

John F Hunt
POWER



GreenD+ HVO YOUR COMPLETE GUIDE

What is John F Hunt Power's 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 fossil fuels and 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.

GreenD+ 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, **GreenD+ HVO**, is a cleaner fuel than diesel or FAME (fatty acid methyl ester – biodiesel) and complies with EN15940 & ASTM D975. Unlike biodiesel it does not deteriorate over time and can be used in extreme temperatures.

GreenD+ HVO, is a drop-in replacement for Gas Oil/Red Diesel and can be used in all diesel engines.

What is GreenD+ HVO?

GreenD+ HVO is an enhancement of HVO, achieved by inclusion of an additive system which chemically reduces NO_x (to N₂) in the exhaust gases, whilst oxidizing incomplete combustion products (HC, PM and CO).

John F Hunt Power's fuel is formulated as **GreenD+** and then further enhanced with an additive package to produce **GreenD+ HVO**.

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

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

GreenD+ HVO has been adopted as our solution to meet clients environmental obligations.

WHAT CAN HVO# BE MADE FROM?

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

Our GreenD+ HVO does not contain or have any traces of Virgin Palm Oil.

* ICSS is a sustainability certification system covering the entire supply chain and all kinds of biobased feedstocks and renewables.

The Benefits of GreenD+ HVO



KEY BENEFITS OF USING GreenD+ HVO

↓ **NO_x**
Nitrogen Oxides

LOWER NO_x

NO_x levels are reduced by
up to 30%

↓ **PM**
Particulate Matter

LOWER PARTICULATES

Particulate, PM2.5 & PM10,
are lowered by **up to 86%**

↓ **CO₂e**
Carbon Dioxide

LOWER CO₂e LEVELS

GreenD+ HVO generates
up to 90% less greenhouse
gases (CO₂e) and emissions,
reducing your carbon
footprint significantly.

350L = 956KG

Used GreenD+ HVO

Reduced Carbon Output

The Benefits of **GreenD+ HVO**

ENVIRONMENTALLY FRIENDLY, SUSTAINABLE & BIODEGRADABLE

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

LOW VISCOSITY LEVELS

Has excellent cold weather performance.

GREAT ALTERNATIVE SOLUTION

Compatible with all off-road diesel engines.

LONG STORAGE SHELF LIFE

Improved safety, shelf life and storage compared to normal diesel, therefore reducing the need for regular testing.

DROP-IN FUEL

GreenD+ HVO can be used as 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.



John F Hunt Power Technical Info

GreenD+ 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. GreenD+ HVO is **100% renewable waste.**

Full TDS & MSDS available on request

PROPERTIES	TEST METHOD	UNIT	EN590	ASTM D975	EN15940	GREEN D+ HVO	
						MIN	MAX
Cetane number	ASTM D4737	-	>51	>40	>70	70	-
Density at 15°C	ASTM D1298	kg/m3	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 ISO 2160	Rating	Class 1	Class 3	Class 1	Class 1	
Oxidation stability	EN ISO 12205	g/m³	<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	mm²/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

Case Study



Winter Wonderland

OFF-ROAD - HYDE PARK, LONDON

John F Hunt Power generators at Winter Wonderland in 2019 ran solely on **GreenD+ HVO** across Hyde Park in London.

With over **3.5 million visitors**, the use of GreenD+ not only reduced the levels of CO₂e into the atmosphere, but the NO_x levels were reduced dramatically to enhance the visitors breathing air quality.



1,600,000L

OF GreenD+ REDUCED CO₂e LEVELS BY

4,368 Mt

Call Us Today

FUELING YOUR SUCCESS, PROTECTING OUR FUTURE

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 **GreenD+ HVO**:

