



certa



HVO

Hydrotreated Vegetable Oil

FUELLING GROWTH.
SUSTAINING OUR FUTURE.



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THE LOW-CARBON COMMERCIAL DIESEL ALTERNATIVE



At Certa, we are working to help our customers transition to a cleaner, low-carbon future.

With this in mind, we are introducing Certa HVO, Ireland's newest sustainable alternative fuel.

As a business, Certa is making strides to get to Net-zero by 2050 and we want to support our customers on their carbon reduction journey. With the latest HVO technology, we can fulfil our customers' requirements while enabling their environmental objectives.

WHAT IS HVO?

The cleanest, best-performing advanced fuel on the market, Certa's HVO is a 100% drop-in replacement for existing diesel engines. It has a wide range of OEM approvals meaning it can be used without needing any engine and machinery modification or retrofitting. HVO offers a cleaner way to fuel your commercial engines, and industrial equipment by providing up to 90% reduction of CO2 emissions without the need for changes to your existing infrastructure.¹

From large commercial fleets to small-scale industrial engine usage, this premium high-performance diesel alternative is ideal for on and off-road vehicles and machinery across a range of industries including construction, haulage, industrial, agriculture and transportation.

Unlike first generation biofuels, which are made from crops such as rapeseed and soy, Hydrotreated Vegetable Oil (HVO) is a second-generation biofuel which means it is made from pre-existing bio-waste products, primarily used cooking and vegetable oil from food industry waste. Manufactured from 100% renewable and sustainable waste, HVO is a paraffinic drop-in fuel designed as a direct replacement for diesel. It meets the international fuel standard BS EN 15940, the specification for paraffinic diesel, and the Fuel Quality Directive 2009/30/EC Annex II.⁷

Unlike conventional biodiesel, hydrogen (rather than methanol) is used as a catalyst, making it cleaner than any other fossil fuel alternative currently available. HVO provides full lifecycle greenhouse gas (GHG) emission savings of up to 90% when compared to conventional diesel.¹ Direct emissions from burning HVO are considered to be zero – or 'carbon neutral'.

WHAT ARE THE BENEFITS?

For your business, your customers, and our future.

Sustainability

Made from sustainable and renewable raw materials, HVO reduces carbon emissions by as much as 90%. This enables businesses to make an immediate reduction in carbon emissions and reduce their environmental impact.

Uncompromised Performance

HVO gives near identical energy output in both variable and fixed speed engines.

Safer Storage for Longer

In comparison to regular diesel, HVO fuel offers the benefit of a longer shelf life. The improved safety, stability and storage reduces the need for frequent fuel testing.

Direct Drop-In

HVO is suitable for all leading fleet, plant and machinery equipment including road vehicles, construction equipment, generators, and industrial power systems meaning no replacing of equipment or engines is required.

Winter Grade

With year-round performance, Certa's HVO is suitable for use in the coldest winter conditions.

Fuel Expertise

Working in partnership with Certa, you can rely on our consultative approach and fuel expertise to keep you moving with cleaner, greener alternative fuels.



Getting Started

HVO is fully compatible and mixable with traditional diesel and can be mixed at any percentage so any existing diesel on-site can still be utilised, and diesel engines will not need to be exhaustively emptied or cleaned out.

HVO is the leading here-and-now solution allowing your current fleet to transition to a low-carbon future and rapidly assist in achieving your business emissions targets with minimal business impacts. Any pre-existing diesel in your machinery or equipment can be mixed at any concentration with our HVO so there is no need to waste your current fuel supplies.

Simply ensure your fleet equipment models have OEM approval (see list below or consult your manufacturer's handbook or contact the manufacturer directly) and speak to one of our HVO transition specialists on 0818 366 425 today.



WHY CHOOSE CERTA HVO?



HVO is a premium, high quality diesel fuel made from renewable, sustainable raw plant materials – all of which do not release any new CO2 into the atmosphere.

