

PROBLEM SUMMARY

Sample Rating Trend

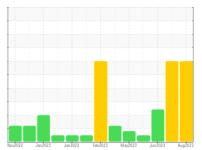
DEGRADATION



Machine Id **723008-234527**Component

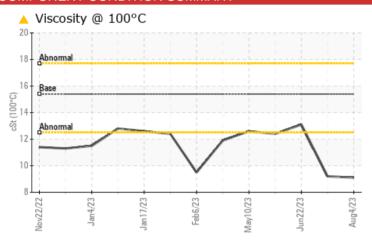
Diesel Engine

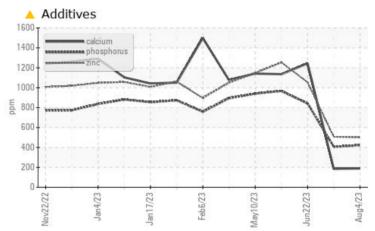
PETRO CANADA DURON SHP 15W40 (--- LTR)





COMPONENT CONDITION SUMMARY





RECOMMENDATION

We recommend that you drain the oil and perform a filter service on this component if not already done. We recommend an early resample to monitor this condition.

PROBLEMATIC TEST RESULTS									
Sample Status				SEVERE	SEVERE	ABNORMAL			
Molybdenum	ppm	ASTM D5185m	60	<u>^</u> 8	<u> 8</u>	53			
Magnesium	ppm	ASTM D5185m	1010	<u> </u>	<u></u> 104	880			
Calcium	ppm	ASTM D5185m	1070	<u> </u>	<u>▲</u> 185	1244			
Phosphorus	ppm	ASTM D5185m	1150	423	4 06	842			
Zinc	ppm	ASTM D5185m	1270	499	▲ 507	1054			
Sulfur	ppm	ASTM D5185m	2060	1001	<u> </u>	3097			
Base Number (BN)	mg KOH/g	ASTM D2896	9.8	• 0.5	1.0	8.5			
Visc @ 100°C	cSt	ASTM D445	15.4	9.1	9.2	13.1			

Customer Id: GFL076 Sample No.: GFL0086359 Lab Number: 05921978 Test Package: FLEET



To manage this report scan the QR code

To discuss the diagnosis or test data: Jonathan Hester +1 919-379-4092 x4092 jhester@wearcheckusa.com

To change component or sample information: Customer Service +1 1-800-237-1369 customerservice@wearcheck.com

RECOMMENDED ACTIONS Action **Status** Date Done By Description We recommend that you drain the oil and perform a filter service on this Change Fluid ? component if not already done. We recommend that you drain the oil and perform a filter service on this Change Filter ? component if not already done. ? Resample We recommend an early resample to monitor this condition.

HISTORICAL DIAGNOSIS

11 Jul 2023 Diag: Doug Bogart

DEGRADATION



We recommend that you drain the oil and perform a filter service on this component if not already done. We recommend an early resample to monitor this condition. All component wear rates are normal. Fuel content negligible. No other contaminants were detected in the oil. The oil viscosity is lower than normal. This plus the additive levels indicates the addition of a different brand, or type of oil. The BN level is low.



22 Jun 2023 Diag: Don Baldridge

DIRT



We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. Resample at the next service interval to monitor. All component wear rates are normal. Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

view report

03 Jun 2023 Diag: Wes Davis

NORMAL



Resample at the next service interval to monitor. All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.





OIL ANALYSIS REPORT

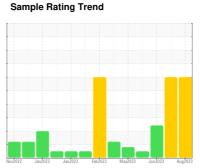


723008-234527

Component

Diesel Engine

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





DIAGNOSIS

Recommendation

We recommend that you drain the oil and perform a filter service on this component if not already done. We recommend an early resample to monitor this condition.

Wear

All component wear rates are normal.

Contamination

No other contaminants were detected in the oil.

Fluid Condition

The oil viscosity is lower than normal. This plus the additive levels indicates the addition of a different brand, or type of oil. The BN level is low.

