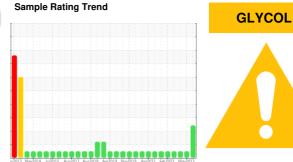


OIL ANALYSIS REPORT





We advise that you check for the source of the coolant leak. Check for low coolant level. We recommend an early resample to monitor this

All component wear rates are normal.

Sodium and/or potassium levels are high.

The BN result indicates that there is suitable

DIAGNOSIS

Contamination

Fluid Condition

alkalinity remaining in the oil.

condition. Wear Area N.E.R./Off-Road Machine Id L86

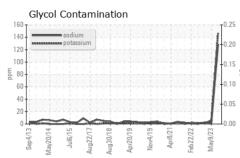
Component Diesel Engine

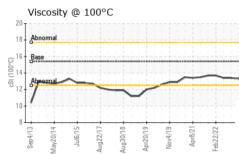
PETRO CANADA DURON SHP 15W40 (--- GAL)

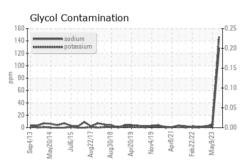
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0098471	PCA0090583	PCA0078236
Sample Date		Client Info		07 Aug 2023	09 May 2023	04 Oct 2022
Machine Age	hrs	Client Info		16427	106810	106810
Oil Age	hrs	Client Info		14458	14458	14458
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				ABNORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	14	9	8
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	<1	0	0
Titanium	ppm	ASTM D5185m	>2	1	<1	<1
Silver	ppm	ASTM D5185m	>2	<1	0	<1
Aluminum	ppm	ASTM D5185m	>25	0	1	<1
Lead	ppm	ASTM D5185m	>40	9	1	<1
Copper	ppm	ASTM D5185m	>330	33	1	3
Tin	ppm	ASTM D5185m	>15	1	<1	<1
Vanadium	ppm	ASTM D5185m		0	<1	1
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	0	6	1
Barium	ppm	ASTM D5185m	0	0	0	0
Molybdenum	ppm	ASTM D5185m	60	70	61	59
Manganese	ppm	ASTM D5185m	0	2	<1	1
Magnesium	ppm	ASTM D5185m	1010	819	997	901
Calcium	ppm	ASTM D5185m	1070	905	1146	1006
Phosphorus	ppm	ASTM D5185m	1150	914	1079	1006
Zinc	ppm	ASTM D5185m	1270	1134	1336	1176
Sulfur	ppm	ASTM D5185m	2060	3471	3904	3330
Sullur				• • • •		
CONTAMINAN		method	limit/base	current	history1	history2
					<mark>history1</mark> 4	history2 4
CONTAMINAN Silicon	TS	method		current		
CONTAMINAN Silicon	TS ppm	method ASTM D5185m		current 4	4	4
CONTAMINAN Silicon Sodium	TS ppm ppm	method ASTM D5185m ASTM D5185m	>25	current 4 ▲ 129	4	4
CONTAMINAN Silicon Sodium Potassium	TS ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	>25	current 4 ▲ 129 ▲ 147	4 2 5	4 3 1
CONTAMINAN Silicon Sodium Potassium Glycol	TS ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D2982	>25 >20	current 4 ▲ 129 ▲ 147 NEG	4 2 5 NEG	4 3 1 NEG
CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot %	TS ppm ppm ppm %	method ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D2982 method	>25 >20 limit/base	current 4 ▲ 129 ▲ 147 NEG current	4 2 5 NEG history1	4 3 1 NEG history2
CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration	TS ppm ppm ppm %	method ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D2982 method	>25 >20 limit/base >3 >20	current 4 ▲ 129 ▲ 147 NEG current 0.3	4 2 5 NEG history1 0.2	4 3 1 NEG history2 0.2
CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED	TS ppm ppm ppm % % Abs/cm Abs/.1mm	method ASTM D5185m ASTM D5185m *ASTM D2982 *ASTM D2982 *ASTM D7844 *ASTM D7624 *ASTM D7415	>25 >20 limit/base >3 >20	Current 4 ▲ 129 ▲ 147 NEG Current 0.3 8.9	4 2 5 NEG history1 0.2 6.8	4 3 1 NEG history2 0.2 7.2
CONTAMINAN Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration Sulfation	TS ppm ppm ppm % % Abs/cm Abs/.1mm	method ASTM D5185m ASTM D5185m *ASTM D2982 *ASTM D2982 *ASTM D7844 *ASTM D7624 *ASTM D7415	>25 >20 limit/base >3 >20 >30	current 4 ▲ 129 ▲ 147 NEG current 0.3 8.9 19.9	4 2 5 NEG history1 0.2 6.8 19.4	4 3 1 NEG history2 0.2 7.2 20.1



