

OIL ANALYSIS REPORT

Sample Rating Trend

May2023 Aug2023 Jan2024





423002 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

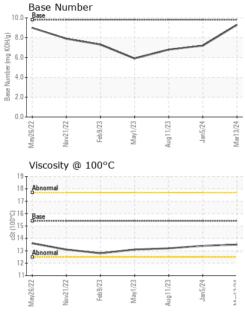
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Date Client Info 13 Mar 2024 05 Jan 2024 11 Aug 2023 Machine Age hrs Client Info 13053 12520 11543 Ol Age hrs Client Info 600 600 600 Oil Age hrs Client Info 600 600 600 Oil Age Client Info 600 600 600 600 Sample Status Imit/base current NoRMAL NORMAL NORMAL CONTAMINATION method imit/base current history1 history2 Fuel WC Method >.2 NEG NEG NEG Water WC Method >.2 NEG NEG NEG Nickel ppm ASTM D5185m >4 1 0 .1 Nickel ppm ASTM D5185m >4 1 0 .2 Rom ASTM D5185m >20 2 2 3 .2 Itranium ppm ASTM D518	SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
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INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.1 0.3 0.3 Nitration Abs/cm *ASTM D7624 >20 5.9 8.2 8.0 Sulfation Abs/.1mm *ASTM D7415 >30 18.1 19.4 19.3 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 12.4 16.2 15.7	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	0 0 60 1010 1070 1150 1270 2060	7 0 63 0 1009 1170 1163 1346 3241 <u>current</u> 5	3 0 61 0 951 1068 1014 1213 3074 history1	6 0 64 <1 876 1113 975 1167 2611 history2
Soot % % *ASTM D7844 >3 0.1 0.3 0.3 Nitration Abs/cm *ASTM D7624 >20 5.9 8.2 8.0 Sulfation Abs/.1mm *ASTM D7415 >30 18.1 19.4 19.3 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 12.4 16.2 15.7	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	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 method ASTM D5185m	0 0 60 1010 1070 1150 1270 2060 limit/base >25	7 0 63 0 1009 1170 1163 1346 3241 <u>current</u> 5	3 0 61 0 951 1068 1014 1213 3074 history1 4 4	6 0 64 <1 876 1113 975 1167 2611 history2 4 2
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FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 12.4 16.2 15.7	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	7 0 63 0 1009 1170 1163 1346 3241 <i>current</i> 5 3 3 3 <i>current</i> 0.1	3 0 61 0 951 1068 1014 1213 3074 history1 4 4 4 4 4 4 0.3	6 0 64 <1 876 1113 975 1167 2611 history2 4 2 2 2 history2 0.3
Oxidation Abs/.1mm *ASTM D7414 >25 12.4 16.2 15.7	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 limit/base >25 >20 limit/base	7 0 63 0 1009 1170 1163 1346 3241 <i>current</i> 5 3 3 3 <i>current</i> 0.1	3 0 61 0 951 1068 1014 1213 3074 history1 4 4 4 4 4 4 0.3	6 0 64 <1 876 1113 975 1167 2611 history2 4 2 2 2 history2 0.3
	Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 limit/base >25 >20 limit/base >3 >20	7 0 63 0 1009 1170 1163 1346 3241 <i>current</i> 5 3 3 3 <i>current</i> 0.1 5.9	3 0 61 0 951 1068 1014 1213 3074 history1 4 4 4 4 4 4 0.3 8.2	6 0 64 <1 876 1113 975 1167 2611 history2 4 2 2 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	ASTM D5185m ASTM D5185m	0 0 0 1010 1070 1150 1270 2060 imit/base >25 imit/base >3 >20	7 0 63 0 1009 1170 1163 1346 3241 <u>current</u> 5 3 3 3 <u>current</u> 0.1 5.9 18.1	3 0 61 0 951 1068 1014 1213 3074 history1 4 4 4 4 4 4 5 0.3 8.2 19.4	6 0 64 <1 876 1113 975 1167 2611 history2 4 2 2 history2 0.3 8.0 19.3
Base Number (BN) mg KOH/g ASTM D2896 9.8 9.3 7.2 6.8	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 ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7615	0 0 0 1010 1070 1150 1270 2060 2060 225 20 220 220 20 3 20 3 20 3 3 20 3 3 20 3 3 20 3 3 3 20 3 3 3 20 3 3 3 3	7 0 63 0 1009 1170 1163 3241 <i>current</i> 5 3 3 3 <i>current</i> 0.1 5.9 18.1	3 0 61 0 951 1068 1014 1213 3074 history1 4 4 4 4 history1 0.3 8.2 19.4 history1	6 0 64 <1 876 1113 975 1167 2611 history2 4 2 2 history2 0.3 8.0 19.3 history2



OIL ANALYSIS REPORT

VISUAL



0.0C	White Metal Yellow Metal Precipitate Silt Debris Sand/Dirt Appearance Odor Emulsified Water Free Water FLUID PROPE	scalar scalar scalar scalar scalar scalar scalar scalar scalar	*Visual *Visual *Visual *Visual *Visual *Visual *Visual *Visual *Visual *Visual	NONE NONE NONE NONE NORML NORML >0.2	NONE NONE NONE NONE NONE NORML NORML NEG NEG	NONE NONE NONE NONE NONE NORML NORML NEG NEG history1	NONE NONE NONE NONE NORML NORML NEG NEG history2	
	Visc @ 100°C	cSt	ASTM D445		13.5	13.4	13.2	
May1/23	GRAPHS Ferrous Alloys	E21/yeW	Aug11/23	Mar13/24 Mar13/24				
Laboratory Sample No. Lab Number Unique Number	Viscosity @ 100°C Viscosity @ 100°C Abnomal Abnomal Control of the second Control of t	EZUMey 1 Madiso Recei Teste	EZ/11 ^{Biny} on Ave., Cary ived : 21 ed : 22	10.0 8.0 0.0 0.0 10.0 0.0 8 8 8 8 8 8 8 8 8 8 9 2.0 0.0 0 10 10 10 10 10 10 10 10 10 10 10 10	CZUBZAREW CZUBZAREW GFL Envi	ironmental - 19 7580	52 - Jacksonville D PHILIPS HWY Jacksonville, FL US 32256	
Certificate L2367 Test Package To discuss this sample report, * - Denotes test methods that	: FLEET contact Customer Serv are outside of the ISO 1	rice at 1-8 7025 sco	e at 1-800-237-1369.			Contact: GRANVILLE CARROLL gcarroll@gflenv.com T: 1(904)252-6815		

limit/base

回希

Submitted By: WITH iNDIANA GFL - Chris Smith