

Olson Marketing

# Monthly

May 2019 - Issue #93

in partnership with Insane Oil of Omaha

Your Amsoil Information News Source

## Product Highlight: Amsoil Easy-Pack

Severe Gear Synthetic Gear Lube

Synthetic ATV/UTV  
Transmission And Gear Lube

Synthetic Marine Gear Lube

Signature Series Synthetic  
Automatic Transmission Fluid

Manual Transmission &  
Transaxle Gear Lube



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### Congratulations:

#### New Dealers

Ed Goff  
Unadilla, NE

#### New Preferred Customers

Trevor Braniff  
Ortonville, MI

Ronnie Hovda  
Yellow Springs, OH

Derek Hall  
Lincoln, NE

Mike Gabelhouse  
Lincoln, NE

Don Raines  
Clifton, IL

Adam Thomson  
Palmyra, NE

#### New Catalog Customers

Patrick Tisdale  
Washington, DC

Rusty Boston  
Goose Creek, SC

Alex Mack  
Las Vegas, NV

# Oil Analytics Saves You \$\$\$

If you have been reading this newsletter for any length of time, you may be well aware that I routinely run oil analytics on my vehicles. There are several reasons that I do this. First off, I like to test Amsoil Oil to see if it is actually doing its job after a year and if Amsoil's claims are accurate. Secondly, I like to monitor the wear and contaminant patterns in my vehicles so I can foresee future repairs.

I currently use the [Oil Analyzers Test Kit, UPS Pre-Paid, Product Code: KIT02-EA](#). For the longest time, I used the [USPS Pre-Paid Kit, Product Code: KIT01-EA](#), but ran into multiple instances with USPS taking 3 and 4 weeks to deliver my oil samples, which I found unacceptable. Thus why I have switched to the [UPS Pre-Paid kit, Product Code: KIT02-EA](#). Additionally, there is package tracking with UPS and at the current date, it is actually cheaper. But all that is aside from my original point.

This year I performed my annual oil sampling and oil/filter change on my 2001 F150 with my students. I had been talking about the benefits of oil analytics so we took a sample together and had it sent off. The results I received demonstrated precisely what I had been talking with my students about.

Taking a look specifically at the contaminant metals, I found an alarming pattern with regards to the Sodium and Potassium levels.

Sample #	Date Sampled	Contaminant Metals (ppm)		
		Silicon	Sodium	Potassium
NL	06-Apr-2016	6	2	2
1	04-Jun-2015	14	15	2
2	08-Jun-2016	16	12	3
3	31-May-2017	12	9	3
4	06-Jun-2018	9	35	36
5	17-May-2019	13	86	97

In 2015, 2016, and 2017 the Sodium and Potassium levels were significantly low. In 2018, I saw a jump in the Sodium level from 9 ppm in 2017 to 35 ppm in 2018. The Potassium levels also jumped from 3 in 2017 to 36 in 2018. Although both levels fell within the normal range, it was something worth paying close attention to in the future oil samples. This year, I took the oil sample just as I did in the past and the results of both Sodium and Potassium had tripled from the previous year.

Potassium has only one real major source when found in engine oil...antifreeze. Sodium can come from coolant also. When coolant leaks into the engine, it drains down into the sump. At standard operating temperatures, the water boils off and leaves behind sodium trace elements.

It is worth noting that boron, chromium, phosphorous and silicone levels can rise with a coolant leak also. On page 3, I have included the data collected for these 4 elements and there is no indication that these levels are becoming abnormal by way of coolant.

The causes of this coolant leak will be difficult to diagnose as there are many potential causes. Trouble areas include defective seals, electrochemical erosion, cavitation erosion, corrosion of the liners, a damaged cooler core, a blown head gasket, or a crack in the cylinder head or block. The effects of antifreeze contamination are a rise in the oil's viscosity or a thickening of the oil, the forma-



# continued...Oil Analytics Saves You \$\$\$

Sample #	Wear Metals (ppm)										Contaminant Metals (ppm)			Multi-Source Metals (ppm)					Additive Metals (ppm)					
	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
NL	0	0	0	0	0	0	0	0	0	0	6	2	2	0	152	0	0	0	212	15	3604	0	711	799
1	25	1	1	5	5	0	1	0	1	0	14	15	2	0	112	0	0	0	28	14	3457	0	587	712
2	22	1	2	4	6	0	0	0	0	0	16	12	3	0	141	0	0	0	36	16	3426	0	611	718
3	24	1	3	5	3	0	0	0	0	0	12	9	3	0	172	3	0	0	59	14	3538	0	615	723
4	20	0	2	3	3	0	0	0	0	0	9	35	36	0	118	0	63	0	25	13	3083	0	523	582
5	45	1	2	4	3	0	0	0	0	0	13	86	97	0	188	0	14	0	33	602	2050	0	668	774

tion of gels and emulsions, acid formation leading to corrosion, premature filter plugging and all-around poor lubrication.

Looking at my oil viscosity (at right), I did see a small increase in the viscosity which could be due to the coolant contamination.

Another potentially huge problem to be aware of is the reaction of calcium sulfonate (engine oil detergent) with the ethylene glycol

Sample #	Date Sampled	Viscosity 100 °C cSt
NL	06-Apr-2016	9.1
1	04-Jun-2015	9.7
2	08-Jun-2016	9.7
3	31-May-2017	8.9
4	06-Jun-2018	8.9
5	17-May-2019	9.2

(engine coolant). When these fluids are mixed, a chemical reaction ensues that produces small abrasive balls as a by-product (see picture below). These "oil balls" are between 5 and 40 microns in size. The significance of the size is that this is also the size of the fluid film. In essence what is produced is a sandpaper ball that fits perfectly into the clearance between the engine's internal components. The results are severe wear and eventual failure.



