

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id L-55 Component Diesel Engine Fluid

PETRO CANADA DURON HP 15W40 (--- GAL)

DIAGNOSIS

Recommendation

We advise that you check the fuel injection system. Oil and filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Wear

All component wear rates are normal.

Contamination

There is a high amount of fuel present in the oil.

Fluid Condition

Fuel is present in the oil and is lowering the viscosity. The BN result indicates that there is suitable alkalinity remaining in the oil. The oil is no longer serviceable due to the presence of contaminants.

SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0118530	PCA0016744	PCA0016939
Sample Date		Client Info		31 Jan 2024	18 Jul 2022	16 May 2022
Machine Age	hrs	Client Info		15606	10257	9628
Oil Age	hrs	Client Info		500	250	300
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				SEVERE	NORMAI	NORMAL
				•=•=		
CONTAMINAT	ON	method	limit/base	current	history1	history2
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
	0	mathad	limit/booo	ourropt	biotoryd	biotory ()
	2	πιειποα	iimii/base	current	riistory i	nistory2
Iron	ppm	ASTM D5185m	>100	9	31	29
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	0	<1	0
Titanium	ppm	ASTM D5185m		<1	<1	<1
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	2	3	5
Lead	ppm	ASTM D5185m	>40	1	2	1
Copper	ppm	ASTM D5185m	>330	<1	10	18
Tin	ppm	ASTM D5185m	>15	<1	2	1
Antimony	ppm	ASTM D5185m				
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		<1	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	nnm	method	limit/base	current	history1	history2
ADDITIVES Boron Barium	ppm	method ASTM D5185m	limit/base	current <1	history1 2	history2 3
ADDITIVES Boron Barium Molybdenum	ppm ppm	method ASTM D5185m ASTM D5185m	limit/base	current <1 <1 52	history1 2 0	history2 3 0 56
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	<1 <1 52 <1	history1 2 0 56	history2 3 0 56
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	<1 <1 <1 52 <1 775	history1 2 0 56 <1 887	history2 3 0 56 <1 887
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	<pre>current <1 <1 52 <1 775 880</pre>	history1 2 0 56 <1 887 1155	history2 3 0 56 <1 887 1296
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phoenborus	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	<pre>current <1 <1 52 <1 775 880 743</pre>	history1 2 0 56 <1 887 1155 982	history2 3 0 56 <1 887 1296 1075
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	<pre>current <1 <1 52 <1 775 880 743 1014</pre>	history1 2 0 56 <1 887 1155 982 1227	history2 3 0 56 <1 887 1296 1075 1360
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	<pre>current <1 <1 52 <1 775 880 743 1014 2545</pre>	history1 2 0 56 <1 887 1155 982 1227 2968	history2 3 0 56 <1 887 1296 1075 1360 3057
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	<1 <1 52 <1 52 <1 775 880 743 1014 2545	history1 2 0 56 <1 887 1155 982 1227 2968	history2 3 0 56 <1 887 1296 1075 1360 3057
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	<1 <1 52 <1 775 880 743 1014 2545 current	history1 2 0 56 <1 887 1155 982 1227 2968 history1	history2 3 0 56 <1 887 1296 1075 1360 3057 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	limit/base limit/base >25	current <1 52 <1 775 880 743 1014 2545 current 3	history1 2 0 56 <1 887 1155 982 1227 2968 history1 6	history2 3 0 56 <1 887 1296 1075 1360 3057 history2 6
