

## **OIL ANALYSIS REPORT**

#### Sample Rating Trend





Component Diesel Engine

Fluid PETRO CANADA DURON SHP 10W30 (34 QTS)

### DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor.

#### 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 INFORI		method	limit/base	current	history1	history2
	WATION		- mm/base		,	
Sample Number		Client Info		PCA0108194	PCA0104357	PCA0094130
Sample Date		Client Info		12 Nov 2023	15 Aug 2023	11 Apr 2023
Machine Age	mls	Client Info		0	0	354090
Oil Age	mls	Client Info		40000	20000	37941
Oil Changed		Client Info		Changed	Not Changd	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
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	49	28	48
Chromium	ppm	ASTM D5185m	>20	2	<1	2
Nickel	ppm	ASTM D5185m	>2	2	2	2
Titanium	ppm	ASTM D5185m		2	2	6
Silver	ppm	ASTM D5185m	>2	<1	0	<1
Aluminum	ppm	ASTM D5185m	>25	5	4	5
Lead	ppm	ASTM D5185m	>40	4	3	5
Copper	ppm	ASTM D5185m	>330	13	14	42
Tin	ppm	ASTM D5185m	>15	2	1	3
Vanadium	ppm	ASTM D5185m		<1	0	<1
Cadmium	ppm	ASTM D5185m		<1	0	0
	ppm			<b>N</b>	0	0
ADDITIVES	pp	method	limit/base	current	history1	history2
			limit/base	current	history1	
ADDITIVES	ppm	method				history2
ADDITIVES Boron Barium	ppm	method ASTM D5185m	2	current 0	history1 <1	history2 6
ADDITIVES Boron	ppm ppm	method ASTM D5185m ASTM D5185m	2 0	current 0 0	history1 <1 0	history2 6 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50	current 0 0 61	history1 <1 0 59	history2 6 0 61
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0	current 0 0 61 <1	history1 <1 0 59 <1	history2 6 0 61 1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950	Current 0 0 61 <1 928	history1 <1 0 59 <1 904	history2 6 0 61 1 885
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050	Current 0 0 61 <1 928 1081	history1 <1 0 59 <1 904 1101	history2 6 0 61 1 885 1210
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995	Current 0 0 61 <1 928 1081 967	history1     <1     0     59     <1     904     1101     1017	history2 6 0 61 1 885 1210 923
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180	Current 0 0 61 <1 928 1081 967 1237	history1     <1     0     59     <1     904     1101     1017     1240	history2 6 0 61 1 885 1210 923 1262
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600	Current 0 0 61 <1 928 1081 967 1237 2798	<1   0   59   <1   904   1101   1017   1240   2980	history2 6 0 61 1 885 1210 923 1262 3202
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600	Current 0 61 <1 928 1081 967 1237 2798 Current	history1   <1   0   59   <1   904   1101   1017   1240   2980   history1	history2 6 0 61 1 885 1210 923 1262 3202 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 <b>limit/base</b>	current     0     0     61     <1     928     1081     967     1237     2798     current     9	<1   0   59   <1   904   1101   1017   1240   2980   history1   6	history2   6   0   61   1   885   1210   923   1262   3202   history2   6
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 <b>limit/base</b>	current     0     0     61     <1     928     1081     967     1237     2798     current     9     18	<1   0   59   <1   904   1101   1017   1240   2980   history1   6   16	history2   6   0   61   1   885   1210   923   1262   3202   history2   6   34
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600 <b>limit/base</b> >25	current     0     0     61     <1     928     1081     967     1237     2798     current     9     18     13	<1   0   59   <1   904   1101   1017   1240   2980   history1   6   16   11	history2   6   0   61   1   885   1210   923   1262   3202   history2   6   34   24
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method     ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 <b>limit/base</b> >25 -20 <b>limit/base</b>	current   0   0   61   <1   928   1081   967   1237   2798   current   9   18   13   current	<1   0   59   <1   904   1101   1017   1240   2980   history1   6   16   11   history1	history2   6   0   61   1   885   1210   923   1262   3202   history2   6   34   24   history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method     ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 limit/base >25 >20 limit/base >3	current   0   0   61   <1   928   1081   967   1237   2798   current   9   18   13   current   1	<1   0   59   <1   904   1101   1017   1240   2980   history1   6   16   11   history1   0.6	history2   6   0   61   1   885   1210   923   1262   3202   history2   6   34   24   history2   0.7
ADDITIVES Boron 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 <b>TS</b> ppm ppm ppm	method     ASTM D5185m     ASTM D7844     *ASTM D7624     *ASTM D7415	2 0 50 950 1050 995 1180 2600 <i>limit/base</i> >25 >20 <i>limit/base</i> >3 >20	current   0   0   61   <1   928   1081   967   1237   2798   current   9   18   13   current   1   9.9	<1   0   59   <1   904   1101   1017   1240   2980   history1   6   16   11   0   0.6   9.0	history2   6   0   61   1   885   1210   923   1262   3202   history2   6   34   24   history2   0.7   9.9   22.0
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method     ASTM D5185m     ASTM D7844     *ASTM D7624     *ASTM D7415     method	2 0 0 50 0 950 1050 995 1180 2600 <b>imit/base</b> >25 20 >20 >30 >30 <b>imit/base</b>	current   0   0   61   <1   928   1081   967   1237   2798   current   9   18   13   current   1   9.9   22.5   current	<1   0   59   <1   904   1101   1017   1240   2980   history1   6   16   11   0.6   9.0   20.1	history2   6   0   61   1   885   1210   923   1262   3202   history2   6   34   24   history2   0.7   9.9   22.0   history2
ADDITIVES Boron 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 <b>TS</b> ppm ppm ppm	method     ASTM D5185m     ASTM D7844     *ASTM D7624     *ASTM D7415	2 0 50 0 950 1050 995 1180 2600 <b>imit/base</b> >25 <b>imit/base</b> >3 >20 >30	current   0   0   61   <1   928   1081   967   1237   2798   current   9   18   13   current   1   9.9   22.5	<1   0   59   <1   904   1101   1017   1240   2980   history1   6   16   11   0.6   9.0   20.1	history2   6   0   61   1   885   1210   923   1262   3202   history2   6   34   24   history2   0.7   9.9   22.0

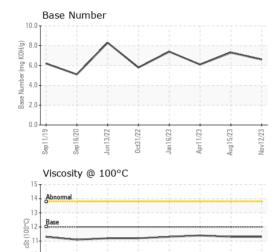


Abnorm

Sen 1

Sep11/19

# **OIL ANALYSIS REPORT**



0ct31/22

Jun13/22

VISUAL		method	limit/base	current	history1	history2
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	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPE	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	12.00	11.3	11.3	11.4
GRAPHS						

