

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.

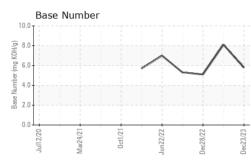
Fluid Condition

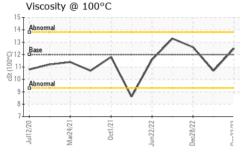
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Date Client Info 23 Dec 2023 23 Dec 2023 28 Dec 2023	QTS)		Jul2020	Mar2021 Oct2021	Jun2022 Dec2022	Dec2023	
Sample Date Client Info 23 Dec 2023 23 Dec 2023 28 Dec 2023	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Machine Age mis Client Info 130024 130024 98876 Oil Age mis Client Info 818 818 10700 Oil Changed Client Info Not Changed ATTENTION NORMAL Sample Status I Imit/base current history1 history2 Fuel WC Method >5 <1.0 <1.0 <1.0 Water WC Method >0.2 NEG NEG NEG Glycol WC Method >0.2 NEG NEG NEG Chromium ppm ASTM 05185m >100 7 30 10 Chromium ppm ASTM 05185m >4 0 0 <1 Nickel ppm ASTM 05185m >4 0 0 <1 Nickel ppm ASTM 05185m >20 2 1 3 Silver ppm ASTM 05185m >33 1 0 0 1 1 C	Sample Number		Client Info		PCA0097332	PCA0110641	PCA0071699
Oil Age mis Client Info 8618 8618 10700 Changed Change	Sample Date		Client Info		23 Dec 2023	23 Dec 2023	28 Dec 2022
Oil Changed Sample Status Client Info Not Changed NORMAL Changed ATTENTION Changed NORMAL CONTAMINATION method imit/base current history1 history2 Fuel WC Method >5 <1.0 <1.0 <1.0 Water WC Method >0.2 NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM 05185m >100 7 3 10 Chromium ppm ASTM 05185m >20 <1 0 <1 Nickel ppm ASTM 05185m >20 2 1 3 Lead ppm ASTM 05185m >20 2 1 3 Lead ppm ASTM 05185m >40 0 <1 <1 Cadmium ppm ASTM 05185m >10 <1 <1 <1 Vanadium ppm ASTM 05185m 0 25 0 <td< th=""><th>Machine Age</th><th>mls</th><th>Client Info</th><th></th><th>130024</th><th>130024</th><th>98876</th></td<>	Machine Age	mls	Client Info		130024	130024	98876
Sample Status NORMAL ATTENTION NORMAL CONTAMINATION method imit/base current history1 history2 Fuel WC Method >5 <1.0 <1.0 <1.0 Water WC Method >0.2 NEG NEG NEG Glycol WC Method >0.2 NEG NEG NEG WEAR METALS method imit/base current history1 history2 Iron ppm ASTM 05185m >20 <1 0 <1 Nickel ppm ASTM 05185m >20 <1 0 <1 Nickel ppm ASTM 05185m >30 <1 0 0 Aluminum ppm ASTM 05185m >30 2 1 3 Lead ppm ASTM 05185m >30 2 0 1 Copper ppm ASTM 05185m 0 <1 1 Cadmium ppm ASTM 05185m	Oil Age	mls	Client Info		8618	8618	10700
CONTAMINATION method limit/base current history1 history2 Fuel WC Method >5 <1.0 <1.0 <1.0 Water WC Method >0.2 NEG NEG NEG Glycol WC Method NEG NEG NEG NEG WEAR METALS method imit/base current history1 history2 Iron ppm ASTM D5185m >100 7 3 10 Chromium ppm ASTM D5185m >20 <1 0 <1 Titanium ppm ASTM D5185m >20 2 1 3 Lead ppm ASTM D5185m >3 <1 0 0 11 Copper ppm ASTM D5185m >30 2 0 1 1 Cadmium ppm ASTM D5185m >15 0 <1 <1 2 Copper ppm ASTM D5185m 0 25 0<	Oil Changed		Client Info		Not Changd	Changed	Changed
Fuel WC Method >5 <1.0	Sample Status				NORMAL	ATTENTION	NORMAL
Water WC Method >0.2 NEG NEG NEG NEG Glycol WC Method Imil/base current history1 history2 Iron ppm ASTM D5185m >20 <1	CONTAMINAT	ION	method	limit/base	current	history1	history2
Glycol WC Method NEG NEG NEG NEG WEAR METALS method imit/base current history1 history2 Iron ppm ASTM D5185m >20 <1	Fuel		WC Method	>5	<1.0	<1.0	<1.0
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >100 7 3 10 Chromium ppm ASTM D5185m >20 <1	Water		WC Method	>0.2	NEG	NEG	NEG
