

OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL



Machine Id **413044** Component **Diesel Engine**

PETRO CANADA DURON SHP 15W40 (--- QTS)

DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

Contamination

There is no indication of any contamination in the

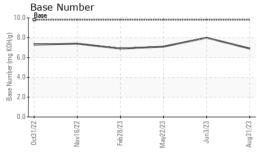
Fluid Condition

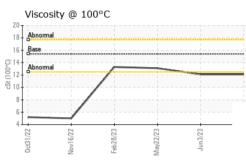
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

`		Oct2022	Nov2022 Feb2023	May2023 Jun2023	Aug2023	
SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0092497	GFL0083626	GFL0083614
Sample Date		Client Info		31 Aug 2023	03 Jun 2023	22 May 2023
Machine Age	hrs	Client Info		2359	1792	1708
Oil Age	hrs	Client Info		545	1708	1126
Oil Changed		Client Info		Not Changd	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	0.3	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>120	11	3	18
Chromium	ppm	ASTM D5185m	>20	<1	<1	1
Nickel	ppm	ASTM D5185m	>5	2	0	3
Titanium	ppm	ASTM D5185m	>2	0	0	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	8	1	7
Lead	ppm	ASTM D5185m	>40	<1	0	2
Copper	ppm	ASTM D5185m	>330	2	3	29
Tin	ppm	ASTM D5185m	>15	<1	0	2
Vanadium	ppm	ASTM D5185m		<1	<1	<1
Cadmium	ppm	ASTM D5185m		0	0	<1
				· ·	O	
ADDITIVES	11	method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method	limit/base			
		method	0	current	history1	history2
Boron	ppm	method ASTM D5185m	0	current	history1 25	history2
Boron Barium	ppm	method ASTM D5185m ASTM D5185m	0 0 60	current 3 0	history1 25 0	history2 7 0
Boron Barium Molybdenum	ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	current 3 0 57	history1 25 0 64	history2 7 0 58
Boron Barium Molybdenum Manganese	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	current 3 0 57 <1	history1 25 0 64 <1	history2 7 0 58 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	current 3 0 57 <1 823	history1 25 0 64 <1 817	history2 7 0 58 <1 932
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070	current 3 0 57 <1 823 1016	history1 25 0 64 <1 817 1048	history2 7 0 58 <1 932 1172
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150	current 3 0 57 <1 823 1016 876	history1 25 0 64 <1 817 1048 918	history2 7 0 58 <1 932 1172 938
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270	current 3 0 57 <1 823 1016 876 1096	history1 25 0 64 <1 817 1048 918 1068	history2 7 0 58 <1 932 1172 938 1260
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	current 3 0 57 <1 823 1016 876 1096 3013	history1 25 0 64 <1 817 1048 918 1068 3214	history2 7 0 58 <1 932 1172 938 1260 2968
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	current 3 0 57 <1 823 1016 876 1096 3013 current	history1 25 0 64 <1 817 1048 918 1068 3214 history1	history2 7 0 58 <1 932 1172 938 1260 2968 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060	current 3 0 57 <1 823 1016 876 1096 3013 current 5	history1 25 0 64 <1 817 1048 918 1068 3214 history1	history2 7 0 58 <1 932 1172 938 1260 2968 history2 6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base	current 3 0 57 <1 823 1016 876 1096 3013 current 5	history1 25 0 64 <1 817 1048 918 1068 3214 history1 3	history2 7 0 58 <1 932 1172 938 1260 2968 history2 6 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	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 3 0 57 <1 823 1016 876 1096 3013 current 5 4 19	history1 25 0 64 <1 817 1048 918 1068 3214 history1 3 2 0	history2 7 0 58 <1 932 1172 938 1260 2968 history2 6 3 16
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 60 0 1010 1070 1150 1270 2060 limit/base >25 >20	current 3 0 57 <1 823 1016 876 1096 3013 current 5 4 19 current	history1 25 0 64 <1 817 1048 918 1068 3214 history1 3 2 0 history1	history2 7 0 58 <1 932 1172 938 1260 2968 history2 6 3 16 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	method ASTM D5185m method ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	current 3 0 57 <1 823 1016 876 1096 3013 current 5 4 19 current 0.3	history1 25 0 64 <1 817 1048 918 1068 3214 history1 3 2 0 history1 0.1	history2 7 0 58 <1 932 1172 938 1260 2968 history2 6 3 16 history2 0.3
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 method ASTM D5185m ASTM D5185m *ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D76144	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base	current 3 0 57 <1 823 1016 876 1096 3013 current 5 4 19 current 0.3 7.3	history1 25 0 64 <1 817 1048 918 1068 3214 history1 3 2 0 history1 0.1 5.5	history2 7 0 58 <1 932 1172 938 1260 2968 history2 6 3 16 history2 0.3 8.0
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	method ASTM D5185m method ASTM D5185m ASTM D5185m *ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D76144	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >4 >20 >30	current 3 0 57 <1 823 1016 876 1096 3013 current 5 4 19 current 0.3 7.3 17.8	history1 25 0 64 <1 817 1048 918 1068 3214 history1 3 2 0 history1 0.1 5.5 16.7	history2 7 0 58 <1 932 1172 938 1260 2968 history2 6 3 16 history2 0.3 8.0 20.0



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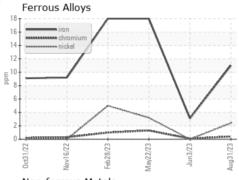


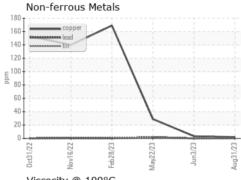


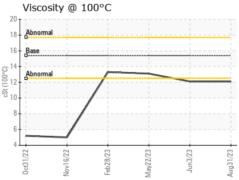
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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

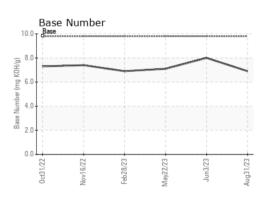
FLUID PROPERTIES		method				history2	
Visc @ 100°C	cSt	ASTM D445	15.4	12.1	12.1	13.1	

GRAPHS













Laboratory Sample No. Lab Number Unique Number : 10633850 Test Package : FLEET

: GFL0092497 : 05943238

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 06 Sep 2023 Diagnosed : 07 Sep 2023 Diagnostician : Wes Davis

GFL Environmental - 095 - Atlanta West 2699 Cochran Industrial Blvd

Douglasville, GA US 30127-1332 Contact: Darrell Welch darrell.welch@gflenv.com T: (800)207-6618

To discuss this sample report, contact Customer Service at 1-800-237-1369.

* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

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