



HVO FUEL OR DIESELITE WHICH WORKS BEST FOR YOUR FLEET?

RENEWABLE FUEL OPTIONS



ARGENTENERGY
REDUCING THE WORLD'S CARBON FOOTPRINT

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A COMMON QUESTION WE ARE ASKED IS **WHAT DISTINGUISHES HVO FUEL FROM DIESELITE,** AND HOW DO THEY DIFFER?



Both HVO (Hydrotreated Vegetable Oil) and Dieselite have become important renewable fuel options, each with their own benefits and applications.

Both fuels play a key role in the renewable energy mix and the ongoing energy transition, both are also categorised as biofuels.

In this guide, we aim to provide a comprehensive overview of the key differentiators between the two, helping you have a clearer understanding in determining the most suitable option for your current needs.

This information proves especially valuable if you are currently in the process of evaluating renewable fuel options for your fleet and are exploring the various alternatives available.

WHAT THEY ARE?

WHAT IS HVO FUEL?

HVO means Hydrotreated Vegetable Oil, it's a type of biofuel that is made through the hydroprocessing of renewable feedstocks like vegetable oils or animal fats.

The composition of HVO closely resembles fossil diesel however it offers significantly reduced greenhouse gas emissions given its properties.

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WHAT IS DIESELITE?

Dieselite is a high-blend diesel fuel containing between 10–30% biodiesel, offering a lower-carbon alternative to standard fossil diesel.

Biodiesel, a form of biofuel, is derived from sources such as used cooking oil, food waste, and animal fats. Similar to HVO, the utilisation of specific raw materials in its production results in a sustainable second-generation fuel, offering a sustainable alternative to traditional fossil fuels.

Dieselite is created by blending this biodiesel with conventional diesel. For comparison, standard pump diesel typically contains up to 7% biodiesel (B7). Any blend above 10% biodiesel is considered a high-blend fuel, which is where Dieselite sits.

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SUSTAINABILITY AND ENVIRONMENTAL BENEFITS



Sourcing biodiesel or HVO instead of fossil fuels, allows for the active avoidance of new GHG emissions to the atmosphere. Both biodiesel and HVO help reduce the impact of global warming, with biodiesel also supporting agriculture and contributing to energy independence.

Being renewable means these two biofuels do not add to the amount of carbon being recycled through the atmosphere, which means it does not increase the net amount of greenhouse gases (GHGs) affecting climate change.

This is because the production of feedstock used in both manufacturing processes naturally absorbs carbon from the atmosphere, thereby acting as a carbon emissions offset for emissions produced via the tailpipe of the transport vehicle.

On a local level, HVO and biodiesel have numerous environmental benefits, both contributing to a reduction in air pollutants when compared to traditional fossil fuels. These biofuels result in improved air quality as they emit lower levels of particulate matter, sulphur dioxide, and a reduction in carbon monoxide emissions.

The feedstocks used in the production of these two fuels promote sustainable practices and reduce the environmental impact associated with conventional fuel production. Unlike fossil fuels, which release carbon dioxide stored for millions of years, biofuels like HVO and biodiesel are considered carbon-neutral over their lifecycle, making them an environmentally friendly fuel alternative.

You can find the typical greenhouse gas savings for both fuels illustrated on the next page.

EXPLORING HVO FUEL AND DIESELITE AS RENEWABLE FUEL OPTIONS

GREENHOUSE GAS SAVINGS

Comparing Environmental Impact: HVO vs. Biodiesel Blends

The Well-to-Wheel (WTW) Greenhouse Gas (GHG) Emission Savings for each is dependent on the type of feedstock used and the manufacturing process itself.

If HVO is manufactured in a certain way, and if genuine certified waste materials are used for both biofuels, typical GHG emissions can be seen below.

When opting for a blend of biodiesel with fossil fuel diesel, the flexibility to customise the mixture arises, allowing you to select the best blend ratio based on various factors.

For example, a Dieselite B30 (30% biodiesel, 80% fossil fuel) can achieve around a 26% reduction in your fleet's CO₂ emissions.

