The Oil Report

December 2007
finally! sheesh!

BLACKSTONE LABORATORIES

"Oil the News That's Fit to Print!"

Psst...hey! You! Yeah, you! Have you been to www.blackstone-labs.net yet? Oh man, you are missing out. With all the trouble people have getting their reports as an email attachment, we've found this is the best way for you to get your oil reports, anytime.

You'll need your customer ID to sign up (call us if you can't find it) and then the reports are there at your fingertips. Sweeeeet.

The following article was written by Fred Rau and reprinted with permission from "Motorcycle Consumer News." *It originally appeared in* "Road Rider" *magazine and was written with motorcycles in mind, but the information pertains to additives for any engine. This article was written in 1992, so while some of the info may be dated, the article itself is full of great information. This excellent article is long, but stick with it--you'll be glad you did. Follow this link to visit* Motorcycle Consumer News *and find out more about the magazine.*

Is That Additive Really a Negative?

Information for this article was compiled from reports and studies by the University of Nevada Desert Research Center, DuPont Chemical Company, Avco Lycoming (aircraft engine manufacturers), North Dakota State University, Briggs and Stratton (engine manufacturers), the University of Utah Engineering Experiment Station, California State Polytechnic College and the National Aeronautics and Space Administration's Lewis Research Center.

Road Rider does not claim to have all the answers. Nor do we care to presume to tell you what to do. We have simply tried to provide you with all the information we were able to dredge up on this subject, in hopes it will help you in making your own, informed decision.

You Can't Tell The Players Without A Program

On starting this project, we set out to find as many different oil additives as we could buy. That turned out to be a mistake. There were simply too many available! At the very first auto parts store we visited, there were over two dozen different brand names available. By the end of the day, we had identified over 40 different oil additives for sale and realized we needed to rethink our strategy. First of all, we found that if we checked the fine print on the packages, quite a number of the additives came from the same manufacturer. Also, we began to notice that the additives could be separated into basic "groups" that seemed to carry approximately the same ingredients and the same promises. In the end, we divided our additives into four basic groups and purchased at least three brands from three different manufacturers for each group. We defined our four groups this way:

1) Products that seemed to be nothing more than regular 50-rated engine oil (including standard additives) with PTFE (Teflon TM) added.

2) Products that seemed to be nothing more than regular 50-rated engine oil (including standard additives)

with zinc dialkyldithiophosphate added.

3) Products containing (as near as we could determine) much the same additives as are already found in most major brands of engine oil, though in different quantities and combinations.

4) Products made up primarily of solvents and/or detergents. There may be some differences in chemical makeup within groups, but that is impossible to tell since the additive manufacturers refuse to list the specific ingredients of their products. We will discuss each group individually.

The PTFE Mystery

Currently, the most common and popular oil additives on the market are those that contain PTFE powders suspended in a regular, over-the-counter type, 50-rated petroleum or synthetic engine oil. PTFE is the common abbreviation used for Polytetrafloeraethylene, more commonly known by the trade name "Teflon," which is a registered trademark of the DuPont Chemical Corporation. Among those oil additives we have identified as containing PTFE are: Slick 50, Liquid Ring, Lubrilon, Microlon, Matrix, Petrolon (same company as Slick 50), QMl, and T-Plus (K-Mart). There are probably many more names in use on many more products using PTFE. We have found that oil additive makers like to market their products under a multitude of "private brand" names. While some of these products may contain other additives in addition to PTFE, all seem to rely on the PTFE as their primary active ingredient and all, without exception, do not list what other ingredients they may contain. Though they have gained rather wide acceptance among the motoring public, oil additives containing PTFE have also garnered their share of critics among experts in the field of lubrication. By far the most damning testimonial against these products originally came from the DuPont Chemical Corporation, inventor of PTFE and holder of the patents and trademarks for Teflon. In a statement issued in the early 1980s, DuPont's Fluoropolymers Division Product Specialist, J.F. Imbalzano said, "Teflon is not useful as an ingredient in oil additives or oils used for internal combustion engines." At the time, DuPont threatened legal action against anyone who used the name "Teflon" on any oil product destined for use in an internal combustion engine, and refused to sell its PTFE powders to any one who intended to use them for such purposes. After a flurry of lawsuits from oil additive makers, claiming DuPont could not prove that PTFE was harmful to engines, DuPont was forced to once again begin selling their PTFE to the additive producers. The additive makers like to claim this is some kind of “proof” that their products work, when in fact it is nothing more than proof that the American legal ethic of "innocent until proven guilty" is still alive and well. The decision against DuPont involved what is called "restraint of trade." You can't refuse to sell a product to someone just because there is a possibility they might use it for a purpose other than what you intended it for.