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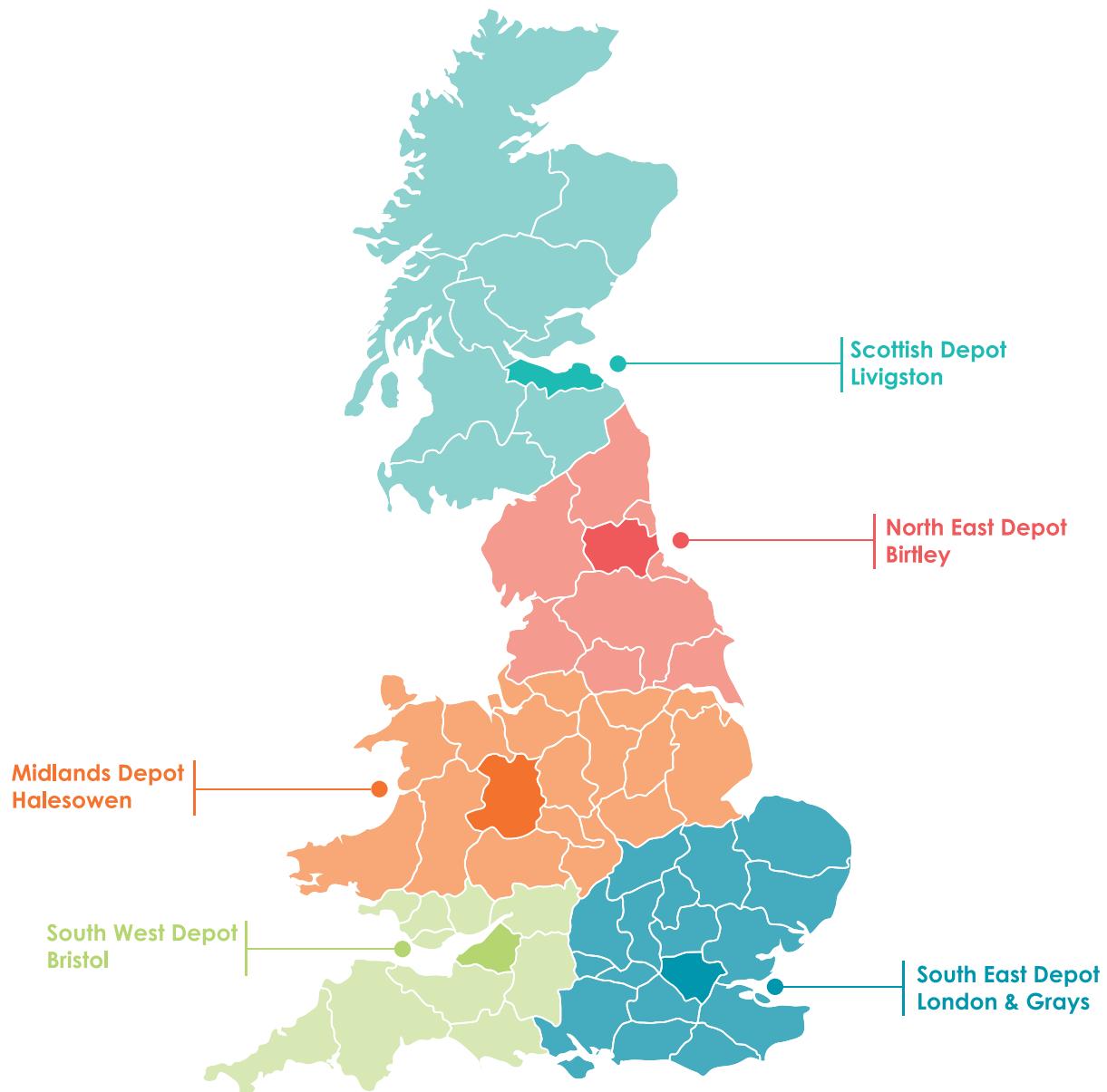
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John F Hunt Power Locations



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CAN I USE GreenD+ HVO IN MY CURRENT OFF-ROAD RED DIESEL ENGINE?

Yes, GreenD+ HVO is a 100% drop-in fuel and with any EN590 & ASTM D975 red diesel compatible engines, such as generators.

HOW LONG CAN I STORE GreenD+ HVO FOR?

Due to it's chemical make-up, our GreenD+ HVO can be stored indefinitely without any performance loss.

DOES GreenD+ HVO COME FROM PALM OIL?

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

DOES GreenD+ HVO SMELL LIKE DIESEL?

GreenD+ 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 original equipment manufacturers, including DAF, John Deere, Volvo, Mercedes-Benz, Scania, IVECO and many more.



John F Hunt Group

- Demolition
- Civils - Substructure - Enabling Works
- Façade Retention - Support Works
- Structures - Formwork
- Infrastructure - Roads - Sewers
- Concrete Sawing - Diamond Drilling
- Asbestos Removal
- Land Regeneration
- Ground Remediation - Bio - In-situ - Ex-situ
- Industrial Dismantling
- Water Technologies
- Heavy Plant - Tool Hire
- Nuclear Decommissioning
- Temporary Power - Generator Hire
- Asbestos Consultancy - UKAS laboratory
- Lifting Gear - Hire - Sales - Testing
- Commercial - Industrial Cleaning
- Branded Industrial Workwear - PPE
- IT Support - Website Design - Hosting
- Stonemasonry

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Crown
Commercial
Service
Supplier



Chapter 8
COMPLIANT