Approvals for commercial vehicles, engines, and non-road mobile machinery (NRMM)

for operation with biodiesel (B10 | B20 | B30 | B100)

biofuels

EBB EUROPEAN BIODIESEL BOARD

ESTERIFRANCE

ewaba European Waste-based & Advanced Biofuels Association

MVAK Mittelstandsverband abfallbasierter Kraftstoffe

oleo 100

PEK Plattform Erneuerbare Kraftstoffe

VDB Zukunft tanken.

Approvals from engine and commercial vehicle manufacturers
for operation with biodiesel (B10 | B20 | B30 | B100)

In 2024, the transport sector contributed 143.1 million tons of CO_2 to total emissions. Of this, around 95 % was attributable to road transport.

The German government has various areas of action to achieve its climate targets for the transport sector. One area of action is the decarbonization of fuels. With biodiesel (FAME = fatty acid methyl ester), consumers already have access to an alternative fuel of excellent quality and in large quantities. On average, biodiesel reduces CO_2 emissions by 84.9 % compared to conventional diesel (as of: BLE evaluation report 2023). Biodiesel is blended with conventional diesel at a rate of up to seven percent and is available at public filling stations as B7.

By using higher biodiesel blends such as B10, B20, or B30, or even pure biodiesel (B100), fleets can make a greater contribution to climate protection, as many commercial vehicles have already been approved for biodiesel use.

This approval list provides information on which commercial vehicles and engines can be refueled with higher blends of biodiesel (B10, B20, B30) and pure biodiesel (B100) without any problems. The list is broken down into different emission levels up to the current Euro VI standard.

A look at Europe

There are currently around 6 million trucks on European roads, over 95 % of which are powered by diesel engines. Their annual diesel consumption is around 104 billion liters, or approximately 86.6 million tons.

Since the service life of a truck is usually 15–20 years, the number of diesel-powered trucks is unlikely to decrease significantly in the foreseeable future, even with the increasing introduction of alternative drive systems. New vehicles are only slowly replacing existing models, so diesel consumption in this sector will remain largely stable in the medium term.

Good to know.

For fleet operators in Germany

Two mechanisms favor the use of higher biodiesel blends

- The more biodiesel is blended with conventional diesel, the more greenhouse gas emissions are saved. These additional savings have a value in what is known as greenhouse gas (GHG) quota trading, the proceeds of which can reduce the price of biodiesel.
- In addition, the CO_2 price in road transport is expected to continue to rise in the coming years in accordance with BEHG and ETS II. However, biodiesel is not subject to CO_2 pricing.

Special requirements also apply to commercial vehicles acquired through public procurement: a certain percentage of trucks and buses must be classified as “low-emission” or “zero-emission.” A significant portion of these legal obligations can be met by using pure biodiesel (B100).

A look at Austria

In Austria, the use of sustainable biofuel is exempt from excise duty, known as mineral oil tax (Möst.), which brings cost advantages for pure biofuel B100 in particular.

Blends of biogenic and fossil fuels also benefit. The biogenic components are not only exempt from Möst., but also from CO_2 pricing, or are assigned a lower emission factor corresponding to the blend ratio and are therefore subject to lower taxes. So far, this has mainly applied to pure biofuel and market-established blends such as B7 and E5, but this regulation is to be made more dynamic in the future and extended to other blending ratios.

Purchasing larger quantities of fuel or buying directly from the biofuel manufacturer usually results in additional cost advantages.
In summary, this kills several birds with one stone: greenhouse gas emissions and the carbon footprint can be significantly reduced while at the same time achieving cost savings. In addition, regional value chains are strengthened and crisis resilience is massively increased.

A look at Switzerland

The use of biofuels is also attractive in Switzerland:

- Biofuels produced from waste and residual materials are exempt from mineral oil tax until the end of 2030.
- Biofuels make a significant contribution to helping mineral oil importers meet their legal CO_2 compensation obligations.
- Biofuels are strictly controlled by the authorities, thus guaranteeing a sustainable contribution to the reduction of fossil fuel emissions.

A look at France

The French market for freight and passenger transport is experiencing strong momentum around B100.
Since the 2018 regulation authorizing its use, more than 20,000 heavy-duty vehicles now run on this energy, which is 100 % derived from French rapeseed according to certain suppliers. B100 currently accounts for over 10 % of new vehicle registrations in the sector, making it the leading alternative energy in terms of registrations.

Exclusively intended for captive fleets, B100 is not available at public fuel stations. France stands out as the European country where its development is the most advanced.

Three key drivers support this growth:

- Crit'Air 1 classification, allowing access to Low Emission Zones (LEZ),
- A favorable fuel taxation policy, tailored to renewable energy, allowing to be B7 competitive
- Accelerated depreciation incentives for vehicles exclusively running on B100.

B100 thus emerges as an immediate, competitive, and tangible solution for decarbonizing road transport.

Approvals for NRMM (non-road mobile machinery) for operation with biodiesel (B10 | B20 | B30 | B100)

Non-road mobile machinery includes, for example, construction machinery, tractors, and lawn mowers.

Biodiesel can also play an increasingly important role in agriculture. European agriculture faces the challenge of becoming climate neutral by 2050. In addition to ecological aspects, economic considerations are also gaining in importance here: unpredictable diesel prices, rising CO_2 costs, and dependence on fossil fuel imports are jeopardizing planning security.