It should be noted that DuPont's official position on the use of PTFE in engine oils remains carefully aloof and noncommittal, for obvious legal reasons. DuPont states that though they sell PTFE to oil additive producers, they have "no proof of the validity of the additive makers' claims." They further state that they have "no knowledge of any advantage gained through the use of PTFE in engine oil." Fear of potential lawsuits for possible misrepresentation of a product seem to run much higher among those with the most to lose. After DuPont's decision and attempt to halt the use of PTFE in engine oils, several of the oil additive companies simply went elsewhere for their PTFE powders, such as purchasing them in other countries. In some cases, they disguise or hype their PTFE as being something different or special by listing it under one of their own trade names. That doesn't change the fact that it is still PTFE. In addition, there is some evidence that certain supplies of PTFE powders (from manufacturers other than DuPont) are of a cruder version than the original, made with larger sized flakes that are more likely to "settle out" in your oil or clog up your filters. One fairly good indication that a product contains this kind of PTFE is if the instructions for its use advise you to "shake well before using." It only stands to reason that if the manufacturer knows the solids in his product will settle to the bottom of a container while sitting on a shelf, the same thing is going to happen inside your engine when it is left idle for any period of time.

The problem with putting PTFE in your oil, as explained to us by several industry experts, is that PTFE is a

solid. The additive makers claim this solid "coats" the moving parts in an engine (though that is far from being scientifically proven). Slick 50 is currently both the most aggressive advertiser and the most popular seller, with claims of over 14 million treatments sold. However, such solids seem even more inclined to coat non-moving parts, like oil passages and filters. After all, if it can build up under the pressures and friction exerted on a cylinder wall, then it stands to reason it should build up even better in places with low pressures and virtually no friction. This conclusion seems to be borne out by tests on oil additives containing PTFE conducted by the NASA Lewis Research Center, which said in their report, "In the types of bearing surface contact we have looked at, we have seen no benefit. In some cases we have seen detrimental effect. The solids in the oil tend to accumulate at inlets and act as a dam, which simply blocks the oil from entering. Instead of helping, it is actually depriving parts of lubricant"

Remember, PTFE in oil additives is a suspended solid. Now think about why you have an oil filter on your engine. To remove suspended solids, right? Right. Therefore it would seem to follow that if your oil filter is doing its job, it will collect as much of the PTFE as possible, as quickly as possible. This can result in a clogged oil filter and decreased oil pressure throughout your engine. In response to our inquiries about this sort of problem, several of the PTFE pushers responded that their particulates were of a sub-micron size, capable of passing through an ordinary oil filter unrestricted.
This certainly sounds good, and may in some cases actually be true, but it makes little difference when you know the rest of the story. You see, PTFE has other qualities besides being a friction reducer: It expands radically when exposed to heat. So even if those particles are small enough to pass through your filter when you purchase them, they very well may not be when your engine reaches normal operating temperature. Here again, the scientific evidence seems to support this, as in tests conducted by researchers at the University of Utah Engineering Experiment Station involving Petrolon additive with PTFE. The Petrolon test report states, "There was a pressure drop across the oil filter resulting from possible clogging of small passageways." In addition, oil analysis showed that iron contamination doubled after using the treatment, indicating that engine wear didn't go down - it appeared to shoot up.

