



**Oronite**

video transcript

## how oronite is advancing heavy duty engine oil technology

### **Teri Crosby, global product line manager, automotive engine oils**

At Oronite we think it's time to advance heavy duty engine oil technology. In the past fuel economy was not given as high a priority as reducing emissions. With increased fuel prices, the equation has changed. Future engine oils will need to address a broader spectrum of performance criteria. A new formulating approach using Oronite additives will help deliver solutions to address fuel economy improvements without sacrificing wear performance.

Fleet owners and operators have increasing demands. So, it's clear that maintaining the status quo for heavy duty engine oils is not an option.

### **Gerald Shaw, Americas product line manager, automotive engine oils / viscosity index improver**

The heavy-duty engine oil market is more dynamic today than ever. Fleet owners and operators want to drive further, reduce maintenance cost, and save money with improved fuel economy. With a focus on fuel economy for both gasoline and heavy-duty engines, there is an opportunity to deliver lower viscosity oils, provide better logistics for mixed fleet operators, and also help move oil marketers differentiate their products.

Their challenge is meeting these demands. It's more than just taking the old technology and adding a booster. Heavy duty engine oils need real-world wear protection and durability.

### **Mark Sztenderowicz, global manager, automotive engine oils product development**

Formulating for next generation heavy duty categories is a mixture of science and art that require commitment, creativity, precision, and lots of experience.

At Oronite, we took a new approach for the upcoming PC-11 category, challenging ourselves to deliver differentiated performance in both fuel economy and wear protection. For instance, we know that fuel economy can be improved by reducing viscosity alone. But we wanted to develop technology that can deliver even greater fuel economy benefits.

However, with the reduction of viscosity we also needed to ensure we weren't sacrificing good wear protection in our formulation design. And since there was likely to be a change in API guidelines that will require lower phosphorus levels for universal mixed fleet oils, proper formulation is critical in creating future products that can be used to protect both heavy and light duty engine parts from damaging wear. Simultaneously meeting all these requirements is a formidable challenge.

But let's take a look at how Oronite is able to do this through the benefits of a fresh formulation approach. The fuel economy improvement of our advanced PC-11 prototype is show here. It's shown in comparison to a 5W-30 heavy duty engine oil using conventional additive technology and several CJ4 15W-40 heavy duty oils available in the market today. It's clear that our advanced prototype which includes Oronite's patented new friction modifier delivers better fuel economy with compared to current products.

And at nearly 2 percent improvement versus the average 15W-40, it's demonstrably more than can be achieved by just reducing viscosity. This is the benefit of not only moving to a lower viscosity but also optimizing the formulation for low friction. Of course, gains in fuel economy shouldn't come at the expense of wear protection. But a reduction in viscosity alone without rethinking the chemistry risks exactly that since oil films will be thinner.

As shown here, though, Oronite's formulation approach is able to bring wear back down to proper levels. Allowing increased fuel economy benefits without sacrificing wear protection. Finally, let's look at how Oronite's technology can help simplify logistics for owners of mixed fleets that contain both heavy duty diesel and light duty gasoline vehicles.

These owners desire a universal oil that will meet the requirements for both kinds of engines without sacrificing wear protection or emissions control systems life. Here is an example of our advanced prototype compared to a current CJ4 heavy duty engine oil in terms of the crosshead wear and the valve train of a Cummings ISM engine. As you can see, taking a conventional approach to meeting the phosphorous anti-wear limit for future universal oils results in a substantial increase in wear.

However, Oronite's advanced approach provides excellent wear protection, easily surpassing Cummings and PC-11 requirements. So, in the end you have a heavy duty additive package that is optimized for fuel economy that doesn't sacrifice wear protection, and that even has the ability to meet both diesel and gasoline performance requirements, making it ideal for future heavy-duty engine oils designed for mixed fleet use.

### **Teri Crosby**

The Oronite team is working in research and manufacturing centers around the world to deliver industry leading solutions. We believe that maintaining the status quo for heavy duty engine oils is not an option. We look forward to being your additive supplier for future automotive categories and taking your products to even higher levels.