Biodiesel or fatty acid methyl ester (FAME) is a reliable alternative fuel. This alternative fuel offers a practical and immediately usable solution, especially for non-road mobile machinery (NRMM). Biodiesel has a good environmental and safety profile. In nature reserves and water protection areas, the use of biodiesel as a liquid energy source is recommended, as biodiesel has no hazardous properties. Due to its buoyant properties, biodiesel is classified as WGK I, i.e., only slightly hazardous to water.

While light work (up to 80 kW) can already be carried out in part with electric drives, biodiesel is a realistic, powerful, and climate-friendly drive option (KTBL, TFZ) for medium-duty (40–200 kW) and heavy-duty work (150 kW and above) such as soil cultivation, fertilization, combine harvesting, or chopping.

This approval list therefore also provides an overview of agricultural machinery and engines up to the current Tier V emission standard that are suitable for operation with FAME and can thus make an effective contribution to reducing CO_2 emissions.

Biodiesel Quality

The quality of biodiesel is a crucial factor when it comes to running vehicles on B100. As a general rule, fuels must meet the minimum requirements of the applicable standards. In Europe, EN 14214 is the standard for pure biodiesel, which is usually specified in vehicle manufacturers' product information as a prerequisite for use and warranty coverage. Diesel fuels with biodiesel blends of up to 10 %, 20 % or 30 % (B10, B20, B30) are based on EN 16734 and EN 16709 respectively. In the United States (USA), ASTM D 6751 is specified for B100 and ASTM D7467 for B20.

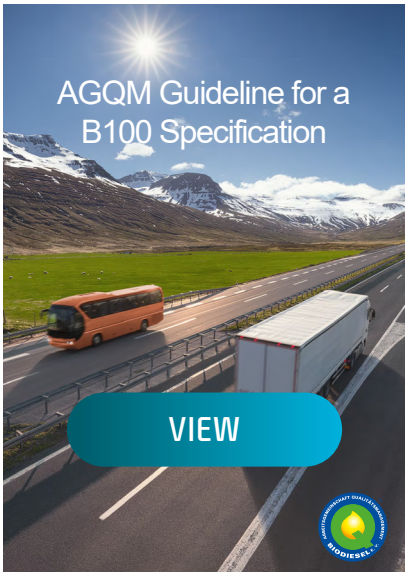
In addition to purchasing biodiesel that meets the standard specifications, you should ensure that you receive a current factory certificate with each delivery and that oxidation stabilizers are added to the biodiesel during production. Further information on storage, transport, and conversion to biodiesel can be found on the associations' websites.

Most engine manufacturers recommend using biodiesel whose suppliers and producers have controlled quality assurance systems in place. Biodiesel from members of the Association Quality Management Biodiesel (AGQM) is subject to the AGQM quality management system, which ensures that the current requirements of DIN EN 14214 are met across production, transport, and trade. In addition, unannounced sampling carried out several times a year by the AGQM has shown that the actual values of the critical parameters (Na, K, Ca, Mg, P) for AGQM members are significantly below the standard limits.

Therefore, look for the AGQM logo when purchasing biodiesel.

Based on these results and the qualities of AGQM members, and after consultation with several original equipment manufacturers (OEMs), AGQM guidelines for a B100 specification were drawn up. This was in response to some OEMs' view that the limit values in EN 14214 are set too high for ash-forming components, such as alkali and alkaline earth metals, and phosphorus. These values are deemed too high to ensure the full functionality of exhaust aftertreatment with B100.

This guide therefore aims to define the product properties of FAME for use as a pure fuel (B100), which exceed the requirements of EN 14214. The defined limit values aim to ensure the functionality of engines and vehicles, particularly their exhaust aftertreatment systems, while enabling the practical production of this fuel at an acceptable additional cost. At the same time, concerns of OEMs are taken into account, providing a basis on which engine and vehicle manufacturers can approve their vehicles for use with B100.



Field report from the industry

> Our fuel station at the company headquarters no longer carries fossil fuels. Around 400 trucks are already refueling with biodiesel (B100) using the existing infrastructure. This allows us to reduce fossil CO_2 emissions immediately—with full payload and the flexibility to switch to B7 or HVO in an emergency.

Daniel Schöni
Schöni Transport AG

Note:

The contents of this approval list have been compiled with the utmost care. Nevertheless, no guarantee can be given for the accuracy, completeness, and timeliness of the information provided. Use of the contents of the approval list is at your own risk. It is therefore strongly recommended that you obtain confirmation of approval from the respective vehicle or engine manufacturer before using biodiesel or biodiesel-containing fuels and that you obtain information about any special maintenance and service requirements that may apply.

