

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 428136 Component Diesel Engi Fluid PETRO CAN

Component Diesel Engine Fluid PETRO CANADA DURON SHP 15W40 (--- GAL)

SAMPLE INFORMATION method

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 Number Sample Date Machine Age Oil Age Oil Changed Sample Status	mls mls	Client Info Client Info Client Info Client Info Client Info		GFL0116709 23 May 2024 374779 0 Not Changd NORMAL	GFL0116704 14 May 2024 373859 0 Not Changd NORMAL	GFL0100886 02 Jan 2024 354948 0 Changed NORMAL
CONTAMINATI	ON	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 METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>120	7	1	12
Chromium	ppm	ASTM D5185m	>20	1	0	<1
Nickel	ppm	ASTM D5185m	>5	<1	0	0
Titanium	ppm	ASTM D5185m	>2	<1	0	<1
Silver	ppm	ASTM D5185m	>2	1	0	0
Aluminum	ppm	ASTM D5185m	>20	3	1	3
Lead	ppm	ASTM D5185m	>40	<1	0	<1
Copper	ppm	ASTM D5185m	>330	2	1	1
Tin	ppm	ASTM D5185m	>15	1	<1	1
Vanadium	ppm	ASTM D5185m		<1	0	<1
Cadmium	ppm	ASTM D5185m		<1	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 0	current 6	history1 4	history2 1
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	limit/base 0 0	current 6 1	history1 4 0	history2 1 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 60	current 6 1 83	history1 4 0 59	history2 1 0 61
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 60 0	current 6 1 83 <1	history1 4 0 59 <1	history2 1 0 61 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	Method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 0 60 0 1010	current 6 1 83 <1 1262	history1 4 0 59 <1 891	history2 1 0 61 <1 908
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 60 0 1010 1070	current 6 1 83 <1 1262 1407	history1 4 0 59 <1 891 1001	history2 1 0 61 <1 908 1059
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 60 0 1010 1070 1150	current 6 1 83 <1 1262 1407 1372	history1 4 0 59 <1 891 1001 1019	history2 1 0 61 <1 908 1059 960
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 60 0 1010 1070 1150 1270	current 6 1 83 <1 1262 1407 1372 1612	history1 4 0 59 <1 891 1001 1019 1180	history2 1 0 61 <1 908 1059 960 1204
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 0 60 0 1010 1070 1150 1270 2060	current 6 1 83 <1 1262 1407 1372 1612 4118	history1 4 0 59 <1 891 1001 1019 1180 3223	history2 1 0 61 <1 908 1059 960 1204 2797
ADDITIVES Boron Barium Molybdenum Maganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	limit/base 0 60 0 1010 1070 1150 1270 2060	current 6 1 83 <1 1262 1407 1372 1612 4118 current	history1 4 0 59 <1 891 1001 1019 1180 3223 history1	history2 1 0 61 <1 908 1059 960 1204 2797 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm	method ASTM D5185m	limit/base 0 0 60 0 1010 1070 1150 1270 2060 s>25	current 6 1 83 <1 1262 1407 1372 1612 4118 current 6	history1 4 0 59 <1 891 1001 1019 1180 3223 history1 2	history2 1 0 61 <1 908 1059 960 1204 2797 history2 4
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Chosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm of the second secon	method ASTM D5185m	limit/base 0 60 0 1010 1070 1150 1270 2060 Limit/base >25	current 6 1 83 <1 1262 1407 1372 1612 4118 current 6 3	4 0 59 <1 891 1001 1019 1180 3223 history1 2 2 2 2 2 2 2 2 2 2	history2 1 0 61 <1 908 1059 960 1204 2797 history2 4 4 4
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Chosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm 1 ppm 2 ppm 2	method ASTM D5185m	limit/base 0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20	current 6 1 83 <1 1262 1407 1372 1612 4118 current 6 3 3	4 0 59 <1 891 1001 1019 1180 3223 history1 2 2 0 0	history2 1 0 61 <1 908 1059 960 1204 2797 history2 4 4 0