## continued...Oil Analytics Saves You \$\$\$

Given that these sandpaper "oil balls" are 5 to 40 microns, it is not a good situation to encounter. I currently run [Amsoil Ea Oil Filters](#) which have one of the best efficiency ratings in the automotive market. It will provide a filtering efficiency of 98.7% at 20 microns.



This is a tremendous asset with this coolant leak situation as it reduces the amount of sandpaper "oil balls" that are floating around in my engine. However, it still leaves particles 5 to 20 microns. Still not a good situation.

Running superior oil ([Amsoil Signature Series 5W-20](#)) and a superior oil filter ([Amsoil Ea Oil Filter](#)) will only slow down the degradation process caused by this coolant leak.

However, it isn't as bad as you think. To put it into perspective, if we do the math, after one full year of service on the oil/coolant there is one hundredth of one percent (0.01%) of the oil that sampled as having Potassium and Sodium contamination. This level is so insignificantly small that the typical means of identifying a coolant leak will not result in a determina-

tion that there is a leak. If I were to monitor the coolant reservoir for an entire year, there will be no change in the coolant level. If I were to monitor the exhaust coming out of the back of the vehicle, there will be no indication. Aside from oil analytics, there is no feasible method for catching this incredibly minor coolant leak this early on.

So what can be done?

A head gasket replacement can cost up to \$3000 in my 2001 F150 ([www.repairpal.com](http://www.repairpal.com)). Given that I don't actually know where the leak is at and that it is microscopically small there are only a few options. I could wait until the leak gets bigger and fix it with a massive repair. I could randomly replace things and hope it helps. Or, I could use a stop-leak product and hope it works.

I choose to use a Stop Leak product. The basic concept behind these products is as follows:

1. You have a leak somewhere.
2. You put the product in the radiator.
3. The product moves throughout the cooling system.
4. When the product leaks to the outside it becomes hard and seals the leak.
5. The leak is "fixed".

I have had a 50% success rate when using this product on other vehicles. I have found that the smaller the leak, the more likely it will be a resolution to the problem. My thought process is as

follows:

1. I have a tiny leak.
2. This product works on tiny leaks.
3. Use the product.
4. Assess after one year to see if it works.

Currently, my coolant is at the end of its life. My plan is to run this stop leak product for 3-6 months, drain and refill the coolant, and after one year (when I do my annual oil change), take another oil sample. If next year's oil sample has significantly less Sodium and Potassium, then the stop leak product worked. If the Sodium and Potassium levels are the same then the leak is not getting larger. If the Sodium and Potassium levels increase, then the leak is getting bigger, the stop-leak didn't help and a more aggressive course of action may be required.



# Dealer's Zone...By Don Olson, ZO #4901

Depending on two-stroke equipment age, brand and owner preferences, keeping track of two-stroke oil mix ratios can be complicated. Professional lawn and landscape companies in particular face challenges when it comes to ensuring employees are using the correct mix ratio.

[AMSOIL SABER® Professional Synthetic 2-Stroke Oil](#) helps solve these problems by providing excellent protection against performance-robbing carbon and wear at any mix ratio up to 100:1.

Two-stroke mix ratios apply to two-stroke equipment that requires oil and gas to be pre-mixed. This is in contrast to two-stroke engines that inject oil into the engine, such as many snowmobiles and newer outboard motors. The mix ratio is the proportion of gas to oil, expressed as a ratio. For example, 50:1 means 50 parts gas to 1 part oil. The chart below shows the proportions and container sizes for conventional mix ratios (e.g. 32:1, 40:1 and 50:1) and the SABER Ratio™ (80:1 or 100:1).

We tested [SABER Professional](#) at a 100:1 mix ratio compared to other two-stroke oils at 50:1, and the re-

sults are clear: [SABER Professional](#) dominated the competition in every area of performance. Even when using half as much oil, SABER Professional does a better job fighting carbon deposits that rob engines of power and reduce their service life. It helps landscapers, contractors and other professionals work more efficiently and cut costs.

[SABER Professional's](#) high-quality synthetic base oils burn more cleanly than other synthetic and conventional base oils. It eliminates carbon deposits that lead to stuck piston rings, clogged exhaust ports and plugged spark arrestor screens. Following 300 hours of professional-use testing in ECHO\* string trimmers, SABER Professional mixed at 100:1 resisted carbon better than ECHO Power Blend\* XTended Life\* Universal 2-Stroke Oil mixed at 50:1 (see images). For complete test results, see the ECHO 100:1 String Trimmer Technical Study (G3470).

Mixing [SABER Professional](#) at 100:1 cuts oil costs by 50 percent or more while still providing unmatched protection and performance. It allows professionals the

best of both worlds — reduced costs and increased protection.

[SABER Professional](#) passes the industry-standard smoke test at the standard rich mix ratio. When mixed at the SABER Ratio, smoke is virtually undetectable. Equipment operators subjected to smoke and fumes benefit from these low-emission properties.

- Excellent lubricity and cleanliness
- Controls friction and helps prevent wear, plug fouling, ring sticking and exhaust port blocking
- Smokeless – delivers fewer emissions at 80:1 and 100:1
- Stabilizes fuel during storage
- Delivers outstanding protection and performance at lean mix ratios

