

**COMMENTS**

VERNER: For the most part, the wear-in process is going as we might expect. Most metals and silicon are lower, which is what we should find as wear-in material washes out. Aluminum jumped to 36 ppm and it shows more piston/bearing wear than we typically find. It's the only metal going against the grain so we aren't certain it shows a problem. Maybe there was still some wearing in to do and aluminum will drop next time - fingers crossed. Check back in ~4,000 miles again next time, despite the 3.1 TBN. Fuel is harmless at 1.0% - it's from normal use like idling or short trips.

ELEMENTS IN PARTS PER MILLION	MI/HR on Oil	4,175	UNIT / LOCATION AVERAGES	850					UNIVERSAL AVERAGES
	MI/HR on Unit	9,375		850					
	Sample Date	4/10/2025		8/15/2024					
	Make Up Oil Added	0 qts		0 qts					
	ALUMINUM	36		8					5
	CHROMIUM	0		0					0
	IRON	20		18					7
	COPPER	5		31					3
	LEAD	0		0					0
	TIN	0		1					0
	MOLYBDENUM	83		704					115
	NICKEL	0		0					0
	MANGANESE	0		1					0
	SILVER	0		0					0
	TITANIUM	0		0					0
	POTASSIUM	4		1					7
	BORON	25		63					61
	SILICON	27		165					21
	SODIUM	3		5					4
	CALCIUM	1035		1084					1174
	MAGNESIUM	404		439					532
	PHOSPHORUS	547		763					643
	ZINC	664		802					736
	BARIUM	0		1					0

Values  
Should Be\*

PROPERTIES	SUS Viscosity @ 210°F	46.3	46-57	48.2				
	cSt Viscosity @ 100°C	6.13	6.0-9.7	6.71				
	Flashpoint in °F	365	>385	370				
	Fuel %	1.0	<2.0	0.8				
	Antifreeze %	0.0	0.0	0.0				
	Water %	0.0	<0.1	0.0				
	Insolubles %	0.2	<0.6	0.1				
	TBN	3.1	>2.0					
	TAN							
	ISO Code							

\* THIS COLUMN APPLIES ONLY TO THE CURRENT SAMPLE

416 E. PETTIT AVE. FORT WAYNE, IN 46806 (260) 744-2380 [www.blackstone-labs.com](http://www.blackstone-labs.com)