



Join the drive to gold with  
**Biodiesel**  
New Zealand



performance



sustainability



business  
security



quality  
assured



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“Our aim is assisting New Zealand in its transition to cleaner, renewable forms of energy.”

ANDY MATHESON  
General Manager, Renewable Energy

As the leading supplier of biodiesel, Biodiesel New Zealand produces several million litres per annum of high-quality biodiesel, predominantly from premium used cooking oil and oilseed rape. Our biodiesel is manufactured and distributed according to a stringent set of requirements and is branded as Biogold.™

## Our customers

We provide Biogold biodiesel for business and home use in transport, marine, industrial and heating applications.

Our customers include:

- fleet operators
- transport operators
- tourism businesses
- fishing businesses
- contracting companies
- manufacturers
- farmers
- homeowners.

## Our business

We offer a full feedstock-to-customer Biogold biodiesel business, including:

- used cooking oil collection
- agronomy and agricultural activities supporting oilseed rape production and cultivation
- Biogold biodiesel manufacture and testing
- Biogold biodiesel supply logistics and operational support
- fuel technical services to assist with Biogold biodiesel end-use applications.



“Sustainability is central to the fuel’s appeal and the way we do business.”

ANDREW SIMCOCK  
General Manager, Biodiesel New Zealand



## Why change to Biogold biodiesel?

Switching to more sustainable fuel options has become more important in recent times as our awareness of the impacts of global fossil fuel use grows. The biodiesel component of Biogold biodiesel is made from used cooking oil and oilseed rape grown specifically for Biogold biodiesel production, making Biogold biodiesel a great renewable fuel source.

### Other advantages of Biogold biodiesel include:

- less hazardous exhaust emissions, including a significant reduction in the visible smoke when high-blend proportions of Biogold biodiesel are used
- over all, less noisy engines
- improved fuel lubricity, providing added protection to fuel-injection components
- less hazardous to the environment in the event of a spill because Biogold NZ100 (100% biodiesel) is non-hazardous and degrades faster
- for similar reasons, biodiesel is a much safer and simpler fuel to store and handle.

## It's easy to change

Depending upon the proportion of biodiesel and application, it can be as simple as carrying out a few checks and filling up the fuel tank with Biogold biodiesel. Biogold biodiesel mixes well with ordinary diesel and other biodiesels, so switching to Biogold biodiesel can be done at any time.



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## Reduced carbon footprint

The release of carbon dioxide (CO<sub>2</sub>), the main gas associated with global warming, is considerably reduced when biodiesel replaces mineral diesel.

Compared with mineral diesel, Biogold NZ100 can deliver a reduction in greenhouse gases of up to 90%.



# Using Biogold biodiesel – the details

## What is Biogold biodiesel?

Biogold biodiesel is the brand name for biodiesel fuels that have been manufactured and distributed in accordance with Biodiesel New Zealand's requirements. These specify that the fuel must meet quality standards at manufacture and throughout distribution.

Biodiesel is the common name for a group of compounds called esters that are manufactured from vegetable oils or animal fats via a relatively simple chemical reaction called *transesterification*. The product is then taken through a number of finishing processes and tested to ensure that the quality of the biodiesel meets the New Zealand quality regulations (the Engine Fuel Specification Regulations), which have been developed from standards in use in Europe, USA and Japan.



## What do the abbreviations mean?

Biodiesel is usually sold as a blend with mineral diesel. "B5" denotes a 5% blend of biodiesel in mineral diesel, B20 a 20% blend of biodiesel in mineral diesel, and B100 denotes straight biodiesel.

Similarly, NZ20 denotes a Biogold biodiesel blend of 20% biodiesel in mineral diesel, and NZ100 denotes 100% Biogold biodiesel.

There are many other abbreviations related to biodiesel in common use, including RME (rapeseed methyl ester), SME (soy methyl ester) and others that denote biodiesel made from different feedstocks. These ester fuels are collectively known as fatty acid methyl esters (FAME).