This particular report was paid for by Petrolon (marketers of Slick 50), and was not all bad news for their products. The tests, conducted on a Chevrolet six-cylinder automobile engine, showed that after treatment with the PTFE additive the test engine's friction was reduced by 13.1 percent. Also, output horsepower increased from 5.3 percent to 8.1 percent, and fuel economy improved from 11.8 percent under light load to 3.8 percent under heavy load. These are the kind of results an aggressive marketing company like Petrolon can really sink their teeth into. If we only reported the results in the last paragraph to you, you'd be inclined to think Slick 50 was indeed a magic engine elixir. What you have to keep in mind is that often times the benefits (like increased horse power and fuel economy) may be out weighed by some serious drawbacks (like the indications of reduced oil pressure and increased wear rate).

The Plot Thickens
Just as we were about to go to press with this article, we were contacted by the public relations firm of Trent and Company, an outfit with a prestigious address in the Empire State Building, New York. They advised us they were working for a company called QMI out of Lakeland, Florida, that was marketing a "technological breakthrough" product in oil additives. Naturally, we asked them to send us all pertinent information, including any testing and research data.

What we got was pretty much what we expected. QMI's oil additive, according to their press release, uses "ten times more PTFE resins than its closest competitor." Using the "unique SX-6000 formula," they say they are the only company to use "aqueous dispersion resin which means the microns (particle sizes) are extensively smaller and can penetrate tight areas." This, they claim, "completely eliminates the problem of clogged filters and oil passages."

Intrigued by their press release, we set up a telephone interview with their Vice-President of Technical

Services, Mr. Owen Heatwole. Mr. Heatwole's name was immediately recognized by us as one that had popped in earlier research of this subject as a former employee of Petrolon, a company whose name seems inextricably linked in some fashion or another with virtually every PTFE-related additive maker in the country. Mr. Heatwole was a charming and persuasive talker with a knack for avoiding direct answers as good as any seasoned politician. His glib pitch for his product was the best we've ever heard, but when dissected and pared down to the verifiable facts, it actually said very little. When we asked about the ingredients in QMI's treatments, we got almost exactly the response we expected. Mr. Heatwole said he would "have to avoid discussing specifics about the formula, for proprietary reasons." After telling us that QMI was being used by "a major oil company," a "nuclear plant owned by a major corporation" and a "major engine manufacturer," Mr. Heatwole followed up with, "Naturally, I can't reveal their names - for proprietary reasons."

He further claimed to have extensive testing and research data available from a "major laboratory," proving conclusively how effective QMI was. When we asked for the name of the lab, can you guess? Yup, "We can't give out that information, for proprietary reasons." What QMI did give us was the typical "testimonials," though we must admit theirs came from more recognizable sources than usual. They seem to have won over the likes of both Team Kawasaki and Bobby Unser, who evidently endorse and use QMI in their racing engines. Mr. Heatwole was very proud of the fact that their product was being used in engines that he himself admitted are "torn down and completely inspected on a weekly basis." Of course, what he left out is that those same engines are almost totally rebuilt every time they're torn down. So what does that prove in terms of his product reducing wear and promoting engine longevity? Virtually nothing.

Mr. Heatwole declined to name the source of QMI's PTFE supply "for proprietary reasons." He bragged that their product is sold under many different private labels, but refused to identify those labels "for proprietary reasons." When asked about the actual size of the PTFE particles used in QMI, he claimed they were measured as "sub-micron in size" by a "major motor laboratory" which he couldn't identify - you guessed it - for "proprietary reasons." After about an hour of listening to "don't quote me on this," "I'll have to deny that if you print it," and "I can't reveal that," we asked Mr. Heatwole if there was something we could print. "Certainly," he said, "Here's a good quote for you: 'The radical growth in technology has overcome the problem areas associated with PTFE in the 1980s'"

"Not bad," we said. Then we asked to whom we might attribute this gem of wisdom. DuPont Chemical, perhaps?
"Me," said Mr. Heatwole. "I said that." QMI's press releases like to quote the Guinness Book Of Records in saying that PTFE is "The slickest substance known to man." Far be it from us to take exception to the Guinness Book, but we doubt that PTFE is much slicker than some of the people marketing it.

