

Your Amsoil Information News Source

Product Highlight: Oil Analysis Services

Oil analysis is a laboratory analysis of a lubricant's properties, suspended contaminants, and wear debris. Oil analysis is performed during routine predictive maintenance to provide meaningful and accurate information on lubricant and machine condition. By tracking oil analysis sample results over the life of a particular machine, trends can be established



What's inside?

Why Perform Oil Analysis? p. 2
The Altrum Minute - Multi Vitamins p. 3
Diesel Digest - SuperChargers/Turbos p. 4
Shop Talk - Oops, Introduction p. 5
Dealer Zone - Pricing p. 5

which can help eliminate costly repairs. The study of wear in machinery is called tribology. Tribologists perform and interpret oil analysis data.

Amsoil provides multiple <u>fluid</u> <u>analysis service options</u>. Whether you have diesel or gasoline powered vehicles/equipment, Amsoil has a solution. Once a sample is taken, it is sent to Oil Analyzers, Inc. to be evaluated. The results and interpretation of those results are then e-mailed to you.

There are multiple reasons for performing oil analysis. Some of which are discussed on the next page.

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Congratulations:

New Preferred Customers

Ed Ritter Clio, MI

Rod Griess Lincoln, NE

Strobel Motor Sports Central City, NE

New Catalog Customers

Jimbo Williams Hemphill, TX

Kent Brumbaker Birnamwood, WI

Matt Kiekintveld Zeeland, MI

New Commercial Accounts

Nelsen Farms Ayr, NE



Why Perform Oil Analysis?

If you have kept up with the newsletter over the past several years, you would know that I routinely perform Oil Analysis on both of my vehicles as part of my predictive maintenance procedures. The notion of predictive maintenance may be a new concept to you and it really means exactly what it says. You are performing some type of maintenance procedure for the purpose of predicting what may occur in the future. Although I don't have a crystal ball or tarot cards, I am able to use science to explore the inside of my engine.

The first time I performed an Oil Analysis was June of 2012. I wasn't really sure what to expect and really wasn't that impressed with the results, nor did I fully understand how to interpret them. At the time of sampling, my truck had about 95,000 miles on it and I had done an oil change about 12 months prior to the sampling. The sample came back basically saying the oil was doing good and could technically be ran in the engine longer. Regardless of the results, I changed my oil at the 12 month mark. Starting in 2015 I started performing the oil analytics for both my vehicles each time I changed the oil (once per year). Every time, the results indicated that the oil was doing good and there were no questions that it was not protecting my engine.

Along with the results, the scientist that analyzes the oil will make notes about the contaminants. On this year's sampling for my truck it was noted that the levels of Nickel were at a "minor level". This means that there were traces of Nickel in the oil and it is not suppose to be there. It was noted that the possible source of the Nickel contamination could be from the valve train (valves, stems, guides, etc.). Since I have performed oil analysis for the past 4 consecutive years, I can compare this year's Nickel data to the previous years and see if I can see a trend.

Shown below are all of my samples for my truck. Sample# NL is the baseline sample for Amsoil 5w-20 Signature Series. Sample #1 is the sample I took in 2012 and then Sample #2-5 begin in 2015 and go through 2018. It is clear that the levels of Nickel have increased since 2012. Last year, (2017, Sample #4) showed abnormal levels of Nickel which had increased from the previous years. I was concerned that if the trend would continue, there could be a major repair on the horizon for my truck. I was glad to see it had lowered to "normal" levels.

In <u>Issue 80 - April 2018</u> I talked about how I performed oil analysis on my wife's transmission fluid because it had been 50,000 miles since it was serviced and I didn't want to service the transmission if I didn't need to. I sent off a sample and it was determined that the transmission fluid is still good to run. I was glad because transmission servicing is a gross job and it is expensive.

If you have a large sump vehicle that requires multiple gallons of oil, Oil Analysis can help you save money by allowing you to extend the oil change interval. If the results indicate that your oil is still good and doing it's job. There is no reason to spend the money to change out good oil for new good oil. One the other hand...if the oil analysis shows that there are unusual contaminants in your oil. Then Oil Analysis quite possibly just helped you save money from a catastrophic breakdown in the near future.