## Background

Biodiesel has been in use for more than 20 years in various forms; rapeseed methyl ester (RME) has been in use across Europe for more than 20 years, diesel sold in France routinely contains up to 7% biodiesel, and soy methyl ester (SME) is the most common biodiesel in the USA and has been in use there for over 20 years.

In New Zealand, biodiesel is most commonly made from used cooking oil, oilseed rape (canola) and tallow. Biogold biodiesel is only made from vegetable oils such as used cooking oil and rapeseed oil, providing superior performance under use in cold temperatures.

It is estimated that there is enough suitable used cooking oil available in New Zealand on a commercial scale to manufacture around 4 million litres of biodiesel a year. Although this is a very small amount when compared to the almost 3,000 million litres of mineral diesel consumed each year in New Zealand, it is a step in the right direction, and has allowed Biodiesel New Zealand to establish itself as a leading biodiesel manufacturer in New Zealand.<sup>1</sup>

Growing oilseed rape for fuel purposes has only just begun in New Zealand and currently there is sufficient oilseed rape cropping in New Zealand to make around another 3 million litres of biodiesel a year. This cropping area will increase well beyond this as the demand for biodiesel increases.

Tallow also provides a feedstock resource of reasonable volume, with the potential to produce 50-100 million litres of biodiesel per year. Tallow-derived biodiesel, however, does not normally meet the cold temperature operational performance demanded by Biogold biodiesel standards. These fuels are generally suitable for a range of specific applications, including furnace and boiler use. Biodiesel New Zealand regularly assesses a number of other vegetable oil feedstock options available for the production of biodiesel.

Biodiesel New Zealand operates a plant in Christchurch that has a production capacity of around 4 million litres of biodiesel per year, and has plans for expansion. The company also has an oilseed rape processing and storage plant near Christchurch that enables the drying, cleaning and storage of up to 10,000 tonnes of New Zealand-grown oilseed rape a year, as well as room for future expansion.



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## Why use biodiesel?

Compared with the use of mineral diesel, the use of Biogold biodiesel is expected to reduce the overall greenhouse gases emitted by between 50% (for the use of virgin oilseed rape-derived biodiesel) and 90% (for the use of used cooking oil-derived biodiesel).

Some of the many other advantages of using biodiesel fuels include:

- Exhaust emissions are less hazardous. It is expected that your vehicle will produce less particulate matter, carbon monoxide and hydrocarbons. A significant reduction in smoke, particularly under full load, can also be expected.
- The combustion “clatter” that is normally associated with older-style diesel engines reduces with increasing biodiesel proportions. This is predominantly because of an improvement in the combustion performance of the biodiesel.
- Biodiesel’s greater lubricity properties should mean less wear of fuel-injection components.
- The biodiesel component is biodegradable, so if a spill does occur, the environmental hazard is reduced. This is why Biogold NZ100 (100% biodiesel) is a preferred fuel for operators in sensitive marine environments.
- 100% biodiesel is classified as non-hazardous. It is much safer and simpler to store.
- No noticeable change in power or fuel economy is expected when using Biogold biodiesel blends of up to 20% biodiesel.
- You can switch back and forth between Biogold biodiesel and mineral diesel at any time.
- Biogold biodiesel is made in New Zealand, which means jobs for New Zealanders and a more secure energy option when access to cheap mineral oil starts to diminish.



<sup>1</sup> From the production figures published by EECA

## Can I use biodiesel in my vehicle or equipment?

Blends of Biogold biodiesel with a low proportion of biodiesel can replace mineral diesel in virtually any application. Higher biodiesel content blends and even Biogold NZ100 (straight biodiesel) are also appropriate for many applications, including various commercial vehicle applications, boilers for home heating and furnaces.

