

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id **233195** 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.

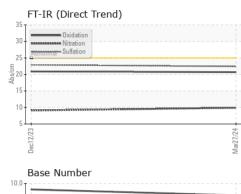
Fluid Condition

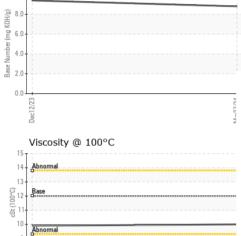
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

SAMPLE INFORI	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0120716	PCA0113348	
Sample Date		Client Info		27 Mar 2024	12 Dec 2023	
Machine Age	mls	Client Info		101395	9200	
Oil Age	mls	Client Info		0	0	
Oil Changed		Client Info		Changed	Not Changd	
Sample Status				NORMAL	NORMAL	
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	
Water		WC Method	>0.2	NEG	NEG	
Glycol		WC Method	20.L	NEG	NEG	
-	0		1	-		
WEAR METAL		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	81	72	
Chromium	ppm		>20	2	1	
Nickel	ppm	ASTM D5185m	>4	<1	<1	
Titanium	ppm	ASTM D5185m		0	0	
Silver	ppm	ASTM D5185m	>3	0	0	
Aluminum	ppm		>20	18	16	
Lead	ppm	ASTM D5185m	>40	0	0	
Copper	ppm		>330	30	28	
Tin	ppm		>15	3	3	
Vanadium	ppm	ASTM D5185m		<1	0	
Cadmium	ppm	ASTM D5185m		0	0	
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	2	32	41	
Barium			0	0	0	
Danun	ppm	ASTM D5185m				
Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m	50	53	47	
			50 0	53 10	47 11	
Molybdenum	ppm	ASTM D5185m				
Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m	0	10	11	
Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0 950	10 645	11 575	
Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 950 1050	10 645 1792	11 575 1642	
Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 950 1050 995	10 645 1792 908	11 575 1642 833	
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 950 1050 995 1180	10 645 1792 908 1056	11 575 1642 833 992	
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	0 950 1050 995 1180 2600	10 645 1792 908 1056 3051	11 575 1642 833 992 2488	
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 950 1050 995 1180 2600 limit/base	10 645 1792 908 1056 3051 current	11 575 1642 833 992 2488 history1	
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 950 1050 995 1180 2600 limit/base	10 645 1792 908 1056 3051 current 10	11 575 1642 833 992 2488 history1 31	 history2
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 950 1050 995 1180 2600 Iimit/base >25	10 645 1792 908 1056 3051 current 10 7	11 575 1642 833 992 2488 history1 31 5	 history2
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	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	0 950 1050 995 1180 2600 limit/base >25 >20	10 645 1792 908 1056 3051 current 10 7 15	11 575 1642 833 992 2488 history1 31 5 11	 history2
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 950 1050 995 1180 2600 imit/base >25 >20	10 645 1792 908 1056 3051 current 10 7 15 current	11 575 1642 833 992 2488 history1 31 5 11 history1	 history2 history2
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	0 950 1050 995 1180 2600 limit/base >25 >20 limit/base >3	10 645 1792 908 1056 3051 current 10 7 15 current 0.6	11 575 1642 833 992 2488 history1 31 5 11 5 11 0.5	 history2 history2
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	0 950 1050 995 1180 2600 imit/base >25 -20 imit/base >3 >20	10 645 1792 908 1056 3051 <i>current</i> 10 7 15 <i>current</i> 0.6 9.9	11 575 1642 833 992 2488 history1 31 5 11 5 11 0.5 9.1	 history2 history2 history2
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7624 ASTM D7415	0 950 1050 995 1180 2600 imit/base >25 20 imit/base >3 >20 30 imit/base	10 645 1792 908 1056 3051 <i>current</i> 10 7 15 <i>current</i> 0.6 9.9 22.4 <i>current</i>	11 575 1642 833 992 2488 history1 31 5 11 5 11 0.5 9.1 22.9 history1	 history2 history2 history2
Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844	0 950 1050 995 1180 2600 imit/base >25 imit/base >3 >20 >30	10 645 1792 908 1056 3051 current 10 7 15 current 0.6 9.9 22.4	11 575 1642 833 992 2488 history1 31 5 11 5 11 0.5 9.1 22.9	 history2 history2 history2 history2



