

WHAT AND WHY

PC-11, or Proposed Category 11, will introduce two new quality levels for heavy duty diesel engine lubricants, PC-11A and PC-11B.

- PC-11A will replace the current API CJ-4 engine oils and deliver increased engine protection benefits and will be known as **API CK-4**.
- PC-11B is a new category of lower viscosity heavy duty diesel engine oils designed to deliver enhanced fuel economy. This new category will be known as **API FA-4**. This category is designed to allow engine manufacturers to improve the fuel economy of their engines which in turn will reduce the amount of greenhouse gas emissions (GHG). These improvements are part of new National Highway Traffic Safety Administration (NHTSA) regulations that will go into full effect in 2018.

BENEFITS

The primary benefit will be a significant increase in oxidation protection. Many OEMs are employing new engine design strategies that result in engines operating at higher temperatures. As a result there is a greater strain on an engine oil to provide oxidation protection.

In addition, PC-11 engine oils will provide improved aeration control and the ability to resist viscosity breakdown. Introduced for the first time will be a new category of lower viscosity heavy duty diesel engine oils, API FA-4, for improved fuel economy and reduced GHG emissions primarily for on-road applications.

WHEN

PC-11 oils will be introduced in 2016. The official first allowable use for the API CK-4 and API FA-4 designations is December 1, 2016. Most North American OEMs will introduce their own specifications to complement the API category.

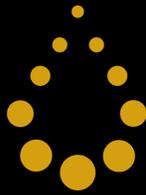
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Pre-2017 Engines?

API CK-4 oils are designed to replace all legacy API C applications and are suitable for most engines produced prior to 2017. API FA-4 oils will be introduced for 2017 or newer engines to allow end users to also achieve improved fuel economy over both current SAE 10W-30 and 15W-40 API CJ-4 engine oils.

API FA-4 oils may be suitable for use in older engine designs. The OEM should be consulted to determine if an API FA-4 oil can be used in an older engine design.

New SAE Grades?

There are no new SAE viscosity grades, however API FA-4 oils will be introduced as a new lower viscosity SAE 10W-30. This is in addition to the higher viscosity API CK-4 SAE 10W-30 oils. API CK-4 SAE 10W-30 oils provide a balanced approach to provide fuel economy improvements versus SAE 15W-40 while offering comparable engine protection in older and newer engines.

Longer Oil Drains?

PC-11 engine oils will provide extended drain capabilities similar to their API CJ-4 predecessors. Actual oil drain intervals will of course depend on the severity of service and type of application. With proper used oil analysis, drains can be extended within certain limits.

On and Off Road?

PC-11A and PC-11B oils have been designed to cover the needs of both older and newer engines. Feedback from engine manufacturers have shown that only some of the on-road Class 8 engine producers will take advantage of new API FA-4 oils at the start of the category. Off-road OEMs and smaller Class 3-7 type diesel engines will continue to use API CK-4 oils, although we expect most to recommend SAE 10W-30.

Mandatory in New Engines?

We expect the new API FA-4 category may be used to certify some new engines. Since most fleets are mixed and will have older engines, we expect that these new oils may have limited use during the early years of PC- 11. However, we anticipate steady growth as new engines replace older engines and end users become more comfortable with the new FA-4 oils.

Gasoline Engines?

Passenger Car OEMs do not recommend heavy duty engine oils for gasoline applications. Marketers and end users will need to decide their approach to universal oils similar to current products they sell today, where diesel engine oils can be detrimental to the performance of modern gasoline engines.

Improved Fuel Economy?

We expect new API FA-4 oils to deliver up to 2% improved fuel economy over conventional SAE 15W-40s and up to 1% better fuel economy vs. an API SAE 10W-30 diesel engine oil in on-road service. These improvements will be even greater in applications involving a great deal of idling or stop-and-go driving.



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