Biodiesel does, however, have some different properties to mineral diesel which can present a risk of engine compromise or fault, although this is unlikely. This risk is discussed more fully in the *Nuts and bolts of switching to Biogold*.



Any difference between biodiesel and mineral diesel is generally diluted as the proportion of mineral diesel in a blend increases. This is one of the methods used to further reduce the already low risk of a fault occurring. For example, at a B5 level, a biodiesel blend has properties that are virtually the same as mineral diesel. It is for this reason that, in New Zealand, blends of up to B5 can be used without providing notice that the fuel contains biodiesel. All engine manufacturers also generally accept the use of up to B5 blends in their engines so long as the fuel meets the required specifications.

Many engine manufacturers have only recently considered use of biodiesel in their engines and there is some lack of absolute certainty about compatibility, particularly for older engines that have not been specifically tested, or for newer engines that have particular designs or not had sufficient experience in use. Some engine manufacturers may therefore not recommend the use of biodiesel. Where testing has been carried out and the particular application has been approved, the engine manufacturers may accept the use of up to B20 to B30 levels (e.g., Cummins, Renault, Peugeot and Citroen, for particular engines and applications) or even up to B100 (e.g., Scania, for particular engines and applications).

The warranty implications of this are discussed in our brochure *Nuts and bolts of switching to Biogold*.

## Where do I get Biogold biodiesel?

Biodiesel New Zealand provides an easy-access refuelling station at their facility in Blenheim Road, Christchurch, as well as bulk tanker supply directly to customer storage tanks or direct to vehicles throughout New Zealand. Partner distributors also have fuel facilities. Check Biodiesel New Zealand's website [www.biodiesel-nz.co.nz](http://www.biodiesel-nz.co.nz) for an up-to-date list of our fuel access locations.

## How do I store Biogold biodiesel?

Biogold biodiesel should be stored to minimise water contamination, including protecting the tanks from the weather. Biogold biodiesel should also be stored in a place with a fairly constant temperature to reduce the tank's "breathing" and minimise the amount of moist air that might be pulled into the tank's head space above the fluid.

Currently, New Zealand's storage rules state that as soon as a biodiesel blend contains 1% mineral diesel or more, it is considered to be a hazardous substance and has the same controls as for mineral diesel. If in doubt, store and treat Biogold biodiesel fuels in the same manner as you would for ordinary diesel.

Biogold NZ100, and other standard B100 biodiesels, are classified as not hazardous, which simplifies its handling and storage. Where the volumes involved are small, the Biogold biodiesel blends can also be kept in a range of containers without requiring double skins or bunding. However, any container should still be made of compatible material and designed for the forces involved. Spill management practices should also be in place for good practice.