OIL ANALYSIS REPORT





8 Dec12/23

VISUAL			method	d limit/	base	curren	t	history1	histor
White Metal	\$	scalar	*Visual	NONE	=	NONE	N	IONE	
Yellow Metal	l :	scalar	*Visual	NONE	Ē	NONE	N	IONE	
Precipitate	:	scalar	*Visual	NONE	-	NONE	N	IONE	
Silt	:	scalar	*Visual	NONE	Ē	NONE	N	IONE	
Debris	:	scalar	*Visual	NONE	-	NONE	N	IONE	
Sand/Dirt	:	scalar	*Visual	NONE	-	NONE	N	IONE	
Appearance	:	scalar	*Visual	NOR	ΛL	NORML	Ν	IORML	
Odor	:	scalar	*Visual	NOR	ΛL	NORML	N	IORML	
Emulsified W	/ater s	scalar	*Visual	>0.2		NEG	N	IEG	
Free Water	5	scalar	*Visual			NEG	Ν	IEG	
FLUID PI	ROPER	TIES	method	d limit/	base	curren	t	history1	histor
Visc @ 100°0	C	cSt	ASTM D4	145 12.00		10.0	9	.9	
GRAPHS	5								
Iron (ppm))				100-	Lead (ppr	n)		
200 Severe					80-	Severe			
150					60				
100 Abnormal					E 40	Abnormal			
50					20	-			
0					0				
0				7/24 -		2/23			
Dec12/23				Mar27/24		Dec12/23			
Aluminum	(ppm)					Chromiun	n (ppm)		
50 T									
					⁵⁰ T	1			
40 - Severe					50- 40-	Severe			
40 - Severe					40-	T 			
Severe						Abnormal			
40 - Severe					40-	T 			
40 - Severe 20 - Abnormal				24	40 - 30 - 20 - 10 -	Abnormal			
40 - Severe 20 - Abnormal				ar27/24	40 - 30 - 20 - 10 -	Abnormal			
40 - Severe 30 - Abnormal 10 - CZ719				Mar27/24	40 - 30 - 20 - 10 - 0 -	Abnormal Dec15/23			
40 - Severe 20 - Abnormal	om)			Mar27/24	40 - 30 - 20 - 10 - 0 -	Abnormal EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE	om)		
40 - Severe 40 - Anomal 20 - Anomal 10 - Copper (pp 400 - Severe	om)			Mar27/24	40 - Ed 20 - 10 - 0 -	Abnormal Dec15/23	om)		
40 - Severe 40 - Anomal 40 - Anomal 40 - Copper (pp 400 - Copper (pp 400 - Copper (pp	om)			Mai27/24	40 - 50 - 20 - 10 - 0 -	Abnormal EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE	om)		
40 - Severe 40 - Anomal 20 - Anomal 10 - Copper (pp 400 - Severe	om)			Mar27/24	40 - Ed 20 - 10 - 0 -	Abnormal Silicon (pr	om)		
40 - Severe 40 - Anomal 40 - Anomal 40 - Copper (pp 400 - Copper (pp 400 - Copper (pp	om)			Mar27/24	40 - 50 - 20 - 10 - 0 -	Abnormal EEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEEE	om)		
40 - Severe 40 - Anomal 40 - Anomal 10 - Copper (pp 400 - Severe 400 - Severe 400 - Severe 400 - Severe	om)			Mar27/24	40 - Ed 20 - 10 - 0 -	Abnormal Silicon (pr	om)		
40 - Severe 40 - Anomal 0 - 577 10 - 577 1	om)					Abnomal Silicon (pr Severe	om)		
40 - Severe 40 - Anomal 40 - Anomal 10 - Copper (pp 400 - Severe 507 - Severe 507 - Severe 507 - Severe	om)			Mar27/24		Abnormal Silicon (pr	om)		
40 - Severe 40 - Anomal 0 - 577 10 - 577 1						Abnomal Silicon (pr Severe			