Commercial vehicles and engines

Caterpillar / Zeppelin

Engine types	Vehicle types	Emission levels	Approved blend level	Special remarks
ACERT-Engines: C3,4B; C4,4; C6,6; C7,1; C9,3; C13; C15; C18; C27, C32	With exhaust gas aftertreatment	EU Stage IIIB and higher Tier 4 interim and final	Up to 20 % FAME (B20) acc. to ASTM D7467 and API density 30–45	Special operating requirements and additional maintenance recommendations - operation and maintenance manual. Only in combination with ultra low sulfur diesel (max. 10 mg/kg). Observe CAT-specification of FAME used acc. to ASTM D6751 or EN 14214.
C0.5-C2.2 ACERT-Engines: C7, C9, C9,3, C11, C13, C15, C18, C27, C32, C175	Without exhaust gas aftertreatment	All emission levels	Up to 20 % FAME (B20) acc. to ASTM D7467 and API density 30-45 (Information on use of higher mixing ratios up to B100 can be obtained from your Cat dealer)	See above
3114, 3116, 3126, 3176, 3196, 3208, 3306, 3406, 3408, 3412, 3456, 3406E, 3408E, 3412E Model series 3500, 3600 C-9, C-10, C-12, C-15, C-16, C-18 Model series C280, CM20, CM25, CM32	–	All emission levels	See above	See above

Cummins

Engine types	Vehicle types	Emission levels	Approved blend level	Special remarks
F 2.8, F 3.8, F 4.5	All engines, since 01.2008			
V5	ISV5.0 CM3230 V104			
B/D 3.3, B/D 3.9, B/D 4.5, B/D 5.9, B/D 6.7 QSB	All engines, since 01.2007	All emission levels	Up to 20 % FAME (B20) acc. to ASTM D7467 or EN 16709	If an Eliminator™ system is installed for extended oil change intervals, oil samples must be taken. For marine applications, Cummins Inc. requires additional water separation equipment because ballast water can enter the fuel.
C/L, QSC, QSL	All engines, since 01.2007	All emission levels	See above	See above
M11, QSM11	All engines, since 01.2007	All emission levels	See above	
G11, G12, N14	All engines, since 01.2007	All emission levels	See above	

Cummins

Engine types	Vehicle types	Emission levels	Approved blend level	Special remarks
X11.9, X15	ISX CM570, since 01.2002 All engines since 01.2007	**All emission levels**	**Up to 20 % FAME (B20) acc. to ASTM D7467 or EN 16709**	
K19, K23, K30, K38, K45, K50, K60, K78, K95 QSK19, QSK23, QSK30, QSK38, QSK45, QSK50, QSK60, QSK78, QSK95 QST19, QST23, QST30, QST38, QST45, QST50, QST60, QST78, QST95	All engines without exhaust aftertreatment systems since 01.2008	**All emission levels**	**See above**	If an Eliminator™ system is installed for extended oil change intervals, oil samples must be taken. For marine applications, Cummins Inc. requires additional water separation equipment because ballast water can enter the fuel. Only B7 fuel is approved for these engines with exhaust aftertreatment systems.
QSK 50		**All emission levels**	**See above**	

DAF

Engine types	Vehicle types	Emission levels	Approved blend level	Special remarks
MX-11, MX-13 from 2017 and 2025	CF / XF / XG / XG+	**Euro 3-5 (Outside Europe) Euro 6**	**B10/B20/B30***	Older generations of MX-11 and MX-13 engines may only be operated with EN 590 diesel fuel. When using B30 (EN16709), shorter service intervals are necessary (see DAF RMI for more details).
MX	CF85 / XF105	**Euro IV / V**	**B10/B20/B30/B100**	When using B30 (EN16709) or B100 (EN14214), shorter service intervals are necessary (see DAF RMI for more details).
PR	CF75	**Euro IV / V**	**B10/B20/B30/B100**	See above
PX-4, PX-5, PX-7	LF / CF	**Euro VI**	**B10/B20**	CF trucks only with PF-7 engines.
	All LF trucks since 2001		**B10**	
Airtop 2000 ST (ACH-W3)	auxiliary heating		**B100**	

Daimler (EvoBus)

see Mercedes Benz

DEUTZ AG

Engine types	Vehicle types	Emission levels	Approved blend level	Special remarks
DEUTZ Natural Fuel Engine®	Agricultural engines	**EU Stage IIIA**	100 % **FAME (B100) acc. to EN 14214 and** 30 % **FAME (B30/B20) acc. to EN 16709 and** 10 % **FAME (B10) acc. to EN 16734**	Engines without exhaust gas aftertreatment. For special boundary conditions, see TR 0199-99-01218/5. Halved lubricating oil change intervals for B100. Engines with exhaust gas aftertreatment (adjustment of EAT replacement interval). Not approved for engines with active DPF regeneration (burner). For special conditions, see TR 0199-99-01218/5. Halved lubricating oil change intervals for B100.
413, 513, 912, 913 ,914, 1011, 2011, 1012, 1013, 2012, 2013, TCD 2012 2V/4V, TCD 2013 2V/2013 4V, TCD 2015 (ab 01.07.2010)	Industrial engines	**Up to EU Stage IIIA**	**See above**	See above
TCD 2013 4V	Commercial vehicle engines	**Up to Euro III**	**See above**	See above
TCD 2013 4V	Commercial vehicle engines	**Euro IV / Euro V**	**See above**	See above
TCD 4.1, TCD 6.1, TCD 7.8	Agricultural engines	**EU Stage IIIB**	**See above**	See above
TCD 12.0 V6, TCD 16.0 V8	Industrial and agricultural engineering engines	**EU Stage IIIB / EU Stage IV**	**See above**	See above
D 2.9, TD 2.9, TCD 2.9, TD 3.6, TCD 3.6, TCD 4.1, TCD 6.1, TTCD 6.1, TCD 7.8, TTCD 7.8, TCD 12.0 V6, TCD 16.0 V8	Industrial and agricultural engineering engines	**EU Stage IV**	**See above**	See above
D 2.2, TD 2.2, TCD 2.2, TD 2.9, TCD 2.9, TD 3.6, TCD 3.6, TCD 12.0 V6, TCD 16.0 V8	Industrial and agricultural engineering engines	**EU Stage V**	Up to 30 % **FAME (B30/B20) acc. to EN 16709** Up to 10 % **FAME (B10) acc. to EN 16734**	Engines with exhaust aftertreatment (adjustment of EAT replacement interval). For special boundary conditions see TR 0199-99-01218/5.