Iron ppm ASTM D5185m >100 7 3 10 Chromium ppm ASTM D5185m >20 <1	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >20 <1 0 <1 Nickel ppm ASTM D5185m >4 0 0 <1	WEAR METAL	S	method	limit/base	current	history1	history2
Nickel ppm ASTM D5185m >4 0 0 <1 Titanium ppm ASTM D5185m 3 <1	Iron	ppm	ASTM D5185m	>100	7	3	10
Titanium ppm ASTM D5185m 2 47 65 Silver ppm ASTM D5185m >3 <1	Chromium	ppm	ASTM D5185m	>20	<1	0	<1
Silver ppm ASTM D5185m >3 <1 0 0 Aluminum ppm ASTM D5185m >20 2 1 3 Lead ppm ASTM D5185m >40 0 0 <1	Nickel	ppm	ASTM D5185m	>4	0	0	<1
Aluminum ppm ASTM D5185m >20 2 1 3 Lead ppm ASTM D5185m >40 0 0 <1	Titanium	ppm	ASTM D5185m		2	47	65
Lead ppm ASTM D5185m >40 0 0 <1 Copper ppm ASTM D5185m >330 2 0 1 Tin ppm ASTM D5185m >15 0 <1	Silver	ppm	ASTM D5185m	>3	<1	0	0
Copper ppm ASTM D5185m >330 2 0 1 Tin ppm ASTM D5185m >15 0 <1	Aluminum	ppm	ASTM D5185m	>20	2	1	3
Tin ppm ASTM D5185m >15 0 <1 <1 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 2 3 95 27 Barium ppm ASTM D5185m 0 25 0 0 Molybdenum ppm ASTM D5185m 0 <1	Lead	ppm	ASTM D5185m	>40	0	0	<1
Vanadium ppm ASTM D5185m 0 <1 1 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 2 3 95 27 Barium ppm ASTM D5185m 2 3 95 27 Barium ppm ASTM D5185m 0 25 0 0 Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 950 832 540 511 Calcium ppm ASTM D5185m 950 832 540 511 Calcium ppm ASTM D5185m 950 832 540 511 Calcium ppm ASTM D5185m 950 827 922 879 Zinc ppm ASTM D5185m 2600 2962 3468	Copper	ppm	ASTM D5185m	>330	2	0	1
Cadmium ppm ASTM D5185m 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 2 3 95 27 Barium ppm ASTM D5185m 0 25 0 0 Manganese ppm ASTM D5185m 0 25 0 0 Manganese ppm ASTM D5185m 0 <1 <1 <1 <1 Magnesium ppm ASTM D5185m 950 832 540 511 Calcium ppm ASTM D5185m 950 927 922 879 Zinc ppm ASTM D5185m 2600 296	Tin	ppm	ASTM D5185m	>15	0	<1	<1
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 2 3 ▲ 95 27 Barium ppm ASTM D5185m 0 25 0 0 Molybdenum ppm ASTM D5185m 50 58 23 18 Manganese ppm ASTM D5185m 0 <1	Vanadium	ppm	ASTM D5185m		0	<1	1
Boron ppm ASTM D5185m 2 3 ▲ 95 27 Barium ppm ASTM D5185m 0 25 0 0 Molybdenum ppm ASTM D5185m 50 58 23 18 Manganese ppm ASTM D5185m 0 <1	Cadmium	ppm	ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 0 25 0 0 Molybdenum ppm ASTM D5185m 50 58 23 18 Manganese ppm ASTM D5185m 0 <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 50 58 23 18 Manganese ppm ASTM D5185m 0 <1	Boron	ppm	ASTM D5185m	2	3	9 5	27
Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 950 832 ▲ 540 511 Calcium ppm ASTM D5185m 1050 1014 1463 1726 Phosphorus ppm ASTM D5185m 1050 1014 1463 1726 Phosphorus ppm ASTM D5185m 995 927 922 879 Zinc ppm ASTM D5185m 995 9262 3468 3792 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 10 9 13 Sodium ppm ASTM D5185m >20 4 <1	Barium	ppm	ASTM D5185m	0	25	0	0
Magnesium ppm ASTM D5185m 950 832 ▲ 540 511 Calcium ppm ASTM D5185m 1050 1014 1463 1726 Phosphorus ppm ASTM D5185m 995 927 922 879 Zinc ppm ASTM D5185m 1180 1120 1110 1133 Sulfur ppm ASTM D5185m 2600 2962 3468 3792 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 10 9 13 Sodium ppm ASTM D5185m >20 4 <1	Molybdenum	ppm	ASTM D5185m	50	58	23	18