The Zinc Question
The latest "miracle ingredient" in oil additives, attempting to usurp PTFE's cure-all throne, is zinc dialkyldithiophosphate, which we will refer to here after as simply "zinc." Purveyors of the new zinc-related products claim they can prove absolute superiority over the PTFE-related products. Naturally, the PTFE crowd claim exactly the same, in reverse. Zinc is contained as part of the standard additive package in virtually every major brand of engine oil sold today, varying from a low volume of 0.10 per cent in brands such as Valvoline All Climate and Chevron 15W-50, to a high volume of 0.20 percent in brands such as Valvoline Race and Pennzoil GT Performance. Organic zinc compounds are used as extreme pressure, anti-wear additives, and are therefore found in larger amounts in oils specifically blended for high-revving, turbocharged or racing applications. The zinc in your oil comes into play only when there is actual metal -to-metal contact within your engine, which should never occur under normal operating conditions. However, if you race your bike, or occasionally play tag with the redline on the tach, the zinc is your last line of defense. Under extreme conditions, the zinc compounds react with the metal to prevent scuffing, particularly between cylinder bores and piston rings. However - and this is the important part to remember -

available research shows that more zinc does not give you more protection, it merely prolongs the protection if the rate of metal-to-metal contact is abnormally high or extended. So unless you plan on spending a couple of hours dragging your knee at Laguna Seca, adding extra zinc compounds to your oil is usually a waste. Also, keep in mind that high zinc content can lead to deposit formation on your valves, and spark plug fouling.

Among the products we found containing zinc dialkyldithiophosphate were Mechanics Brand Engine Tune Up, K Mart Super Oil Treatment, and STP Engine Treatment With XEP2. The only reason we can easily identify the additives with the new zinc compounds is that they are required to carry a Federally mandated warning label indicating they contain a hazardous substance. The zinc phosphate they contain is a known eye irritant, capable of inflicting severe harm if it comes in contact with your eyes. If you insist on using one of these products, please wear protective goggles and exercise extreme caution.

As we mentioned, organic zinc compounds are already found in virtually every major brand of oil, both automotive and motorcycle. However, in recent years the oil companies voluntarily reduced the amount of zinc content in most of their products after research indicated the zinc was responsible for premature deterioration and damage to catalytic converters. Obviously this situation would not affect 99 percent of all the motorcycles on the road - however, it could have been a factor with the newer BMW converter-equipped bikes. Since the reduction in zinc content was implemented solely for the protection of catalytic converters, it is possible that some motorcycles might benefit from a slight increase in zinc content in their oils. This has been taken into account by at least one oil company, Spectro, which offers 0.02 to 0.03 percent more zinc compounds in its motorcycle oils than in its automotive oils.

Since Spectro (Golden 4 brand, in this case) is a synthetic blend lubricant designed for extended drain intervals, this increase seems to be wholly justified. Also, available research indicates that Spectro has, in this case, achieved a sensible balance for extended application without increasing the zinc content to the point that it is likely to cause spark plug fouling or present a threat to converter-equipped BMW models. It would appear that someone at Spectro did their homework.

Increased Standard Additives (More Is Not Necessarily Better)
Though some additives may not contain anything harmful to your engine, and even some things that could be beneficial, most experts still recommend that you avoid their use. The reason for this is that your oil, as purchased from one of the major oil companies, already contains a very extensive additive package. This package is made up of numerous, specific additive components, blended to achieve a specific formula that will meet the requirements of your engine. Usually, at least several of these additives will be synergistic. That is, they react mutually, in groups of two or more, to create an effect that none of them could attain individually. Changing or adding to this formula can upset the balance and negate the protective effect the formula was meant to achieve, even if you are only adding more of something that was already included in the initial package. If it helps, try to think of your oil like a cake recipe. Just because the original recipe calls for two eggs (which makes for a very moist and tasty cake), do you think adding four more eggs is going to make the cake better? Of course not. You're going to upset the carefully calculated balance of ingredients and magnify the effect the eggs have on the recipe to the point that it ruins the entire cake. Adding more of a specific additive already contained in your oil is likely to produce similar results.