IVECO / IVECO Bus (formerly Irisbus)

Engine types	Vehicle types	Emission levels	Approved blend level	Special remarks
Cursor-engines 8/10/13 - engines with PDE	EuroTech, EuroStar, EuroTrakker, Stralis, Trakker	**Euro II/III Euro IV/V**	100 % **FAME (B100) acc. to EN 14214**	Approval is connected to certain equipment and service guidelines.
Engines with distributor injection pumps and common-rail injection systems	–	–	–	Not approved

John Deere

Engine types	Vehicle types	Emission levels	Approved blend level	Special remarks
All engines		**Up to EU Stage IIIA**	100 % **FAME (B100) acc. to EN 14214**	EU Stage V not approved.
All engines		**EU Stage IIIB und IV**	Up to 20 % **FAME (B20) acc. to EN 14214**	EU Stage V not approved.

Liebherr

Engine types	Vehicle types	Emission levels	Approved blend level	Special remarks
				Approval depending on engine specification, must be requested at the manufacturer.

MAN

Engine types	Vehicle types	Emission levels	Approved blend level	Special remarks
D08	Truck and Bus	Euro V	B10/B100	The MAN documents and further information on maintenance intervals and requirements can be found on the MAN After SalesPortals (http://asp.man.eu).
D0836LOH75, D0836LOH76, D0836LOH77	Bus	Euro VI a	See above	See above
D0836LOH83, D0836LOH84, D0836LOH85	See above	Euro VI c	See above	See above
D0836LOH88, D0836LOH89	See above	Euro VI d	See above	See above
D0836LOH92, D0836LOH93	See above	Euro VI e	See above	See above
D1556LOH13, D1556LOH14, D1556LOH15	See above	Euro VI d	See above	See above
D1556LOH19, D1556LOH20, D1556LOH21	See above	Euro VI e	See above	See above
D2066LUH55, D2066LUH56	See above	Euro VI a	See above	See above
D2066LUH61, D2066LUH62	See above	Euro VI c	See above	See above
D2066LUH67, D2066LUH68, D2066LUH70	See above	Euro VI d	See above	See above
D2676 - LOH50 to LOH52, LOH56, LOH57	See above	Euro VI e	See above	See above
D20	Truck and Bus	Euro V	See above	See above
D0834LFLAV, D0834LFLAW	Truck	Euro VI e	See above	See above
D0836LFLBO, D0836LFLBP	See above	Euro VI e	See above	See above
D26	See above	Euro V	See above	See above
D2676LF54, D2676LF55, D2676LF56, D2676LF57, D2676LF58	See above	Euro VI a	See above	See above

Engine types	Vehicle types	Emission levels	Approved blend level	Special remarks
D2676LF63, D2676LF64, D2676LF65	See above	Euro VI c	See above	See above
D2676LF81, D2676LF82, D2676LF83	See above	Euro VI d	See above	See above
D2676LFAM, D2676LFAN, D2676LFAO	See above	Euro VI e	See above	See above
D2676LFBF, D2676LFBG, D2676LFBH	See above	Euro VI e	See above	See above

Mercedes-Benz Trucks, EvoBus/Setra, Daimler

Engine types	Vehicle types	Emission levels	Approved blend level	Special remarks
BM 471.926 (OM 471)	Actros, Arocs	Euro VI c	100 % FAME (B100) acc. to EN 14214	With biodiesel code
BR 500	Actros, Travego	Up to Euro V	See above	
BR 900	Atego, Axor, Econic	See above	See above	
BR 900 (OM 926 LA)	Zetros, Tourino	See above	See above	
BM 457.9	Axor	See above	See above	

MTU

Engine types	Vehicle types	Emission levels	Approved blend level	Special remarks
S1163 Mx4 S1600 Gx0/Gx1 S2000 Cx6/Gx2/Gx4/Gx5/Sx6; S4000 Cx0/Cx1/Cx2/Cx3/Cx5/Gx2/Gx3/ Gx4/Mx0/Mx1/Mx3/Mx4/Mx5/Px1/ Px3/Rx1/Rx4/Sx1/Sx3/Tx4/Tx5 S8000 Mx1	All years of construction	**No emission level**	**From 7 % FAME (B7) up to 100 % FAME (B100) in accordance with EN 14214 Safety approval only**	Approval means that when these fuels are used, only the product safety of the engine with regard to danger to life and limb is guaranteed.
S2000Gx3, S4000Gx1	With metal low-pressure fuel lines	**No emission level**	**See above**	See above
S4000 Rx3	From model year 2020/ only with rest-of-world fuel filter configuration	**No emission level**	**See above**	See above

Renault Trucks

Engine types	Vehicle types	Emission levels	Approved blend level	Special remarks
All engines	All types	**Euro VI**	**B10**	
DTI 5, DTI 8	Renault Trucks D Renault Trucks D Wide	**Euro VI**	**B10 / B30 / B100**	Option "Biodiesel 100 %" or "Biodiesel 30 %" required. From 2022, the D and D Wide series will only be offered in Germany in electric form.
DE 13 (480 hp)	Renault Trucks T / T High Renault Trucks C 2.5 Renault Trucks K	**Euro VI**	**B10/ B100**	Option "Biodiesel" required.

