

## Specification of bio fuel

### Biofuel

Other designations Biodiesel, FAME, vegetable oil, rapeseed oil, palm oil, frying fat

Origin Biofuel is derived from oil plants or old cooking oil.

### Provision

Transesterified and non-transesterified vegetable oils can be used.

Transesterified biofuels (biodiesel, FAME) must comply with the standard EN 14214.

Non-transesterified biofuels must comply with the specifications listed in Table [Non-transesterified bio-fuel - Specifications](#).

These specifications are based on experience to date. As this experience is limited, these must be regarded as recommended specifications that can be adapted if necessary. If future experience shows that these specifications are too strict, or not strict enough, they can be modified accordingly to ensure safe and reliable operation.

When operating with bio-fuels, lubricating oil that would also be suitable for operation with diesel oil.

See 010.000 Engine - Operating Instructions section 010.000.023-07.

Properties/Characteristics	Unit	Test method
Density at 15 °C	900 - 930 kg/m <sup>3</sup>	DIN EN ISO 3675, EN ISO 12185
Flash point	> 60 °C	DIN EN 22719
lower calorific value	> 35 MJ/kg (typical: 37 MJ/kg)	DIN 51900-3
Viscosity/50 °C	< 40 cSt (corresponds to a viscosity/40 °C of < 60 cSt)	DIN EN ISO 3104
Cetane number	> 40	FIA
Coke residue	< 0.4%	DIN EN ISO 10370
Sediment content	< 200 ppm	DIN EN 12662
Oxidation stability (110 °C)	> 5 h	ISO 6886
Phosphorous content	< 15 ppm	ASTM D3231
Na and K content	< 15 ppm	DIN 51797-3
Ash content	< 0.01%	DIN EN ISO 6245
Water content	< 0.5%	EN ISO 12537
Iodine number	< 125g/100g	DIN EN 14111
TAN (total acid number)	< 5 mg KOH/g	DIN EN ISO 660
Filterability	< 10 °C below the lowest temperature in the fuel system	EN 116

Table 1: Non-transesterified bio-fuel - Specifications

**Improper handling of operating fluids**

If operating fluids are improperly handled, this can pose a danger to health, safety and the environment. The relevant safety information by the supplier of operating fluids must be observed.

**Analyses**

Analysis of fuel samples is very important for safe engine operation. We can analyse fuel for customers at our laboratory (PrimeServLab).