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm 1 ppm 2 ppm 2 ppm 2 ppm 2 ppm 2 ppm 3 ppm 4 ppm 4 ppm 2 ppm 2 ppm 4 ppm 4	method ASTM D5185m	limit/base 0 60 0 1010 1070 1150 1270 2060 limit/base >25 20	current 6 1 83 <1 1262 1407 1372 1612 4118 current 6 3 3 current	4 0 59 <1 891 1001 1019 1180 3223 history1 2 2 0 0 history1	history2 1 0 61 <1 908 1059 960 1204 2797 history2 4 0 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm 1 ppm 2 ppm 2 ppm 2 ppm 2 ppm 2 ppm 2 ppm 4 ppm 4 ppm 4 ppm 2 ppm 4 ppm 4	method ASTM D5185m	limit/base 0 60 0 1010 1070 1150 1270 2060 limit/base >20 limit/base >4	current 6 1 83 <1 1262 1407 1372 1612 4118 current 6 3 current 0.2	history1 4 0 59 <1 891 1001 1019 1180 3223 history1 2 2 0 history1 0 55	history2 1 0 61 <1 908 1059 960 1204 2797 history2 4 0 history2 0 0.6
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	limit/base 0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >4 >20	current 6 1 83 <1 1262 1407 1372 1612 4118 current 6 3 current 0.2 6.5	4 0 59 <1 891 1001 1019 1180 3223 history1 2 0 history1 0.5 7.7	history2 1 0 61 <1 908 1059 960 1204 2797 history2 4 0 history2 0.6 10.8
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 t spm ppm ppm ppm spm ppm spm ppm spm ppm spm s	method ASTM D5185m	limit/base 0 60 0 1010 1070 1150 1270 2060 limit/base >20 limit/base >20 >4 >20 >30	current 6 1 83 <1 1262 1407 1372 1612 4118 current 6 3 current 0.2 6.5 17.6	history1 4 0 59 <1 891 1001 1019 1180 3223 history1 2 2 2 0 history1 0.5 7.7 19.2	history2 1 0 61 <1 908 1059 960 1204 2797 history2 4 4 0 history2 0.6 10.8 21.9
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	limit/base 0 0 1010 1010 1070 1150 1270 2060 limit/base >20 limit/base >4 >20 >30	current 6 1 83 <1 1262 1407 1372 1612 4118 current 6 3 current 0.2 6.5 17.6	4 0 59 <1 891 1001 1019 1180 3223 history1 2 2 0 history1 0.5 7.7 19.2 history1	history2 1 0 61 <1 908 1059 960 1204 2797 history2 4 0 history2 0.6 10.8 21.9 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD Oxidation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D7844 *ASTM D7415 method *ASTM D7414	<pre>limit/base 0 60 1010 1010 1070 1150 1270 2060 limit/base >25 limit/base >4 >20 30 limit/base</pre>	current 6 1 83 <1 1262 1407 1372 1612 4118 current 6 3 current 0.2 6.5 17.6 current 13.8	history1 4 0 59 <1 891 1001 1019 1180 3223 history1 2 2 2 0 history1 0.5 7.7 19.2 history1 16.2	history2 1 0 61 <1 908 1059 960 1204 2797 history2 4 0 history2 0.6 10.8 21.9 history2 17.3



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VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPEI	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	15.4	13.6	13.8	13.0
GRAPHS						





Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 GFL Environmental - 419 - Metro Saginaw Sample No. : GFL0116709 Received : 28 May 2024 6950 N Michigan Lab Number : 06192063 Tested : 29 May 2024 Saginaw, MI US 48604 Unique Number : 11048815 Diagnosed : 12 Jun 2024 - Wes Davis Test Package : FLEET Contact: Jeremy Hines Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. jhines@gflenv.com * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: (800)684-1277 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F:

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Submitted By: Colton Kitts

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