FUEL SOLUTIONS	GHG SAVINGS
HVO (Hydrotreated Vegetable Oil)	81-91% reduction in Well-to-Wheel (WTW) Greenhouse Gas (GHG) Emission Savings*
Argent Biodiesel (B100)	83% reduction in Well-to-Wheel (WTW) Greenhouse Gas (GHG) Emission Savings.
Dieselite B30 (30% biodiesel blended with fossil fuel diesel)	26% reduction in Well-to-Wheel (WTW) Greenhouse Gas (GHG) Emission Savings
Dieselite B20 (20% biodiesel)	18% reduction in Well-to-Wheel (WTW) Greenhouse Gas (GHG) Emission Savings
Dieselite B15 (15% biodiesel)	14% reduction in Well-to-Wheel (WTW) Greenhouse Gas (GHG) Emission Savings
Dieselite B10 (10% biodiesel)	10% reduction in Well-to-Wheel (WTW) Greenhouse Gas (GHG) Emission Savings

*FIGURE FROM ZEMO'S RENEWABLE FUELS GUIDE,
2023 RENEWABLE FUELS: WELL-TO-WHEEL GHG EMISSIONS COMPARISON



ENGINE PERFORMANCE AND COLD WEATHER PERFORMANCE

Both HVO and Dieselite perform similarly to traditional diesel, with minimal compromise. HVO is known for its likeness to conventional diesel, this similarity extends to key aspects such as power output, efficiency, and overall reliability.

Dieselite, with its increased biodiesel blend, maintains performance similar to traditional diesel, featuring a higher cetane rating for improved ignition and combustion efficiency. The inherent lubricating properties of biodiesel in Dieselite Fuel additionally contribute to reduced engine friction.



In cold weather, both HVO (Hydrotreated Vegetable Oil) and Dieselite exhibit reliable performance. HVO proves its compatibility with low temperatures, ensuring seamless operation akin to traditional diesel. Dieselite, with its enhanced cetane rating, maintains ignition ease and efficiency, making it well-suited for cold climates.

In addition, Argent Fuels utilise a Dynamic Blend Management programme which ensures that vehicle operators have confidence that the correct blend rate is being offered for weather conditions at all times of the year. This also optimises GHG reductions.



COMPATIBILITY OF HVO AND DIESELITE WITH EXISTING INFRASTRUCTURE



The compatibility of HVO and Dieselite with existing infrastructure is an important aspect when evaluating their viability as renewable fuel options.

HVO, being chemically similar to fossil diesel, exhibits a high level of compatibility with existing diesel infrastructure.

Its integration into conventional diesel engines and fuelling infrastructure minimises the need for extensive modifications, making it a convenient and practical choice for transition.

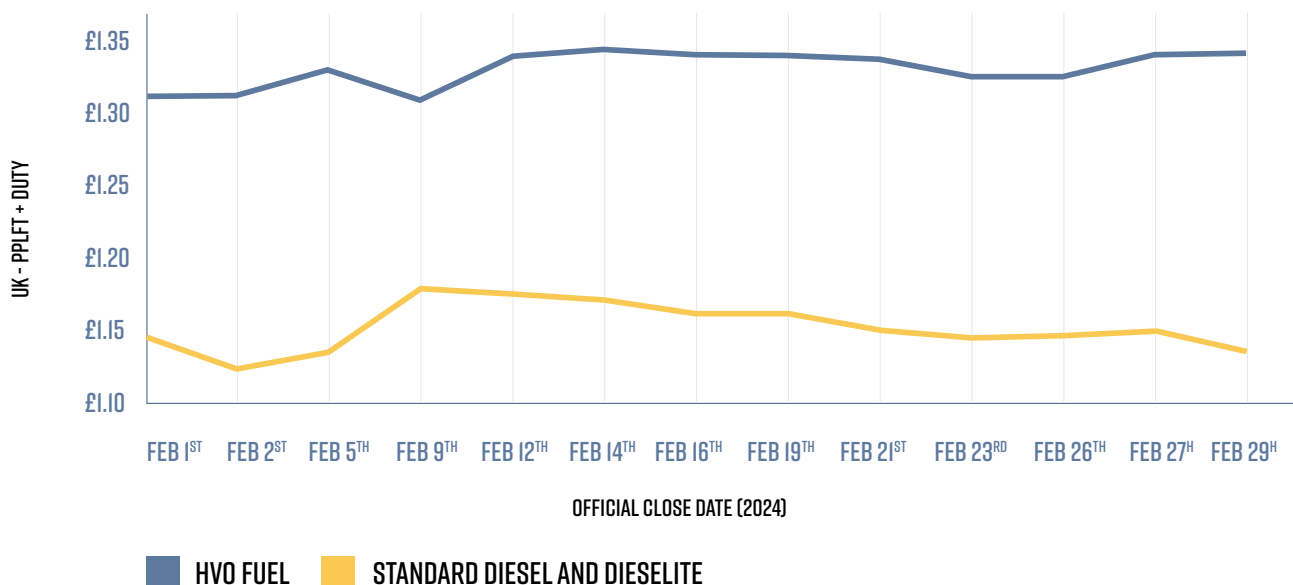
Dieselite exhibits compatibility, contingent upon the selected blend rate. Blends up to Dieselite B30, containing 30% biodiesel, have compatibility with existing diesel infrastructure, often recognised for their seamless integration and referred to as a 'drop-in replacement solution.'