## How much does Biogold biodiesel cost?

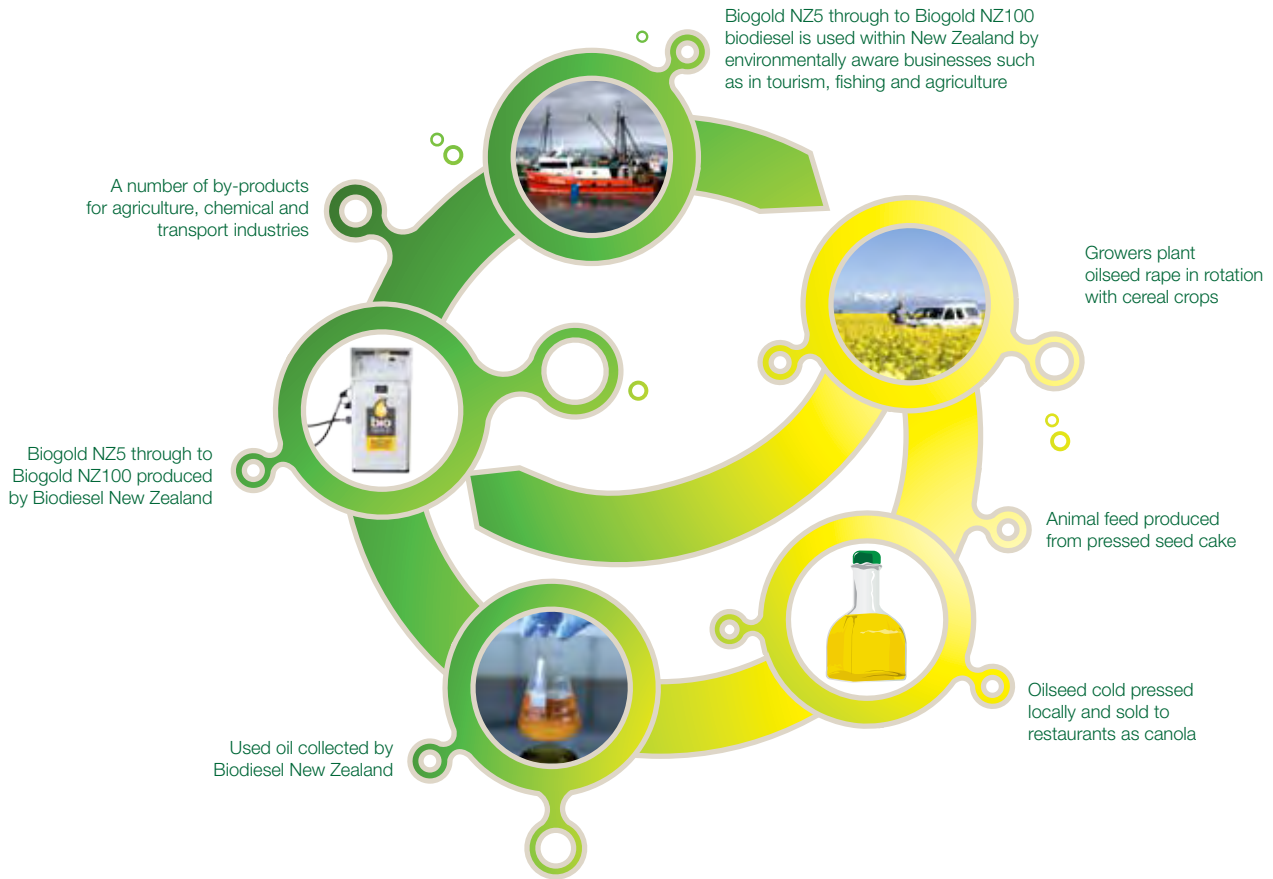
Currently, Biogold biodiesel blends with up to 20% biodiesel are positioned to be similarly priced to mineral diesel, where possible.

Biogold NZ100 does not currently attract an incentive grant from the Government, whereas biodiesel fuels with up to 20% biodiesel content do, which results in a premium price for NZ100. However, NZ100 is still an attractive option for those operating in sensitive environments due to the additional environmental-related gains.

Note: The price of biodiesel feedstock and biodiesel manufacture is partially decoupled from the price of oil, so it is expected that the price of Biogold biodiesel will be more stable than the price of mineral diesel in the medium to long term.

# The Biogold\* cycle

Biogold biodiesel is produced in harmony with the natural seasonal cycle of growth, harvest and reuse. The diagram shows input of raw and recycled materials in relation to the products manufactured.



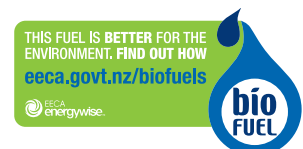
## Partner with Biodiesel New Zealand

Biodiesel New Zealand uses high-quality cooking oils and oilseed rape from crops grown in New Zealand to make high-quality Biogold biodiesel. We are doing our bit to keep New Zealand clean, help the economy and encourage self-sufficiency. Talk to us to find out how we can help you do the same and add value to your business.



\*Biogold is a registered trade mark of Biodiesel New Zealand Ltd.

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