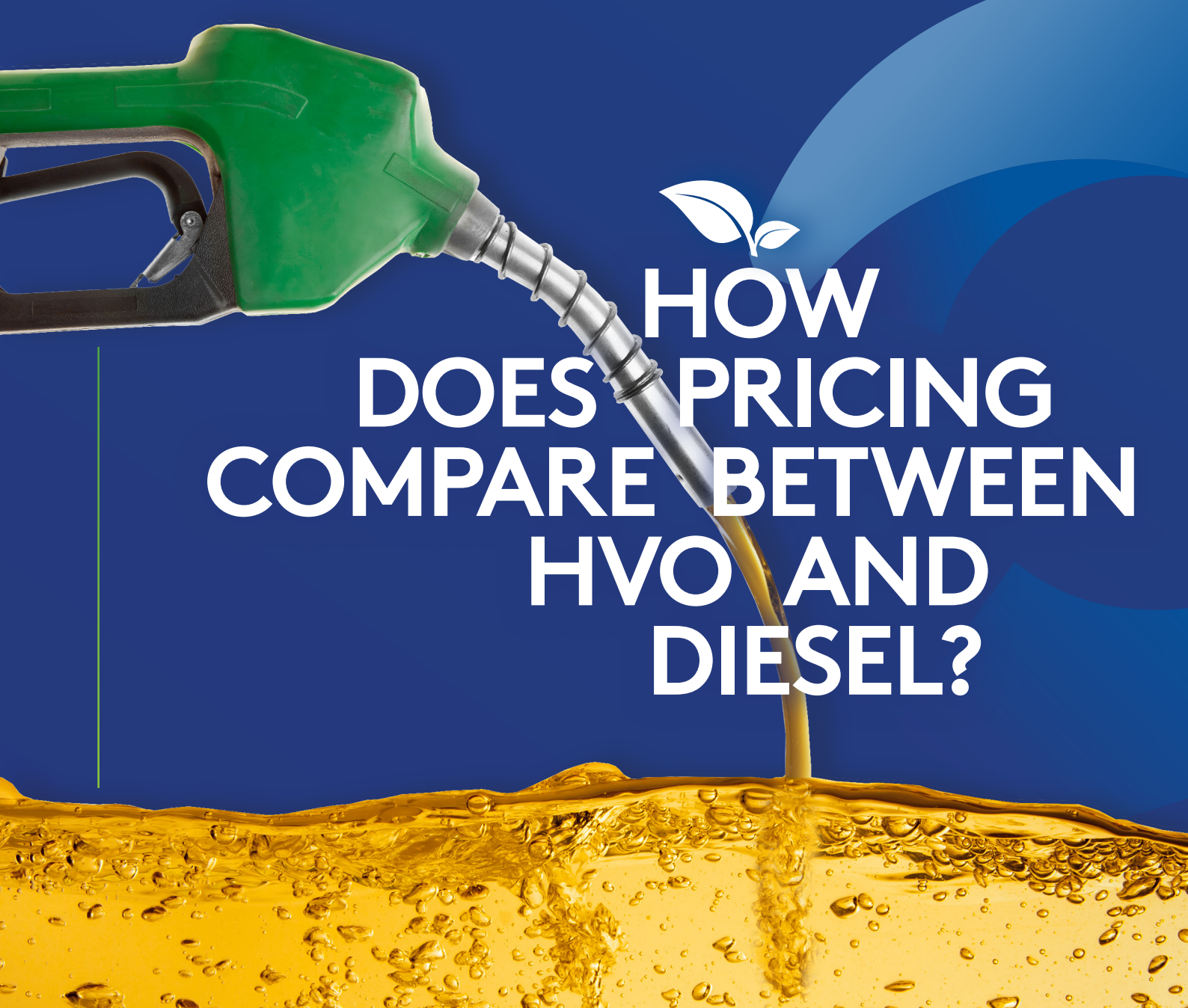
HVO meets bio content requirements with no FAME included and, to that point, avoids the instability and operability issues seen by many other alternative fuels. Unlike conventional biodiesel, hydrogen is used as a catalyst instead of methanol, which makes HVO cleaner burning and ensures a longer shelf life.¹

HVO is produced and accredited to meet the international fuel standard BS EN 15940, the specification for paraffinic diesel, and the Fuel Quality Directive 2009/30/EC Annex II.⁷



THE QUICKEST WAY TO GO FOSSIL-FREE

- ✔ A fully renewable and sustainable fuel
- ✔ Renewable, sustainable and 100% biodegradable: synthesised from waste fats and vegetable oils
- ✔ Reduces notifiable particulate matter (PM) and nitrogen oxide (NOx) emissions: improved air quality
- ✔ Up to 90% lower greenhouse gas emissions
- ✔ Can be mixed with regular diesel
- ✔ Superior cold weather performance, down to -30 degrees
- ✔ Excellent storage features – does not lose quality
- ✔ Odourless



HOW DOES PRICING COMPARE BETWEEN HVO AND DIESEL?