Dieselite, up to Dieselite B30, is warranted by most manufacturers, adding a layer of assurance to its usage. Any biodiesel suppliers approved by the Renewable Fuels Assurance Scheme (RFAS), will have the capability to manage and advise on infrastructure compatibility.

BIOFUEL COST COMPARISON OF HVO FUEL AND DIESELITE FUEL:

Cost is undeniably a major consideration in a fleet's decision-making process. HVO bears a premium in the market, with the HVO fuel price per litre ranging between 15% and 30% higher than traditional diesel according to Zemo's Renewable Fuels Guide.

In contrast, Dieselite is a cost-effective option, often costing little or no more than standard diesel. Depending on the supply chain, Dieselite can even offer fuel cost parity with fossil fuel.



AVAILABILITY AND DISTRIBUTION

While HVO offers good qualities and significant greenhouse gas (GHG) emission savings, there can be logistical challenges due to limited refuelling stations. The United Kingdom also does not produce HVO domestically.

Instead, the country relies on importing HVO from various sources, including Europe and Asia where crops are frequently used for production. Despite these considerations, adopting HVO remains a viable step towards sustainability, offering environmental benefits that operators can leverage with careful planning and integration. HVO distribution has risen sharply in recent years with a number of major international organisations using it as part of their decarbonisation goals.



Dieselite is readily available across the UK, and high blend biodiesel is produced from both UK and international markets. All biodiesel made in the UK is produced using only certified waste, with no crops used.

According to Zemo, B20 and B30 blends have experienced the greatest market penetration, with B20 being deployed in several thousand buses over the last decade, estimating approximately 2,000 buses and 1,500 HGVs across the UK are running on high blend biodiesel.

Fuels such as Dieselite B20 or Dieselite B30 can seamlessly integrate into existing infrastructure with minimal modifications, providing fleet operators with a practical choice to reduce environmental impact and maintain operational cost-effectiveness.





YOUR DECISION

For fleet operators evaluating renewable fuel options, the decision between HVO, biodiesel and Dieselite involves striking a balance between environmental benefits, practical considerations, and price.

HVO stands out as a fuel for achieving significant GHG emission reductions and as an immediate solution for fleet operators looking to use a renewable fuel with no extensive need to change infrastructure, albeit at a cost. Biodiesel (B100) offers high GHG emission reduction, but fleet operators wanting to use B100 for their fleet will require engine modification.

On the other hand, Dieselite to be a cost-effective choice for fleets seeking decarbonisation without incurring any additional expenses.

If you're looking to start your sustainable journey, always make sure to use companies recognised as Renewable Fuel Suppliers as approved under the Renewable Fuels Assurance Scheme (RFAS), an initiative designed and managed by the Zemo Partnership.



argentfuels.com
fuels@argenteenergy.com
0151 305 4740