

**UKay**  
fuels

driven by  **Q**  
uality

**Introducing our new  
cleaner, greener fuel product**

**HVO**

**Hydrotreated Vegetable Oil**

**For a cleaner, greener future.**

# Introducing our new cleaner, greener fuel product

# HVO

## Hydrotreated Vegetable Oil

Ukay fuels always strive towards quality in everything we do and are aware of the pressures on the environment.

We are therefore proud to announce our NEW cleaner, greener HVO fuel.

This is a diesel and gas oil alternative fuel, HVO (Hydrotreated Vegetable Oil) is a fossil free, paraffinic fuel made from 100% raw materials.

A more sustainable, high quality of diesel fuel, that is suitable for all diesel-powered vehicles and industrial powered generators. Produced from waste fats and vegetable oils, the fats are transformed into biofuel by hydrogenation.

HVO can reduce emissions by as much as 90% and has excellent cold weather performance.

Providing a cleaner, greener future.



# What is HVO?

**HVO** (Hydrotreated Vegetable Oil), is a fossil-free, paraffinic fuel made from 100% renewable raw materials. A more sustainable, high quality of diesel fuel, that is suitable for all diesel-powered vehicles and industrial powered generators.

Produced from waste fats and vegetable oils, the fats are transformed into biofuel by hydrogenation.

With the Government pledging that by **2050** carbon emissions are to reduce by up to **80%**, the need for sustainable fuels has never been greater.

This means that emissions from homes, transport, farming and industry will have to be avoided completely.



**GREEN**D+

**GREEN**D+

## Alternative **Diesel**

Our alternative fuel for on road vehicles is **Green D+**, this is a cleaner fuel than diesel, or FAME (fatty acid methyl ester – biodiesel); it complies with EN15940 & ASTM D97 5.

Unlike biodiesel it does not deteriorate over time and can be used in temperature extremes. **Green D+**, is a drop-in replacement for diesel and can be used in all diesel engines.

**Green D+** is an enhancement of HVO, achieved by inclusion of an additive system which chemically reduces NOx (to N<sub>2</sub>) in the exhaust gases whilst oxidizing incomplete combustion products (HC, PM and CO).

Our fuel is formulated as Green D and then enhanced with our proprietary additive package to produce **Green D+**.

The base HVO is sourced from two European Suppliers including the world's leading supplier of renewable diesel.





**GREEN**G+

**GREEN**G+

## Alternative Gas Oil

Our alternative fuel for off road vehicles is **Green G+**, this is a cleaner fuel than gas oil, or FAME (fatty acid methyl ester – biodiesel); it complies with EN15940 & ASTM D97 5.

Unlike biodiesel it does not deteriorate over time and can be used in temperature extremes.

**Green G+**, is a drop-in replacement for gas oil and can be used in all gas oil engines.

**Green G+** is in use in the off-road and mobile plant industries. It has been widely adopted in the UK as a drop-in gas oil replacement by: off-road, marine, and in back-up power applications where it helps to meet the new MCPD requirements.

**Green G+** has been adopted as our solution to meet clients environmental obligations.

# The Benefits

## KEY BENEFITS OF USING HVO



**NO<sub>x</sub>**  
NITROGEN OXIDES

**LOWER NO<sub>x</sub>**  
NO levels are reduced by **up to 30%**



**PM**  
PARTICULATE  
MATTER

**LOWER PARTICULATES**  
Particulate, PM25 & PM10  
are lowered by **up to 86%**



**CO<sub>2</sub>e**  
CARBON DIOXIDE

**LOWER CO<sub>2</sub>e LEVELS**  
HVO generates **up to 90%**  
greenhouse gases (co<sub>2</sub>e) and emissions  
reducing your carbon footprint  
significantly.

**350L = 956KG**

USED HVO

REDUCED CARBON OUTPUT

- ENVIRONMENTALLY FRIENDLY & SUSTAINABLE**  
Made from sustainable and renewable raw materials,  
HVO reduces greenhouse emissions by as much as 90%.
- LOW VISCOSITY LEVELS**  
Has excellent cold weather performance.
- GREAT ALTERNATIVE SOLUTION**  
Compatible with diesel engines.
- LONG STORAGE SHELF LIFE**  
Improved safety, shelf life and storage compared to regular diesel,  
therefore reducing the need for regular testing.
- DROP-IN FUEL**  
HVO can be used a direct replacement for conventional  
diesel fuels in heavy-duty and light-duty engines.
- NOISE REDUCTION**  
Noise levels in some engines can be reduced by 1-4 dB.



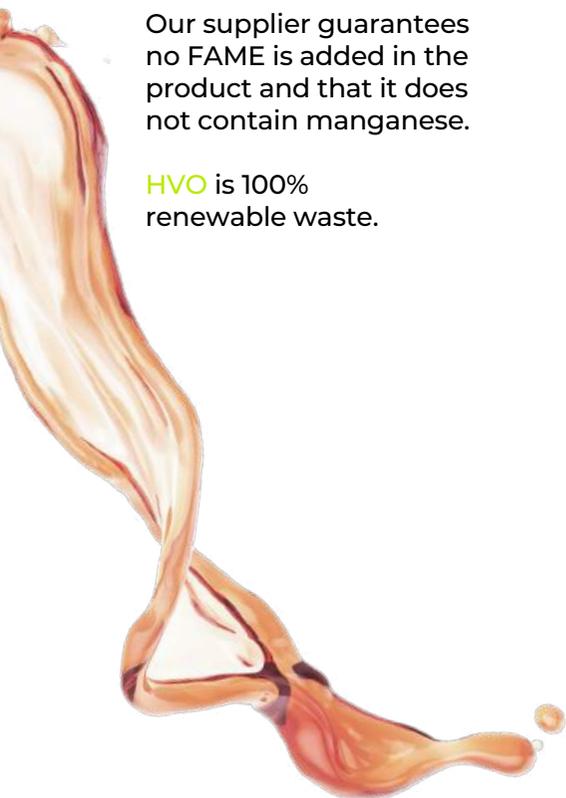
# Technical Info



HVO is a bio-based paraffinic diesel fuel defined in the EN15940 specification.

