at 350°C		% (V/V)	> 85	-	> 85	85	-
95% (V/V) recovered at		°C	< 360	-	< 360	-	320
Cloud Point (Summer/Winter) & CFPP	EN 23015 / EN 116	°C	Down to -34	-	-	- 15/-32 (CFPP reported)	
Appearance	Visual	-	-	-	-	Clear and bright	
Total aromatics content	EN 12916	% (m/m)	-	> 35	> 1.1	-	1
Electrical Conductivity	ISO 6297	pS/m	-	-	-	100	-
Acidity total (TAN)	ASTM D3242	mgKOH/g	-	-	-	-	0.01
Sediment, particulate matter	EN 12662	g/kg	-	-	10	-	< 1
Net heat of combustion, measured	ASTM D4809	MJ/kg	-	-	42	-	44





# CLIMEX®

## HVO Fuel

### Case Study: Winter Wonderland

HVO was supplied to Winter Wonderland in 2019 and powered over 30 generators across Hyde Park in London.

With over 3.5 million visitors, the use of HVO not only reduced the levels of CO<sub>2</sub>e into the atmosphere, but the NO<sub>x</sub> levels were also reduced dramatically. This enhanced the air quality for visitors during their experience.



**1,600,000L of HVO reduced  
CO<sub>2</sub>e levels by 4368Mt**



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