

OIL ANALYSIS REPORT

Sample Rating Trend





Component

Diesel Engine

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

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor. Please specify the component make and model with your next sample.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

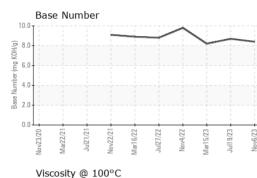
Fluid Condition

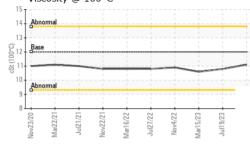
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORMATION method limit/base current history1 history2							
Sample Number Client Info PCA0105804 PCA0100954 PCA0094537 Sample Date Client Info 15 0731 143205 15 Mar 2023 Oli Age mis Client Info 150731 143205 134582 Dil Changed Client Info 7526 0 8136 Dil Changed Client Info Changed Changed Changed Sample Status Imit Info Changed Changed Changed CONTAMINATION method Imit/base current history1 history2 Fuel WC Method >5 <1.0 <1.0 <1.0 <1.0 Water WC Method >0 2 NEG NEG NEG NEG Witho Ppm ASTM D51655 >100 4 17 15 Chromium ppm ASTM D51655 >3 0 <1 <1 Nickel ppm ASTM D51655 >3 0 <1 <1 Nickel ppm <th>TS)</th> <th></th> <th>Nov2020 Mar2</th> <th>021 Jul2021 Nov2021 Mar</th> <th>2022 Jul2022 Nov2022 Mar2023 Jul2</th> <th>023 Nov2023</th> <th></th>	TS)		Nov2020 Mar2	021 Jul2021 Nov2021 Mar	2022 Jul2022 Nov2022 Mar2023 Jul2	023 Nov2023	
Sample Date Client Info 06 Nov 2023 19 Jul 2023 15 Mar 2023 Vachine Age mis Client Info 150731 143205 134582 Dil Age mis Client Info 7526 0 8136 Dil Changed Client Info Changed Changed Changed Changed Sample Status Imit/base current NORMAL NORMAL NORMAL NORMAL CONTAMINATION method imit/base current history1 history2 Fuel WC Method >5 <1.0 <1.0 <1.0 WART WC Method >0.2 NEG NEG NEG On ppm ASTM D5165m >10.0 4 17 15 Chromium ppm ASTM D5165m >30 <1 <1 <1 Silver ppm ASTM D5165m >33 0 <1 <1 Condition ppm ASTM D5165m >30 1 4 13 <th>SAMPLE INFOR</th> <th>MATION</th> <th>method</th> <th>limit/base</th> <th>current</th> <th>history1</th> <th>history2</th>	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Machine Age mis Client Info 150731 143205 134582 Di Age mis Client Info 7526 0 8136 Di Changed Client Info 7526 0 8136 Di Changed Into NORMAL NORMAL NORMAL NORMAL CONTAMINATION method inti/base current history1 Kistory2 Tuel WC Method >5 <1.0	Sample Number		Client Info		PCA0105804	PCA0100954	PCA0094537
Dil Age mis Client Info 7526 0 8136 Dil Changed Client Info Changed Chande Cha	Sample Date		Client Info		06 Nov 2023	19 Jul 2023	15 Mar 2023
Dil Changed sample Status Client Info Changed NORMAL NORMAL NORMAL CONTAMINATION method imit/base current history1 history2 Viel WC Method >0.2 NEG NEG NEG Silvool WC Method >0.2 NEG NEG NEG WEAR METALS method imit/base current history1 history2 for ppm ASTM 55185m >20 1 <1	lachine Age	mls	Client Info		150731	143205	134582
NORMAL NORMAL NORMAL NORMAL NORMAL CONTAMINATION method limit/base current history1 history2 ivel WC Method >5 <1.0	Dil Age	mls	Client Info		7526	0	8136
CONTAMINATION method limit/base current history1 history2 uel WC Method >5 <1.0	Dil Changed		Client Info		Changed	Changed	Changed
Tuel WC Method >5 <1.0 <1.0 <1.0 Vater WC Method >0.2 NEG NEG NEG Slycol WC Method NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 ron ppm ASTM D5185m >100 4 17 15 chronium ppm ASTM D5185m >20 1 <1	Sample Status				NORMAL	NORMAL	NORMAL
