



April 2, 2003

This document was prepared by **puraDYN** Filter Technologies Inc. to address the claims brought by Fleetguard in their Technical Bulletin TB1/02 titled **puraDYN[®] Oil Filtration System Does Not Perform to OE Standards.**

In general, the claims brought by Fleetguard and their test procedures, test results and conclusions are suspect. It appears there is a general lack of understanding of the **puraDYN** system, how engine oil is contaminated and how a complete oil filtration system including full flow and bypass systems work together.

puraDYN welcomes competitive challenges that are accurate, documented and professionally administered. **puraDYN** has documentation based on independent laboratory tests as well as thousands of units in service with hundreds of customers that have been using oil analysis for many years to verify in real word conditions that the **puraDYN** system performs as claimed.

puraDYN, through its legal counsel, has issued a cease and desist request to Fleetguard in an effort to end current and prevent future publication of product and other evaluations that are not fully and accurately documented and administered. **puraDYN's** response to Technical Bulletin TB1/02 is as follows:

1. Presence of Additive

It is true as reported that the **puraDYN** filter medium is made of cotton. This is a fact that is acknowledged and depicted in **puraDYN** sales literature.

It is also true as reported that there are additives in the form of pellets in the **puraDYN** filter medium. This is also a fact acknowledged and depicted in **puraDYN** sales literature.

The report claims that the additive package is approximately 4.25 % of the filter weight, which is a statement that has little or no bearing on anything. Further, it is unclear from the report how it arrived at the conclusion that the additive appears in "proportionate amount". Without supporting data, this appears to be an erroneous conclusion and puts the credibility of the report in question.

2. Solubility of Any Additives

General statements like "using an approach that simplifies analysis with limited volumes" and "little if any organic material was dissolved in the base oil after a lengthy exposure at 100° C at the end of the test" are used to arrive at the conclusion that no additive dissolved from the additive pellets.

Certainly the approach of this test should be in question as it may not be applicable to real life operations. A "simplified approach" may not be an accurate approach. Additionally, how much is a "little if any organic material" and how long is a "lengthy exposure". Were the additives exposed to 100° C throughout the test or just at the end? General and misleading statements like these create confusion and suspicion to the validity of the test.

3. Contact Response of Additive to Oxidized Engine Oil

Stating the additive pellets lost 1.8% of their mass over the test period in itself indicates that some usage of the additives occurred. Additionally, there is neither any mention of the test duration nor the condition of the oil except to say that there was no loss of TAN. What the test fails to recognize is that the **paraDYN** system is designed to maintain the oil's condition, not turn contaminated oil into clean oil.

4. Other Tests

It is particularly interesting and revealing that according to the test conducted in this section no zinc or magnesium was detected in the additive package. However, it is a fact that these elements are in the additive package because they are purchased from a reputable vendor. Not being able to confirm this fact again puts into question the validity and credibility of these tests and conclusions. Additionally, with a test period of only 24 hours, it is questionable whether any measurable change in additives would occur in this short a period of time.

The **paraDYN** additive package is temperature sensitive. There is no indication at what temperature this "strong oxidizing acid attack" test was conducted. If the temperature was low enough, the **paraDYN** system, by design, will not release additives into the oil thereby preventing over concentration when the engine is not running.

5. Fleetguard Soot Drawdown Evaluation

This is a Cummins developed test designed to measure the performance of their filter products. Typically this test is run using a combination of both a full flow and bypass filter not just a bypass filter. This test attempts to measure the ability of a filter system to clean up contaminated oil. In fact, at 5% soot, the oil used in this test was so contaminated that in virtually all cases it would be deemed unfit for continued use. Starting with clean oil, the **paraDYN** bypass system acts to purify the oil in a manner that offsets the constant loading of contaminants and moisture generated by the engine. As such, one cannot expect the **paraDYN** bypass system to purify an inrush of significantly contaminated oil within a short period of time. Therefore, this test does not accurately evaluate the performance of the **paraDYN** bypass system. In fact, the **paraDYN** bypass system and **paraDYN** filter with CGP (Chemical Grafting Process) has been specifically developed to remove increased levels of soot generated by latest technology engines. It is not been mentioned and therefore assumed that the filter tested was not a **paraDYN** filter with CGP.

The Cummins Drawdown test does not address the engine's contaminant add rate issue. An independent laboratory, conducted a test to address this contaminant add rate using the **paraDYN** product. In their test, they confirmed that the **paraDYN** bypass system effectively filters ISO Fine Dust (containing 5 to 80 micron size particles) at an average efficiency of 100% over a 200-hour test and that it filtered SOFTC-2A (containing 0.5 to 1 micron size particles) at an average efficiency of 69% over a 100-hour test. Said tests more accurately reflect the real world operation of engines as contaminants are added to the oil over time. Additionally, internal tests conducted by a major filter manufacturer confirmed the **paraDYN** bypass system filters contaminant particles down to 0.25 microns absolute in size.

The **paraDYN** bypass system is designed to keep clean oil clean. It is not designed to clean oil that is contaminated beyond its useful life. **paraDYN** installation instructions clearly specify that one needs to start with both clean oil and new full flow filter when installing said unit onto an engine. Therefore, many of the conclusions derived from Fleetguard's test results must be considered inappropriately determined at best.