



**Merchant Automotive**

Unit ID:  
 Model: GM - 6.6 Duramax  
 Machine Type: Engine



Copper is still very high

Silicon and sodium are elevated indicating dirt/dust is entering the crankcase. This can also be from additional additives

All other elements are acceptable

Re-sample at normal intervals

System Admin, 23 Jun 2015

Oil	Royal Purple 15w40	Sample ID	29DC8 (P1653)	1B210 (P1036)
Note: Oil Changed		Sampled on	22 Jun 2015	14 Apr 2015
		Received on	22 Jun 2015	14 Apr 2015
		h/m Total	238204	232000
		h/m Oil	5620	6000
		Top up (l.)		
			▲	▲
		<i>Warning Limits</i>		
	Iron	ppm	0-40	11
	Chrome	ppm	0-5	<1
	Nickel	ppm		<1
	Molybdene	ppm		4
	Aluminium	ppm	0-6	3
ASTM D6595-00	Lead	ppm	0-15	4
WEAR METALS	Copper	ppm	0-15	5
	Tin	ppm	0-10	2
	Silver	ppm		<1
	Titanium	ppm		<1
	Silicon	ppm	0-5	<1
	Sodium	ppm	0-5	11
ASTM D6595-00	Vanadium	ppm		7
CONTAMINANT S	Potassium	ppm		<1
	Lithium	ppm		<1
	Calcium	ppm		1
	Magnesium	ppm		2168
	Phosphorus	ppm		9
ASTM D6595-00	Zinc	ppm		11
ADDITIVES	Barium	ppm		915
	Boron	ppm		1434
MET-MEC-005	Fuel dilution	%		<1
	Viscosity at 40°C	cSt		45
ASTM D445	Viscosity at 100°C	cSt	13.3-16.3	56
ASTM D445	Viscosity index	°C		0
ASTM D2270-98	TBN	mg KOH/g	5.00-11.00	0
	WaterPPM	ppm		5.40
	OX	abs/mm2		5.47
	NIT	abs/mm2		0.0
ASTM E2412	SUL	abs/mm2		0.0
	Glycol	%	0.0-1.0	18.5
	Soot	%wt		2.6
				20.3
				21.4
				0.0
				0.0

Date 23 Jun 2015



**Merchant Automotive**

Unit ID:  
 Model: GM - 6.6 Duramax  
 Machine Type: Engine



All elements are acceptable. Oil is suitable for continued use.

Re-sample at normal intervals.

System Admin, 23 Feb 2015

Oil	Amsoil 15w40	Sample ID	114F2 (P572)	32F6 (N135)
Note: Sampled Only		Sampled on	23 Feb 2015	13 Nov 2014
		Received on	23 Feb 2015	13 Nov 2014
		h/m Total	33470	27180
		h/m Oil	6290	16180
		Top up (l.)		2.0
			●	▲
ASTM D6595-00 WEAR METALS	Iron	ppm	22	36
	Chrome	ppm	<1	1
	Nickel	ppm	<1	<1
	Molybdene	ppm	42	37
	Aluminium	ppm	12	8
	Lead	ppm	<1	3
	Copper	ppm	37	150
	Tin	ppm	3	3
	Silver	ppm	<1	<1
	Titanium	ppm	<1	<1
ASTM D6595-00 CONTAMINANT S	Silicon	ppm	9	16
	Sodium	ppm	11	14
	Vanadium	ppm	<1	<1
	Potassium	ppm	34	24
	Lithium	ppm	<1	<1
ASTM D6595-00 ADDITIVES	Calcium	ppm	877	631
	Magnesium	ppm	1156	909
	Phosphorus	ppm	1133	1064
	Zinc	ppm	1704	1208
	Barium	ppm	<1	<1
Boron	ppm	33	19	
MET-MEC-005	Fuel dilution	%	1	0
ASTM D445	Viscosity at 40°C	cSt	112	118
ASTM D445	Viscosity at 100°C	cSt	16.9	17.7
ASTM D2270-98	Viscosity index	°C	165	166
ASTM E2412	TAN	mg KOH/g	4.23	3.13
	TBN	mg KOH/g	5.04	3.47
	WaterPPM	ppm	926.7	508.3
	OX	abs/mm2	14.3	15.4
	NIT	abs/mm2	10.8	12.2
	SUL	abs/mm2	18.2	20.5
	Glycol	%	0.0	0.0
	Soot	%wt	0.3	0.6

Date 23 Feb 2015