

OIL ANALYSIS REPORT



Machine Id DT806

Component Diesel Engine

Fluid PETRO CANADA DURON SHP 10W30 (36 QTS)

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

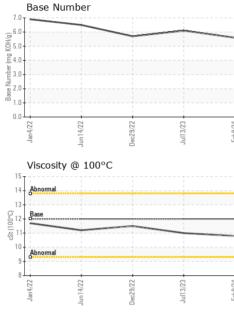
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0113158	PCA0096921	PCA0080901
Sample Date		Client Info		09 Feb 2024	13 Jul 2023	29 Dec 2022
Machine Age	mls	Client Info		129390	101823	76330
Oil Age	mls	Client Info		27567	25493	25500
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<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	>110	27	25	35
Chromium	ppm	ASTM D5185m	>4	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	<1	0
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>25	11	10	15
Lead	ppm	ASTM D5185m	>45	0	0	0
Copper	ppm	ASTM D5185m	>85	1	2	6
Tin	ppm	ASTM D5185m	>4	0	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 2	3	3	2
	ppm ppm	ASTM D5185m				
Boron		ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50	3	3 0 70	2 0 69
Boron Barium Molybdenum Manganese	ppm	ASTM D5185m ASTM D5185m	2 0 50 0	3 0 62 <1	3 0 70 <1	2 0 69 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950	3 0 62 <1 962	3 0 70 <1 905	2 0 69 <1 989
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050	3 0 62 <1 962 1099	3 0 70 <1 905 1130	2 0 69 <1 989 1200
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	2 0 50 950 1050 995	3 0 62 <1 962 1099 1016	3 0 70 <1 905 1130 1006	2 0 69 <1 989 1200 1056
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180	3 0 62 <1 962 1099 1016 1246	3 0 70 <1 905 1130 1006 1207	2 0 69 <1 989 1200 1056 1329
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	2 0 50 950 1050 995 1180 2600	3 0 62 <1 962 1099 1016	3 0 70 <1 905 1130 1006	2 0 69 <1 989 1200 1056
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	2 0 50 0 950 1050 995 1180	3 0 62 <1 962 1099 1016 1246	3 0 70 <1 905 1130 1006 1207	2 0 69 <1 989 1200 1056 1329
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 method	2 0 50 950 1050 995 1180 2600	3 0 62 <1 962 1099 1016 1246 2696 current 12	3 0 70 <1 905 1130 1006 1207 2697 history1 6	2 0 69 <1 989 1200 1056 1329 2622 history2 10
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	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	2 0 50 950 1050 995 1180 2600 Limit/base >30	3 0 62 <1 962 1099 1016 1246 2696 <u>current</u> 12 2	3 0 70 <1 905 1130 1006 1207 2697 history1 6 0	2 0 69 <1 989 1200 1056 1329 2622 history2 10 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	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	2 0 50 950 1050 995 1180 2600 limit/base >30	3 0 62 <1 962 1099 1016 1246 2696 current 12	3 0 70 <1 905 1130 1006 1207 2697 history1 6	2 0 69 <1 989 1200 1056 1329 2622 history2 10
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 imit/base >30 -20 imit/base	3 0 62 <1 962 1099 1016 1246 2696 current 12 2 14 2	3 0 70 <1 905 1130 1006 1207 2697 history1 6 0 21 history1	2 0 69 <1 989 1200 1056 1329 2622 history2 10 <1 38 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	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 Imit/base >30 >20 Imit/base >3	3 0 62 <1 962 1099 1016 1246 2696 <i>current</i> 12 2 14 <i>current</i>	3 0 70 <1 905 1130 1006 1207 2697 history1 6 0 21 history1 0.7	2 0 69 <1 989 1200 1056 1329 2622 history2 10 <1 38 history2 0.8
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 TS ppm ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 <i>imit/base</i> >30 <i>imit/base</i> >20	3 0 62 <1 962 1099 1016 1246 2696 <i>current</i> 12 2 14 <i>current</i> 0.8 9.3	3 0 70 <1 905 1130 1006 1207 2697 history1 6 0 21 history1 0.7 9.9	2 0 69 <1 989 1200 1056 1329 2622 history2 10 <1 38 history2 0.8 10.7
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 Imit/base >30 >20 Imit/base >3	3 0 62 <1 962 1099 1016 1246 2696 <i>current</i> 12 2 14 <i>current</i>	3 0 70 <1 905 1130 1006 1207 2697 history1 6 0 21 history1 0.7	2 0 69 <1 989 1200 1056 1329 2622 history2 10 <1 38 history2 0.8
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	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 <i>imit/base</i> >30 <i>imit/base</i> >20	3 0 62 <1 962 1099 1016 1246 2696 <i>current</i> 12 2 14 <i>current</i> 0.8 9.3	3 0 70 <1 905 1130 1006 1207 2697 history1 6 0 21 history1 0.7 9.9	2 0 69 <1 989 1200 1056 1329 2622 history2 10 <1 38 history2 0.8 10.7
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	2 0 50 0 950 1050 995 1180 2600 imit/base >30 imit/base >3 20 imit/base >3 >20	3 0 62 <1 962 1099 1016 1246 2696 <i>current</i> 12 2 14 <i>current</i> 0.8 9.3 22.4	3 0 70 <1 905 1130 1006 1207 2697 history1 6 0 21 history1 0.7 9.9 22.1	2 0 69 <1 989 1200 1056 1329 2622 history2 10 <1 38 history2 0.8 10.7 23.4
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624	2 0 50 0 950 1050 995 1180 2600 imit/base >30 >20 >30 >20 >30 >30 imit/base	3 0 62 <1 962 1099 1016 1246 2696 <i>current</i> 12 2 14 <i>current</i> 0.8 9.3 22.4 <i>current</i>	3 0 70 <1 905 1130 1006 1207 2697 history1 6 0 21 history1 0.7 9.9 22.1 history1	2 0 69 <1 989 1200 1056 1329 2622 history2 10 <1 38 history2 0.8 10.7 23.4 history2