Sample Date Client Info Q4 Aug 2023 11 Jul 2023 22 Jun 2023 23 Jun 2023	N SHP 15W40 (LIK)	Nov2022	Jan 2023 Jan 2023	Feb 2023 May 2023 Jun 2023	Aug2023		
Sample Date Client Info Q4 Aug 2023 11 Jul 2023 22 Jun 2023 23 Jun 2023	SAMPLE INFORI	MATION	method	limit/base	current	history1	history2	
Machine Age hrs Client Info Dil Age hrs Client Info A05 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Sample Number		Client Info		GFL0086359	GFL0064603	GFL0045432	
Machine Age hrs Client Info 22492 22344 0 Dil Age hrs Client Info 405 0 0 Dil Age hrs Client Info Not Changd N/A N/A Sample Status SEVERE SEVERE ABNORMAL CONTAMINATION method Imitibase current history1 history2 Fuel WC Method >3.0 <1.0	Sample Date		Client Info		04 Aug 2023	11 Jul 2023	22 Jun 2023	
Contamped Client Info Severe Severe ABNORMAL	Machine Age	hrs	Client Info		_	22344	0	
Dil Changed Client Info SEVERE SEVERE ABNORMAL SEVERE SEVERE ABNORMAL SEVERE SEVERE ABNORMAL SEVERE SEVERE ABNORMAL SEVERE SEVERE ABNORMAL SEVERE ABNORMAL SEVERE SEVERE ABNORMAL SEVERE SEVERE ABNORMAL SEVERE SEVERE	Oil Age	hrs	Client Info		405	0	0	
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Fuel						SEVERE	ABNORMAL	
Citycol WC Method NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >120 21 24 12 Chromium ppm ASTM D5185m >20 <1 <1 <1 Nickel ppm ASTM D5185m >2 0 <1 <1 Silver ppm ASTM D5185m >2 0 0 <1 Aluminum ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >20 5 8 6 Lead ppm ASTM D5185m >20 2 <1 <1 Copper ppm ASTM D5185m >15 <1 <1 <1 <1 Cadmium ppm ASTM D5185m 0 0 0 <2 <1 Beron ppm ASTM D5185m 0 0 <1	CONTAMINAT	ION	method	limit/base	current	history1	history2	
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >120 21 24 12 Chromium ppm ASTM D5185m >20 <1	Fuel		WC Method	>3.0	<1.0	2.3	<1.0	
Concomium	Glycol		WC Method		NEG	NEG	NEG	
Chromium	WEAR METAL	S	method	limit/base	current	history1	history2	
Nickel	ron	ppm	ASTM D5185m	>120	21	24	12	
Description	Chromium	ppm	ASTM D5185m	>20	<1	<1	<1	
Titanium ppm ASTM D5185m >2 0 <1 <1 Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >20 5 8 6 Lead ppm ASTM D5185m >40 2 <1 <1 Copper ppm ASTM D5185m >330 7 2 5 Fin ppm ASTM D5185m >15 <1 <1 <1 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 <1 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 <1 1 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 0 <1 <th< td=""><td>Nickel</td><td>ppm</td><td>ASTM D5185m</td><td>>5</td><th><1</th><td>0</td><td><1</td></th<>	Nickel	ppm	ASTM D5185m	>5	<1	0	<1	
Silver	Titanium	ppm	ASTM D5185m	>2	0	<1	<1	
Aluminum ppm ASTM D5185m >20 5 8 ▲ 6 Lead ppm ASTM D5185m >40 2 <1	Silver		ASTM D5185m	>2	0	0	0	
Lead ppm ASTM D5185m >40 2 <1 <1 Copper ppm ASTM D5185m >330 7 2 5 Tin ppm ASTM D5185m >15 <1 <1 <1 <1 Vanadium ppm ASTM D5185m 0 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 <1 Inistory2 Boron ppm ASTM D5185m 0 0 0 <1 1 Molybdenum ppm ASTM D5185m 0 0 <1 1 Molybdenum ppm ASTM D5185m 0 4 8 8 53 Manganese ppm ASTM D5185m 0 <1 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 494 104 880 Calcium ppm ASTM D5185m 1070 189 185 1244	Aluminum			>20	5	8	<u></u> 6	
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Tin	Copper		ASTM D5185m	>330	7	2	5	
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Boron	Cadmium					0	<1	
Barium ppm ASTM D5185m 0 0 <1	ADDITIVES		method	limit/base	current	history1	history2	