Vater WC Method >0.2 NEG NEG NEG NEG Blycol WC Method Iimit/base current history1 history2 tron ppm ASTM D5185m >100 4 17 15 chromium ppm ASTM D5185m >20 1 <1	CONTAMINAT	ION	method	limit/base	current	history1	history2
Bilycol WC Method NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 oron ppm ASTM D5185m >100 4 17 15 chromium ppm ASTM D5185m >20 1 <1	uel		WC Method	>5	<1.0	<1.0	<1.0
WEAR METALS method limit/base current history1 history2 ron ppm ASTM D5185m >100 4 17 15 biromium ppm ASTM D5185m >20 1 <1	Vater		WC Method	>0.2	NEG	NEG	NEG
ron ppm ASTM D5185m >100 4 17 15 Chromium ppm ASTM D5185m >20 1 <1	âlycol		WC Method		NEG	NEG	NEG
Dromium ppm ASTM D5185m >20 1 <1 <1 <1 lickel ppm ASTM D5185m >4 0 0 0 itanium ppm ASTM D5185m >3 0 <1	WEAR METAL	S	method	limit/base	current	history1	history2
Name Name <th< td=""><td>ron</td><td>ppm</td><td>ASTM D5185m</td><td>>100</td><th>4</th><td>17</td><td>15</td></th<>	ron	ppm	ASTM D5185m	>100	4	17	15
Titanium ppm ASTM D5185m >3 0 <1 <1 Silver ppm ASTM D5185m >3 0 <1	Chromium	ppm	ASTM D5185m	>20	1	<1	<1
Silver ppm ASTM D5185m >3 0 <1 0 duminum ppm ASTM D5185m >20 2 7 5 ead ppm ASTM D5185m >40 0 2 1 Dopper ppm ASTM D5185m >330 1 4 13 in ppm ASTM D5185m >15 0 <1	lickel	ppm	ASTM D5185m	>4	0	0	0
Numinum ppm ASTM D5185m >20 2 7 5 ead ppm ASTM D5185m >40 0 2 1 copper ppm ASTM D5185m >330 1 4 13 in ppm ASTM D5185m >15 0 <1	ïtanium	ppm	ASTM D5185m		0	<1	<1
ead ppm ASTM D5185m >40 0 2 1 Copper ppm ASTM D5185m >330 1 4 13 Copper ppm ASTM D5185m >15 0 <1	Silver	ppm	ASTM D5185m	>3	0	<1	0
Dopper ppm ASTM D5185m >330 1 4 13 Tin ppm ASTM D5185m >15 0 <1 <1 Anadium ppm ASTM D5185m 0 0 0 0 Corrent ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Soron ppm ASTM D5185m 0 4 2 0 Adapte ppm ASTM D5185m 0 60 74 55 Manganese ppm ASTM D5185m 0 60 11 Magnesium ppm ASTM D5185m 0 0 1225 Adagnesium ppm ASTM D5185m 1050 1198 1231 1225 Inc ppm ASTM D5185m 950 1078 1082 912 Inc ppm ASTM D5185m 260 3680 329	luminum	ppm	ASTM D5185m	>20	2	7	5
In ppm ASTM D5185m >15 0 <1 <1 Aranadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Soron ppm ASTM D5185m 2 0 8 9 Addybdenum ppm ASTM D5185m 0 4 2 0 Magnesse ppm ASTM D5185m 0 60 74 55 Magnessum ppm ASTM D5185m 050 850 940 905 Salcium ppm ASTM D5185m 950 850 940 905 Salcium ppm ASTM D5185m 950 1078 1082 912 Inc ppm ASTM D5185m 2600 3680 3294 2969 CONTAMINANTS method <thimit base<="" th=""> current h</thimit>	ead	ppm	ASTM D5185m	>40	0	2	1
ranadium ppm ASTM D5185m 0 0 0 0 cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 karnum ppm ASTM D5185m 2 0 8 9 karnum ppm ASTM D5185m 2 0 8 9 karnum ppm ASTM D5185m 2 0 8 9 karnum ppm ASTM D5185m 0 4 2 0 karnum ppm ASTM D5185m 50 600 74 55 Maganesium ppm ASTM D5185m 950 850 940 905 calcium ppm ASTM D5185m 950 1078 1082 912 inc ppm ASTM D5185m 926 1078 1082 912 cifur ppm ASTM D5185m 2600 3680 329	Copper	ppm	ASTM D5185m	>330	1	4	13
Addmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 koron ppm ASTM D5185m 2 0 8 9 karium ppm ASTM D5185m 2 0 8 9 karium ppm ASTM D5185m 0 4 2 0 Molybdenum ppm ASTM D5185m 0 600 74 55 Maganese ppm ASTM D5185m 0 0 -<1 1 Magnesium ppm ASTM D5185m 950 850 940 905 calcium ppm ASTM D5185m 950 1078 1082 912 Inc ppm ASTM D5185m 950 3660 3294 2969 CONTAMINANTS method limit/base current history1 history2 isilicon ppm ASTM D5185m >20 0 4	ïn	ppm	ASTM D5185m	>15	0	<1	<1