Sample #	Wear Metals (ppm)									
	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium
NL	0	0	0	0	0	0	0	0	0	0
1	14	0	0	3	5	0	0	0	0	0
2	25	1	1	5	5	0	1	0	1	0
3	22	1	2	4	6	0	0	0	0	0
4	24	1	3	5	3	0	0	0	0	0
5	20	0	2	3	3	0	0	0	0	0

The Altrum Minute - Multi Vitamins

Daily Nutritional Support provides the original ALTRUM multivitamin formula in smaller tablets for ease of swallowing. This economy multi contains more than one dozen supplements in one formula that provides significant levels of every nutrient considered important for human health.

This formula includes more than 100 life-sustaining vitamins, minerals, antioxidants, phytonutrients, enzymes, herbs and amino acids. The foundation of <u>Daily</u> <u>Nutritional Support</u> is a combined superfood/herbal base and super antioxidant/bioflavonoid blend that provides a broadband spectrum of nutrients that allows for the most effective absorption and the greatest nutritional benefit.*

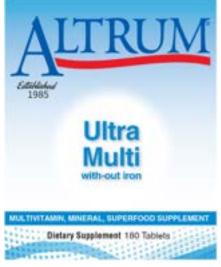
Economy-priced <u>Daily Nutri-</u> <u>tional Support</u> is a great starter multi with smaller tablets. This formula contains no fillers, artificial sweeteners, flavors or preservatives.



* These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure or prevent disease.

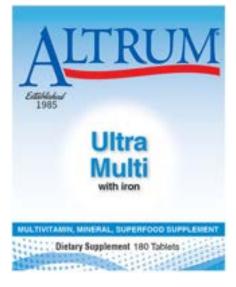
Ultra Multi (DWI) is the same great formula as the Ultra Multi (DNU) but without the iron, and is much more than a standard multivitamin. Its 86 ingredients give you more than 14 supplements in one formula. With more than 25 vitamins and minerals, antioxidants, phytonutrients, enzymes, herbs and amino acids, Ultra Multi is your foundation for well-being. * This unique formula is balanced and whole for optimum health and vitality.*

Provides nutritional insurance to help: Boost your energy* Protect your heart* Keep your mind sharp* Look and feel younger* Beat stress and fatigue* Strengthen immune system* Balance your mood* <u>Ultra Multi</u> is your foundation for great nutritional support in this age of on-the-go lifestyles. Ensure you receive all the nutrients you need in the most advanced, effective form possible.*



<u>Ultra Multi (with Iron)</u> is much more than a standard multivitamin. Its 86 ingredients give you more than 14 supplements in one formula. With more than 25 vitamins and minerals, antioxidants, phytonutrients, enzymes, herbs and amino acids, <u>Ultra Multi</u> is your foundation for well-being. * This unique formula is balanced and whole for optimum health and vitality.*

Ultra Multi provides nutritional insurance to help: Boost your energy* Protect your heart* Keep your mind sharp* Look and feel younger* Beat stress and fatigue* Strengthen immune system* Balance your mood* No other multi compares in the number of health and energysupporting ingredients.* Ultra Multi is your foundation for great nutritional support in this age of on-the-go lifestyles. Ensure you receive all the nutrients you need in the most advanced, effective form possible.*



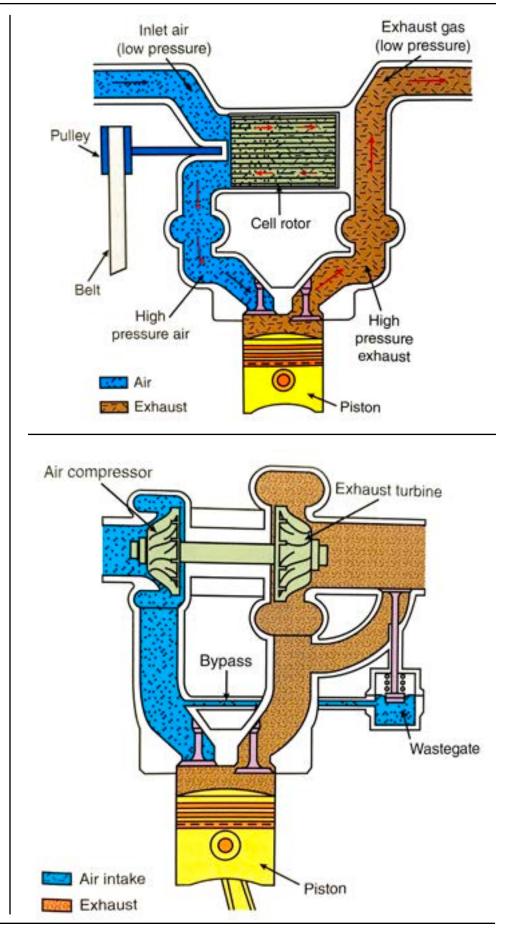
Diesel Digest - Superchargers & Turbochargers

