

## Report of the Month

That's a lot of aluminum. Can you tell what's going on with this 2003 Mustang GT?

To learn more about where the elements are coming from, [click here](#).

ELEMENTS IN PARTS PER MILLION	MI/HR on Oil	4,900	UNIT/ LOCATION AVERAGES	4,500	4,714			UNIVERSAL AVERAGES
	MI/HR on Unit	108,918		104,000	99,587			
	Sample Date	5/20/2016		1/4/2016	8/9/2015			
	ALUMINUM	479	199	80	39			4
	CHROME	2	2	1	2			1
	IRON	33	18	9	12			15
	COPPER	22	12	7	6			5
	LEAD	0	0	0	1			2
	TIN	0	0	0	0			1
	MO LYBDENUM	2	2	2	3			62
	NICKEL	3	2	2	2			1
	POTASSIUM	2	3	4	4			2
	BORON	1	3	7	7			55
	SILICON	66	35	17	17			15
	SODIUM	313	325	342	342			41
CALCIUM	2030	2077	2115	2086			2120	
MAGNESIUM	13	11	12	9			153	
PHOSPHORUS	588	608	694	542			716	
ZINC	728	716	758	662			846	
BARIUM	1	1	1	1			1	

Values  
Should Be\*

PROPERTIES	SUS Viscosity @210°F	53.6	46-59	55.5	52.7		
	cSt Viscosity @ 100°C	8.35	6.0-10.2	8.91	8.08		
	Flashpoint in °F	420	>385	415	430		
	Fuel %	<0.5	<2.0	<0.5	<0.5		
	Antifreeze %	0.0	0.0	0.0	0.0		
	Water %	0.0	0.1	0.0	0.0		
	Insolubles %	0.2	<0.6	0.2	0.2		
	TBN						

After seeing a video online about oil analysis, the owner of this Mustang decided to give it a try. In August 2015 he got his first report back, noted aluminum, and didn't think too much of it. In 2015 he sent another sample and the report showed aluminum nearly doubled. He says he was starting to get a bit nervous about the timing chain or bearings, but decided to wait till he could hear noise. When he sent the final sample in May and it came back with extremely high aluminum, he realized that although he couldn't hear or see any symptoms, the oil report was enough to take action. "I took my vehicle to a repair shop and explained the situation to the service advisor. He seemed very skeptical about what I had told him, and even more skeptical when he started the ignition and it ran like a clock. He said he really didn't think it was the timing chain, since the vehicle only had 109,000 miles on it. I requested that his team check the oil pressure and use a borescope to check the timing chain and tensioners. I received a call back about a day later and was informed that the timing chain guides were worn down, which ultimately would have led to possible catastrophic engine failure. The chain had worn through the plastic guides and were now rubbing against the motor. These reports basically saved me from a costly motor rebuild or replacement even when the vehicle wasn't displaying any tangible symptoms."