Costs

Certa supply HVO biofuel to businesses across Ireland at a competitive rate, which we constantly monitor to ensure the best value possible. In terms of price per litre, HVO fuel does have a premium over regular diesel, however, it offers up to 90% reduced net CO₂ emissions without the cost of changing hardware or upgrading engines. When the bigger picture is considered, the cost of ownership can be greatly reduced by using HVO and this transition is by far the quickest and most cost-effective way to achieve these emission reductions.

This dramatic carbon footprint reduction in a commercial fleet can have significant Environmental, Social, and corporate Governance (ESG) impacts for your company.

In the short-term, much of the premium that HVO currently stands at will be offset by the average decrease of 10% in AdBlue consumption when compared to diesel-fuelled vehicles.¹



HVO VS. DIESEL

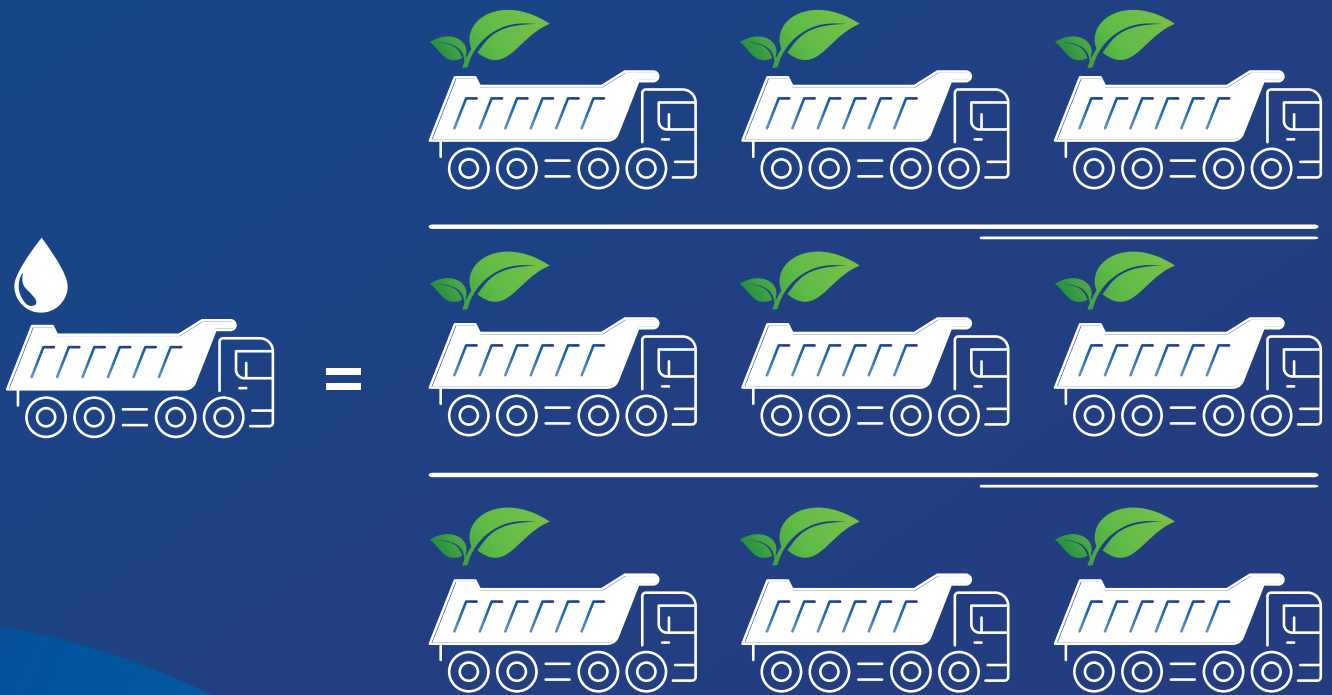
Fuel	HVO	DIESEL
Carbon-Neutral	YES	NO
Identical Energy Output (Variable & Fixed-Speed Engines)	YES	YES
Winter-Grade	YES	NO
Suitable for Diesel Engines	YES	YES
Renewable	YES	NO
Odourless	YES	NO
International Sustainability and Carbon Certification (ISCC) Scheme Approved	YES	NO
Meets international fuel standard BS EN 15940	YES	NO
Zero Direct Emissions	YES	NO
Reduced Need for Regular Testing	YES	NO