This information should also be taken into account when adding to the oil already in your bike or when mixing oils for any reason, such as synthetic with petroleum. In these cases, always make sure the oils you are putting together have the same rating. This tells you their additive packages are basically the same, or at least compatible, and are less likely to upset the balance or counteract each other.

Detergents and Solvents
Many of the older, better-known oil treatments on the market do not make claims nearly so lavish as the new

upstarts. Old standbys like Bardahl, Rislone and Marvel Mystery Oil, instead offer things like "quieter lifters," "reduced oil burning" and a "cleaner engine." Most of these products are made up of solvents and detergents designed to dissolve sludge and carbon deposits inside your engine so they can be flushed or burned out. Wynn's Friction Proofing Oil, for example, is 83 percent kerosene. Other brands use naphthalene, xylene, acetone and isopropanol. Usually, these ingredients will be found in a base of standard mineral oil.

In general, these products are designed to do just the opposite of what the PTFE and zinc phosphate additives claim to do. Instead of leaving behind a "coating" or a "plating" on your engine surfaces, they are designed to strip away such things.

All of these products will strip sludge and deposits out and clean up your engine, particularly if it is an older, abused one . The problem is, unless you have some way of determining just how much is needed to remove your deposits without going any further, such solvents also can strip away the boundary lubrication layer provided by your oil. Overuse of solvents is an easy trap to fall into, and one which can promote harmful metal-to-metal contact within your engine.

As a general rule of thumb these products had their place and were at least moderately useful on older automobile and motorcycle engines of the Fifties and Sixties, but are basically unneeded on the more efficient engine designs of the past few decades.

The Infamous "No Oil" Demo

At at least three major motorcycle rallies this past year, we have witnessed live demonstrations put on to demonstrate the effectiveness of certain oil additives. The demonstrators would have a bench-mounted engine which they would fill with oil and a prescribed dose of their "miracle additive." After running the engine for a while they would stop it, drain out the oil and start it up again. Instant magic! The engine would run perfectly well for hours on end, seemingly proving the effectiveness of the additive which had supposedly "coated" the inside of the engine so well it didn't even need the oil to run. In one case, we saw this done with an actual motorcycle, which would be ridden around the parking lot after having its oil drained. A pretty convincing demonstration - until you know the facts.

Since some of these demonstrations were conducted using Briggs and Stratton engines, the Briggs and Stratton Company itself decided to run a similar, but somewhat more scientific, experiment. Taking two brand-new, identical engines straight off their assembly line, they set them up for bench-testing. The only difference was that one had the special additive included with its oil and the other did not. Both were operated for 20 hours before being shut down and having the oil drained from them. Then both were started up again and allowed to run for another 20 straight hours. Neither engine seemed to have any problem performing this "minor miracle."

After the second 20-hour run, both engines were completely torn down and inspected by the company's engineers. What they found was that both engines suffered from scored crankpin bearings, but the engine treated with the additive also suffered from heavy cylinder bore damage that was not evident on the untreated engine.

This points out once again the inherent problem with particulate oil additives: They can cause oil starvation. This is particularly true in the area of piston rings, where there is a critical need for adequate oil flow. In practically all of the reports and studies on oil additives, and particularly those involving suspended solids like PTFE, this has been reported as a major area of engine damage.

The Racing Perspective

Among the most convincing testimonials in favor of oil additives are those that come from professional

racers or racing teams. As noted previously, some of the oil additive products actually are capable of producing less engine friction, better gas mileage and higher horsepower out put. In the world of professional racing, the split-second advantage that might be gained from using such a product could be the difference between victory and defeat.