ADDITIVES method limit/base current history1 history2 boron ppm ASTM D5185m 2 0 8 9 barium ppm ASTM D5185m 0 4 2 0 Molybdenum ppm ASTM D5185m 0 60 74 55 Manganese ppm ASTM D5185m 0 0 <1	anadium	ppm	ASTM D5185m		0	0	0
koron ppm ASTM D5185m 2 0 8 9 karium ppm ASTM D5185m 0 4 2 0 Molybdenum ppm ASTM D5185m 50 60 74 55 Manganese ppm ASTM D5185m 0 0 <1	admium	ppm	ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 0 4 2 0 Molybdenum ppm ASTM D5185m 50 60 74 55 Manganese ppm ASTM D5185m 0 0 <1	ADDITIVES		method	limit/base	current	history1	history2
Adolybdenum ppm ASTM D5185m 50 60 74 55 Manganese ppm ASTM D5185m 0 0 <1	Boron	ppm	ASTM D5185m	2	0	8	9
Manganese ppm ASTM D5185m 0 0 <1 1 Magnesium ppm ASTM D5185m 950 850 940 905 Calcium ppm ASTM D5185m 950 850 940 905 Calcium ppm ASTM D5185m 1050 1198 1231 1225 Chosphorus ppm ASTM D5185m 995 1078 1082 912 Cinc ppm ASTM D5185m 995 1078 1082 912 Cinc ppm ASTM D5185m 2600 3680 3294 2969 CONTAMINANTS method limit/base current history1 history2 Soliton ppm ASTM D5185m >25 0 3 4 Sodium ppm ASTM D5185m >20 0 4 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3<	Barium	ppm	ASTM D5185m	0	4	2	0
Magnesium ppm ASTM D5185m 950 850 940 905 Calcium ppm ASTM D5185m 1050 1198 1231 1225 Phosphorus ppm ASTM D5185m 995 1078 1082 912 Cinc ppm ASTM D5185m 995 1078 1082 912 Sulfur ppm ASTM D5185m 2600 3680 3294 2969 CONTAMINANTS method limit/base current history1 history2 Solicon ppm ASTM D5185m >25 0 3 4 Solicon ppm ASTM D5185m >20 0 4 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.8 0.9 0.9 Utration Abs/cm *ASTM D7624 >20 10.7 11.9 12.2 Soot % % *ASTM D7624	lolybdenum	ppm	ASTM D5185m	50	60	74	55
Construction ppm ASTM D5185m 1050 1198 1231 1225 Phosphorus ppm ASTM D5185m 995 1078 1082 912 Linc ppm ASTM D5185m 995 1078 1082 912 Sulfur ppm ASTM D5185m 1180 1225 1281 1339 Sulfur ppm ASTM D5185m 2600 3680 3294 2969 CONTAMINANTS method limit/base current history1 history2 Solicon ppm ASTM D5185m >25 0 3 4 CONTAMINANTS method limit/base current history1 history2 Solicon ppm ASTM D5185m >20 0 4 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.8 0.9 0.9 Soot % % *ASTM D7624	langanese	ppm	ASTM D5185m	0	0	<1	1
Phosphorus ppm ASTM D5185m 995 1078 1082 912 Sinc ppm ASTM D5185m 1180 1225 1281 1339 Sulfur ppm ASTM D5185m 2600 3680 3294 2969 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 0 3 4 Sodium ppm ASTM D5185m >25 0 3 4 Sodium ppm ASTM D5185m >20 0 4 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D5185m >20 0 4 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7624 >20 10.7 11.9 12.2 Soot % % *ASTM D7415 >30 <	lagnesium	ppm	ASTM D5185m	950	850	940	905
Ppm ASTM D5185m 1180 1225 1281 1339 Sulfur ppm ASTM D5185m 2600 3680 3294 2969 CONTAMINANTS method limit/base current history1 history2 Solidum ppm ASTM D5185m >25 0 3 4 Sodium ppm ASTM D5185m >25 0 3 4 Sodium ppm ASTM D5185m >20 0 4 4 Potassium ppm ASTM D5185m >20 0 4 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.8 0.9 0.9 Iltration Abs/cm *ASTM D7624 >20 10.7 11.9 12.2 Soulfation Abs/1mm *ASTM D7415 >30 19.2 20.6 21.0 FLUID DEGRADATION method limit/base current </td <td>Calcium</td> <td>ppm</td> <td>ASTM D5185m</td> <td>1050</td> <th>1198</th> <td>1231</td> <td>1225</td>	Calcium	ppm	ASTM D5185m	1050	1198	1231	1225
