

## **OIL ANALYSIS REPORT**

# Sample Rating Trend



NORMAL

KENWORTH 158470682

Diesel Engine

PETRO CANADA DURON SHP 10W30 (22 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.

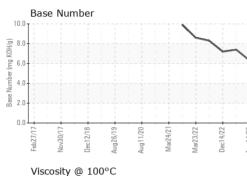
## Fluid Condition

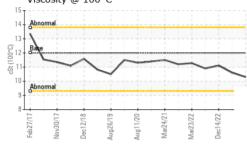
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0100897	PCA0094494	PCA0082582
Sample Date		Client Info		14 Aug 2023	21 Mar 2023	14 Dec 2022
Machine Age	mls	Client Info		156956	147429	144323
Oil Age	mls	Client Info		9527	0	6085
Oil Changed		Client Info		Changed	N/A	Changed
Sample Status				NORMAL	ABNORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	0.0	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>75	43	33	29
Chromium	ppm	ASTM D5185m	>5	1	<1	<1
Nickel	ppm	ASTM D5185m	>4	<1	7	<1
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>15	12	4	14
Lead	ppm	ASTM D5185m	>25	<1	<1	<1
Copper	ppm	ASTM D5185m		2	▲ 397	1
Tin	ppm	ASTM D5185m	>4	- <1	3	0
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
	le le				-	-
ADDITIVES		method	limit/base	current	historv1	historv2
ADDITIVES Boron	maa	method ASTM D5185m	limit/base	current 9	history1 8	history2 10
Boron	ppm ppm	ASTM D5185m	2	9	8	10
Boron Barium	ppm	ASTM D5185m ASTM D5185m	2 0	9 0	8	10 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50	9 0 62	8 0 58	10 0 66
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0	9 0 62 1	8 0 58 2	10 0 66 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950	9 0 62 1 893	8 0 58 2 105	10 0 66 <1 784
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050	9 0 62 1 893 1144	8 0 58 2 105 472	10 0 66 <1 784 1190
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995	9 0 62 1 893 1144 949	8 0 58 2 105 472 1054	10 0 66 <1 784 1190 973
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050	9 0 62 1 893 1144	8 0 58 2 105 472	10 0 66 <1 784 1190
Boron 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 ASTM D5185m	2 0 50 950 1050 995 1180	9 0 62 1 893 1144 949 1254	8 0 58 2 105 472 1054 1144	10 0 66 <1 784 1190 973 1181
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	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	9 0 62 1 893 1144 949 1254 3691	8 0 58 2 105 472 1054 1144 4487	10 0 66 <1 784 1190 973 1181 2775
Boron 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 <b>method</b> ASTM D5185m	2 0 50 950 1050 995 1180 2600	9 0 62 1 893 1144 949 1254 3691 current 7	8 0 58 2 105 472 1054 1144 4487 history1 ▲ 33	10 0 66 <1 784 1190 973 1181 2775 history2 7
Boron 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 ASTM D5185m	2 0 50 950 1050 995 1180 2600 limit/base >25	9 0 62 1 893 1144 949 1254 3691 current	8 0 58 2 105 472 1054 1144 4487 history1	10 0 66 <1 784 1190 973 1181 2775 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm 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 <b>method</b> ASTM D5185m	2 0 50 950 1050 995 1180 2600 limit/base >25	9 0 62 1 893 1144 949 1254 3691 <u>current</u> 7 3	8 0 58 2 105 472 1054 1144 4487 history1 ▲ 33 1	10 0 66 <1 784 1190 973 1181 2775 history2 7 2
Boron 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	2 0 50 0 950 1050 995 1180 2600 <b>limit/base</b> >25	9 0 62 1 893 1144 949 1254 3691 current 7 3 19 current	8 0 58 2 105 472 1054 1144 4487 history1 33 1 1 1 history1	10 0 66 <1 784 1190 973 1181 2775 history2 7 2 31 history2
Boron 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 ppm	ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600 <b>imit/base</b> >25 >20 <b>imit/base</b>	9 0 62 1 893 1144 949 1254 3691 <i>current</i> 7 3 19 <i>current</i> 0.6	8 0 58 2 105 472 1054 1144 4487 history1 33 1 1 1 1 bistory1 0.4	10 0 66 <1 784 1190 973 1181 2775 history2 7 2 31 
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 ppm	ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600 <i>limit/base</i> >25 20 <i>limit/base</i> >20	9 0 62 1 893 1144 949 1254 3691 <i>current</i> 7 3 19 <i>current</i> 0.6 12.2	8 0 58 2 105 472 1054 1144 4487 <b>history1</b> ▲ 33 1 1 1 <b>history1</b> 0.4 8.1	10 0 66 <1 784 1190 973 1181 2775 history2 7 2 31 **********************************
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 ppm	ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600 <b>imit/base</b> >25 <b>imit/base</b> >6 >20	9 0 62 1 893 1144 949 1254 3691 <u>current</u> 7 3 19 <u>current</u> 0.6 12.2 20.9	<ul> <li>8</li> <li>0</li> <li>58</li> <li>2</li> <li>105</li> <li>472</li> <li>1054</li> <li>1144</li> <li>4487</li> <li>history1</li> <li>33</li> <li>1</li> <li>history1</li> <li>0.4</li> <li>8.1</li> <li>17.2</li> </ul>	10 0 66 <1 784 1190 973 1181 2775 history2 7 2 31 history2 0.7 0.7 11.7 21.3
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 ppm	ASTM D5185m ASTM D7844 *ASTM D7624	2 0 50 0 950 1050 995 1180 2600 <b>imit/base</b> >25 >20 <b>imit/base</b> >6 >20 >30	9 0 62 1 893 1144 949 1254 3691 <i>current</i> 7 3 19 <i>current</i> 0.6 12.2 20.9 <i>current</i>	<ul> <li>8</li> <li>0</li> <li>58</li> <li>2</li> <li>105</li> <li>472</li> <li>1054</li> <li>1144</li> <li>4487</li> <li>history1</li> <li>▲ 33</li> <li>1</li> <li>1</li> <li>history1</li> <li>0.4</li> <li>8.1</li> <li>17.2</li> <li>history1</li> </ul>	10 0 66 <1 784 1190 973 1181 2775 history2 7 2 31 history2 0.7 11.7 21.3 history2
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 ppm	ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600 <b>imit/base</b> >25 <b>imit/base</b> >6 >20	9 0 62 1 893 1144 949 1254 3691 <u>current</u> 7 3 19 <u>current</u> 0.6 12.2 20.9	<ul> <li>8</li> <li>0</li> <li>58</li> <li>2</li> <li>105</li> <li>472</li> <li>1054</li> <li>1144</li> <li>4487</li> <li>history1</li> <li>33</li> <li>1</li> <li>history1</li> <li>0.4</li> <li>8.1</li> <li>17.2</li> </ul>	10 0 66 <1 784 1190 973 1181 2775 history2 7 2 31 history2 0.7 0.7 11.7 21.3



# **OIL ANALYSIS REPORT**







Certificate L2367