1

Fuel	HVO	DIESEL
Shelf-Life (Years)	Up to 10	Up to 2
Cetane Number	70-90	50-60
Energy Output (GJ/Tonne)	44.00	42.79
Gel Point	-34°C	-8.1°C
Sulphur Content	<1	<10
CO ₂ Emissions (gCO ₂ e/MJ)	9.78	88.04
NO _x Emissions (mg/km)	30.1	43.0
Stability from Oxidation	Excellent	Average

1

1 DIESEL VEHICLE HAS THE SAME CO2 EMISSIONS AS



12 VEHICLES RUNNING ON HVO

CONSTRUCTION



The Global Alliance for Buildings and Construction reported that in 2018, “building construction and operations accounted for the largest share of both global final energy use (36%) and energy-related CO2 emissions (39%).” As a result, building and construction have been at the front-line of innovation and dedication, at a global scale, in building a more sustainable future, with some committing to carbon-neutrality by 2050, and others going as far as being carbon-negative by 2040.⁵

As the global trend towards net-zero emissions in construction develops, whole cities such as Oslo, Norway have already committed to completely fossil-free construction sites. In Ireland, with 160,000 homes projected to be built in the next 5 years, the construction sector will be looking for a here-and-now fuel solution to make this expansion sustainable. The industry requires a high-performance fuel to facilitate growth while delivering on environmental responsibilities.⁶

While huge progress is being made in the Irish construction industry to reduce sectoral emissions, these ambitious plans take many years to fully implement. At Certa, we strive to be catalysts of change today on the journey to becoming part of a cleaner and more responsible industry. HVO is a here-and-now, compromise-free solution to reduced-emission targets, making significant improvements to emission figures with minimal effort.

Ireland's carbon footprint is small on a global scale, but its cultural footprint is huge, and the Irish construction industry could be pioneers in the popularisation of adopting HVO as a primary fuel source globally. While we're working towards our long-term goals, we're also making a difference right now.

HVO adapts extremely well to cold weather, performing to temperatures as low as -30 degrees, which has been a big draw for construction companies who have made the switch. Another feature that is hugely benefitting the industry is the storage life, which allows it to be stored comfortably for up to 10 years, as opposed to diesel, which requires much more regular testing and can be stored for up to 1 year.

Along with its obvious impacts in tackling air pollution and carbon emissions, HVO also tackles noise pollution, allowing engines to work with greatly reduced noise-output that could open up new opportunities, such as increasing the ease with which potential customers can receive planning permission when hiring construction companies that operate machinery with HVO.



HAULAGE



A direct diesel alternative with net-zero carbon emissions, HVO offers the perfect solution in aiding our decarbonization efforts without hindering performance whatsoever. We know this from first-hand experience, with Certa's national road fleet of over 100 trucks making the transition to HVO fuel and operating as efficiently as ever. By 2023, we have committed to operating with 100% of our own fleet running on HVO.

Most haulage and transport companies have traditionally relied on fossil fuels, now with Net Zero becoming a priority ambition, they are considering alternative fuel choices. HVO operates as a low-risk, here-and-now solution in easing those concerns around emissions without requiring long-term strategy. This fuel can be put directly into diesel tanks, so no modifications will be required for existing fleets to make the leap towards a more sustainable future.

In 2018, the transport sector in Ireland emitted 12mt (million tonnes) CO₂eq and must reduce to between 6-7mt CO₂eq by 2030. There were approximately 136,000 HGVs in Ireland in 2020, accounting for 15% of transport energy, most of which used diesel. At 15%, that makes haulage the biggest contributor to our CO₂ emission figures in the transport sector, alone emitting 1.8mt that year.⁴

Only around 5% of vehicles on EU roads are heavy-duty vehicles, but they account for 25% of all EU road transport emissions, which is why Ireland's ten-year strategy for the haulage sector has stated that new HGV's must emit 15% less CO₂ by 2025 and 30% less by 2030 relative to average emissions from the period of July 2019 – June 2020. This requires an immediate solution, which Certa HVO can provide.³

One diesel-fueled vehicle emits the same level of CO₂ as 12 HVO-fuelled vehicles. If your fleet consists of 50 HGVs, the emissions will be the equivalent of only 4 diesel vehicles, with no compromise in performance". Achieving reduced emission targets can be done with ease.