40 - Severe 200 - Abnormal 10 - EZZINE Copper (pp 200 - EXECUTE 200 - EXECUT						Abnormal Silicon (pp			
40 Severe 40 Anormal 10 Copper (pp 400 Severe 40 Copper (pp 400 Severe 40 Copper (pp 400 Severe 40 Copper (pp 40 Copper (pp))						Abnormal Silicon (pp			
40 Severe 40 Anormal 10 Copper (pp 400 Severe 40 Copper (pp 400 Severe 40 Copper (pp 400 Severe 40 Copper (pp 40 Copper (pp))						Abnormal Silicon (pp			
40 Severe 20 Ahnormal 10 Severe 20 Copper (pp 400 Severe 300 Severe 300 Viscosity @ 10 O 10 O						Abnormal Silicon (pp			
40 Severe 20 Anormal 10 Exerce 20 Copper (pp 400 Severe 20 Copper (pp 400 Severe 20 Copper (pp 400 Severe 400 Severe					40 - Wdd 20 - 10 - 0 - 80 - 60 - Wdd 40 - 20 - 0 - (0,10,0) - (0,10,	Abnormal Silicon (pp			
40 Severe 20 Ahnormal 10 Severe 20 Copper (pp 400 Severe 20 S				Mai27/24	40 - udd 20 - 10 - 0 - 80 - 10 - 0 - 80 - 10 - 0 - 80 - 10 - 0 - 10	Abnormal Silicon (pp Severe Base Num			
40 Severe 20 Ahnormal 10 Severe 20 Copper (pp 400 Severe 20 S				Mai27/24	40 - udd 20 - 10 - 0 - 80 - 10 - 0 - 80 - 10 - 0 - 80 - 10 - 0 - 10	Abnormal Silicon (pp Severe Base Num			
40 Severe 20 Anormal 10 Exerce 20 Copper (pp 400 Severe 20 Copper (pp 400 Severe 20 Copper (pp 400 Severe 400 Severe					40 - udd 20 - 10 - 0 - 80 - 10 - 0 - 80 - 10 - 0 - 80 - 10 - 0 - 10	Abnormal Silicon (pp			
40 Severe 20 Ahnormal 10 Severe 20 Copper (pp 400 Severe 20 S) 100°C			+5/12mm	40 - 40 - 10 - 0 - 10 - 10 - 0 - 10 -	Abnormal Silicon (pp Severe Base Num	ıber		
40 Severe 40 Copper (pp 40 Severe 40 Severe 40 Severe 40 Copper (pp 40 Severe 40 Severe) 100°C	Recei	ved	+7/12mm +7/12mm cary, NC 2' : 09 Apr 20	40 - 40 - 10 - 0 - 80 - 60 - 40 - 0 - 80 - 60 - 40 - 20 - 0 - 80 - 60 - 80 - 60 - 80 - 60 - 80	Abnormal Silicon (pp Severe Base Num	nber	39 IN	DUSTRIAL
40 Severe 40 Copper (pp 40 Severe 20 Anomal 10 Severe 40 Seve) 100°C	Recei Teste	ved : d :	+7/122#W +7/122#W cary, NC 2' : 09 Apr 20 : 09 Apr 20	40 - 40 - 40 - 10 - 0 - 10 -	Abnormal Silicon (pr Severe Rtmormal Base Num	nber	39 IN	NDUSTRIAL /
40 Severe 40 Copper (pp 40 Severe 40 Severe 40 Severe 40 Copper (pp 40 Severe 40 Severe	9 100°C SA - 501 I	Recei Teste Diagn	ved d iosed	+7/12mm +7/12mm cary, NC 2' : 09 Apr 20	40 - 40 - 40 - 10 - 0 - 10 -	Abnormal Silicon (pr Severe Rtmormal Base Num	nber MILLEI HA	39 IN SBROUG	DUSTRIAL

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) F: (201)528-7053

Report Id: MILRUT [WUSCAR] 06142707 (Generated: 04/11/2024 16:07:20) Rev: 1

Certificate L2367

Contact/Location: MIKE LONGETTE - MILRUT

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