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Manganese ppm ASTM D5185m 0 <1 <1 <1 Magnesium ppm ASTM D5185m 1010 ♠ 94 ♠ 104 880 Calcium ppm ASTM D5185m 1070 ♠ 189 ♠ 185 1244 Phosphorus ppm ASTM D5185m 1150 ♠ 423 ♠ 406 842 Zinc ppm ASTM D5185m 1270 ♠ 499 ♠ 507 1054 Sulfur ppm ASTM D5185m 2060 ♠ 1001 ♠ 1261 3097 CONTAMINANTS method limit/base current history1 history2 Solicon ppm ASTM D5185m >25 3 15 ♠ 26 Solicon ppm ASTM D5185m >25 3 15 ♠ 26 Sodium ppm ASTM D5185m >20 2 2 11 INFRA-RED method limit/base current history1 history2 Soot % %	Barium	ppm	ASTM D5185m	0	0	<1	1	
Magnesium ppm ASTM D5185m 1010 494 △ 104 880 Calcium ppm ASTM D5185m 1070 △ 189 △ 185 1244 Phosphorus ppm ASTM D5185m 1150 △ 423 △ 406 842 Zinc ppm ASTM D5185m 1270 △ 499 △ 507 1054 Sulfur ppm ASTM D5185m 2060 △ 1001 △ 1261 3097 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 15 △ 26 Sodium ppm ASTM D5185m >20 2 2 11 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.6 0.5 0.3 Nitration Abs/cm *ASTM D7624 >20 4.1 4.0 7.6 Sulfation Abs/.1	Molybdenum	ppm	ASTM D5185m	60	<u>^</u> 8	<u> </u>	53	
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Zinc ppm ASTM D5185m 1270 499 507 1054 Sulfur ppm ASTM D5185m 2060 1001 1261 3097 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 15 26 Sodium ppm ASTM D5185m >20 2 2 11 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.6 0.5 0.3 Nitration Abs/cm *ASTM D7624 >20 4.1 4.0 7.6 Sulfation Abs/.1mm *ASTM D7415 >30 14.3 13.7 23.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 6.7 6.1 20.6	Phosphorus	ppm	ASTM D5185m	1150	423	<u>406</u>	842	
Sulfur ppm ASTM D5185m 2060 ▲ 1001 ▲ 1261 3097 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 3 15 ▲ 26 Sodium ppm ASTM D5185m >20 2 2 11 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >4 0.6 0.5 0.3 Nitration Abs/cm *ASTM D7624 >20 4.1 4.0 7.6 Sulfation Abs/.1mm *ASTM D7415 >30 14.3 13.7 23.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 6.7 6.1 20.6			ASTM D5185m	1270	499	<u></u> 507	1054	
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INFRA-RED	Sodium	ppm	ASTM D5185m		15	7	4	
Soot % % *ASTM D7844 >4 0.6 0.5 0.3 Nitration Abs/cm *ASTM D7624 >20 4.1 4.0 7.6 Sulfation Abs/.1mm *ASTM D7415 >30 14.3 13.7 23.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 6.7 6.1 20.6	Potassium	ppm	ASTM D5185m	>20	2	2	11	
Nitration Abs/cm *ASTM D7624 >20 4.1 4.0 7.6 Sulfation Abs/.1mm *ASTM D7415 >30 14.3 13.7 23.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 6.7 6.1 20.6	INFRA-RED		method	limit/base	current	history1	history2	
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Sulfation Abs/.1mm *ASTM D7415 >30 14.3 13.7 23.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 6.7 6.1 20.6								
Oxidation								
	FLUID DEGRA	OATION	method	limit/base	current	history1	history2	
	Oxidation	Abs/.1mm	*ASTM D7414	>25	6.7	6.1	20.6	
	Base Number (BN)	mg KOH/g			• 0.5	1.0	8.5	



OIL ANALYSIS REPORT







Certificate L2367

Laboratory Sample No. Lab Number **Unique Number** Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : GFL0086359 : 05921978

: 10601925

Received : 11 Aug 2023 Diagnosed : 14 Aug 2023 : Jonathan Hester Diagnostician

GFL Environmental - 076 - Alpine

1130 County Line Rd Trafford, AL US 35172

Contact: CHELSEA BRYAN

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)

T: F: