



OIL REPORT

LAB NUMBER: J81060
 REPORT DATE: 12/4/2017
 CODE: 1/685

UNIT ID: 9359
 CLIENT ID: XXXXXXXXXX
 PAYMENT: Verbal, R.

UNIT	MAKE/MODEL: Isuzu 6.6L Duramax	OIL TYPE & GRADE: Champion 15W/40
	FUEL TYPE: Diesel	OIL USE INTERVAL: 8,500 Miles
	ADDITIONAL INFO: XXXXXXXXXX	

CLIENT	R. CUMMINS	PHONE: (415) 986-8238
	HUBB FILTERS, INC - CALIFORNIA	FAX:
	233 TAMALPAIS DR	ALT PHONE:
	STE B	EMAIL: rcummins@hubbfilters.com
	CORTE MADERA, CA 94925	

COMMENTS HUBB FILTERS: The metals look better for unit 9359 at 113,674 miles. The drop in copper and lead is particularly impressive. We were getting a bit concerned about brass/bronze parts and bearings, but that concern has lessened significantly here. Lead is still a bit high, but there's some residual metal here from last time too, so hopefully we'll find more improvement in the next sample and we can give this engine a highlight-free report. The slightly thick viscosity didn't do any harm. Air and oil filtration are fine and the TBN is 5.2. Great improvements.

ELEMENTS IN PARTS PER MILLION	MI/HR on Oil	8,500	UNIT / LOCATION AVERAGES	8,600	3,272	UNIVERSAL AVERAGES
	MI/HR on Unit	113,674		105,191	84,286	
	Sample Date	11/15/2017		10/13/2017	7/20/2017	
	Make Up Oil Added					
ALUMINUM	2	3	8	7	3	
CHROMIUM	1	1	1	0	0	
IRON	28	26	32	19	14	
COPPER	6	4	97	66	10	
LEAD	5	9	41	35	2	
TIN	1	1	3	1	1	
MOLYBDENUM	1	54	1	1	42	
NICKEL	0	0	1	0	0	
MANGANESE	0	0	1	1	0	
SILVER	0	0	0	0	0	
TITANIUM	1	0	6	6	0	
POTASSIUM	1	5	10	11	5	
BORON	31	51	46	73	117	
SILICON	8	16	9	7	9	
SODIUM	7	4	9	11	5	
CALCIUM	1908	1344	1439	1715	1864	
MAGNESIUM	293	773	635	718	480	
PHOSPHORUS	1143	1026	1079	1144	1064	
ZINC	1285	1230	1220	1300	1245	
BARIUM	0	0	0	0	0	

Values Should Be*

PROPERTIES	SUS Viscosity @ 210°F	79.2	69-78	79.7	74.7
	cSt Viscosity @ 100°C	15.32	12.7-15.3	15.46	14.17
	Flashpoint in °F	420	>415	425	445
	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	0.3
	TBN	5.2	>1.0	4.7	6.1
	TAN				
	ISO Code				

* THIS COLUMN APPLIES ONLY TO THE CURRENT SAMPLE

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