Calcium ppm ASTM D5185m 1050 1014 1463 1726 Phosphorus ppm ASTM D5185m 995 927 922 879 Zinc ppm ASTM D5185m 1180 1120 1110 1133 Sulfur ppm ASTM D5185m 2600 2962 3468 3792 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m 25 10 9 13 Sodium ppm ASTM D5185m >25 10 9 13 Sodium ppm ASTM D5185m 20 4 <1	Manganese	ppm	ASTM D5185m	0	<1	<1	<1
Phosphorus ppm ASTM D5185m 995 927 922 879 Zinc ppm ASTM D5185m 1180 1120 1110 1133 Sulfur ppm ASTM D5185m 2600 2962 3468 3792 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 10 9 13 Sodium ppm ASTM D5185m >25 10 9 13 Sodium ppm ASTM D5185m >20 4 <1	Magnesium	ppm	ASTM D5185m	950	832	5 40	511
Zinc ppm ASTM D5185m 1180 1120 1110 1133 Sulfur ppm ASTM D5185m 2600 2962 3468 3792 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 10 9 13 Sodium ppm ASTM D5185m >25 10 9 13 Sodium ppm ASTM D5185m >25 10 9 13 Sodium ppm ASTM D5185m >20 4 <1	Calcium	ppm	ASTM D5185m	1050	1014	1463	1726
Sulfur ppm ASTM D5185m 2600 2962 3468 3792 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 10 9 13 Sodium ppm ASTM D5185m >25 10 9 13 Potassium ppm ASTM D5185m >20 4 <1	Phosphorus	ppm	ASTM D5185m	995	927	922	879
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m<>25 10 9 13 Sodium ppm ASTM D5185m<>20 4 <1	Zinc	ppm	ASTM D5185m	1180	1120	1110	1133
Silicon ppm ASTM D5185m >25 10 9 13 Sodium ppm ASTM D5185m >20 0 3 6 Potassium ppm ASTM D5185m >20 4 <1 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0 0 0.1 Nitration Abs/cm *ASTM D7624 >20 14.1 9.5 14.9 Sulfation Abs/.1mm *ASTM D7615 >30 26.3 20.0 31.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.9 15.3 28.2	Sulfur	ppm	ASTM D5185m	2600	2962	3468	3792
Sodium ppm ASTM D5185m 0 3 6 Potassium ppm ASTM D5185m<>20 4 <1	CONTAMINAN	ITS	method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 4 <1 0 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0 0 0.1 Nitration Abs/cm *ASTM D7624 >20 14.1 9.5 14.9 Sulfation Abs/.1mm *ASTM D7415 >30 26.3 20.0 31.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.9 15.3 28.2				>25			
INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0 0 0.1 Nitration Abs/cm *ASTM D7624 >20 14.1 9.5 14.9 Sulfation Abs/.1mm *ASTM D7415 >30 26.3 20.0 31.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.9 15.3 28.2	Sodium	ppm	ASTM D5185m			3	6
Soot % % *ASTM D7844 >3 0 0 0.1 Nitration Abs/cm *ASTM D7624 >20 14.1 9.5 14.9 Sulfation Abs/.1mm *ASTM D7615 >30 26.3 20.0 31.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.9 15.3 28.2	Potassium	ppm	ASTM D5185m	>20	4	<1	0
Nitration Abs/cm *ASTM D7624 >20 14.1 9.5 14.9 Sulfation Abs/.1mm *ASTM D7415 >30 26.3 20.0 31.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.9 15.3 28.2	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 26.3 20.0 31.7 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.9 15.3 28.2	Soot %			>3			
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.9 15.3 28.2	Nitration	Abs/cm	*ASTM D7624	>20	14.1	9.5	14.9
Oxidation Abs/.1mm *ASTM D7414 >25 23.9 15.3 28.2	Sulfation	Abs/.1mm	*ASTM D7415	>30	26.3	20.0	31.7
	FLUID DEGRAI	DATION	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 5.8 8.1 5.1	Oxidation	Abs/.1mm	*ASTM D7414	>25	23.9	15.3	28.2
	Base Number (BN)	mg KOH/g	ASTM D2896		5.8	8.1	5.1



OIL ANALYSIS REPORT







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

Certificate L2367

Laboratory

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