Virtually all of the downside or detrimental effects attached to these products are related to extended, long-term usage. For short-life, high-revving, ultra-high performance engines designed to last no longer than one racing season (or in some cases, one single race), the long-term effects of oil additives need not even be considered. Racers also use special high-adhesion tires that give much better traction and control than our normal street tires, but you certainly wouldn't want to go touring on them, since they're designed to wear out in several hundred (or less) miles. Just because certain oil additives may be beneficial in a competitive context is no reason to believe they would be equally beneficial in a long-term context.

The Best of the Worst

Not all engine oil additives are as potentially harmful as some of those we have described here. However, the best that can be said of those that have not proved to be harmful is that they haven't been proved to offer any real benefits, either. In some cases, introducing an additive with a compatible package of components to your oil in the right proportion and at the right time can conceivably extend the life of your oil. However, in every case we have studied it proves out that it would actually have been cheaper to simply change the engine oil instead. In addition, recent new evidence has come to light that makes using almost any additive a game of Russian Roulette. Since the additive distributors do not list the ingredients contained within their products, you never know for sure just what you are putting in your engine. Recent tests have shown that even some of the most inoffensive additives contain products which, though harmless in their initial state, convert to hydrofluoric acid when exposed to the temperatures inside a firing cylinder. This acid is formed as part of the exhaust gases, and though it is instantly expelled from your engine and seems to do it no harm, the gases collect inside your exhaust system and eat away at your mufflers from the inside out.

Whatever The Market Will Bear

The pricing of oil additives seems to follow no particular pattern whatsoever. Even among those products that seem to be almost identical, chemically, retail prices covered an extremely wide range. For example: One 32-ounce bottle of Slick 50 (with PTFE) cost us $29.95 at a discount house that listed the retail price as $59.95, while a 32-ounce bottle of T-Plus (which claims to carry twice as much PTFE as the Slick 50) cost us only $15.88.

A 32-ounce bottle of STP Engine Treatment (containing what they call XEP2), which they claim they can prove "outperforms leading PTFE engine treatments," cost us $17.97. Yet a can of K Mart Super Oil Treatment, which listed the same zinc-derivative ingredient as that listed for the XEP2, cost us a paltry $2.67.

Industry experts estimate that the actual cost of producing most oil additives is from one-tenth to one-twentieth of the asking retail price. Certainly no additive manufacturer has come forward with any exotic, high-cost ingredient or list of ingredients to dispute this claim. As an interesting note along with this, back before there was so much competition in the field to drive prices down, Petrolon (Slick 50) was selling their PTFE products for as much as $400 per treatment! The words "buyer beware" seem to take on very real significance when talking about oil additives.

The Psychological Placebo

You have to wonder, with the volume of evidence accumulating against oil additives, why so many of us still buy them. That's the million-dollar question, and it's just as difficult to answer as why so many of us smoke cigarettes, drink hard liquor or engage in any other number of questionable activities. We know they aren't good for us - but we go ahead and do them anyway. Part of the answer may lie in what some psychiatrists

call the "psychological placebo effect." Simply put, that means that many of us hunger for that peace of mind that comes with believing we have purchased the absolute best or most protection we can possibly get. Even better, there's that wonderfully smug feeling that comes with thinking we might be a step ahead of the pack, possessing knowledge of something just a bit better than everyone else. Then again, perhaps it comes from an ancient, deep-seated need we all seem to have to believe in magic. There has never been any shortage of unscrupulous types ready to cash in on our willingness to believe that there's some magical mystery potion we can buy to help us lose weight, grow hair, attract the opposite sex or make our engines run longer and better. I doubt that there's a one of us who hasn't fallen for one of these at least once in our lifetimes. We just want it to be true so bad that we can't help ourselves.

Testimonial Hype vs. Scientific Analysis

In general, most producers of oil additives rely on personal "testimonials" to advertise and promote their products. A typical print advertisement will be one or more letters from a satisfied customer stating something like, "1 have used Brand X in my engine for 2 years and 50,000 miles and it runs smoother and gets better gas mileage than ever before. I love this product and would recommend it to anyone." Such evidence is referred to as "anecdotal" and is most commonly used to pro mote such things as miracle weight loss diets and astrology. Whenever I see one of these ads I am reminded of a stunt played out several years ago by Allen Funt of "Candid Camera" that clearly demonstrated the side of human nature that makes such advertising possible.

