

OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL



Machine Id 929097

Fluid

Component Diesel Engine

PETRO CANADA DURON SHP 15W40 (--- 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

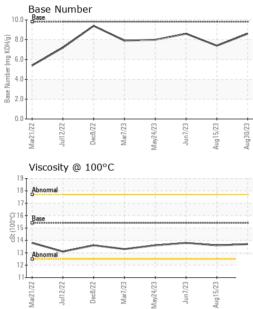
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFOR	MATION	method	limit/base	current	history1	history2						
Sample Number		Client Info		GFL0072526	GFL0072538	GFL0068291						
Sample Date		Client Info		30 Aug 2023	15 Aug 2023	07 Jun 2023						
Machine Age	hrs	Client Info		77735 8		77735						
Oil Age	hrs	Client Info	77735		8767	77735						
Oil Changed		Client Info		Not Changd	Changed	N/A						
Sample Status			NORMAL		NORMAL	NORMAL						
CONTAMINAT	ION	method	limit/base	current	history1	history2						
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0						
Glycol		WC Method		NEG	NEG	NEG						
WEAR METALS method limit/base current history1 history2												
Iron	ppm	ASTM D5185m	>120	4	13	8						
Chromium	ppm	ASTM D5185m		- <1	<1	<1						
Nickel	ppm	ASTM D5185m	>5	0	0	0						
Titanium	ppm	ASTM D5185m		<1	0	0						
Silver	ppm	ASTM D5185m	>2	0	0	0						
Aluminum	ppm	ASTM D5185m		2	3	2						
Lead	ppm	ASTM D5185m	>20	0	0	<1						
Copper		ASTM D5185m		0	<1	<1						
Tin	ppm			0	<1	<1						
Vanadium	ppm	ASTM D5185m ASTM D5185m	>15	0	0	0						
Cadmium	ppm	ASTM D5185m		0	0	0						
	ppm	ASTIVI DOTODIII		0	-	0						
ADDITIVES		method				history2						
ADDITIVES		methou	IIIIII/Dase	Current	history1	TIIStoryz						
Boron	ppm	ASTM D5185m	0	6	3	5						
	ppm ppm											
Boron		ASTM D5185m	0	6	3	5						
Boron Barium Molybdenum Manganese	ppm	ASTM D5185m ASTM D5185m	0	6 0	3 0	5 0						
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60	6 0 63	3 0 67	5 0 58						
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0	6 0 63 <1	3 0 67 <1	5 0 58 0						
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010	6 0 63 <1 980	3 0 67 <1 1016	5 0 58 0 889						
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070	6 0 63 <1 980 1102	3 0 67 <1 1016 1205	5 0 58 0 889 1069						
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	0 0 60 0 1010 1070 1150	6 0 63 <1 980 1102 1030	3 0 67 <1 1016 1205 1051	5 0 58 0 889 1069 983						
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	0 0 60 0 1010 1070 1150 1270	6 0 63 <1 980 1102 1030 1276	3 0 67 <1 1016 1205 1051 1352	5 0 58 0 889 1069 983 1169						
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	0 0 60 0 1010 1070 1150 1270 2060	6 0 63 <1 980 1102 1030 1276 3660	3 0 67 <1 1016 1205 1051 1352 3351	5 0 58 0 889 1069 983 1169 3014						
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	0 0 60 1010 1070 1150 1270 2060	6 0 63 <1 980 1102 1030 1276 3660 current	3 0 67 <1 1016 1205 1051 1352 3351 history1	5 0 58 0 889 1069 983 1169 3014 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	0 0 60 1010 1070 1150 1270 2060	6 0 63 <1 980 1102 1030 1276 3660 current 5	3 0 67 <1 1016 1205 1051 1352 3351 history1 4	5 0 58 0 889 1069 983 1169 3014 history2 6						
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	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	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25	6 0 63 <1 980 1102 1030 1276 3660 current 5 2	3 0 67 <1 1016 1205 1051 1352 3351 history1 4 5	5 0 58 0 889 1069 983 1169 3014 history2 6 <1						
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	0 0 60 0 1010 1070 1150 1270 2060 limit/base >25 >20	6 0 63 <1 980 1102 1030 1276 3660 current 5 2 1	3 0 67 <1 1016 1205 1051 1352 3351 history1 4 5 1 1 history1	5 0 58 0 889 1069 983 1169 3014 history2 6 <1 <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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 <u>limit/base</u> >20	6 0 63 <1 980 1102 1030 1276 3660 <u>current</u> 5 2 1 1 <u>current</u> 0.2	3 0 67 <1 1016 1205 1051 1352 3351 history1 4 5 1 1 history1 0.7	5 0 58 0 889 1069 983 1169 3014 history2 6 <1 <1 <1 history2 0.3						
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 >25 >20 <u>limit/base</u> >20	6 0 63 <1 980 1102 1030 1276 3660 current 5 2 1 1 current	3 0 67 <1 1016 1205 1051 1352 3351 history1 4 5 1 1 history1	5 0 58 0 889 1069 983 1169 3014 history2 6 <1 <1 <1 history2						
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 ppm TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 <i>limit/base</i> >25 >20 <i>limit/base</i> >4 >20	6 0 63 <1 980 1102 1030 1276 3660 <i>current</i> 5 2 1 2 1 <i>current</i> 0.2 5.4	3 0 67 <1 1016 1205 1051 1352 3351 history1 4 5 1 4 5 1 history1 0.7 8.3	5 0 58 0 889 1069 983 1169 3014 history2 6 <1 <1 <1 history2 0.3 5.6						
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 D7844 *ASTM D7624	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 220 20 20 20 20 20 20 20 20 20 20 20	6 0 63 <1 980 1102 1030 1276 3660 <i>current</i> 5 2 1 <i>current</i> 0.2 5.4 18.0	3 0 67 <1 1016 1205 1051 1352 3351 history1 4 5 1 4 5 1 0.7 8.3 20.3 history1	5 0 58 0 889 1069 983 1169 3014 history2 6 <1 <1 <1 history2 0.3 5.6 18.8 history2						
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 TS ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 2060 225 20 225 20 imit/base >4 20 20	6 0 63 <1 980 1102 1030 1276 3660 <u>current</u> 5 2 1 1 <u>current</u> 0.2 5.4 18.0	3 0 67 <1 1016 1205 1051 1352 3351 history1 4 5 1 1 history1 0.7 8.3 20.3	5 0 58 0 889 1069 983 1169 3014 history2 6 <1 <1 <1 history2 0.3 5.6 18.8						



