



OIL REPORT

LAB NUMBER: M08364
REPORT DATE: 3/9/2020
CODE: 20/68

UNIT ID: 01 M3
CLIENT ID: 33429
PAYMENT: CC: AmEx

UNIT	MAKE/MODEL: BMW 3.2L (S54B32) I-6	OIL TYPE & GRADE: Total Quartz Race 10W/60
	FUEL TYPE: Gasoline (Unleaded)	OIL USE INTERVAL: 7 Hours
	ADDITIONAL INFO: E46, Race engine	

CLIENT	MARK PFEFFER	PHONE: ((31) 4) -249-3770
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COMMENTS	MARK: Thanks for the note on the smell of gas. We did find some fuel in this sample -- 2.5% of the sample. That may have thinned the viscosity a bit. However, you noted lots of cold starts, so maybe with that being less of an issue as the weather warms up, the fuel will clear up. There was some water in the sample, and note that insolubles read high at 1.0%, showing oxidation due to heat, use, and contamination. Maybe the cold starts/condensation are factors in that, too. Wear metals look okay -- not any higher/lower than normal. Try just 4 hours to monitor fuel and water.
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ELEMENTS IN PARTS PER MILLION	MI/HR on Oil	7	UNIT / LOCATION AVERAGES	3	9	6	6	UNIVERSAL AVERAGES
	MI/HR on Unit	59		44	41	32	22	
	Sample Date	2/24/2020		5/12/2019	11/22/2018	7/22/2018	7/19/2017	
	Make Up Oil Added	0 qts		0 qts	0.25 qts	0.125 liter		
	ALUMINUM	2	4	2	4	3	7	4
	CHROMIUM	1	1	1	1	1	3	0
	IRON	18	21	9	20	15	42	9
	COPPER	4	5	3	5	5	10	8
	LEAD	3	3	1	5	4	1	6
	TIN	1	0	0	0	0	0	0
	MOLYBDENUM	28	49	53	58	58	49	93
	NICKEL	0	0	0	0	0	0	0
	MANGANESE	1	2	1	2	3	2	1
	SILVER	0	0	0	0	0	0	0
	TITANIUM	0	0	0	0	0	0	12
	POTASSIUM	2	1	1	0	0	3	1
	BORON	18	66	78	87	75	71	59
	SILICON	7	6	4	7	3	11	5
	SODIUM	5	5	2	6	4	6	7
	CALCIUM	1752	1575	1593	1749	1412	1370	2313
	MAGNESIUM	10	5	3	4	3	5	172
	PHOSPHORUS	794	855	826	946	930	777	846
	ZINC	890	965	983	1054	998	902	989
	BARIUM	0	0	0	0	0	0	0

Values
Should Be*

PROPERTIES	SUS Viscosity @ 210°F	71.9	80-100	87.5	82.5	91.1	83.4
	cSt Viscosity @ 100°C	13.44	15.5-20.6	17.38	16.14	18.24	16.37
	Flashpoint in °F	345	>395	375	460	375	375
	Fuel %	2.5	<2.0	1.0	<0.5	1.0	1.0
	Antifreeze %	0.0	0.0	0.0	0.0	0.0	0.0
	Water %	POS	0.0	0.0	0.0	0.0	0.0
	Insolubles %	1.0	<0.6	0.2	0.3	0.2	0.2
	TBN			2.9	3.6		
	TAN						
	ISO Code						

* THIS COLUMN APPLIES ONLY TO THE CURRENT SAMPLE

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