SCANIA

Engine types	Vehicle types	Emission levels	Approved blend level	Special remarks
16 liters (V8): DC16 117 (580 PS); DC16 121 (590 PS)	All types	**Euro VI (XPI)**	100 % **FAME (B100) acc. to EN14214, max. 4 mg/kg ash constituents and max. 1 mg/kg phosphorus, shortened change intervals**	The following vehicles and engines must not be operated with diesel fuel containing more FAME EN 14214 than specified in EN 590 (max. 7 % FAME EN 14214): Emergency vehicles and vehicles with a service life of more than two months, industrial engines with XPI, buses with HPI engines and non-FAME-approved XPI engines, and vehicles that are not designed for biodiesel.

SCANIA

Engine types	Vehicle types	Emission levels	Approved blend level	Special remarks
13 liters (Series 6): DC13 141 (410 PS); DC13 148 (450 PS); DC13 163 (410 PS); DC13 164 (450 PS); DC13 174 (500 PS) ; DC13 175 (460PS)	All types	Euro VI (XPI)	100 % FAME (B100) acc. to EN14214, max. 4 mg/kg ash constituents and max. 1 mg/kg phosphorus, shortened change intervals	The following vehicles and engines must not be operated with diesel fuel containing more FAME EN 14214 than specified in EN 590 (max. 7 % FAME EN 14214): Emergency vehicles and vehicles with a service life of more than two months, industrial engines with XPI, buses with HPI engines and non-FAME-approved XPI engines, and vehicles that are not designed for biodiesel.
9 & 11 liters (Series 5): DC09 126 (320 PS); DC09 127 (360 PS); DC09 140 (320 PS); DC09 141 (360 PS) ; DC11 101 (390 PS) ; DC11 102 (430 PS)	See above	See above	See above	See above
7 liters (Series 6): DC07 112 (250 PS); DC07 113 (280 PS)	See above	See above	See above	See above
All engines	All types	Up to Euro V	See above	See above
All engines	All types	All emission levels	Up to 7 % FAME (B7) in accordance with EN 590	See above

Volvo Trucks

Engine types	Vehicle types	Emission levels	Approved blend level	Special remarks
D5K240	FL	Euro VI	B10 / B30 B100, acc. to EN 14214 min. Level 3	Option "Diesel-B" required. Minimum requirement Level 3: Water content <200 mg/kg, total contamination <10 mg/kg, phosphorus content <1 mg/kg, alkali metal content <2.5 mg/kg, alkaline earth metal content <2.5 mg/kg, monoglycerides < 0.3 % (m/m)
D8K320	FE	See above	See above	See above
D11K460	B8R/RLE	See above	See above	See above
D13K420 Turbocompound	FH	See above	See above	See above
D13K460	FM/ FMX/ FH	See above	See above	See above
D13K460 Turbocompound	FM/ FMX/ FH	See above	See above	See above
D13K480 Turbocompound	FH	See above	See above	See above
D13K500	FM/ FMX/ FH	See above	See above	See above
D17K700		See above	See above	See above
OBDEP-D	B11R/RLE	See above	See above	See above

Non Road Mobile Machinery (NRMM)

Antonio Carraro

Tractors

Engine types	Vehicle types	Emission levels	Approved blend level	Special remarks
F34	5075 GF, 5075 GL, 5075 GN, 5075 GV 5090 GF, 5090 GL, 5090 GN, 5090 GV 5105 GF, 5105GN	EU Stage IIIB	100 % FAME (B100) acc. to EN 14214	For blends higher than B20, the engine oil change interval must be halved.
4045 HAT 80	5080 G, 5090 G	EU Stage IIIA	See above	See above

Caterpillar / Zeppelin

Engines for various applications

Engine types	Vehicle types	Emission levels	Approved blend level	Special remarks
ACERT-Engines: C3,4B; C4,4; C6,6; C7,1; C9,3; C13; C15; C18; C27, C32	With exhaust gas aftertreatment	EU Stage IIIB and higher Tier 4 interim and final	Up to 20 % FAME (B20) acc. to ASTM D7467 and API density 30–45	Special operating requirements and additional maintenance recommendations - operation and maintenance manual. Only in combination with ultra low sulfur diesel (max. 10 mg/kg). Observe CAT-specification of FAME used acc. to ASTM D6751 or EN 14214.
C0.5-C2.2 ACERT-Engines: C7, C9, C9,3, C11, C13, C15, C18, C27, C32, C175	Without exhaust gas aftertreatment	All emission levels	Up to 20 % FAME (B20) acc. to ASTM D7467 and API density 30-45 (Information on use of higher mixing ratios up to B100 can be obtained from your Cat dealer)	See above
3114, 3116, 3126, 3176, 3196, 3208, 3306, 3406, 3408, 3412, 3456, 3406E, 3408E, 3412E Model series 3500, 3600 C-9, C-10, C-12, C-15, C-16, C-18 Model series C280, CM20, CM25, CM32	-	See above	See above	See above

