

# heltor **HVO**

100% RENEWABLE FUEL

**HVO**

YOUR COMPLETE GUIDE



/ WHAT IS OUR

# ALTERNATIVE FUEL?

**Alternative Fuels**, known as non-conventional and advanced fuels, are any materials or substances that can be used as fuels, other than conventional fuels like; fossil fuels as well as nuclear materials such as uranium and thorium.

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.



**HVO (Enhanced 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.

Our alternative fuel, **HVO**, 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.

**HVO**, is a drop-in replacement for Gas Oil/Red Diesel and can be used in all diesel engines. It can also be used as a replacement for heating oil (this is subject to trials and boiler modifications as required.)

**HVO**



# / WHAT IS HVO?

**HVO** is 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 **HVO**.

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

**HVO** is in use in the off-road and mobile plant industries. It has been widely adopted in the UK as a drop-in diesel replacement by: centrally fuelled fleets both on-road, off-road, marine, and in back-up power applications where it helps to meet the new MCPD requirements.

**HVO** has been adopted as our solution to meet clients' environmental obligations.

## WHAT CAN HVO BE MADE FROM?

- 1 Animal fat from food industry waste
- 1 Fish fat from fish processing waste
- 1 Residues from vegetable oil processing
- 1 UCO - Used Cooking Oil
- 1 Technical Corn Oil
- 1 Tall Oil Pitch
- 1 Palm Oil# (in regulation to the ISCC\*)
- 1 Tallow - rendered form of beef or mutton fat
- 1 Palm Oil Mill Effluent (POME)

#Our HVO does not contain or have any traces of Virgin Palm Oil  
\*ISCC is a sustainability certification system covering the entire supply chain and all kinds of biobased feedstocks and renewables.

The HVO logo consists of the letters 'HVO' in a bold, white, sans-serif font, set against a green rectangular background with a slight gradient and a white border.

/ HVO

# THE BENEFITS

## KEY BENEFITS OF USING HVO

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

LOWER NO<sub>x</sub>  
NOx 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% less**  
greenhouse gases (CO<sub>2</sub>e) and emissions,  
reducing your carbon footprint significantly.

**350L = 956KG**

USED HVO

REDUCED CARBON OUTPUT

### 1 ENVIRONMENTALLY FRIENDLY, SUSTAINABLE & BIODEGRADABLE

Made from sustainable and renewable raw materials,  
HVO reduces greenhouse emissions by as much as 90%.

### 2 LOW VISCOSITY LEVELS

Has excellent cold weather performance.

### 3 GREAT ALTERNATIVE SOLUTION

Compatible with all off-road diesel engines.

### 4 LONG STORAGE SHELF LIFE

Improved safety, shelf life and storage compared to regular

### 5 DROP-IN FUEL

HVO can be used a direct replacement for conventional diesel  
fuels in heavy-duty and light-duty engines.

### 6 NOISE REDUCTION

Noise levels in some engines can be reduced by 1-4 dB.

**HVO**

/ TECHNICAL

# INFO

HVO is abio-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.**

Full TDS & MSDS available on request

PROPERTIES	TEST METHOD	UNIT	EN590	ASTM D975	EN15940	HVO	
						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	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	2.0	4.0
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	-	1.0
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



/ HVO

# 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

## / PASSENGER CARS (ON-ROAD HVO)



## / NON-ROAD VEHICLE (OFF-ROAD HVO)



## / HEAVY DUTY ROAD VEHICLES (ON-ROAD HVO)



/ HVO

## FAQ's

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

Yes. HVO 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,





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HELTOR.CO.UK

## NEWTON ABBOT

Old Newton Road,  
Heathfield, Newton Abbot,  
Devon, TQ12 6RW

**01626 832357**

## ST AUSTELL

Heltor Bojea Sidings,  
Trethowel St Austell,  
Cornwall PL25 5RT UK

**01726 72895**

## PLYMOUTH

Heltor Maxwell Road,  
Cattedown, Plymouth,  
PL4 0SN UK

**01752 425135**

## HONITON

Heltor, Chapel St  
Honiton  
EX14 1ET, UK

**01404 45505**

