

OIL ANALYSIS REPORT

Sample Rating Trend



TM2835

Component Diesel Engine

Fluid 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.

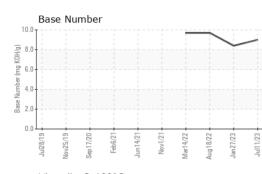
Fluid Condition

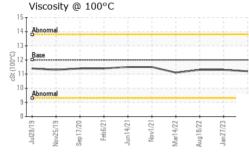
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0101326	PCA0089715	PCA0079065
Sample Date		Client Info		11 Jul 2023	27 Jan 2023	18 Aug 2022
Machine Age	mls	Client Info		132189	126741	114048
Oil Age	mls	Client Info		0	0	0
Oil Changed		Client Info		Changed	N/A	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<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	>100	12	18	21
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	0	<1	<1
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	0	0	<1
Aluminum	ppm	ASTM D5185m	>20	3	4	4
Lead	ppm	ASTM D5185m	>40	0	<1	<1
Copper	ppm	ASTM D5185m	>330	<1	2	2
Tin	ppm	ASTM D5185m	>15	0	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 8	history1 8	history2 5
	ppm ppm					
Boron		ASTM D5185m	2	8	8	5
Boron Barium	ppm	ASTM D5185m ASTM D5185m	2 0	8 0	8	5 <1
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50	8 0 67	8 0 71	5 <1 62
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0	8 0 67 <1	8 0 71 <1	5 <1 62 <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	8 0 67 <1 976	8 0 71 <1 988	5 <1 62 <1 929
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	8 0 67 <1 976 1237	8 0 71 <1 988 1268	5 <1 62 <1 929 1064
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 50 950 1050 995	8 0 67 <1 976 1237 1082	8 0 71 <1 988 1268 1046	5 <1 62 <1 929 1064 978
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 0 950 1050 995 1180	8 0 67 <1 976 1237 1082 1353	8 0 71 <1 988 1268 1046 1354	5 <1 62 <1 929 1064 978 1221
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	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 0 950 1050 995 1180 2600	8 0 67 <1 976 1237 1082 1353 3924	8 0 71 <1 988 1268 1046 1354 3914	5 <1 62 <1 929 1064 978 1221 2856
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	2 0 50 950 1050 995 1180 2600	8 0 67 <1 976 1237 1082 1353 3924 current	8 0 71 <1 988 1268 1046 1354 3914 history1	5 <1 62 <1 929 1064 978 1221 2856 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 imit/base >25	8 0 67 <1 976 1237 1082 1353 3924 current 5	8 0 71 <1 988 1268 1046 1354 3914 history1 5	5 <1 62 <1 929 1064 978 1221 2856 history2 4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	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 imit/base >25	8 0 67 <1 976 1237 1082 1353 3924 <u>current</u> 5 1	8 0 71 <1 988 1268 1046 1354 3914 history1 5 2	5 <1 62 <1 929 1064 978 1221 2856 history2 4 1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 limit/base >25 >20	8 0 67 <1 976 1237 1082 1353 3924 <u>current</u> 5 1 0	8 0 71 <1 988 1268 1046 1354 3914 history1 5 2 5 5	5 <1 62 <1 929 1064 978 1221 2856 history2 4 1 0
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 imit/base >25 -20 imit/base	8 0 67 <1 976 1237 1082 1353 3924 current 5 1 0 0 current	8 0 71 <1 988 1268 1046 1354 3914 history1 5 2 5 5 history1	5 <1 62 <1 929 1064 978 1221 2856 history2 4 1 0 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 Imit/base >25 >20 Imit/base >3 >20	8 0 67 <1 976 1237 1082 1353 3924 current 5 1 0 current 0.5	8 0 71 <1 988 1268 1046 1354 3914 history1 5 2 5 5 5 history1 0.8	5 <1 62 <1 929 1064 978 1221 2856 history2 4 1 0 history2 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 0 950 1050 995 1180 2600 Imit/base >25 >20 Imit/base >3 >20	8 0 67 <1 976 1237 1082 1353 3924 <u>current</u> 5 1 0 <u>current</u> 0.5 7.5	8 0 71 <1 988 1268 1046 1354 3914 history1 5 2 5 2 5 history1 0.8 9.3	5 <1 62 <1 929 1064 978 1221 2856 history2 4 1 0 history2 1 1 10.0
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 0 950 1050 995 1180 2600 imit/base >25 >20 imit/base >3 >20 >30	8 0 67 <1 976 1237 1082 1353 3924 current 5 1 0 current 0.5 7.5 18.8	8 0 71 <1 988 1268 1046 1354 3914 history1 5 2 5 5 <u>history1</u> 0.8 9.3 19.7	5 <1 62 <1 929 1064 978 1221 2856 history2 4 1 0 history2 1 10.0 21.7
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 TS ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844	2 0 50 0 950 1050 995 1180 2600 imit/base >25 >20 imit/base >3 >20 >30	8 0 67 <1 976 1237 1082 1353 3924 current 5 1 0 current 0.5 7.5 18.8 current	8 0 71 <1 988 1268 1046 1354 3914 history1 5 2 5 5 history1 0.8 9.3 19.7 history1	5 <1 62 <1 929 1064 978 1221 2856 history2 4 1 0 history2 1 10.0 21.7 history2



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

Certificate L2367

Laboratory

Sample No.

Lab Number

Unique Number

Contact/Location: MIKE LONGETTE - MILRUT