



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
**NATIONAL VEHICLE AND FUEL EMISSIONS LABORATORY**  
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OFFICE OF  
AIR AND RADIATION

July 1, 2010

CISD-10-11 (LDV/LDT/MDPV/HDV)

**SUBJECT: Use of GF-5 Engine Oil in Gasoline Fueled EPA Test Vehicles**

Dear Manufacturer:

This letter provides a determination from CISD regarding the use of GF-5 oil in 2011 and later model year gasoline fueled EPA certification and fuel economy test vehicles.

**Background**

On March 2, 2004 EPA issued guidance letter CCD-04-07 with the subject title: Use of GF-4 Engine Oil in EPA Test Vehicles. That guidance letter approved the use of GF-4 5W-20, 5W-30, and 10W-30 oils in the certification process for 2005 and later model year gasoline fueled vehicles contingent upon satisfying the set of criteria attached to the March 2, 2004 guidance letter.

On September 18, 2008 EPA issued letter CISD-08-11 with the subject title: Use of 0W Multi-grade Engine Oils in Gasoline Fueled EPA Test Vehicles, which approved the use of 0W viscosity oils in the EPA certification process, contingent upon satisfying criteria attached to the September 18, 2008 letter. The basic guidance in these letters remains the same and may be summarized as follows:

- EPA does not specify which oils vehicle manufactures use as factory fill oils or what oils are recommended to the vehicle owner. EPA's only role is in determining that appropriate oils are used in the emission certification and fuel economy measurement processes.
- It is EPA's responsibility to ensure that the oil used in certification and fuel economy test vehicles is no more fuel efficient than the oil that is used as the factory fill, or the engine oil recommended to the vehicle owner.
- The oil used in the certification process should be widely available throughout the oil distribution network, including dealerships, independent service providers, quick oil change facilities, and the do-it-yourself retail market.

On January 20, 2010 EPA met with representatives of the Alliance of Automotive Manufacturers to discuss the new International Lubricant Standardization and Approval Committee (ILSAC) GF-5 standard for gasoline engine oils. At that meeting details of the new GF-5 specification were discussed, including rollout plans, the communication provided to the oil distribution network, and data showing comparisons between GF-5 and GF-4. GF-5 oil is 100 percent backward compatible with in-use vehicles that currently use the GF-4 oil grade, and therefore there will be no negative impacts on emissions or fuel economy of the in-use fleet as GF-5 oil is introduced in the marketplace.

At that meeting it was acknowledged by the Alliance representatives that GF-5 would be used as the factory fill oil and widely available in the marketplace and therefore it will meet EPA's usage expectations as described above.

### **Regulatory Authority**

The regulatory authority for issuing this guidance letter is based on EPA regulations published in Title 40 of the Code of Federal Regulations, Part 600, Subpart A, paragraph 600.007-80(b)(6), which state that fuel economy data must be based on results from test vehicles which are representative of the vehicles which will be produced under a certificate of conformity. This EPA guidance assists in defining "representative" engine oils for light-duty vehicles that are used in EPA emission and fuel economy testing programs.

### **Determination**

Based on the information presented at the January 20, 2010 meeting, and subsequent information provided to EPA, EPA will allow use of GF-5 oil in 2011 and later model year gasoline fueled certification and fuel economy test vehicles, providing that the criteria in the attachment to this letter are satisfied.

If you have questions concerning this determination, please contact Martin Reineman at 734.214.4430 or by e-mail at [reineman.martin@epa.gov](mailto:reineman.martin@epa.gov).

Sincerely,



Karl J. Simon, Director  
Compliance and Innovative Strategies Division  
Office of Transportation and Air Quality

Enclosure

## **Enclosure to CIDS-10-11**

### **Approval Criteria for Use of GF-5 Oil**

1. Oil Viscosity and Fuel Efficiency If a manufacturer recommends multiple viscosities of GF-5, then the manufacturer should use the viscosity it recommends for normal ambient temperature and driving conditions in certification and fuel economy test vehicles.

2. Owner's Manual Language The manufacturer should provide recommendations in the owner's manual that clearly specify the use of GF-5, as identified by the presence of the American Petroleum Institute (API) "Starburst" logo if the oil meets the International Lubricant Standardization and Approval Committee (ILSAC) GF-5 Standard for Passenger Car Engine Oils, and is licensed by API. If the API starburst logo is used in the owner's manual in lieu of reference to GF-5, the manufacturer should include a brief explanation of the importance of the starburst logo. Manufacturer recommendations for oil viscosity grade should also be clearly stated in the owner's manual. It continues to be appropriate for a manufacturer to specify the use of a lower viscosity grade in extremely low temperatures where the normally specified oil may not flow adequately. Inclusion of any qualifier word, "preferred" for example, associated with the oil viscosity is considered to introduce ambiguity into the instruction, and is not permitted.<sup>1</sup>

(Similar owner's manual language applies to manufacturers which adopt other performance standards than those approved by ILSAC, for example, oil specifications developed by ACEA.)

3. Labeling the Oil Filler Cap The manufacturer clearly indicates on the engine oil filler cap, by label or other permanently attached means, that oil of a specific viscosity grade (e.g. 0W-20) is to be used in the engine. Alternatively, affixing a permanent easily visible label under hood is also acceptable.

4. Limits on the Sum of 16-hour plus 100-hour Fuel Economy Improvement (FEI) Factors A GF-5 engine oil that is used in emissions and fuel economy test vehicles should have a combined fuel economy improvement factor using the ASTM Sequence VID, which does not exceed the following limits:

<b>ILSAC GF-5 Sequence VID</b>	
<b>SAE Viscosity Grade</b>	<b>FEI Sum (16 hrs + 100 hrs)</b>
0W-20/5W-20	3.1%
0W-30/5W-30	2.4%
10W-30	2.0%

These limits are the sum of the 16-hour and 100-hour minimum fuel efficiency improvement specifications, plus 0.5 percent. The 0.5 percent value represents about two standard deviations of the distribution of fuel economy improvement rates measured by the ASTM procedures. EPA

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<sup>1</sup> If a vehicle owner wishes to use a synthetic, or partial synthetic oil, EPA does not expect a vehicle manufacturer to preclude use of such oil if it meets all vehicle manufacturer requirements.

is setting this limit because it is inappropriate for a manufacturer to select significantly better oil for fuel economy testing than the typical customer will be using in their vehicle in the field.

5. Factory Fill Oil Requirements The manufacturer uses a GF-5 oil of the same viscosity grade for the factory fill that it recommends in its production vehicles. Furthermore, the fuel economy performance of the factory fill oil should be equivalent or superior to the oils used in EPA emissions and fuel economy test vehicles.

6. Oils Available at Dealerships EPA expects manufacturers to inform their affiliated dealerships of the timing of the introduction of GF-5 oil and the need to use it as recommended in order to avoid the possibility of fuel economy shortfalls.

7. Oils in other Segments of the Supply Network The lubricant manufacturer or its trade association provides consultation with quick oil change facilities and suppliers to the major retailers servicing the do-it-your-self market segment in order to inform these organizations of the purpose of the new GF-5 oil and its market entry timing.