BulfurppmASTM D5185m2600368032942969CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>25034SodiumppmASTM D5185m>20005PotassiumppmASTM D5185m>20044INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844>30.80.90.9litrationAbs/cm*ASTM D7624>2010.711.912.2SulfationAbs/tmm*ASTM D7415>3019.220.621.0FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/time*ASTM D7414>2517.419.319.9	hosphorus	ppm	ASTM D5185m	995	1078	1082	912
CONTAMINANTSmethodlimit/basecurrenthistory1history2SiliconppmASTM D5185m>25034SodiumppmASTM D5185m005PotassiumppmASTM D5185m>20044INFRA-REDmethodlimit/basecurrenthistory1history2Soot %%*ASTM D7844>30.80.90.9JitrationAbs/cm*ASTM D7624>2010.711.912.2SulfationAbs/timm*ASTM D7415>3019.220.621.0FLUID DEGRADATIONmethodlimit/basecurrenthistory1history2OxidationAbs/timm*ASTM D7414>2517.419.319.9	linc	ppm	ASTM D5185m	1180	1225	1281	1339
bilicon ppm ASTM D5185m >25 0 3 4 bidium ppm ASTM D5185m >20 0 0 5 bidium ppm ASTM D5185m >20 0 4 4 bidium ppm ASTM D5185m >20 0 4 4 INFRA-RED method limit/base current history1 history2 bioot % % *ASTM D7844 >3 0.8 0.9 0.9 bitration Abs/cm *ASTM D7624 >20 10.7 11.9 12.2 bitlitation Abs/cm *ASTM D7615 >30 19.2 20.6 21.0 FLUID DEGRADATION method limit/base current history1 history2 bitidation Abs/.1mm *ASTM D7414 >25 17.4 19.3 19.9	Gulfur	ppm	ASTM D5185m	2600	3680	3294	2969
Sodium ppm ASTM D5185m 0 0 5 Potassium ppm ASTM D5185m >20 0 4 4 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.8 0.9 0.9 Mitration Abs/cm *ASTM D7844 >3 0.8 0.9 0.9 Soot % % *ASTM D7844 >3 0.8 0.9 0.9 Mitration Abs/cm *ASTM D7624 >20 10.7 11.9 12.2 Gulfation Abs/.1mm *ASTM D7415 >30 19.2 20.6 21.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.4 19.3 19.9	CONTAMINAN	ITS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 0 4 4 INFRA-RED method limit/base current history1 history2 Goot % % *ASTM D7844 >3 0.8 0.9 0.9 Nitration Abs/cm *ASTM D7624 >20 10.7 11.9 12.2 Gulfation Abs/.1mm *ASTM D7415 >30 19.2 20.6 21.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.4 19.3 19.9	Silicon	ppm	ASTM D5185m	>25	0	3	4
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.8 0.9 0.9 Jitration Abs/cm *ASTM D7624 >20 10.7 11.9 12.2 Sulfation Abs/.1mm *ASTM D7415 >30 19.2 20.6 21.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.4 19.3 19.9	Sodium	ppm	ASTM D5185m		0	0	5
Soot % % *ASTM D7844 >3 0.8 0.9 0.9 Ilitration Abs/cm *ASTM D7624 >20 10.7 11.9 12.2 Sulfation Abs/.1mm *ASTM D7415 >30 19.2 20.6 21.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.4 19.3 19.9	Potassium	ppm	ASTM D5185m	>20	0	4	4
Abs/cm *ASTM D7624 >20 10.7 11.9 12.2 Sulfation Abs/1mm *ASTM D7615 >30 19.2 20.6 21.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/1mm *ASTM D7414 >25 17.4 19.3 19.9	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 19.2 20.6 21.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.4 19.3 19.9	Soot %	%	*ASTM D7844	>3	0.8	0.9	0.9
Sulfation Abs/.1mm *ASTM D7415 >30 19.2 20.6 21.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 17.4 19.3 19.9	litration	Abs/cm	*ASTM D7624	>20	10.7	11.9	12.2
Dxidation Abs/.1mm *ASTM D7414 >25 17.4 19.3 19.9	Sulfation						21.0
	FLUID DEGRA	DAT <u>IO</u> N	method	limit/base	current	history1	history2
	Dxidation	Abs/.1mm	*ASTM D7414	>25	17.4	19.3	19.9
			LOTIN DE000		V.7	0.1	



OIL ANALYSIS REPORT







* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Certificate L2367

Laboratory

Sample No.

Lab Number

F: (856)214-3663