OIL ANALYSIS REPORT







0.25	VISUAL		method	limit/base	current	history1	history2
0.20	White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
-0.15 g	Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
-0.10	Silt	scalar	*Visual	NONE	NONE	NONE	NONE
-0.05	Debris	scalar	*Visual	NONE	NONE	NONE	NONE
0.00	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
May9/23	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
May	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
	Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
	Free Water	scalar	*Visual		NEG	NEG	NEG
	FLUID PROPE	RTIES	method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445	15.4	13.3	13.3	13.4
	GRAPHS						
	Iron (ppm)			100	Lead (ppm)		
22	200 Severe	11111		80	Severe		
Feb22/22	100						
	100 Abnormal			ed 40	Abnormal		
	50 -			20			
0.25		$\sim \sim$		<u> </u>			
-0.20	Sep 4/13 May20/14 - Jul6/15 - Aug 22/17 -	Aug30/18 Apr20/19	Nov4/19 Apr8/21 Feb22/22	May9/23	Sep 4/13 . May20/14 . Jul6/15 .	Aug30/18 Apr20/19 Nov4/19	Apr8/21 Feb22/22 Mav9/23
-0.15	Sep Ju Aug2	Aug3 Apr2	Nov Ap Feb2	May	Sep May2 Ju	Aug ³ Apr2 Nov	Ap Feb2
-0.10	Aluminum (ppm)				Chromium (pp	om)	
	50 Severe	10110	101010	50	Savara		mm
-0.05	40 - Severe			40			
0.00	Abnormal			³⁰			
May9/23	20			² 20	- danormal		
S	10			10			
		5	212		4 5 7	8 6 6	21
	Sep 4/13 May20/14 Jul6/15 Aug22/17	Aug30/18 - Apr20/19 -	Nov4/19 Apr8/21 Feb22/22	May9/23	Sep 4/13 May20/14 Jul6/15	Aug30/18 Apr20/19 Nov4/19	Apr8/21 Feb22/22 Mav9/23
	N A	A, A,	_ <u></u>	~	ž v	A A A	r ≥
	Copper (ppm)			80	Silicon (ppm)		
	500-			60 -			
Loss of	400 50%60%mal			<u>특</u> 40			
-	200			20	Abnormal		
	Sep4/13 - May20/14 - Jul6/15 -	Aug30/18 Apr20/19	Nov4/19 Apr8/21 Feb22/22	May9/23	Sep 4/13 May20/14 Jul6/15	Aug30/18 - Apr20/19 - Nov4/19 -	Apr8/21 Feb22/22 Mav9/23
	≥ Viscosity @ 100°C	-	Ľ.	-	Base Number		L E
	20 18 Abnormal				Deve		
	CARGO STATES AND			2 10.0 2 2 8.0	-		
	U 10 T Dase			 a_ 6.0			
	3 16 - Base 00 14 - Abnormal						
	(2) 16 - Base 001 14 37 12 - Abaomal	\sim		4.0	• • • • • • • • • • • • • • • •		
	10	~					
	10-	18	22	0.0		81 19	/21 22 23
	10-	Aug30/18	Nov4/19 + Apr8/21 + Feb22/22 +	4.0 9.2.0 8 gase Winn 8 gase Winn 8 gase Winn 8 gase Winn 8 gase Winn 9 gase Winnn 9 gase Winn 9 gase Winn 9 gase Winn 9 gase Winn 9 gase		Aug30/18	Apr8/21 +
oratory nple No. Number ue Number	10 8 10 10 10 10 10 10 10 10 10 10	501 Madis Received Diagnose Diagnost	son Ave., Ca d : 10 ed : 11 tician : Jor	0.0	Sep 4/13	G LOPES CO 565 V T	NSTRUCTIO VINTHROP S FAUNTON, M US 0278
oratory ple No. Number ue Number t Package	10 8 10 10 10 10 10 10 10 10 10 10	501 Madia Received Diagnos Diagnost Tests: Gl	son Ave., Ca d : 10 ed : 11 (ician : Jor ycol)	ary, NC 27513 Aug 2023 Aug 2023 hathan Hester	Sep 4/13	G LOPES CO 565 V T Contact: BUTC	NSTRUCTIO VINTHROP S AUNTON, M US 0278

To discuss this sample repo * - 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)

Certificate L2367

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