

OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL

VOLVO VNL 147 (S/N 4V4NC9EH8NN304367)

Diesel Engine

PETRO CANADA DURON SHP 10W30 (--- GAL)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

Wear

Metal levels are typical for a new component breaking in.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

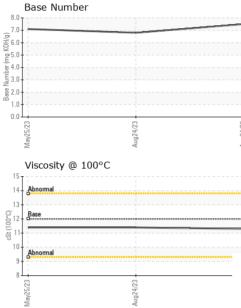
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

			2023	Aug2023 Aug20		
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0097540	PCA0097430	PCA0097567
Sample Date		Client Info		24 Aug 2023	24 Aug 2023	25 May 2023
Machine Age	mls	Client Info		293000	316000	268000
Oil Age	mls	Client Info		25000	25000	0
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>6.0	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	0.0
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	15	14	22
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	0	<1
Titanium	ppm	ASTM D5185m		0	<1	0
Silver	ppm	ASTM D5185m		0	0	0
Aluminum	ppm	ASTM D5185m	>25	6	3	3
Lead	ppm	ASTM D5185m	>40	<1	<1	<1
Copper	ppm	ASTM D5185m	>330	4	4	8
Tin	ppm	ASTM D5185m	>15	<1	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	2	0	0	0
	ppm ppm	ASTM D5185m ASTM D5185m	0	0	0	2
Barium Molybdenum			0 50		0 63	2 72
Barium Molybdenum Manganese	ppm	ASTM D5185m	0 50 0	0	0 63 <1	2 72 <1
Barium Molybdenum Manganese Magnesium	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 50	0 66	0 63 <1 957	2 72 <1 991
Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 50 0 950 1050	0 66 <1 987 1085	0 63 <1 957 1016	2 72 <1 991 1133
Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 50 0 950	0 66 <1 987 1085 1100	0 63 <1 957 1016 1008	2 72 <1 991 1133 1155
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 50 0 950 1050 995 1180	0 66 <1 987 1085	0 63 <1 957 1016 1008 1236	2 72 <1 991 1133 1155 1356
Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 50 0 950 1050 995	0 66 <1 987 1085 1100	0 63 <1 957 1016 1008	2 72 <1 991 1133 1155
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 50 0 950 1050 995 1180	0 66 <1 987 1085 1100 1343	0 63 <1 957 1016 1008 1236	2 72 <1 991 1133 1155 1356
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 50 0 950 1050 995 1180 2600	0 66 <1 987 1085 1100 1343 3487 current 4	0 63 <1 957 1016 1008 1236 3339 history1 4	2 72 <1 991 1133 1155 1356 3692 history2 5
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 50 0 950 1050 995 1180 2600	0 66 <1 987 1085 1100 1343 3487 current	0 63 <1 957 1016 1008 1236 3339 history1 4 2	2 72 <1 991 1133 1155 1356 3692 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 50 0 950 1050 995 1180 2600	0 66 <1 987 1085 1100 1343 3487 current 4	0 63 <1 957 1016 1008 1236 3339 history1 4	2 72 <1 991 1133 1155 1356 3692 history2 5
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	0 50 0 950 1050 995 1180 2600 limit/base >25	0 66 <1 987 1085 1100 1343 3487 current 4 6	0 63 <1 957 1016 1008 1236 3339 history1 4 2	2 72 <1 991 1133 1155 1356 3692 history2 5 28
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 50 0 950 1050 995 1180 2600 limit/base >25 >20	0 66 <1 987 1085 1100 1343 3487 current 4 6 13	0 63 <1 957 1016 1008 1236 3339 history1 4 2 5	2 72 <1 991 1133 1155 1356 3692 history2 5 28 76
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 50 0 950 1050 995 1180 2600 <i>limit/base</i> >25 >20	0 66 <1 987 1085 1100 1343 3487 current 4 6 13 Current	0 63 <1 957 1016 1008 1236 3339 history1 4 2 5 5 history1	2 72 <1 991 1133 1155 1356 3692 history2 5 28 76 history2
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	0 50 0 950 1050 995 1180 2600 <i>limit/base</i> >25 >20 <i>limit/base</i>	0 66 <1 987 1085 1100 1343 3487 current 4 6 13 current 0.3	0 63 <1 957 1016 1008 1236 3339 history1 4 2 5 history1 0.3	2 72 <1 991 1133 1155 1356 3692 history2 5 28 76 kistory2 0.4
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 50 0 950 1050 995 1180 2600 imit/base >25 >20 imit/base >3 >20	0 66 <1 987 1085 1100 1343 3487 current 4 6 13 current 0.3 8.9	0 63 <1 957 1016 1008 1236 3339 history1 4 2 5 5 history1 0.3 9.1	2 72 <1 991 1133 1155 1356 3692 history2 5 28 76 kistory2 0.4 8.9
Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 50 0 950 1050 995 1180 2600 imit/base >25 >20 imit/base >3 >20 >30	0 66 <1 987 1085 1100 1343 3487 current 4 6 13 current 0.3 8.9 19.1	0 63 <1 957 1016 1008 1236 3339 history1 4 2 5 history1 0.3 9.1 19.6	2 72 <1 991 1133 1155 1356 3692 history2 5 28 76 28 76 history2 0.4 8.9 20.7



