



The Evolution of PCEO and HDEO Categories

by Steven Haffner

New Specifications on the Horizon

In my last article for *Compoundings* (July 2011), I discussed the International Lubricant Standardization and Approval Committee (ILSAC) GF-5 becoming the mandatory specification for all gasoline engines in North America. This specification was implemented on October 1, 2011. So now, let's take a look at what's next.

Both ILSAC and the Engine Manufacturer's Association (EMA) have requested, and are actively planning, next generation specifications for both gasoline and diesel engines. While we understand the concern marketers have regarding frequent changes, we can report that these new industry specifications and products will not hit the marketplace prior to 2015. First, there is a lot of work needed to define these specifications. In addition, very significant engine test developments are required for both categories. Here, I'll present an initial look at the proposed requirements and timings.

A document entitled *Discussion Draft: ILSAC GF-6A and GF-6B* was presented at the last joint ILSAC API Lubes Group meeting in October. This appears to be the initial draft of the ILSAC Needs Statement proposal for industry consideration. Currently, it cannot be formally presented, because industry has not officially agreed on a forum and process to work towards the next ILSAC GF specification.

Timing for the next category is currently scheduled for a first official use date of January 1, 2015, with two specifications being proposed: one with 2.6 mPa-sec HTHS150* as a minimum and the other with 2.6 mPa-sec HTHS150 as a maximum viscosity specification. ILSAC would like to continue the GF-6A specification (higher HTHS) with the traditional starburst symbol, and develop a new symbol for the lower HTHS oil to help minimize misuse.

Some key issues in passenger car vehicles include wear protection for idle stop (hybrid vehicle stops and starts were noted as a concern due to wear issues), low speed pre-ignition concerns and E85 material compatibility concerns. Of course, further improvements in fuel economy, emissions protection and improved engine durability are always desired. As such,

* 2.6 mPa-sec HTHS 150 is currently the minimum High Temperature/High Shear Viscosity allowed by SAE J-300 which defines appropriate viscosity grades for engine oils.

development and introduction of new and replacement engines will be on the critical path if industry is to meet the very challenging timeline presented by ILSAC.

The new PC-11 category is being driven by the changes in engine technology required to meet emissions, renewable fuel and pending fuel economy standards. Specific performance requests cover improved oxidation control, biodiesel compatibility, improved shear stability, improved aeration control and improved durability protection. Since API CJ-4 will be almost ten years old, aging test hardware must also be replaced to enable qualification of new and improved engine oils.

The PC-11 category is also recommended to be split into two separate and distinct subcategories. These will associate fuel efficiency with corresponding performance levels. One category will preserve historical heavy-duty oil criteria (minimum 3.5 HTHS) and the other will provide fuel efficiency benefits while maintaining durability (expected to allow 2.9-3.0 HTHS oils). Similar to PCMO, the schedule seems challenging, but EMA and industry have an excellent record of meeting schedules. The first allowable use for these oils is planned for January 1, 2016.

Although Original Equipment Manufacturers' (OEMs) specifications are usually introduced to be consistent with category upgrades, there is nothing preventing individual OEMs from upgrading and introducing new specifications in between or ahead of formal industry upgrades.

At Infineum's most recent trends presentation, General Motors was clear that if they see a need to upgrade oil quality prior to an industry specification change, they can do so with their new dexos1™ and dexos2™ specifications. With OEMs having increasingly unique requirements, we can only anticipate that the world of lubricants in North America will get more complex.

With two new category requests on the table, are they headed on a collision course? Although current plans are for the new gasoline and diesel specifications to be introduced a minimum of one year apart, if the ILSAC category slips even a little, it will pose a significant challenge to both oil marketers

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and additive companies to deploy these new products in a similar time frame. While industry endeavors to avoid this scenario, it remains a concern and needs to be closely monitored. Several industry stakeholders believe that one year is the absolute minimum time between categories to operate in a level playing field that ensures all customers can be ready to supply products to end consumers. It should also be noted that January 1 implementations are difficult to manage with the year-end activities at most companies.

The parallel timelines for the next PCMO and HDD categories must share resources for specification development and implementation including engine test development

engineers and statisticians, engine testing lab resources and matrix funding, and API resources for processing new licenses and the management of product transitions and supply chains. If timelines begin to overlap, they will create difficulties for all industry stakeholders. In the upcoming months, we will provide more detailed updates and progress reports for each of the specifications. 🔥

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