Our dedicated commercial team work with some of Ireland's largest hauliers and logistics companies as they deliver to communities throughout the country. We are now delighted to be able to offer HVO as the leading alternative fuel for this sector.



COMMERCIAL & INDUSTRIAL



Nothing has a larger impact on the sustainability of a commercial facility than the fuel it uses to power its operations. Irish industry from data centres to manufacturing sites and factories need to assess their environmental impact.

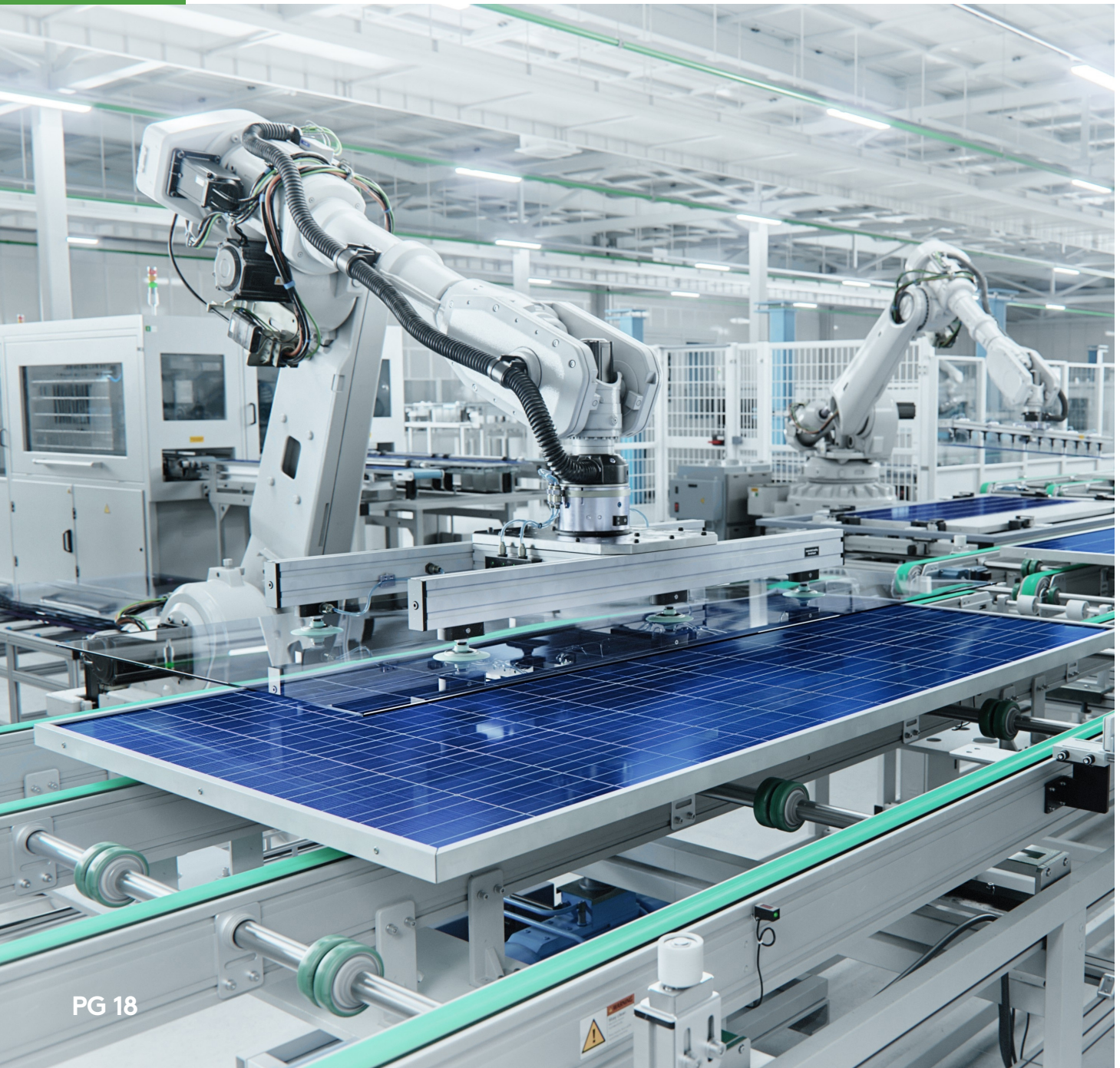
HVO not only provides a massive reduction in carbon footprint and therefore overall environmental grading scores, but has secondary impacts including noticeable noise reduction from engines as well as lowering Sulphur, Nitrous Oxide (30%) and particulate (86%) emissions.¹

