

## **OIL ANALYSIS REPORT**

Sample Rating Trend



# FREIGHTLINER 503084

Diesel Engine

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

### 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.

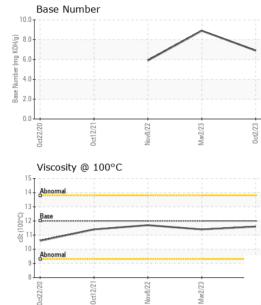
### Fluid Condition

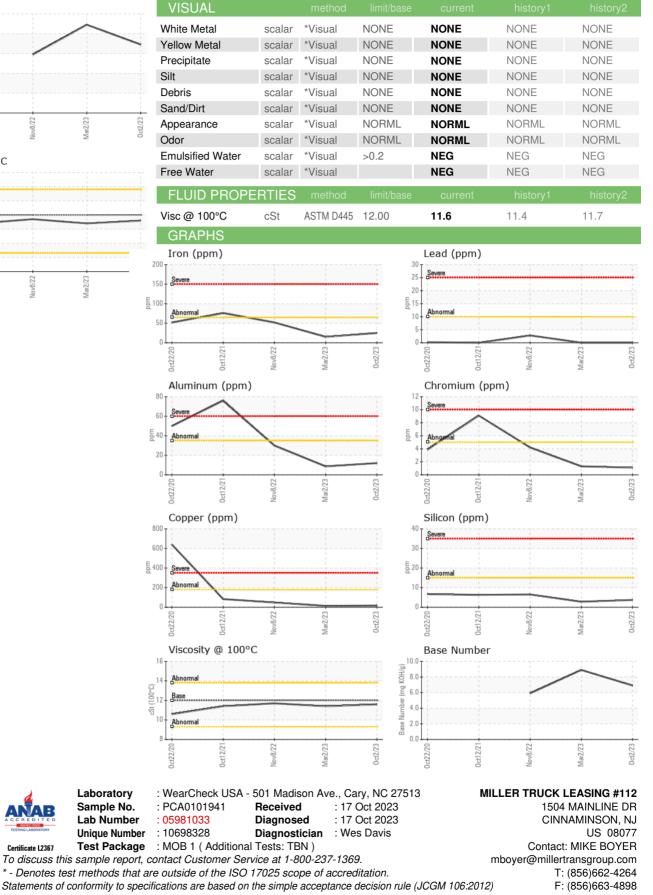
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0101941	PCA0089940	PCA0082232
Sample Date		Client Info		02 Oct 2023	02 Mar 2023	08 Nov 2022
Machine Age	mls	Client Info		173295	158800	150137
Oil Age	mls	Client Info		0	0	0
Oil Changed		Client Info		Changed	Not Changd	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>65	25	15	52
Chromium	ppm	ASTM D5185m		1	1	4
Nickel	ppm	ASTM D5185m	>3	<1	0	<1
Titanium	ppm	ASTM D5185m		0	0	<1
Silver	ppm	ASTM D5185m	>2	0	<1	<1
Aluminum	ppm	ASTM D5185m		12	9	30
Lead	ppm	ASTM D5185m	>10	0	0	3
Copper	ppm	ASTM D5185m	>180	17	14	48
Tin	ppm	ASTM D5185m	>8	<1	<1	3
Antimony	ppm	ASTM D5185m	>35			
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
				•	0	÷
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 2			
				current	history1	history2
Boron	ppm	ASTM D5185m	2	current 7	history1 12	history2 4
Boron Barium	ppm ppm	ASTM D5185m ASTM D5185m	2 0	current 7 0	history1 12 2	history2 4 0
Boron Barium Molybdenum	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50	current 7 0 68	history1 12 2 61	history2 4 0 62
Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0	current           7           0           68           <1	history1 12 2 61 <1	history2 4 0 62 1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950	Current 7 0 68 <1 939	history1 12 2 61 <1 857	history2 4 0 62 1 970
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	Current 7 0 68 <1 939 1130	history1 12 2 61 <1 857 1130	history2 4 0 62 1 970 1192
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	Current 7 0 68 <1 939 1130 1037	history1 12 2 61 <1 857 1130 986	history2 4 0 62 1 970 1192 960
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm 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	Current 7 0 68 <1 939 1130 1037 1249	history1 12 2 61 <1 857 1130 986 1183	history2 4 0 62 1 970 1192 960 1223
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	2 0 50 950 1050 995 1180 2600	Current 7 0 68 <1 939 1130 1037 1249 3112	history1 12 2 61 <10 857 1130 986 1183 2892	history2 4 0 62 1 970 1192 960 1223 2476
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm	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 7 0 68 <1 939 1130 1037 1249 3112 Current	history1 12 2 61 <10 857 1130 986 1183 2892 history1	history2         4         0         62         1         970         1192         960         1223         2476         history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b>	2 0 50 950 1050 995 1180 2600 limit/base	Current 7 0 68 <1 939 1130 1037 1249 3112 Current 4	history1           12           2           61           <1           857           1130           986           1183           2892           history1           3	history2         4         0         62         1         970         1192         960         1223         2476         history2         6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm 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 ASTM D5185m	2 0 50 950 1050 995 1180 2600 limit/base	Current           7           0           68           <1           939           1130           1037           1249           3112           Current           4           0           14	history1         12         2         61         <1         857         1130         986         1183         2892         history1         3         <1	history2         4         0         62         1         970         1192         960         1223         2476         history2         6         2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 <b>limit/base</b> >15 >20	Current           7           0           68           <1           939           1130           1037           1249           3112           Current           4           0           14	history1         12         2         61         <1         857         1130         986         1183         2892         history1         3         <1         10	history2         4         0         62         1         970         1192         960         1223         2476         history2         6         2         47