Claas

Tractors

Engine types	Vehicle types	Emission levels	Approved blend level	Special remarks
4045 HRT 09A,09B,09C; 6068 HRT 08A,08B,08C,08D	ARION 510, 530, 550, 610, 630, 650, 660		**Up to 20 % FAME (B20)**	
Cursor 9	AXION 920, 930, 940, 950, 960		See above	
F5DFL 413B, 413M, 413S, 413T, 413U	ELIOS 210, 220, 230, 240; NEXOS 210 VE/ VL/F, 220 VE/VL/F, 230 VE/VL/F, 240 VE/VL/F, 250VL/F		See above	

DEUTZ AG

Engines for various applications

Engine types	Vehicle types	Emission levels	Approved blend level	Special remarks
DEUTZ Natural Fuel Engine®	Agricultural engines	**EU Stage IIIA**	**100 % FAME (B100) acc. to EN 14214 and 30 % FAME (B30/B20) acc. to EN 16709 and 10 % FAME (B10) acc. to EN 16734**	Engines without exhaust gas aftertreatment. For special boundary conditions, see TR 0199-99-01218/5. Halved lubricating oil change intervals for B100.
TCD 4.1, TCD 6.1, TCD 7.8	Agricultural engines	**EU Stage IIIB**	**See above**	See above
TCD 12.0 V6, TCD 16.0 V8	Industrial and agricultural engineering engines	**EU Stage IIIB / EU Stage IV**	**See above**	See above

Engine types	Vehicle types	Emission levels	Approved blend level	Special remarks
D 2.9, TD 2.9, TCD 2.9, TD 3.6, TCD 3.6, TCD 4.1, TCD 6.1, TTCD 6.1, TCD 7.8, TTCD 7.8, TCD 12.0 V6, TCD 16.0 V8	Industrial and agricultural engineering engines	**EU Stage IV**	**100 % FAME (B100) acc. to EN 14214 and 30 % FAME (B30/B20) acc. to EN 16709 and 10 % FAME (B10) acc. to EN 16734**	Engines without exhaust gas aftertreatment. For special conditions, see TR 0199-99-01218/5. Halved lubricating oil change intervals for B100.
D 2.2, TD 2.2, TCD 2.2, TD 2.9, TCD 2.9, TD 3.6, TCD 3.6, TCD 12.0 V6, TCD 16.0 V8	Industrial and agricultural engineering engines	**EU Stage V**	**Up to 30 % FAME (B30/ B20) acc. to EN 16709 and up to 10 % FAME (B10) acc. to EN 16734**	Engines with exhaust aftertreatment (adjustment of EAT replacement interval). For special boundary conditions see TR 0199-99-01218/5.

Fendt

Tractors

Engine types	Vehicle types	Emission levels	Approved blend level	Special remarks
TCD2012L04-4V	300, 400, 700, 800, 900	**Com III**	**B100**	Engines without exhaust gas aftertreatment For special boundary conditions, see TR 0199-99-01218/5. Halved lubricating oil change intervals with B100.
TCD4.1	300, 500	**EU Stage IIIB und IV**	**See above**	See above
TCD4.1	500	**EU Stage V**	**See above**	See above
TCD2012L06-4V	700	**Com III**	**See above**	See above
TCD6.1	700, 800	**EU Stage IIIB und IV**	**See above**	See above
TCD6.1	700	**EU Stage V**	**See above**	See above
TTCD7.8	900	**EU Stage IIIB und IV**	**See above**	See above

John Deere

Tractors

Engine types	Vehicle types	Emission levels	Approved blend level	Special remarks
All engines		Up to EU Stage IIIA	100 % FAME (B100) acc. to EN 14214	
All engines		EU Stage IIIB and IV	Up to 20 % FAME (B20) acc. to EN 14214	
All engines		EU Stage V	Up to 8 % FAME (B8) acc. to EN 14214 Up to 30 % FAME (B30) acc. to ASTM D6751	
All engines		EPA Tier 4	See above	

Lamborghini

Tractors

Engine types	Vehicle types	Emission levels	Approved blend level	Special remarks
1000.3 WT E3 HRT	Crono 65, 75, 80	EU Stage III	B10, B100	
TCD 6.1 L6	MACH 200/220 ST, R6.140 T4i/T4i H-P/ T4i VRT, R6.150 T4i/ T4i H-P, R6.160 T4i/ T4i H-P/T4i VRT, R6.180 T4i/T4i H-P/ T4i VRT, R6.190 T4i/ T4i H-P/T4i VRT, R6.190/210/240 VRT E4, SPARK 140/150/150.4 T4I/150 T4i HP/T4F VRT/160 T4i/160 T4i HP/160 T4i VRT/160.4 T4i/180 T4i/180 T4i HP/180 T4i VRT/190 T4i/190 T4i HP/190 T4i VRT/210 T4i/210 T4i HP		B10, B100	
TCD 6.1 L6 (Agri)	Mach 250, Spark 230/230 HD	EU Stage IV & V	B10, B100	
TCD2012L04-4V DCR	R6.115/6.125/6.135 VRT, R6.135 DCR/ DCR HP, R6.155 DCR/ DCR HP		B10, B100	

