

OIL ANALYSIS REPORT

Sample Rating Trend





Machine Id **731M** Component **Diesel Engine** Fluid

PETRO CANADA DURON SHP 15W40 (36 QTS)

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		GFL0105597	GFL0052105	GFL0018517
Sample Date		Client Info		11 Dec 2023	19 Sep 2022	16 Mar 2022
Machine Age	mls	Client Info		0	149745	142329
Oil Age	mls	Client Info		0	149745	0
Oil Changed		Client Info		Changed	N/A	N/A
Sample Status				NORMAL	ABNORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<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	>75	22	9 9	58
Chromium	ppm	ASTM D5185m	>5	<1	4	2
Nickel	ppm	ASTM D5185m	>4	0	0	0
Titanium	ppm	ASTM D5185m	>2	0	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>15	2	8	3
Lead	ppm	ASTM D5185m	>25	<1	3	3
Copper	ppm	ASTM D5185m	>100	0	2	1
Tin	ppm	ASTM D5185m	>4	0	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium		ACTN DE105m		-	0	0
Gaumum	ppm	ASTM D5185m		0	0	0
ADDITIVES	ppm	method	limit/base	0 current	0 history1	0 history2
	ppm		limit/base			-
ADDITIVES		method		current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	0	current 1	history1 12	history2 4
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	0 0 60	current 1 0	history1 12 2	history2 4 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current 1 0 56	history1 12 2 55	history2 4 0 54
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	current 1 0 56 0	history1 12 2 55 <1	history2 4 0 54 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150	current 1 0 56 0 1037	history1 12 2 55 <1 796 1258 987	history2 4 0 54 <1 881 1059 943
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	Current 1 0 56 0 1037 1113	history1 12 2 55 <1 796 1258	history2 4 0 54 <1 881 1059
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	0 0 60 0 1010 1070 1150	Current 1 0 56 0 1037 1113 1068	history1 12 2 55 <1 796 1258 987	history2 4 0 54 <1 881 1059 943
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270	current 1 0 56 0 1037 1113 1068 1276	history1 12 2 55 <1 796 1258 987 1238	history2 4 0 54 <1 881 1059 943 1093
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	0 0 60 0 1010 1070 1150 1270 2060	Current 1 0 56 0 1037 1113 1068 1276 2984	history1 12 2 55 <1 796 1258 987 1238 2970	history2 4 0 54 <1 881 1059 943 1093 2090
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	0 0 60 1010 1070 1150 1270 2060	current 1 0 56 0 1037 1113 1068 1276 2984 current	history1 12 2 55 <1 796 1258 987 1238 2970 history1	history2 4 0 54 <1 881 1059 943 1093 2090 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	0 0 60 1010 1070 1150 1270 2060	current 1 0 56 0 1037 1113 1068 1276 2984 current 3	history1 12 2 55 <1 796 1258 987 1238 2970 history1 8	history2 4 0 54 <1 881 1059 943 1093 2090 history2 4
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	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	current 1 0 56 0 1037 1113 1068 1276 2984 current 3 6	history1 12 2 55 <1 796 1258 987 1238 2970 history1 8 10	history2 4 0 54 <1 881 1059 943 1093 2090 history2 4 7
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	0 0 0 1010 1070 1150 1270 2060 limit/base >25	current 1 0 56 0 1037 1113 1068 1276 2984 current 3 6 1	history1 12 2 55 <1 796 1258 987 1238 2970 history1 8 10 9	history2 4 0 54 <1 881 1059 943 1093 2090 history2 4 7 0
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	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 Limit/base >20	current 1 0 56 0 1037 1113 1068 1276 2984 current 3 6 1 current 3 6 1 current	history1 12 2 55 <1 796 1258 987 1238 2970 history1 8 10 9 history1	history2 4 0 54 <1 881 1059 943 1093 2090 history2 4 7 0 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	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 Limit/base >20	current 1 0 56 0 1037 1113 1068 1276 2984 current 3 6 1 current 0.5	history1 12 2 55 <1 796 1258 987 1238 2970 history1 8 10 9 history1 1.7	history2 4 0 54 <1 881 1059 943 1093 2090 history2 4 7 0 history2 1.3
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 ppm	method ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >20 imit/base >20 imit/base >20	current 1 0 56 0 1037 1113 1068 1276 2984 current 3 6 1 current 0.5 8.5	history1 12 2 55 <1 796 1258 987 1238 2970 history1 8 10 9 history1 1.7 18.0	history2 4 0 54 <1 881 1059 943 1093 2090 history2 4 7 0 history2 1.3 16.0
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 ppm	method ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 imit/base >6 >20 20	current 1 0 56 0 1037 1113 1068 1276 2984 current 3 6 1 current 0.5 8.5 20.3	history1 12 2 55 <1 796 1258 987 1238 2970 history1 8 10 9 history1 1.7 18.0 32.4	history2 4 0 54 <1 881 1059 943 1093 2090 history2 4 7 0 history2 1.3 16.0 27.2



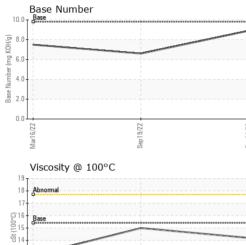
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OIL ANALYSIS REPORT

VISUAL



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	White Metal	scalar *Visual	NONE N	ONE NONE	NONE				
	Yellow Metal	scalar *Visual		ONE NONE	NONE				
	Precipitate	scalar *Visual		ONE NONE	NONE				
	Silt	scalar *Visual		ONE NONE	NONE				
	Debris								
		scalar *Visual			NONE				
2	Sand/Dirt	scalar *Visual		ONE NONE	NONE				
Sep 19/22	Appearance	scalar *Visual		ORML NORML	NORML				
S	0.00	scalar *Visual	NORML N	ORML NORML	NORML				
	Emulsified Water	scalar *Visual	>0.2 N	EG NEG	NEG				
	Free Water	scalar *Visual	N	EG NEG	NEG				
	FLUID PROPE	ERTIES method	limit/base	current history1	history2				
	Visc @ 100°C	cSt ASTM D445	5 15.4 1 4	4.2 15.0	12.8				
	GRAPHS								
	Ferrous Alloys								
2	- 100 iron	\wedge							
Sep 19/22	80 - nickel								
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	20-								
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		22	53						
	Mar16/22	Sep19/22	Dec11/23						
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	Non-ferrous Meta								
	copper								
	8 - reserves tin								
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	6/22	Sep19/22	Dec11/23						
	Marl	Sep1	Dec1						
	Viscosity @ 100°	С	Da	a Number					
	19 T		10.0 T Bas	se Number					
	18 - Abnormal				~				
	17-			1					
	C 16 - Bare		HOX						
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	13 Abnormal		^{en} 2.0-						
	11		0.0						
	3/22	9/22		1/22 -					
	Mar16/22	Sep 19/22	Dec1 1/23 Mar1 6/22	Sep19/22					
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Submitted By: Belal Dgheish

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