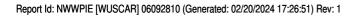


OIL ANALYSIS REPORT

VISUAL



		White Metal	scalar	*Visual	NONE	NONE	NONE	NONE	Ξ	
		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		
Dec29/22	Jul13/23 Feb9/24	Appearance	scalar	*Visual	NORML	NORML	NORML	NORM		
Dei	n F	Odor	scalar	*Visual	NORML	NORML	NORML	NORM	ЛГ	
		Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG		
		Free Water	scalar	*Visual		NEG	NEG	NEG		
		FLUID PROPE		method	limit/base		history		ory2	
		Visc @ 100°C GRAPHS	cSt	ASTM D445	12.00	10.8	11.0	11.5		
1		Ferrous Alloys								
		70 iron								
Dec29/22	Jul13/23	60 50								
		⁴⁰ ₃₀	\frown							
		20 -								
		10								
			1/22	8/23	Feb9/24					
		Jan4/22 Jun14/22	Dec29/22	Jul13/23	Febg					
		Non-ferrous Meta	ls							
		25 - copper lead								
		20								
		E 15								
		10								
		5-								
			22	53	24					
		Jan4/22 Jun 14/22	Dec29/22	Jul13/23	Feb 9/24					
		Viscosity @ 100°(Base Numl	or			
		15			7					
		14 - Abnormal				5.0			_	
					KOH	5.0				
		5012 - Base			Base Number (mg KOH/g)	l.0				
					dmuN	3.0				
		10 - Abnormal		I	ase a	2.0				
		9 -				.0-				
		22 6	/22	/23	24 +		22	23 -	ŝ	
		Jan 4/22 Jun 1 4/22	Dec29/22	Jul13/23	Feb9/24	Jan4/22	Jun 14/22 Dec29/22	Jul13/23	L-LO DA	
Laboratory		: WearCheck USA - 50)1 Madiso	n Ave., Carv	NC 27513	NW V	VHITE & CO - A	NDERSON DIV	/ISIO	
	Sample No.	: PCA0113158	Recei	ved : 19	Feb 2024			2605 RIVE	R R	
CCREDITED	Lab Number		Teste	ested : 20 Feb 2024				PIEDMONT, S		
TECTING I ADOD FROM	Unique Number	: 10885663								
Certificate L2367	Test Package						C	act. Jamon T	hroc	



Submitted By: Under NWWDUN - James Threatt