Lamborghini

Tractors

Engine types	Vehicle types	Emission levels	Approved blend level	Special remarks
TCD4.1L4	R6.120.4 T4i/T4i H-P/ T4i VRT, R6.130.4 T4i/ T4i H-P/T4i VRT, R6.140.4 T4i/T4i H-P/ T4i VRT, R6.150.4 T4i/ T4i H-P/T4i VRT, R6.160.4 T4i/T4i H-P/T4i VRT, SPARK 120.4/130.4/140.4/1 50.4 T4I/150.4 T4i HP/155.4 T4F/160.4 T4i/160.4 T4i HP/ 165.4 T4F/175.4 T4F		**B10, B100**	
TCD 4.1 L4 (Agri)	Spark 145.4	**EU Stage IV & V**	**B100**	
TCD2012L06-2V DCR	R6.130/6.140/6.160 DCR, R6.140/6160 DCR HP		**B10, B100**	
TCD2012L06-4V DCR	"R6.140 DCR 4V/4V H-P, R6.150 VRT DCR DT, R6.160 DCR 4V/4V H-P, R6.170 VRT DCR DT, R6.175 DCR NEW/H.P. NEW, R6.185 DCR NEW/H.P. NEW, R6.190 VRT		**B10, B100**	

Engine types	Vehicle types	Emission levels	Approved blend level	Special remarks
BF6M1013EC	R6.165.7		**B10, B100**	
TCD 2013L06 2V DCR	R7.190/220/230/270 DCR T8550		**B10, B100**	
1000.3 WT E3 HRT	Rekord 65/75	**EU Stage III**	**B10, B100**	
TCD 6.1 L06	SPARK 155 T4/165 T4/175 T4/185 T4/205 T4/215 T4	**EU IV & V / US T4**	**B10, B100**	

Liebherr

Engines for various applications

Engine types	Vehicle types	Emission levels	Approved blend level	Special remarks
All Liebherr engines (Engine only, not in machine) with LH common rail injection system		**from A7 to EU Stage IIIA**	**Up to 30 % FAME (B30/B20) acc. to EN 16709**	

MTU

Engines for various applications

Engine types	Vehicle types	Emission levels	Approved blend level	Special remarks
S1163 Mx4 S1600 Gx0/Gx1 S2000 Cx6/Gx2/Gx4/Gx5/Sx6; S4000 Cx0/Cx1/Cx2/Cx3/Cx5/Gx2/Gx3/Gx4/Mx0/Mx1/Mx3/Mx4/Mx5/Px1/Px3/Rx1/Rx4/Sx1/Sx3/Tx4/Tx5 S8000 Mx1	All years of construction		**From 7 % FAME (B7) up to 100 % FAME (B100) acc. to EN 14214 Safety approval only**	Approval means that when these fuels are used, only the product safety of the engine with regard to danger to life and limb is guaranteed.
S2000Gx3, S4000Gx1	With metal low-pressure fuel lines		**See above**	See above
S4000 Rx3	From model year 2020/ only with rest-of-world fuel filter configuration		**See above**	See above

New Holland

Tractors

Engine types	Vehicle types	Emission levels	Approved blend level	Special remarks
F5 AE 9484 AA	T4020 Delux / SuperSteer	**Stage IIIA**	**100 % FAME (B100) acc. to EN 14214, up to 30 % FAME (B30/B20) acc. to EN 16709, up to 10 % FAME (B10) acc. to EN 16734**	
F5 AE 9484 B	T4030 Delux / SuperSteer / F / N / V	**See above**	**See above**	
F4 CE 9484 N	T4040 Delux / SuperSteer	**See above**	**See above**	
F4 CE 9484 M	T4050 Delux / SuperSteer	**See above**	**See above**	
F5C	2008-2015: TD 5010, TD 5020, TD 5030, T 4.55 Powerstar, T 4.65 Powerstar, T 4.75 Powerstar, TD 5.95	**See above**	**See above**	
NEF	2008-2015: TD 5040, TD 5050, T 5030, T 5040, T 5050, T 5060, T 5070, T 7030 PC, T 7040 PC, T 7050 PC, T 7060 PC, T 7030 AC, T 7040 AC, T 7050 AC, T 7060 AC, T 7070 AC, TD 5.105, TD 5.115	**See above**	**See above**	

New Holland

Tractors

Engine types	Vehicle types	Emission levels	Approved blend level	Special remarks
NEF F4C	2007-2012: T 6010 Delta, T 6020 Delta, T 6010 Plus, T 6020 Plus, T 6020 Elite, T 6030 Elite, T 6030 RC/PC, T 6050 RC/PC	Stage IIIA	100 % FAME (B100) acc. to EN 14214, up to 30 % FAME (B30/B20) acc. to EN 16709, up to 10 % FAME (B10) acc. to EN 16734	
NEF 667 TA	2007-2012: T 6030 Delta, T 6050 Delta, T 6030 Plus, T 6050 Plus, T 6070 Plus, T 6040 Elite, T 6050 Elite, T 6060 Elite, T 6070 Elite, T 6070 RC/PC, T 6080 RC/PC, T 6090 RC/PC	See above	See above	
620.60	T 7510	See above	See above	
620.61	T 7520	See above	See above	
620.62	T 7530	See above	See above	
620.63	T 7540	See above	See above	
620.64	T 7550	See above	See above	