With cameras in full view, fake "product demonstrators" would offer people passing through a grocery store the opportunity to taste-test a "new soft drink." What the victims didn't know was that they were being given a horrendous concoction of castor oil, garlic juice, Tabasco sauce and several other foul-tasting ingredients. After taking a nice, big swallow, as instructed by the demonstrators, the unwitting victims provided huge laughs for the audience by desperately trying to conceal their anguish and disgust. Some literally turned away from the cameras and spit the offending potion on the floor.

The fascinating part came when about one out of four of the victims would actually turn back to the cameras and proclaim the new drink was "Great" or "Unique" or, in several cases, "One of the best things I've ever tasted!" Go figure.

The point is, compiling "personal testimonials" for a product is one of the easiest things an advertising company can do - and one of the safest, too. You see, as long as they are only expressing some one else's personal opinion, they don't have to prove a thing! It's just an opinion, and needs no basis in fact whatsoever. On the other hand, there has been documented, careful scientific analysis done on numerous oil additives by accredited institutions and researchers.

For example: Lycoming, a major manufacturer of aircraft engines, states, "We have tried every additive we could find on the market, and they are all worthless."

Briggs and Stratton, renowned builders of some of the most durable engines in the world, says in their report on engine oil additives, "They do not appear to offer any benefits." North Dakota State University conducted tests on oil additives and said in their report, "The theory sounds good - the only problem is that the products simply don't work." And finally, Ed Hackett, chemist at the University of Nevada Desert Research Center, says, "Oil additives should not be used. The oil companies have gone to great lengths to develop an additive pack age that meets the vehicle's requirements. If you add anything to this oil you may upset the balance and prevent the oil from performing to specification." Petrolon, Inc., of Houston, Texas, makers of Petrolon and producers of at least a dozen other lubrication products containing PTFE, including Slick 50 and Slick 30 Motorcycle Formula, claim that, "Multiple tests by independent laboratories have shown that when properly applied to an automotive engine, Slick 50 Engine Formula reduces wear on engine parts.

Test results have shown that Slick 50 treated engines sustained 50 percent less wear than test engines run with premium motor oil alone." Sounds pretty convincing, doesn't it? The problem is, Petrolon and the other oil additive companies that claim "scientific evidence" from "independent laboratories," all refuse to identify the laboratories that conducted the tests or the criteria under which the tests were conducted. They claim they are "contractually bound" by the laboratories to not reveal their identities.

In addition, the claim of "50 percent less wear" has never been proven on anything approaching a long-term basis. Typical examples used to support the additive makers' claims involve engines run from 100 to 200 hours after treatment , during which time the amount of wear particles in the oil decreased. While this has proven to be true in some cases, it has also been proven that after 400 to 500 hours of running the test engines invariably reverted to producing just as many wear particles as before treatment, and in some cases, even more. No matter what the additive makers would like you to believe, nothing has been proven to stop normal engine wear. You will note that all of the research facilities quoted in this article are clearly identified. They have no problem with making their findings public. You will also note that virtually all of their findings about oil additives are negative. That's not because we wanted to give a biased report against oil additives - it's because we couldn't find a single laboratory, engine manufacturer or independent research facility who would make a public claim, with their name attached to it, that any of the additives were actually beneficial to an engine. The conclusion seems inescapable.

As a final note on advertising hype versus the real world, we saw a television ad the other night for Slick 50 oil additive. The ad encouraged people to buy their product on the basis of the fact that, "Over 14 million Americans have tried Slick 50!" Great. We're sure you could just as easily say, "Over 14 million Americans have smoked cigarettes!"-but is that really any reason for you to try it? Of course not, because you've seen the scientific evidence of the harm it can do. The exact same principle applies here.

