

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 197016

Component Diesel Engine

Fluid PETRO CANADA DURON SHP 10W30 (--- 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.

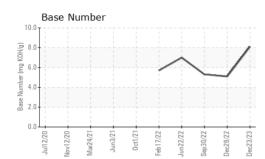
Fluid Condition

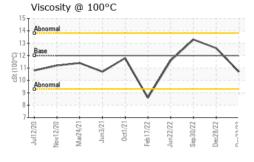
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0110641	PCA0071699	PCA0071711
Sample Date		Client Info		23 Dec 2023	28 Dec 2022	30 Sep 2022
Machine Age	mls	Client Info		130024	98876	88176
Oil Age	mls	Client Info		8618	10700	14678
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	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
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	3	10	11
Chromium	ppm	ASTM D5185m	>20	0	<1	<1
Nickel	ppm	ASTM D5185m	>4	0	<1	0
Titanium	ppm	ASTM D5185m		47	65	57
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	1	3	3
Lead	ppm	ASTM D5185m	>40	0	<1	0
Copper	ppm	ASTM D5185m	>330	0	1	2
Tin	ppm	ASTM D5185m	>15	<1	<1	0
Vanadium	ppm	ASTM D5185m		<1	1	<1
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 95	history1 27	history2 19
	ppm ppm					
Boron		ASTM D5185m	2	95	27	19
Boron Barium	ppm	ASTM D5185m ASTM D5185m	2 0	95 0	27 0	19 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50	95 0 23	27 0 18	19 0 27
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0	95 0 23 <1	27 0 18 <1	19 0 27 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	95 0 23 <1 540	27 0 18 <1 511	19 0 27 1 536
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050	95 0 23 <1 540 1463	27 0 18 <1 511 1726	19 0 27 1 536 1504 825 1071
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	95 0 23 <1 540 1463 922	27 0 18 <1 511 1726 879	19 0 27 1 536 1504 825
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	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	95 0 23 <1 540 1463 922 1110	27 0 18 <1 511 1726 879 1133 3792 history1	19 0 27 1 536 1504 825 1071 3622 history2
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 ASTM D5185m	2 0 50 950 1050 995 1180 2600	95 0 23 <1 540 1463 922 1110 3468 current 9	27 0 18 <1 511 1726 879 1133 3792 history1 13	19 0 27 1 536 1504 825 1071 3622 history2 16
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	2 0 50 950 1050 995 1180 2600 limit/base >25	95 0 23 <1 540 1463 922 1110 3468 current	27 0 18 <1 511 1726 879 1133 3792 history1	19 0 27 1 536 1504 825 1071 3622 history2
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 ASTM D5185m	2 0 50 950 1050 995 1180 2600 limit/base >25	95 0 23 <1 540 1463 922 1110 3468 current 9	27 0 18 <1 511 1726 879 1133 3792 history1 13	19 0 27 1 536 1504 825 1071 3622 history2 16
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	2 0 50 950 1050 995 1180 2600 limit/base >25	95 0 23 <1 540 1463 922 1110 3468 <u>current</u> 9 3	27 0 18 <1 511 1726 879 1133 3792 history1 13 6 0 0	19 0 27 1 536 1504 825 1071 3622 history2 16 6
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 0 950 1050 995 1180 2600 limit/base >25 >20 limit/base >3	95 0 23 <1 540 1463 922 1110 3468 current 9 3 <1 2 current 0	27 0 18 <1 511 1726 879 1133 3792 history1 13 6 0 history1 0.1	19 0 27 1 536 1504 825 1071 3622 history2 16 6 0 v history2 0.1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 Imit/base >25 >20 Imit/base >3	95 0 23 <1 540 1463 922 1110 3468 <i>current</i> 9 3 <1 <i>current</i> 0 9.5	27 0 18 <1 511 1726 879 1133 3792 history1 13 6 0 0	19 0 27 1 536 1504 825 1071 3622 history2 16 6 0 Vistory2 0.1 18.1
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 0 950 1050 995 1180 2600 limit/base >25 >20 limit/base >3	95 0 23 <1 540 1463 922 1110 3468 current 9 3 <1 2 current 0	27 0 18 <1 511 1726 879 1133 3792 history1 13 6 0 history1 0.1	19 0 27 1 536 1504 825 1071 3622 history2 16 6 0 v history2 0.1
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> >3 >20	95 0 23 <1 540 1463 922 1110 3468 <i>current</i> 9 3 <1 <i>current</i> 0 9.5	27 0 18 <1 511 1726 879 1133 3792 history1 13 6 0 0 history1 0.1 14.9	19 0 27 1 536 1504 825 1071 3622 history2 16 6 0 Vistory2 0.1 18.1
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 1050 955 1050 995 1180 2600 imit/base >25 imit/base >3 >20 >3 >30	95 0 23 <1 540 1463 922 1110 3468 <u>current</u> 9 3 <1 <u>current</u> 0 9.5 20.0	27 0 18 <1 511 1726 879 1133 3792 history1 13 6 0 0 history1 0.1 14.9 31.7	19 0 27 1 536 1504 825 1071 3622 history2 16 6 0 0 history2 0.1 18.1 38.1



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Certificate L2367

Laboratory

Sample No.

Lab Number

Contact/Location: RON ROBERTS - MILLAN