Engine types	Vehicle types	Emission levels	Approved blend level	Special remarks
6TAA-8304	2006-2012: T 8020, T 8030, T 8040	Stage IIIA	100 % FAME (B100) acc. to EN 14214, up to 30 % FAME (B30/B20) acc. to EN 16709, up to 10 % FAME (B10) acc. to EN 16734	
6TAA-9004	T 8050	See above	See above	
N844	TD 3.50	See above	See above	
S8000	2012, 2015: TD 5.65, TD 5.75, TD 5.85	See above	See above	

SAME

Tractors

Engine types	Vehicle types	Emission levels	Approved blend level	Special remarks
1000.3 WT E3	Argon 65/75/80, Tiger 65/75		B10, B100	
TCD 6.1 L6	AUDAX 200/220, IRON 190/210/240 CONTINUO E4		B10, B100	
TCD 2013 L06 4VDCR	DIAMOND 230/270 DCR		B10, B100	

SAME

Tractors

Engine types	Vehicle types	Emission levels	Approved blend level	Special remarks
TCD4.1L4	FORTIS 120.4/120.4 CONTINUO/120.4 INFINTY, FORTIS 130.4/130.4 CONTIN-UO/130.4 INFINTY, FORTIS 140.4/140.4 CONTINUO/140.4 INFINTY, FORTIS 150.4/150.4 I-L/150.4, FORTIS 160.4 INFIN-TY/160.4 I-L/160.4 INFINTY, L 150.4/160.4 CONTINUO	**EU Stage IV i**	**B10, B100**	
TCD6.1L6	FORTIS 140/140 CON-TINUO/140 INFINTY, FORTIS 150/150 I-L/150 INFINITY, FORTIS 160/160 I-L/160 INFINITY, FORTIS 180/180 I-L/180 INFINITY, FORTIS 190/190 I-L/190, INFINITY, FORTIS 210/210 I-L, L 160/180/190 CONTINUO	**EU Stage IV i**	**B10, B100**	

Engine types	Vehicle types	Emission levels	Approved blend level	Special remarks
TCD 2012 L04 4V DCR	IRON 115/125/135 CONTINUO, IRON 135 DCR/DCR HL, IRON 155 DCR/DCR HL		**B10, B100**	
TCD 2012 L06 2V DCR	IRON 130 DCR, IRON 140 DCR/DCR HL, IRON 160 DCR/DCR HL		**B10, B100**	
TCD 2012 L06 4V DCR	IRON 140 DCR 4V/140 DCR 4V H-L, IRON 150 CONTINUO DCR, IRON 160 DCR 4V/ DCR 4V H-L, IRON 170 CONTINUO DCR, IRON 175 DCR NEW/175 H.L. NEW, IRON 185 DCR NEW/185 H.L. NEW, IRON 190 CONTINUO			
BF6M1013EC	IRON 165.7, IRON 180 E2		**B10, B100**	
TCD 2013L06 2V DCR	IRON 3 220 DCR T8550	**EU Stage III**	**B10, B100**	
MITSUBISHI EURO III	Solaris 35/45/55	**EU Stage III**	**B10, B100**	

Valtra

Tractors

Engine types	Vehicle types	Emission levels	Approved blend level	Special remarks
44 AWFC	A104, A114, A124, A134	**EU Stage IV**	**B100**	Fuel filtration and maintenance intervals usually remain the same
33 AWIC	A74	**EU Stage V**	**Up to 7 % FAME according to EN 14214 in the EU, up to 10 % FAME according to EN 14214 in other regions**	See above
33 AWFC	A84, A94	**See above**	**See above**	See above
33 MBTN-D5	A75SH 2A0, A85SH 2A0, A95SH 2A0	**See above**	**See above**	See above
44 MBTN-D5	A105MH 2C0, A115MH 2C0, A125LH 2C0, A135LH 2C0, G 105 A/H/V, G115 A/H/V, G125 EA/EH/EV, G135 A/H/V	**See above**	**See above**	See above
49 LFTN-D5	N135H 2B1, N135A 2B1, N135D 2B1, N155EA 2B1, N135V 2B1, N155ED 2B1, N155EH 2B1, N175A 2B1, N155EV 2B1, N175H 2B1, N175V 2B1, N175D 2B1,	**See above**	**See above**	See above

Engine types	Vehicle types	Emission levels	Approved blend level	Special remarks
66 LFTN-D5	T145H, T145A, T145D 2A1, T155A, T145V 2A1, T155D 2A1, T155H, T155V 2A1	**EU Stage V**	**Up to 7 % FAME according to EN 14214 in the EU, up to 10 % FAME according to EN 14214 in other regions**	Fuel filtration and maintenance intervals usually remain the same
74 LFTN-D5	T175EA, T175EH, T175EV 2A1, T175ED 2A1, T195H, T195A, T195D 2A1, T215A, T195V 2A1, T215D 2A1, T215H, T235A 2A1, T215V 2A1, T235H, T235V 2A1, T235D 2A1, T255H, T255A 2A1, T255V 2A1, Q225, Q245, Q265, Q285, Q305	**See above**	**See above**	See above
84 LXTN	S286 2A3	**See above**	**See above**	See above
85 LXTN	S316 2A3	**See above**	**See above**	See above
86 LXTN	S346 2A3	**See above**	**See above**	See above
87 LXTN	S376 2A3	**See above**	**See above**	See above
88 LXTN	S396 2A3	**See above**	**See above**	See above
89 LXTN	S416 2A3	**See above**	**See above**	See above

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