

# Squeaks & Rattles

The DUPONT™ KRYTOX® ADVANTAGE  
Newsletter for the Automotive Industry

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**DuPont™ Krytox®  
can be the  
solution for  
quieting those  
squeaks and  
rattles!**

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## Welcome!

We strive to provide you with meaningful information and data that will help you decide if a Krytox® material is an appropriate solution to your S&R problem. As always, we strongly encourage your questions and requests as well as suggestions or comments on how to make this news-letter more helpful and valuable to you.

## Improved Oil Application—Try GPL 104 Oil!

Recent trials held at **Designetics**® Sylvania laboratories (in collaboration with Ford/Visteon personnel) indicate that Krytox® GPL 103 and 104 oil offer improved application characteristics versus the GPL 105 oil with most of their applicator tips. This is primarily due to lower viscosity—hence less resistance to flow—of the two lighter oils.

Although GPL 103 and 104 do have higher volatility than the GPL 105 oil, that should not be an issue for most squeak-and-rattle applications. **In fact, Ford has recently assigned GPL 103 and 104 a new “Tox” number—#040061—to facilitate their use in Ford and Visteon plants.**

While durability of these lighter oils should be evaluated on the materials involved in your specific application, you may find the test work presented on that topic in the **Durability of Low-Viscosity Krytox® Oil** article of this newsletter of particular interest.

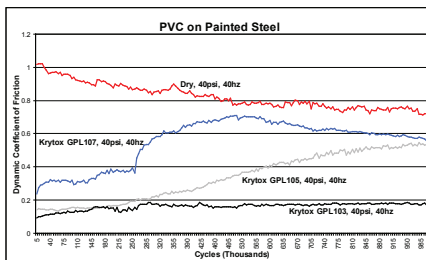
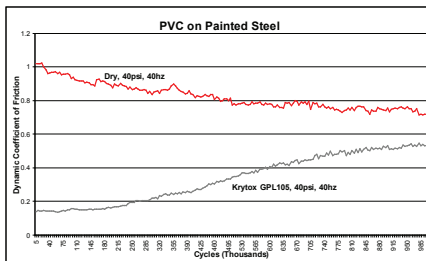
Application of Krytox® oil should not be messy, wasteful, or inefficient. For this purpose, **Designetics**® offers a huge range of applicator tips and brushes that are fully approved with Krytox® PFPE oil, as well as applicator guns, dispensing bottles, and other associated hardware. Krytox® oil can be robotically applied, as well!

**Feel free to contact Ken DeWood or Brian Kimball at Designetics® at (419) 866-0700 for additional guidance on this topic, or call your local Krytox® representative.**



*The miracles of science™*

# Squeaks & Rattles



## Durability of Low-Viscosity Krytox® Oil

Krytox® GPL 103 or 104 oil may indeed dispense more evenly than GPL 105 oil, but are these lighter oils as effective at reducing friction? Are they as durable and robust in performance as GPL 105?

The answer is found in the test method outlined in the SAE paper\* we presented at the Noise and Vibration Conference. Using our test apparatus, that was developed by Rob and Andy Lewis of Lewis Research of Lewes, Delaware, we ran a variety of tests, rubbing PVC on painted sheet metal.

We began the tests by oscillating untreated PVC on the sheet metal and measuring the coefficient of friction (C.o.F.). This yielded a value of just over 1.0. We then took a second sample, identical to the first, but treated this with a nominal amount of Krytox® GPL 105 oil. The second test resulted in a C.o.F. of under 0.20—greater than an 80 percent decrease. We continued to oscillate both sets of samples for 1 million cycles.

Even after 1,000,000 cycles, the sample pair treated with the GPL 105 oil showed a C.o.F. over 25 percent lower than the untreated sample pair.

We then ran two additional sets of tests using the same PVC-on-painted-sheet-metal material pairs. We tested GPL 107 oil (which has a viscosity of 1600 cSt at 20° C, versus 550 cSt for the GPL 105 oil) and also a sample pair treated with GPL 103 oil (80 cSt at 20° C, versus 550 cSt for the GPL 105).

As you can see in the next graph, the three oil viscosities generated three substantially different curves, although all were substantially better than the untreated PVC-on-steel samples for the entire duration of the 1 million cycle test.

Based on this example, we see no reason to believe that any performance compromises would be made by substituting GPL 103 or GPL 104 oil for GPL 105. Please bear in mind, however, that different material pairs can greatly impact results obtained. It is prudent, therefore, to carefully evaluate these oils on the materials used in your specific application in order to get the highest level of confidence. Please contact your Krytox® representative for more information on this test work.

\*“Short and Long Term Effects of PFPE(k) Oils and Greases on Vibration and Friction Between Various Automotive Materials,”  
SAE Paper #1999-01-1803.

# Squeaks & Rattles

## An Array of Applications

The automotive “launch” season is now well underway; and, since our last edition, Krytox® oils and greases have found their way into a number of new automotive “S&R” applications. Here are just a few examples:

- Silenced a squeak occurring in a convertible roof latch mechanism.
- Stopped wind noise and water leakage associated with window guide seals distorting when the window was opened, then closed.
- Eliminated an instrument panel squeak on a luxury sedan.
- Solved a problem with a window weatherstripping “bunching” and distorting on a new sedan.
- Quieted another I.P. squeak problem on a luxury sports sedan.
- Eliminated a squeak caused by a sun visor.
- Stopped a squeak caused by a driver’s-side “S.I.R.” assembly.
- Silenced a windshield “creak” problem occurring in a large truck.
- Resolved numerous miscellaneous glove box and ashtray noises.
- And . . . Krytox® oils and greases handle a number of “itch” problems encountered between the windshield and backlite lace and the vehicle bodies on a number of vehicles.

Perhaps you should evaluate Krytox® in your application!

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For more information or technical assistance, call DuPont:  
**(800) 424-7502**  
or visit DuPont on the Web:  
[www.krytox.com](http://www.krytox.com)

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