

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id 739250

Component Diesel Engine

Fluid PETRO CANADA DURON SHP 10W30 (--- 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.

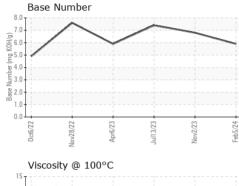
Fluid Condition

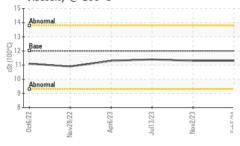
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0093362	PCA0093385	PCA0093302
Sample Date		Client Info		05 Feb 2024	02 Nov 2023	13 Jul 2023
Machine Age	mls	Client Info		193206	165107	133298
Oil Age	mls	Client Info		0	0	0
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			>0.2	NEG	NEG	NEG
Glycol		WC Method	20.2	NEG	NEG	NEG
-	<u>_</u>		1' 't /l	-		
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	16	18	15
Chromium	ppm	ASTM D5185m		<1	<1	1
Nickel	ppm	ASTM D5185m	>4	<1	<1	<1
Titanium	ppm	ASTM D5185m		2	7	7
Silver	ppm	ASTM D5185m	>3	0	0	<1
Aluminum	ppm	ASTM D5185m	>20	6	4	6
Lead	ppm	ASTM D5185m	>40	2	3	<1
Copper	ppm	ASTM D5185m	>330	<1	1	<1
Tin	ppm	ASTM D5185m	>15	<1	<1	<1
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		0	<1	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base			history2 8
				current	history1	
Boron Barium	ppm	ASTM D5185m	2	current 4	history1 6	8
Boron	ppm ppm	ASTM D5185m ASTM D5185m	2 0	current 4 0	history1 6 5	8 <1
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50	current 4 0 33	history1 6 5 59	8 <1 58
Boron Barium Molybdenum	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0	current 4 0 33 0	history1 6 5 59 <1	8 <1 58 <1
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950	current 4 0 33 0 543	history1 6 5 59 <1 869	8 <1 58 <1 954
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050	current 4 0 33 0 543 1680	history1 6 5 59 <1 869 1138	8 <1 58 <1 954 1221
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995	current 4 0 33 0 543 1680 971	history1 6 5 59 <1 869 1138 999	8 <1 58 <1 954 1221 1038
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180	current 4 0 33 0 543 1680 971 1201	history1 6 5 59 <1 869 1138 999 1192	8 <1 58 <1 954 1221 1038 1317
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600	Current 4 0 33 0 543 1680 971 1201 3826	history1 6 5 59 <1 869 1138 999 1192 2768	8 <1 58 <1 954 1221 1038 1317 3658
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600	current 4 0 33 0 543 1680 971 1201 3826 current	history1 6 5 59 <1 869 1138 999 1192 2768 history1	8 <1 58 <1 954 1221 1038 1317 3658 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm 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	2 0 50 0 950 1050 995 1180 2600 limit/base	current 4 0 33 0 543 1680 971 1201 3826 current 8	history1 6 5 59 <1 869 1138 999 1192 2768 history1 9	8 <1 58 <1 954 1221 1038 1317 3658 history2 7
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 limit/base	current 4 0 33 0 543 1680 971 1201 3826 current 8 1	history1 6 5 59 <1 869 1138 999 1192 2768 history1 9 0	8 <1 58 <1 954 1221 1038 1317 3658 history2 7 2
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	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 Imit/base >25 >20	current 4 0 33 0 543 1680 971 1201 3826 current 8 1 6 current	history1 6 5 59 <1 869 1138 999 1192 2768 history1 9 0 11 wistory1	8 <1 58 <1 954 1221 1038 1317 3658 history2 7 2 11 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 limit/base >25 >20 limit/base >3	current 4 0 33 0 543 1680 971 1201 3826 current 8 1 6 current 0.4	history1 6 5 59 <1 869 1138 999 1192 2768 history1 9 0 11 history1 0 0.4	8 <1 58 <1 954 1221 1038 1317 3658 history2 7 2 11 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 TS	ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600 <i>imit/base</i> >25 >20 <i>imit/base</i> >3 >20	current 4 0 33 0 543 1680 971 1201 3826 current 8 1 6 current 0.4 8.9	history1 6 5 59 <1 869 1138 999 1192 2768 history1 9 0 11 history1 9 0.4 9.6	8 <1 58 <1 954 1221 1038 1317 3658 history2 7 2 11 history2 0.3 9.0
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	2 0 50 950 1050 995 1180 2600 imit/base >25 imit/base >3 >20	current 4 0 33 0 543 1680 971 1201 3826 current 8 1 6 current 0.4 8.9 21.0	history1 6 5 59 <1 869 1138 999 1192 2768 history1 9 0 11 history1 0.4 9.6 21.6	8 <1 58 <1 954 1221 1038 1317 3658 history2 7 2 11 history2 0.3 9.0 20.9
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	2 0 0 50 0 950 1050 995 1180 2600 imit/base >25 20 >20 >30 >30 imit/base	current 4 0 33 0 543 1680 971 1201 3826 current 8 1 6 current 0.4 8.9 21.0 current	history1 6 5 59 <1 869 1138 999 1192 2768 history1 9 0 11 history1 9 0 11 history1 0.4 9.6 21.6 history1	8 <1 58 <1 954 1221 1038 1317 3658 history2 7 2 7 2 11 history2 0.3 9.0 20.9 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAM	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7414	2 0 50 950 1050 995 1180 2600 imit/base >25 imit/base >3 >20	current 4 0 33 0 543 1680 971 1201 3826 current 8 1 6 current 0.4 8.9 21.0 current 15.6	history1 6 5 59 <1 869 1138 999 1192 2768 history1 9 0 11 history1 9 0.4 9.6 21.6 history1 18.8	8 <1 58 <1 954 1221 1038 1317 3658 history2 7 2 11 0.3 9.0 20.9 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 ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624	2 0 0 50 0 950 1050 995 1180 2600 imit/base >25 20 >20 >30 >30 imit/base	current 4 0 33 0 543 1680 971 1201 3826 current 8 1 6 current 0.4 8.9 21.0 current	history1 6 5 59 <1 869 1138 999 1192 2768 history1 9 0 11 history1 9 0 11 history1 0.4 9.6 21.6 history1	8 <1 58 <1 954 1221 1038 1317 3658 history2 7 2 7 2 11 history2 0.3 9.0 20.9 history2