In Conclusion

The major oil companies are some of the richest, most powerful and aggressive corporations in world. They own multi -million dollar research facilities manned by some of the best chemical engineers money can hire. It is probably safe to say that any one of them has the capabilities and resources at hand in marketing, distribution, advertising, research and product development equal to 20 times that of any of the independent additive companies. It therefore stands to reason that if any of these additive products were actually capable of improving the capabilities of engine lubricants, the major oil companies would have been able to determine that and to find some way to cash in on it. Yet of all the oil additives we found, none carried the name or endorsement of any of the major oil producers.

In addition, all of the major vehicle and engine manufacturers spend millions of dollars each year trying to increase the longevity of their products, and millions more paying off warranty claims when their products fail. Again, it only stands to reason that if they thought any of these additives would increase the life or improve the performance of their engines, they would be actively using and selling them - or at least endorsing their use.

Instead, many of them advise against the use of these additives and, in some cases, threaten to void their warranty coverage if such things are found to be used in their products. In any story of this nature, absolute "facts" are virtually impossible to come by. Opinions abound. Evidence that points one direction or the other is avail able, but has to be carefully ferreted out, and is not always totally reliable or completely verifiable. In this environment, conclusions reached by known, knowledgeable experts in the field must be given a certain amount of weight. Conclusions reached by unknown, unidentifiable sources must be discounted almost totally. That which is left must be weighed, one side against the other, in an attempt to reach a "reasonable" conclusion. In the case of oil additives, there is a considerable volume of evidence against their effectiveness. This evidence comes from well-known and identifiable expert sources, including independent research laboratories, state universities, major engine manufacturers, and even NASA.

Against this rather formidable barrage of scientific research, additive makers offer not much more than their own claims of effectiveness, plus questionable and totally unscientific personal testimonials. Though the purveyors of these products state they have studies from other independent laboratories supporting their claims, they refuse to identify the labs or provide copies of the research. The only test results they will share are those from their own testing departments, which must, by their very nature, be taken with a rather large grain of salt.

Report of the Month

This is a sample from a stump grinder. It's a Cat 2.0L diesel engine. It's ailing. Why? Take a guess, then look at the caption below to see if you're right. (Hint: It doesn't have anything to do with additives.)

(To learn where the various elements might be coming from, click here.)

Elements in Parts Per Million								
	MI/HR ON OIL	150	UNIT/ LOCATION AVERAGES	107				UNIVERSAL AVERAGES
	MI/HR ON UNIT	597		447				
	SAMPLE DATE	4/18/07		4/1/06				
	ALUMINUM	193	66	**2**				3
	CHROMIUM	20	7	0				1
	IRON	333	117	**9**				9
	COPPER	14	5	0				1
	LEAD	1	0	**0**				0
	TIN	6	2	0				0
	MOLYBDENUM	3	37	2				55
	NICKEL	1	0	0				1
	POTASSIUM	23	9	1				2
	BORON	3	19	2				27
	SILICON	277	95	2				5
	SODIUM	55	20	2				2
	CALCIUM	4076	3491	3552				3199
	MAGNESIUM	90	168	13				207
	PHOSPHORUS	1507	1303	1296				1202
	ZINC	1772	1545	1589				1431
	BARIUM	1	0	0				0

Hello, silicon, you old foe. Silicon is wreaking havoc with the upper end in this Cat engine. Potassium and sodium may show a trace of antifreeze in the oil too, but by far the largest problem is the abrasive contamination, shown in the silicon level. Silicon can have other sources too, besides dirt, but when it's coming from a silicone sealer or an additive, wear is not affected. This engine needs its oil changed and the system flushed STAT.

Want In?

If you received an email from Blackstone with links to this newsletter, you are

already on our mailing list and will continue to receive *The Oil Report* unless you opt out. If you found about this newsletter through a friend, then you are not on our mailing list, so if you would like to subscribe, please click here and follow the link to send us your email address. Be sure to indicate which type of newsletter you would like to receive.

Want Out?

If you received an email from Blackstone with links to this newsletter and no longer wish to receive informational emails from us, please click here and follow the link to fill out the form. Your name will be removed.

416 E. Pettit Ave. Fort Wayne IN 46806 (260) 744-2380