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	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 <b>limit/base</b> >20 <b>limit/base</b>	current           7           0           68           <1           939           1130           1037           1249           3112           current           4           0           14	history1         12         2         61         <1         857         1130         986         1183         2892         history1         3         <1         10         history1	history2         4         0         62         1         970         1192         960         1223         2476         history2         6         2         47         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 ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 limit/base >15 >20 limit/base >3	current           7           0           68           <1           939           1130           1037           1249           3112           current           4           0           14           current           0.7	history1         12         2         61         <1         857         1130         986         1183         2892         history1         3         <1         10         history1         0.4	history2         4         0         62         1         970         1192         960         1223         2476         history2         6         2         47         history2         1.7
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 0 950 1050 995 1180 2600 <b>limit/base</b> >15 >20 <b>limit/base</b> >3 >20	current           7           0           68           <1           939           1130           1037           1249           3112           current           4           0           14           current           0.7           8.6	history1           12           2           61           <1           857           1130           986           1183           2892           history1           3           <1           10           history1           0.4           7.0	history2         4         0         62         1         970         1192         960         1223         2476         history2         6         2         47         history2         1.7         12.9
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 D7844	2 0 0 50 0 950 1050 995 1180 2600 2600 215 20 20 20 20 20 20 20 20 20 20 20 20 20	Current         7         0         68         <1         939         1130         1037         1249         3112         current         4         0         14         current         0.7         8.6         19.5         current	history1         12         2         61         <1         857         1130         986         1183         2892         history1         3         <1         0.4         7.0         18.7         history1	history2         4         0         62         1         970         1192         960         1223         2476         history2         6         2         47         history2         1.7         12.9         26.2         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> >20 <b>imit/base</b> >3 >20	current           7           0           68           <1           939           1130           1037           1249           3112           current           4           0           14           current           0.7           8.6           19.5	history1         12         2         61         <1         857         1130         986         1183         2892         history1         3         <1         10         history1         0.4         7.0         18.7	history2         4         0         62         1         970         1192         960         1223         2476         history2         6         2         47         history2         1.7         12.9         26.2



## **OIL ANALYSIS REPORT**





Certificate L2367

Laboratory

Sample No.

Lab Number