A super charger or blower (at right) is an air pump that is mechanically driven by the engine. Its job is to force more air into the combustion chamber. More air permits a larger fuel charge to be burned in the cylinder, creating additional power from the same basic engine. Because the blower is driven by the engine, it robs the engine of power. However, this loss is more than offset by the power gained.

A turbocharger (bottom right) is also an air pump designed to put more air in the combustion chamber. However, it differs from a super charger in that it is driven by energy that normally would be wasted - the exhaust gasses rushing out of the engine.

One advantage to a turbocharger is that it operates hardest when it is needed the most. For example, when the engine is at idle or coasting downhill, it produces very little exhaust gas. This is fine because extra air and fuel are not needed under these conditions. When the engine is under heavy load, it produces more exhaust, the turbocharger spins faster, and more air is forced into the cylinder.

Turbochargers allow a small diesel engine to produce up to 40% more power than the same size engine could generate if it were naturally aspirated. Turbochargers also help an engine run better at high altitudes, where air is thin. At high altitudes, normally aspirated diesels smoke unless they are equipped with smaller injectors that limit the engine's power.



Shop Talk... with Dr. Jonathan D. Olson, EdD ZO #10458

When you look back on life, there are times when we make decisions that don't end up being the most intelligent decision at the time. Yet, when you are working from a limited knowledge base, it could be argued that it was a good decision in the moment. I had one of those moments this past summer while vacationing in Colorado with my family.

Most summers we take our family on a vacation somewhere in the country that requires less than 20 hours of driving. Usually we end up at the beach but this summer we decided to head to Colorado. The drive would be less and our kids have not been there for a number of years. My wife asked me if our car would make it up Pikes Peak (as well as all the other Colorado tourist attractions there are) and I assured her that it would.

I performed all the usual checks prior to our departure and ensured our 2008 Hyundai Elantra was operating without issue. All systems checked out, fluids topped off, and everything was "a go". As we headed towards Colorado I thought to myself, "I am amazed with how this vehicle has held up over all these years".

Dealer Contact

Omaha - Insane Oil Dr. Jonathan D. & Stacey L. Olson ZO Referral# 10458 402-990-7940 (text or call) <u>http://insaneoil.com</u> info@insaneoil.com We always take my wife's Elantra on vacation because it get's pretty good gas mileage, much better than my F150. We have driven it numerous times to South Padre Island (about as far south as you can go before hitting Mexico) and many other places. It is our "goto" ride. It is a fairly small vehicle, which when my kids were small worked great. However, it is starting to feel a little cramped as people's legs continue to get longer.

A nine hour drive to Colorado should be a quick little jaunt compared to the 18 hours that we drive to South Padre Island, TX. Although, if you happen to recall <u>Newsletter Issue #23 - July 2013 I</u> have experienced prior problems on vacations that require long drives. Although it has never been anything that I can't handle on the road. I'm sure I can handle anything we may encounter on this Colorado trip, or so I thought.

Well, I am not going to spoil the ending of this story at this point in time, because the ending is not yet determined. What I will tell you is that this little excursion did involve a mechanical mishap which led to a three week engine rebuild and a number of questions from a very curious Hyundai Service Manger on why I have Oil Analytic Reports for this particular vehicle.

Next month I will share some details and background about this fiasco to bring you up to speed.

Dealer's Zone By Don Olson ZO #4901

AMSOIL Price Adjustment Effective Oct. 1

Rising costs including raw materials, transportation, packaging and labor have prompted most major and independent lubricant companies, including ExxonMobil*, Valvoline*, Chevron*, Shell (Pennzoil)* and Castrol*, to announce up to 9-10 percent price increases effective in July and August. These rising costs also affect AMSOIL, requiring us to implement an average price increase of 3 percent in the U.S. and Canada effective Oct. 1, 2018. Despite this minimal price increase, we continue to ensure superior-quality products while maintaining competitive pricing. Commission credits will be increased accordingly.



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