

FAME fuel

Updates

The following updates have been made to this issue:

- In, it has been added that the biofuels does not apply to engines with XPI
- Under *Background* below, the last paragraph has been omitted. FAME is now approved for vehicles with SCR.

Background

To meet market demands for running on biofuel, Scania has set up a recommendation to enable some of its diesel engines to run on FAME.

Scania's recommendation is that either 5% FAME fuel mixed in standard diesel (according to EN590) or 100% FAME fuel (according to EN14214) may be used, provided that the conditions stated below are observed.

Any mixture where more than 5% FAME is used, the conditions needs to remain under strict control. Scania recommends that such trials are coordinated at national distributor level and that they are limited to fleet operators with a clear environmental commitment.

The FAME fuel has to meet the European standard EN14214 and the diesel it is mixed with has to meet the European standard EN590.

It is OK to use FAME on vehicles with particle filters.

FAME (Fatty Acid Methyl Ester) is the collective name for fatty acid methyl esters. RME (Rape Methyl Ester) is the most common form of FAME in Europe.

Note: At temperatures above +38 °C FAME can self-ignite together with fibrous (flammable) materials.

Note: We have not yet been able to verify that FAME is affected by cold weather.

Consumption, performance and emissions

FAME has a lower energy content than diesel fuel, which could affect performance, fuel economy and emissions. In connection with FAME operation, the emissions level for NOx could exceed the legal limits.

There are indications that the use of 100% FAME may have the following effects on fuel consumption and emissions:

- NOx increases and fuel economy suffers
- Possible reduction in power
- CO and HC are lower
- PM is significantly lower

Driving conditions where FAME is not recommended

FAME is **not** recommended for

- Vehicles on call-out duty, or such as emergency and rescue vehicles.
- Vehicles that are parked and unused for lengthy periods.
- Engines with a low fuel turnover.
- I&M engines used for back-up systems
- Engines with XPI fuel system

If the fuel tank is filled up with FAME and the vehicle is left parked and unused for a lengthier period of time, then condensation water may form in the tank resulting in bacterial growth. FAME also has lower oxidation stability than diesel, which could lead to the fuel thickening and clogging parts of the fuel system, such as the fuel filter.

Conditions

The following conditions must be met in order to run Scania diesel engines on more than 5% FAME

Note: Possibilities for running on more than 5% FAME only apply to certain engines (contact Distributor for information of compliance)

1. FAME must comply with EN14214.

Customers themselves must bear the costs associated with the grade of fuel, that is to say, if the fuel does not comply with EN14214 or EN 590.

2. Shorter engine oil-change intervals

The boiling point of FAME fuel is higher than that of diesel fuel, which means that the fuel does not boil away if it collects in the sump. To avoid the risk of using oil that is too thin, the oil should be changed more frequently.

Type of operation for trucks	Type 0	Type 1	Type 2-4
Oil-change interval (km)	30 000	20 000	10 000
Type of operation for buses	Type 1 long-distance	Type 2 regular services	Type 3 urban traffic
Oil-change interval (km)	20 000	10 000	5 000
I&M engines			
Oil-change interval (hours)	200		

Extended oil-change intervals are not possible.

The viscosity grade of the oil should be xW-40 (xW-30 oils are unsuitable due to their fuel dilution effects). Oil grade as specified in the Workshop Manual.

After switching from diesel to FAME operation, the oil filter should be changed and the centrifugal oil cleaner cleaned after 1000 km (20 hours for I&M engines) and subsequently at every oil change. Such extra cleaning is necessary to remove possible slag products.

The engine oil level should also be checked regularly. If it exceeds the maximum level the oil should be changed.

Due to the risk of dilution, the oil should be changed at least once a year, irrespective of the distance driven (odometer reading).

Change the fuel filter at each oil change.

3. Extra fuel filter changes

Change the fuel filters at 1000 km (20 hours for I&M engines) intervals the first three times if the engine has previously been run on diesel fuel. This is because FAME fuel dissolves the deposits left by diesel fuel. Afterwards, change the fuel filters at every oil change.

On a new vehicle supplied straight from the factory the fuel filter should be changed at every oil change. No extra changes are necessary.

Other factors that could be affected by FAME operation

HPI

In cold weather fault codes could be generated on HPI engines Euro 3, and Euro 4.

Auxiliary equipment

It is important to ensure that auxiliary body-work equipment using the same fuel as the vehicle engine can also run on FAME fuel. Certain types of accessories, such as Eberspächer and Webasto heaters, cannot run on FAME fuel and consequently they require a separate tank.

Bodywork

In order to enable the vehicle to run on FAME fuel, the bodybuilder must use materials that are insensitive to contact with FAME from the fuel system.

Fumes from FAME

Fumes from FAME can affect the surrounding environment. The paint on side skirts and panels above the fuel filler, for example, could undergo material changes.

Switching from FAME to diesel

On switching over from FAME to diesel operation, change the engine oil when the fuel tank is empty.

If the vehicle is driven alternately on FAME and diesel fuel, observe the FAME service intervals.

Report deviations

If FAME operation gives rise to differences as compared to ordinary diesel fuel operation, then such differences should be reported to a Scania distributor for forwarding to the factory.

Other fuels

Other biofuels available, such as PPO (Pure Plant Oil), are not approved as fuel for Scania diesel engines. To be approved for use in Scania diesel engines today the fuel must be FAME and fulfil the requirements of EN14214, or else diesel and comply with EN590.