Employing this cleaner solution means business facilities are safeguarding employees, customers, and the local communities in which they operate. Ultimately, the emissions savings of up to 90% demonstrated by HVO means industrial sites of all sizes and types can be prepared for current and future environmental legislation which is increasingly being spread across the supply chain.

This top-quality, renewable diesel alternative can drop-in directly for usage in industrial diesel generators (and back-up generators due to their long shelf-life), large-scale batteries and increases the potential for overall scalability of a commercial facility.

While biofuels have been on the market for several years, recent improvements in development have meant that HVO has the unique potential to sustainably power industrial facilities across Ireland without many of the performance, storage, or maintenance issues of previous biofuels. As a result, HVO has become increasingly popular and viable for mission critical use-cases including in modern data centers, food production and waste management facilities.

Where an industrial facility produces physical products, the life cycle emissions are associated with the energy supply of the facility. Emissions associated with HVO are generally much smaller than those produced from fossil fuels, or fossil oil-based alternatives.² Thus the carbon footprint associated with business production is significantly lowered with the use of HVO.





AGRICULTURE



By 2030, Ireland's farmers are expected to reduce total emissions by 22-30%.³ Government incentives and low-carbon best practices are being promoted in Irish agriculture, with examples such as the GLAS scheme and Bord Bia's Origin Green programme, the primary focus is generally on lowering emissions via animal husbandry, slurry and soils management practices, and provision of forestry/hedgerows.

One often overlooked element of the agricultural equation is the emissions associated with agricultural fuel usage. As pressure is mounting on farmers overall emissions from farm inputs such as fuels, feeds, and machinery will be increasingly incorporated into emissions calculations.



Powering farm machinery and equipment on HVO not only means farmers are guaranteed high performing, low-maintenance fuel but will also account for a significant reduction in the carbon footprint associated with the lifecycle of farm produce. This in turn helps to future-proof farm businesses, ensure a more sustainable future for produce and safeguard Ireland's agricultural industry which supplies not only Ireland's domestic market but increasingly international markets as well.

Having served the agricultural community in Ireland for over 40 years, at Certa we have come to understand the importance of supplying Ireland's largest indigenous industry with the right fuel at the right time. We are introducing HVO to fuel Irish farmers at a crucial time in their development when reducing on-farm emissions has never been more important.

HVO, with its vastly lower emissions compared to fossil fuels, and substantially decreased particulate expulsion, contributes to cleaner air in rural areas and decreases exposure of farm produce and land to such pollutants. In addition, usage of HVO reduces the need to add AdBlue to farm machinery fuel tanks, saving on the saving on farm costs of the additive.¹





CASE STUDY: 

JOHN SISK AND SONS

John Sisk & Son Ltd, is Ireland's largest construction company, and has been a leading innovator in the construction industry for over 160 years.

Operating engines, generators, and vehicles across their many Irish sites, SISK has traditionally relied on diesel to fuel its' nationwide operations.

As part of their 2030 Sustainability Roadmap, SISK had set the ambitious goal of becoming Net-zero emissions by 2030.





The team at John Sisk & Sons identified the use of HVO biofuel as a potentially impactful vehicle to help them achieve this target.

In partnership with Certa, the SISK team went about sourcing the supply of HVO on a trial basis for a small number of its Irish sites. The team performed trials to evaluate the effectiveness of using HVO biofuel as an alternative energy source to diesel on sites.

Prior to their use of HVO, diesel accounted for 41% of the SISK group's overall carbon emissions. Achieving reductions of up to 90% with the use of HVO, the group were immediately able to reduce total emissions by up to 37%.

Following the success of the trials, SISK have mandated HVO for use across all of their Irish sites. Ian O'Connor, Energy Manager at John Sisk & Sons, described the switch as a 'major step-forward' in realising the group's 2030 emission reduction targets.