Our supplier guarantees no FAME is added in the product and that it does not contain manganese.

HVO is 100% renewable waste.



PROPERTIES	TEST METHOD	UNIT	EN590	ASTM D975	EN15940	GREEN D+	
						MIN	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	-	5.0
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	-	0.10
Ash content	ASTM D482	% mass	< 0.010	< 0.010	< 0.010	-	0.001
Water content	ENISO 12937	mg/kg	< 200	-	< 200	-	100
Total contamination	ENISO 12662	mg/kg	< 24	-	< 24	-	10
Copper strip corrosion (3h at 50 c)	ENISO 2160	Rating	Class 1	Class 3	Class 1	Class 1	
Oxidation stability	ENISO 12205	g/m <sup>3</sup>	< 25	-	< 25	-	25
Lubricity, corrected wear scar diameter (wsd 1.4) at 60 c	ENISO 12156-1	mm	< 460	< 520	< 460	-	400
Viscosity at 40 c	ENISO 3104	mm <sup>2</sup> /s	2.0 - 4.5	1.9- 4.1	2.0 - 4.5	2.0	4.0
Distillation IBP	ENISO 3405	°C	-	-	-	180	-
% (V/V) recovered at 250 C		% (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	ENISO 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	-	1.0
Electrical Conductivity	ISO 6297	pS/m	-	-	-	100	-
Acidity total (TAN)	ASTM D3242	mgKOH/g	-	-	-	-	0.01
Sediment, particular matter	EN 12662	g/kg	-	-	10	-	< 1
Net heat of combustion, measured	ASTM D4809	MJ/kg	-	-	42	-	44

# OEM Approved.

HVO is a direct replacement (drop in) of fuel for all red diesel powered engines.

These OEMs (Original Equipment Manufacturers) have already approved HVO to use in heavy duty road vehicles, passenger cars and non-road vehicles.

OEM approvals include:

- DAF
- Scania
- Mercedes Benz
- Caterpillar
- IVECO



**GREEN<sup>D+</sup>**  
**GREEN<sup>G+</sup>**

## PASSENGER CARS (GREEN D+)



## NON-ROAD VEHICLES (GREEN G+)



## HEAVY DUTY ROAD VEHICLES (GREEN D+)



# FAQ's.



## CAN I USE HVO IN MY CURRENT OFF-ROAD DIESEL ENGINE?

Yes. Green G+ is a 100% drop in fuel and with any EN590 & ASTM D97 5 red diesel compatible engines, such as generators.

## HOW LONG CAN I STORE HVO FOR?

Due to its chemical make-up, our HVO can be stored indefinitely without any performance loss.

## DOES HVO COME FROM PALM OIL?

Our supply of HVO meets the regulations of the ICSS and has been sourced from 100% sustainable raw materials and waste.

## DOES HVO SMELL LIKE DIESEL?

Our HVO is composed entirely of linear and branched paraffins with no aromaticity, no saturation, and no Sulphur compounds, making it odourless and biodegradable.

## HAS HVO BEEN APPROVED BY OEMS?

HVO has been approved by many OEMs, including DAF, John Deere, Volvo, Mercedes- Benz, IVECO and many more.



**GREEN**D+  
**GREEN**G+

Fueling your success, protecting our future

# Contact Us Today.

Our aim is to help all businesses achieve their sustainability targets and help to protect our future. That's why we are dedicated to bringing you the best fuel solution for every business need.

Call our experienced Sales team today and start to see the benefits of using **HVO**

CALL

**01376 574 650**

EMAIL

**sales@ukayfuels.co.uk**

VISIT

**www.ukayfuels.co.uk**

CASE STUDY

# 21 Moorfields

BARBICAN, LONDON

25,000 litres of Green G+ were used to power two generators on site whilst the contractor transfers the mains power supply from low to high voltage.

REDUCED CO<sub>2e</sub>  
**68.5Mt**

REDUCED NO<sub>x</sub>  
**29%**

REDUCED PM  
**77%**



CASE STUDY

# Winter Wonderland

HYDE PARK LONDON

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

With our 3.5 million visitors, the use of HVO not only reduced the levels of CO<sub>2</sub> into the atmosphere, but the NO levels were reduced dramatically to enhance the visitors breathing air quality.

↓ 1,600,000 L  
OF GREEN G+ REDUCED CO<sub>2</sub>e LEVELS BY  
4,368 Mt



For a cleaner, greener future.

# HVO

**If you would like to know more about our HVO product, please contact us on the details below and speak to one of our friendly advisors.**

[www.ukayfuels.co.uk](http://www.ukayfuels.co.uk)

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