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	limit/base	<1 <1 52 <1 775 880 743 1014 2545 current 3 0	history1 2 0 56 <1 887 1155 982 1227 2968 history1 6 2	history2 3 0 56 <1 887 1296 1075 1360 3057 history2 6 2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS	method ASTM D5185m	limit/base limit/base >25 >20	<1 <1 52 <1 72 880 743 1014 2545 current 3 0 2	history1 2 0 56 <1 887 1155 982 1227 2968 history1 6 2 <1	history2 3 0 56 <1 887 1296 1075 1360 3057 history2 6 2 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	limit/base	<1 <1 52 <1 72 880 743 1014 2545 current 3 0 2 18.4	history1 2 0 56 <1 887 1155 982 1227 2968 history1 6 2 <1 <1 <1 <1 <1.0	history2 3 0 56 <1 887 1296 1075 1360 3057 history2 6 2 <1 <1.0
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	limit/base	current <1 52 <1 52 <1 775 880 743 1014 2545 current 3 0 2 18.4	history1 2 0 56 <1 887 1155 982 1227 2968 history1 6 2 <1 41 6 2 <1 <1.0	history2 3 0 56 <1 887 1296 1075 1360 3057 history2 6 2 <1 <1.0
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm %	method ASTM D5185m	limit/base	<1 <1 52 <1 52 <1 775 880 743 1014 2545 current 3 0 2 18.4	history1 2 0 56 <1 887 1155 982 1227 2968 history1 6 2 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1.0 history1	history2 3 0 56 <1 887 1296 1075 1360 3057 history2 6 2 <1 <1.0 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm ppm %	method ASTM D5185m	limit/base	<1 <1 52 <1 52 <1 775 880 743 1014 2545 current 3 0 2 18.4 current 0.2	history1 2 0 56 <1 887 1155 982 1227 2968 history1 6 2 <11 6 2 <1.0 history1 0.9	history2 3 0 56 <1 887 1296 1075 1360 3057 history2 6 2 <1 <1.0 history2 0.8
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	limit/base	<1 <1 52 <1 52 <1 775 880 743 1014 2545 current 3 0 2 18.4 current 0.2 6.6	history1 2 0 56 <1 887 1155 982 1227 2968 history1 6 2 <10 history1 0 0.9 9.5	history2 3 0 56 <1 887 1296 1075 1360 3057 history2 6 2 <1 <1.0 history2 0.8 8.3
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	limit/base ////////////////////////////////////	<1 <1 52 <1 775 880 743 1014 2545 current 3 0 2 18.4 current 0.2 6.6 17.7	history1 2 0 56 <1 887 1155 982 1227 2968 history1 6 2 <1 6 2 <1 <1.0 history1 0.9 9.5 21.8	history2 3 0 56 <1 887 1296 1075 1360 3057 history2 6 2 <1 <1.0 history2 0.8 8.3 19.1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m	limit/base ////////////////////////////////////	<1 <1 52 <1 52 <1 775 880 743 1014 2545 current 3 0 2 18.4 0.2 6.6 17.7 current	history1 2 0 56 <1 887 1155 982 1227 2968 history1 6 2 <1 6 2 <1 <1.0 history1 0.9 9.5 21.8	history2 3 0 56 <1 887 1296 1075 1360 3057 history2 6 2 <1 <1.0 history2 0.8 8.3 19.1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE Oxidation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	methodASTM D5185mASTM D7824*ASTM D78444*ASTM D7415method*ASTM D7414	limit/base	<1 <1 52 <1 52 <1 775 880 743 1014 2545 current 3 0 2 18.4 0.2 6.6 17.7 current 12.4	history1 2 0 56 <1 887 1155 982 1227 2968 history1 6 2 <1.0 history1 0.9 9.5 21.8 history1 16.1	history2 3 0 56 <1 887 1296 1075 1360 3057 history2 6 2 <1 <1.0 history2 0.8 8.3 19.1 history2 14.2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE Oxidation Base Number (BN)	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	methodASTM D5185mASTM D7814*ASTM D7414*ASTM D7414ASTM D2896	limit/base limit/base 20 >20 >3 >20 >3 >30 limit/base >30 limit/base >25	current <1 52 <1 52 <1 775 880 743 1014 2545 current 3 0 2 18.4 current 0.2 6.6 17.7 current 12.4 8.09	history1 2 0 56 <1 887 1155 982 1227 2968 history1 6 2 <1 6 2 <1.0 history1 0.9 9.5 21.8 history1 16.1 8.87	history2 3 0 56 <1 887 1296 1075 1360 3057 history2 6 2 <1 <10 history2 0.8 8.3 19.1 history2 14.2 8.67