OIL ANALYSIS REPORT

VISUAL



	17 0 16 Base 15 15 15 15 15			0.0 KOH(ć			\checkmark
	Juli 2/2/2	0 Mar1/23	Jun7/23	Ynd30/23	Base Number		
	20 10 CZI CZZ CZZ CZZ CZZ CZZ CZZ CZZ CZZ CZZ	Mar1/23	Augi5/23	Aug30/23			
Jun7/23	GRAPHS Ferrous Alloys	cSt	ASTM D445	15.4	13.7	13.6	13.8
			method	limit/base	current	history1	history2
Jun Augi Augi	Odor Emulsified Water Free Water	scalar scalar scalar	*Visual *Visual *Visual	NORML >0.2	NORML NEG NEG	NORML NEG NEG	NORML NEG NEG
17/23 + 15/23 + 15/23 +	_ Sand/Dirt	scalar scalar	*Visual *Visual	NONE NORML	NONE	NONE NORML	NONE NORML
	Precipitate Silt	scalar scalar	*Visual *Visual	NONE NONE	NONE NONE	NONE	NONE NONE NONE
		Silt Debris Sand/Dirt Appearance Odor Emulsified Water Free Water Fluid PROPE Visc @ 100°C GRAPHS Ferrous Alloys	Yellow Metal scalar Precipitate scalar Silt scalar Debris scalar Sand/Dirt scalar Appearance scalar Odor scalar Emulsified Water scalar Free Water scalar For our alloys Ferrous Alloys Non-ferrous Metals Usc cytum Non-ferrous Metals	Yellow Metal scalar *Visual Precipitate scalar *Visual Silt scalar *Visual Debris scalar *Visual Sand/Dirt scalar *Visual Appearance scalar *Visual Odor scalar *Visual Codor scalar *Visual Free Water scalar *Visual Non-ferrous Alloys Ferrous Alloys Viscosity @ 100°C	Yellow Metal scalar *Visual NONE Precipitate scalar *Visual NONE Sitt scalar *Visual NONE Sitt scalar *Visual NONE Sand/Dirt scalar *Visual NONE Sand/Dirt scalar *Visual NONE Sand/Dirt scalar *Visual NONE Appearance scalar *Visual NORML Odor scalar *Visual NORML Cdor scalar *Visual NORML Cdor scalar *Visual NORML Emulsified Water scalar *Visual >0.2 Free Water scalar *Visual Scalar *Visual NORML Free Water scalar *Visual Scalar *Visual NORML Precipitate scalar *Visual NORML Sitt scalar *Visual NORML Cdor scalar *Visual *Scalar *Scalar *Visual *Scalar *S	Yellow Metal scalar *Visual NONE NONE Precipitate scalar *Visual NONE NONE Sitt scalar *Visual NONE NONE Sand/Dit scalar *Visual NONE NONE Sand/Dit scalar *Visual NONE NONE Appearance scalar *Visual NORML NORML Odor scalar *Visual NORML NORML Odor scalar *Visual NORML NORML Emulsified Water scalar *Visual NORML NORML Visc @ 100°C cSt ASTM D445 15.4 13.7 GRAPHS Ferrous Alloys Visc @ 100°C cSt ASTM D445 15.4 13.7 GRAPHS Ferrous Metals Viscosity @ 100°C Totom for a scalar *Visual NORML NORML Normation of the scalar *Visual NORML	Yellow Metal scalar Visual NONE NONE NONE NONE Precipitate scalar Visual NONE NONE NONE NONE Sitt scalar Visual NONE NONE NONE NONE Sand/Dirt scalar Visual NONE NONE NONE NONE Sand/Dirt scalar Visual NONE NONE NONE Appearance scalar Visual NORML NORML NORML NORML Odor scalar Visual NORML

Submitted By: Colton Kitts Page 2 of 2