OIL ANALYSIS REPORT

VISUAL



	White Metal	scalar '	*Visual	NONE	NONE	NONE	NONE
	Yellow Metal	scalar '	*Visual	NONE	NONE	NONE	NONE
	Precipitate	scalar '	*Visual	NONE	NONE	NONE	NONE
	Silt	scalar '	*Visual	NONE	NONE	NONE	NONE
	Debris		*Visual	NONE	NONE	NONE	NONE
	Sand/Dirt		*Visual	NONE	NONE	NONE	NONE
4/23			*Visual	NORML	NORML	NORML	NORML
Aug24/23 Aug24/23	Odor		*Visual	NORML	NORML	NORML	NORML
	Emulsified Water		*Visual	>0.2	NEG	NEG	NEG
	Free Water		*Visual	20.2	NEG	NEG	NEG
				Para la fla en en e			
	FLUID PROPE			limit/base	current	history1	history2
	Visc @ 100°C GRAPHS	cSt /	ASTM D445	12.00	11.3	11.4	11.4
	Ferrous Alloys						
	²⁵ T						
4/23	iron chromium						
Aug24/23 -	20 - michael	1					
	15						
	Edd						
	10						
	5						
	3	/23		/23			
	May25/23	Aug24/23		Aug24/23			
	≥ Non-ferrous Meta			A			
	¹⁰ T						
	copper						
	8 - sesses tin						
	6						
	m dd						
	4	-					
	2						
	0	5 5		23			
	23			24/			
	ay25/23	1924/2		Br			
	W	Aug24/23		Aug24/23			
	^{EZ/32/eW} Viscosity @ 100°C				Base Number		
	≥ Viscosity @ 100°C			8.0)T		
	Viscosity @ 100°C			8.0]		
	S Viscosity @ 100°C			8.0]		
	S Viscosity @ 100°C			8.0]		
	Viscosity @ 100°C			8.0]		
	S Viscosity @ 100°C			8.0 7.0 (b)HOX 5.0 Jaquing 1.0 3.0			
	Solution 12 - Base			8.0			
	S Viscosity @ 100°C	2		8.0 7.0 ()(HOX BD)) a quury a 3.0 88 2.0 1.0 0.0			
	S Viscosity @ 100°C	2		8.0 7.0 ()(HOX BD)) a quury a 3.0 88 2.0 1.0 0.0		24/23	
	S Viscosity @ 100°C			8.0 7.0 (b)(OX) 5.0 Jack 4.0 Jack 4.0 Jack 2.0 8 2.0 1.0		Aug24/23	
l aboratory	Viscosity @ 100°C	C 4/123		8.0 7.0 ()(HOX) 6.0 ()(HOX) 60 ()(HOX) 60 ()	May25/23		
Laboratory Sample No.	Viscosity @ 100°C	C C22772Dny 501 Madisc		8.0 7.0 9(Hoy 5.0 94.0 988 2.0 1.0 620720nv 7y, NC 27513	May25/23	TV	
Laboratory Sample No. Lab Number	Viscosity @ 100°C	501 Madisc Received	: 06 (8.0 7.0 ()(HOX) 6.0 ()(HOX) 60 ()(HOX) 60 ()	May25/23	TV/ 13915	A REPAIR LI 5 W ROUTE PLAINFIELD,
Sample No.	Viscosity @ 100°C	C C22772Dny 501 Madisc	:060 d:090	8.0 7.0 9(Ho) 5.0 900 but he due 1.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0 0.0	May25/23	TV/ 13915	5 W ROUTE PLAINFIELD,
Sample No. Lab Number Unique Number tificate 12367 Test Package	Viscosity @ 100°C Viscosity @ 100°C Abnormal Base EUSS EUSS WearCheck USA - 5 : PCA0097540 : 05972013 r : 10683963 e : FLEET	501 Madisc Received Diagnosetic	:060 d:090 cian:Wes	8.0 7.0 9(Hoto) full 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 0.0 1.0 0.0 1.0 0.0 1.0 0.0 1.0 0.0 1.0 0.0 1.0 0.0 1.0 0.0 1.0 0.0 1.0 0.0 0	May25/2/3	TV/ 13915 F Contact: JOSH	5 W ROUTE PLAINFIELD, US 605 IUA HUBBAR
Sample No. Lab Number Unique Number	Viscosity @ 100°C Viscosity @ 100°C Abnormal Base EUSS WearCheck USA - 5 PCA0097540 : PCA0097540 : 05972013 r : 10683963 e : FLEET ; contact Customer Serv	501 Madisc Received Diagnoset Diagnostic	:06 (d :09 (cian :Wes	8.0 7.0 9(HoO) PBU 4.0 1.0 1.0 1.0 0.0 1.0 0.0 1.0 0.0 1.0 0.0 1.0 0.0 1.0 0.0 1.0 0.0 1.0 0.0 0	May25/2/3	TV/ 13915 F Contact: JOSH joshua@t	5 W ROUTE PLAINFIELD, US 605