Andrew Graham - Managing Director at Certa with Ian O'Connor - Energy Manager at John Sisk & Sons.





CASE STUDY:

PLOUGHING CHAMPIONSHIPS 2022

The National Ploughing Championships, the largest event in rural Ireland's calendar finally returned to its full programme of events in 2022 following two years when the public were not permitted to attend.

The three-day outdoor event returned to Co. Laois last September, accommodating a total of 277,000 visitors and 1,700 exhibitors on a site of 115 acres. That takes a lot of energy!

In order to keep the mammoth event operating smoothly, the National Ploughing Association manage a network of generators of various sizes and capacities across the event site.





Aldi, one of Ireland's major supermarket chains, requires a massive amount of energy to power its stand at the Ploughing event. Their on-site activity at the event even includes a baking competition requiring 40 ovens working at the same time (yes, on a temporary site, in a field!).

Running an event of this scale and with exhibitions of all shapes and sizes, the NPA traditionally ran the generators on diesel fuel as a practical way of efficiently distributing power across the site as this has been the most practical way of efficiently distributing power.

In 2022, the NPA made the decision to go fossil-fuel free on site and to look for a viable diesel alternative, in line with their sustainability goals.

The NPA team approached Certa to discuss the most suitable energy alternative available to power an event site of this magnitude while also providing a major reduction in the event's carbon footprint.

In conjunction with Certa, the NPA elected for HVO Biofuel as the most viable alternative energy source. HVO is a direct drop-in replacement for diesel, meaning that no upgrade or replacement of existing generators or associated infrastructure was required.

HVO afforded a carbon emissions reduction of up to 90% when compared to previous years when diesel was used.

Tom Kelly, Site Manager at the Ploughing Championships 2022 said there was 'no issues at all with changing from regular diesel to HVO' and is looking forward to employing the biofuel in the coming years at the event.





CASE STUDY: 

OUR OWN FLEET

Certa, one of Ireland's largest fuel distributors, have transitioned to HVO across their entire fleet of delivery vehicles from running on diesel to HVO.

Following a successful trial in 2022, over 100 trucks now run on HVO following a successful trial in 2022. Collectively, our fleet travels over 3,000,000 km annually and the switch to HVO is the equivalent of reducing 100 trucks to 9 in terms of carbon emissions output.



The fuel itself, as the name suggests, is produced from waste plant matter, and emits no new carbon into the atmosphere.¹

Part of DCC Plc., Certa distributes heating oil from 22 depots across Ireland as well as supplying commercial fuels & lubricants to a wide range of businesses nationwide. In 2022, the company started to supply HVO to a range of sectors in Ireland as a sustainable alternative fuel to regular diesel.

Fabian Ziegler, CEO of DCC Energy, said "We want to be a real decarbonisation leader, so renewable fuels are incredibly important to us. The big advantage of HVO is that our customers can use it without going through much change, and there are no switch costs so for us this fuel is eminently important."

Andrew Graham - Managing Director at Certa, Fabian Ziegler - CEO of DCC Energy, Laura Byrne - Business Development Manager of Sustainable Fuels at Certa, Cormac Durnin - Operations Director at Certa.



He continued "I'm very proud of Certa for being a true HVO leader. I think with this, we take an industry leading position in Ireland and therefore can also be a role model to our customers."

Speaking at the launch of Certa's HVO-fuelled fleet, Andrew Graham, Managing Director, said "Our transition to HVO fuel for our fleet shows our commitment and belief in HVO as a viable, commercial diesel alternative. We're very proud to be one of the first Irish companies to make the switch and hope to encourage wider adoption."

Since the beginning of the initiative, Certa have helped some of Ireland's largest events go fossil-free including Electric Picnic, Summer Shows at Malahide Castle 2023, and the Irish Open. In addition, they have supplied their HVO product to companies in tech, transport, construction and a host of other sectors.

As of July 2023, following a successful trial, Dublin Port Company (DPC) introduced HVO as the primary fuel for the fleet of pilot boats which it operates. DPC identified the biodegradable nature of the fuel in addition to the emissions reduction as key factors in the suitability of HVO in the maritime environment.

To learn more about how Certa can support your business to reduce its carbon footprint, speak to Laura Byrne on 085 807 2040 or email laura.byrne@certaireland.ie

Andrew Graham - Managing Director at Certa and Fabian Ziegler - CEO of DCC Energy.