Report Id: SCRMIN [WUSCAR] 06083827 (Generated: 02/13/2024 12:32:26) Rev: 1

Contact/Location: FRANK NALLY - SCRMIN



OIL ANALYSIS REPORT



	VISUAL		method	limit/base	current	history1	history2				
	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				
1/20 .	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML				
Apr Jul2 Jan3	Odor		*Visual	NORML	NORML	NORML	NORML				
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG				
	Free Water	scalar	*Visual		NEG	NEG	NEG				
		DTIES	method	limit/base	ourrent	history1	history?				
							nistoryz				
\sim	Visc @ 100°C	cSt	ASTM D445	15.6	A 9.5	13.5	13.6				
	GRAPHS										
	Iron (ppm)			10	Lead (ppm)						
22	200 - Severe				80 Severe						
Aar19/ Jul21, lay16/	_ 150 -				60						
2 2	Abnormal			udd	40 Abnormal						
	50 -				20 -						
	0				0						
	ul1/19 (22/19	19/20	15/121	31/24	ul1/19 (22/19	±68/20	121/21 16/22 31/24				
	r oc	Ma	Ju	Jar	r õ	Ma Re	Ju May Jar				
	Aluminum (ppm) Chromium (ppm)										
	40 - Severe				40 Severe						
	_ 30 -				30						
9/20	Abnormal			udd.	Abnormal						
May1	10-				10						
	0	_		_	0						
	ul1/19 t22/19	r19/20	ıl21/21 /16/22	131/24	e1/119	eb 8/20 r1 9/20	121/21 /16/22 131/24				
	r oc	Ma	Ju	Jar	r õ	Ma Fe	Ju May Jar				
	Copper (ppm)				Silicon (ppm 80 - Severe	1)					
	Abnormal				so						
	500-			E							
	· ²⁰⁰			ppr	40 - Abnormal						
	100-				20 -		/				
				**							
	Jul1/1 :t22/1 :eb8/2	ar19/2	ul21/2 y16/2	n31/2	1/1/1/1	eb 8/2 ar1 9/2	v16/2 v16/2 n31/2				
	ٽ ٿ 10000	W	L Ma	Г	, ₀	H W	L Ma				
	Viscosity @ 100°C			Base Numb		er					
	18 - Abnormal			HO 10	.0 Base						
	0 16 - Base			B B	.0	-	~				
	Abnormal		\sim								
	10-	\checkmark		N PS 2	.0						
	8 6 6 0	-	21+				21+				
	Jul1/1 ct22/1 Feb8/2	ar19/2	ay16/2	an 31/2	Jul1/1	Feb 8/2 ar1 9/2	Jul21// ay16/2 an31/2				
	0 4	×	Ma	, L	Ó	Ξ	, Mi				
Laboratory	: WearCheck USA - 50 ⁻	1 Madiso	n Ave., Cary	, NC 27513	SCRAP	METAL SERVICES	(SMS Mill Services LLC)				
Sample No.	: PCA0118530	Recei	i ved : 08	: 08 Feb 2024 : 13 Feb 2024 : 12 Feb 2024		1500 COMMERCIAL AVE MINGO JUNCTION, OH					
Lab Number	: 06083827	Teste	d :10								
Unique Number : 108/12/2 Diagnosed : 13 Feb 2024 - Jonathan Hester							OS 43938				
To discuss this sample report, contact Customer Service at 1-800-237-1369.											
* - Denotes test methods that	are outside of the ISO 1	7025 sco	pe of accred	ditation.		, <u>-</u>	T:				
Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F:											

Contact/Location: FRANK NALLY - SCRMIN