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Frequently Asked Questions.

The Use of B20 Biodiesel Blends in Cummins Engines.

1. What Cummins engines can be used with B20 biodiesel?

The current approved engine models are as follows:

On-Highway: ISX, ISM, ISL, ISC and ISB engines certified to EPA '02 and later emissions standards, and ISL, ISC and ISB engines certified to Euro III

Off-Highway: QSX, QSM, QSL, QSC, QSB6.7 and QSB4.5 engines certified to Tier 3/Stage IIIA, QSM Marine and QSM G-Drive

2. What are the general fuel specification requirements?

B100 biodiesel must conform to the American Society of Testing Materials (ASTM) specification - ASTM D6751. ASTM D6751 has been revised to now include a stability requirement which was not included in the previous specification. This is a critical requirement when B100 is blended with petrodiesel to produce a B20 blend.

B20 needs to conform to the Engine Manufacturers Association (EMA) recommended test specification for B20. There is currently no ASTM specification for B20 blends. It is expected that ASTM will issue a specification for B20 in the near future.

In Europe, specifications for biodiesel are issued under EN 14214. EN 14214 is published by CEN, the European Committee for Standardization or Comité Européen de Normalisation.

<http://www.cen.eu/cenorm/index.htm>

Customers are required to purchase the biodiesel blend from a BQ-9000 Certified Marketer. The B100 fuel used in the blend must be sourced from a BQ-9000 Accredited Producer. BQ-9000 Certified Marketers and Accredited Producers can be found at www.bq-9000.org.

3. Where can I find further information as it relates to the use of biodiesel in Cummins engines?

Cummins has recently updated the Fuels Requirements - Service

Bulletin. The bulletin number is 3379001-11. It can be obtained on Cummins QuickServe web site at quickserve.cummins.com.

4. Are there any special requirements for fuel filters?

Cummins requires the use of a StrataPore™ fuel filter media and strongly recommends using Cummins Filtration filters equipped with StrataPore media. If StrataPore media is not used, then an equivalent filter that meets specific performance standards must be used. For more information, please visit www.cumminsfiltration.com.

5. Do I need to modify any service intervals when switching from petrodiesel to biodiesel?

Due to the solvent nature of biodiesel and the potential for "cleaning" of the vehicle fuel tank and lines, new fuel filters must be installed when switching to biodiesel on used engines. Fuel filters will need to be replaced at half the standard interval for the next two fuel filter changes. After this initial period, you may revert to the intervals specified in your Operation and Maintenance Manual. For 2007 on-highway MidRange engines only, oil sampling will be necessary for the first six months of operation with biodiesel to monitor fuel dilution of the lubricating oil.

6. Are there any biodiesel fuel storage guidelines?

Use biodiesel fuel within six months of its manufacture. Biodiesel has lower oxidation stability compared to petrodiesel. Avoid storing equipment with biodiesel blends in the fuel system for more than three months.

7. What materials are incompatible with biodiesel?

Natural rubber, nitrile and butyl rubber are particularly susceptible to degradation. Also, copper, bronze, brass, tin, lead and zinc can cause deposit formations. The use of these materials and coatings must be avoided for fuel tanks and fuel lines.

Note: Contact your vehicle manufacturer to determine if any of the OEM-supplied components are at risk with biodiesel in order to prevent engine or vehicle damage.

8. Why didn't Cummins include engines prior to 2002?

The main reason not to include engines earlier than 2002 is due to materials compatibility concerns. Some fuel systems in pre-2002 engines contain components that are not compatible with a B20 biodiesel blend. 2002 and later engines contain fuel system components that are compatible.

9. How does using biodiesel affect the engine warranty?

Cummins engine warranty covers failures that are a result of defects in material or factory workmanship. Engine damage, service issues and/or performance issues determined by Cummins to be caused by the use of biodiesel fuel not meeting the specifications outlined in the Fuels Requirements - Service Bulletin (3379001-11) are not considered to be defects in material or workmanship, and are not covered under Cummins engine warranty.

This is no different from Cummins position with any regular diesel fuel. Cummins does not cover the damage caused by products from other companies that may have insufficient quality. It is important to ensure when using any diesel fuel or a B20 biodiesel blend with a Cummins engine that the fuel meets industry acceptable quality standards.

10. What are the implications to emissions certification?

It should be emphasized that Cummins, in common with all other engine manufacturers, only certifies engines to meet the prescribed EPA (or other local regulatory agency) registered fuels. It is the customer's responsibility to use the correct fuel prescribed by these regulations and as recommended by the engine manufacturer.

The EPA has regulated the United States highway diesel fuel quality since 1993 to ensure that it is compatible with engine emissions standards and air quality goals. It is the responsibility of the customer to obtain the proper local, regional or national exemptions required for the use of biodiesel in any emissions-regulated Cummins engine.

11. Will Cummins support the use of B20 biodiesel in engines not listed in this document?

Cummins fully supports the use of environmentally beneficial alternative fuels. All of our automotive and industrial engines are compatible with B5 biodiesel to help encourage the greater use of renewable, domestically grown fuel.

Cummins is continuing the evaluation of biodiesel concentrations higher than 5 percent for many more of our products such as our A Series, B3.3 and QSB3.3 as well as our High-Horsepower engines. We are aware of the growing interest in B20 fuel blends and fully support this interest in renewable fuels. As we reach conclusions and the completion of these evaluations, we will modify our position on engine compatibility accordingly.

Some OEMs using Cummins engines not listed in this bulletin may have specific releases regarding the use of biodiesel that apply only to their application. Consult the OEM if in doubt.

12. Is B20 approved for the Dodge Ram Turbo Diesel?

For Cummins engines in Dodge Ram trucks, biodiesel fuel can be blended with an acceptable diesel fuel up to a 20 percent volume concentration (B20) for municipal, government and commercial fleets only. This applies to selected model year vehicles. Please consult DaimlerChrysler for specific requirements and approved vehicle models.