TECHNICAL SPECIFICATIONS

HVO (HYDROTREATED VEGETABLE OIL) COMMERCIAL SALES SPECIFICATION

Meets or Exceeds EN 15940: 2016+A1:2018+AC:2019

Parameter	Unit	Test Method	Limits		Notes	
			Min.	Max.		
Cetane number	-	EN 15195	51	-		
Density at 15°C	kg/m ³	EN ISO 12185	765	800		
Flash point	°C	EN ISO 2719	60	-		
Viscosity at 40°C	mm ² /s	EN ISO 3104	2.000	4.500		
Distillation	recovered at 250°C	% (V/V)	-	<65		
	recovered at 350°C	% (V/V)	85	-		
	95 % recovered	°C	-	360		
Lubricity, wear scar diameter (WSD) at 60°C	µm	EN ISO 12156-1	-	400		
Fatty Acid Methyl Ester (FAME) content	% (V/V)	EN 14078	-	0.05		
Manganese content	mg/l	EN 16576	-	2		
Total aromatics content	% (m/m)	EN 12916		1.1		
Sulfur content	mg/kg	EN ISO 20846 EN ISO 20884	-	5.0		
Carbon residue (on 10% distillation residue)	% (m/m)	EN ISO 10370	-	0.30		
Ash content	% (m/m)	EN ISO 6245	-	0.010		
Water content	mg/kg	EN ISO 12937	-	200		
Total contamination	mg/kg	EN ISO 12662	-	24		
Copper strip corrosion (3 h at 50°C)	rating	EN ISO 2160	class 1			
Oxidation stability	g/m ³	EN ISO 12205	-	25		
Electrical Conductivity	pS/m	IP 274	50	-		
Cloud Point	Grade C ("Summer")	°C	EN 23015	-	+0	2
	Grade E ("Winter")		IP 444	-	-10	
CFPP (Cold Filter Plugging Point)	Grade C ("Summer")	°C	EN 116	-	-5	2
	Grade E ("Winter")		EN 16329	-	-15	

Notes:

- Contractual requirements may supersede the limits in this specification.
- Product Seasonality:

Winter	Summer
16 th October – 15 th March	16 th March – 15 th October

TECHNICAL SPECIFICATIONS

FAME (Fatty Acid Methyl Esters), sulphur and fossil free, HVO is made using vegetable fats and oils. In the HVO production process, hydrogen is used to rCertave the oxygen from the triglycerides and does not produce any glycerol as a side product. Additional chemicals, like methanol for FAME production, are not needed. Hydrogenation rCertaves all oxygen from the vegetable oils while esterification does not.²

It has a naturally high cetane number meaning that ignition is easy and combustion is complete – this reduces smoke and particulate emissions.²

Compatible With All Leading Commercial and Industrial Engines

HVO is widely OEM-approved by top industrial and commercial vehicle brands and compatible with diesel engines produced by the following manufacturers:

Category	DAF	SCANIA	VOLVO	MAN	DAIMLER	IVECO
Heavy Duty Road Vehicles						
Passenger Cars	CITROËN	PEUGEOT				
Light Commercial Vehicles						Ford
Off-Road	WARTSILA	MTU	aggreko	Webasto	Epiroc	
	HITACHI	JCB	Cummins	DEUTZ	AMMANN	CAT
	JOHN DEERE	KOMATSU	AGCO	YANMAR	BUKH	VOLVO PENTA

Approved OEMs

- Agco
- Aggreko
- Ammann
- Bukh
- Caterpillar
- Citroen
- Cummins
- DAF
- Daimler
- Deutz
- Epiroc
- Fiat PT
- Ford
- Hitachi
- Iveco
- JCB
- John Deere
- Komatsu
- MAN
- MTU
- Peugeot
- Scania
- Volvo
- Volvo Penta
- Wartsila
- Webasto
- Yanmar

HVO Fuel is a drop-in replacement for diesel and gas oil. It meets EN15940 standard for paraffinic fuels and Fuel Quality Directive 2009/30/EC Annex II. It has wide range of OEM approvals so can be used without needing engine and machinery modification. Check that your model of HGV, passenger car or NRM plant or equipment can use HVO Fuel, please check your handbook or contact the manufacturer.





REFERENCES

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