OIL ANALYSIS REPORT





		VISUAL		method	limit/base	current	history1	history2	
1		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	
Jul13/23 -	Nov2/23 - Feb5/24 -	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML	
Jult	Nová	Odor	scalar	*Visual	NORML	NORML	NORML	NORML	
		Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG	
		Free Water	scalar	*Visual		NEG	NEG	NEG	
		FLUID PROP	PERTIES	method	limit/base	current	history1	history2	
		Visc @ 100°C	cSt	ASTM D445	12.00	11.3	11.3	11.4	
		GRAPHS							
		Iron (ppm)				Lead (ppm)			
/23 -	/23	200 - Severe			8	Severe			
Jul13/23	Nov2/23	= 150 -			6	0-			
		a 150 100 - Abnormal			ed 4	Abnormal			
		50 -			2	0-			
		0				o L			
		0ct6/22 Nov28/22	Apr6/23 Jul13/23	Nov2/23	Feb5/24	0ct6/22 Vov28/22	Apr6/23	Nov2/23 Febr <i>2</i> /4	
		Nov	A	Na	ц.	Nov	Ar	Pe No	
	Aluminum (ppm)			Chromium (p	pm)			
		50 40 Severe			5	Severe			
		E 20 - Abnormal		1	und 2	Abnormal		1	
		10			1				
		0ct6/22 -	Apr6/23 - Jul13/23 -	Nov2/23 -	Feb 5/24 -		Apr6/23 - Jul13/23 -	Nov2/23 -	
		0ct6/22 Nov28/22	Apr Jull:	Navi	Feb	0ct6/22 Nov28/22	Apr Jull	Nov	
		Copper (ppm)				Silicon (ppm)			
		400 Severe Pubriconnal 300 -			6				
	툡 200 -			읍 4	Abnormal				
		100-		· · · · · · · · · · · · · · · · · · ·	2	0			
		0				o 🖣 👘 👘			
		0ct6/22 Nov28/22	Apr6/23 Jul13/23	Nov2/23	Feb 5/24	0ct6/22 Nov28/22	Apr6/23 . Jul13/23 .	Nov2/23 Feh5/24	
		2		Nc	Ξ.	2		PN R	
	Viscosity @ 100				Base Number				
		Abnormal	: :	1	.8 .0 .9 .9 .9 .9 .9 .9 .9 .9 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0 .0				
		00 00 12 tg			BE L				
		ti 12							
		10 - Abnormal			≥ 2.	D -			
		84	n n			0		4 33	
		0ct6/22 Nov28/22	Apr6/23 Jul13/23	Nov2/23	Feb5/24	0ct6/22 Nov28/22	Apr6/23	Nov2/23 Feb5/24	
		2		-		2		-	
	Unique Number	r : 06092675 r : 10885528	Recei Teste Diagr	ved : 19 d : 20 losed : 20	v, NC 27513 9 Feb 2024 9 Feb 2024 Feb 2024 - Dor		L	LEASING #117 S BRIDGE RE EESPORT, PA US 1953 t: JAMEY RITZ	
	is sample repor	rt, contact Customer Se	: MOB 1 (Additional Tests: TBN) Conta contact Customer Service at 1-800-237-1369. jritz@mille						

* - 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)

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F: