

OIL ANALYSIS REPORT





Diesel Engine Fluid PETRO CANADA DURON SHP 10W30 (--- QTS)

DIAGNOSIS

Machine Id 490282 Component

Recommendation

Resample at the next service interval to monitor. Please specify the component make and model with your next sample.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

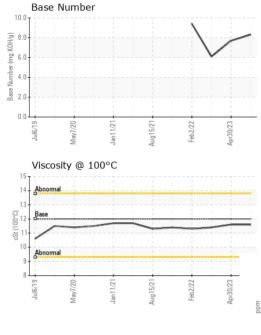
Fluid Condition

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		PCA0097400	PCA0083841	PCA0071691
Sample Date		Client Info		20 Aug 2023	30 Apr 2023	08 Dec 2022
Machine Age	mls	Client Info		248426	234963	214876
Oil Age	mls	Client Info		13463	20087	47872
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
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	14	17	27
Chromium	ppm	ASTM D5185m	>20	1	1	3
Nickel	ppm	ASTM D5185m	>4	0	0	<1
Titanium	ppm	ASTM D5185m		3	17	<1
Silver	ppm	ASTM D5185m	>3	2	0	0
Aluminum	ppm	ASTM D5185m	>20	6	12	15
Lead	ppm	ASTM D5185m	>40	0	<1	<1
Copper	ppm	ASTM D5185m	>330	2	7	18
Tin	ppm	ASTM D5185m	>15	<1	<1	2
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	ppm	method ASTM D5185m	limit/base 2	current 5	history1 17	history2 2
	ppm ppm					
Boron		ASTM D5185m	2	5	17	2
Boron Barium	ppm	ASTM D5185m ASTM D5185m	2 0	5 <1	17 2	2 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950	5 <1 56 <1 880	17 2 59	2 0 61
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0	5 <1 56 <1 880 1078	17 2 59 <1	2 0 61 <1 1019 1226
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995	5 <1 56 <1 880 1078 1006	17 2 59 <1 850 1310 1113	2 0 61 <1 1019 1226 958
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	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	5 <1 56 <1 880 1078 1006 1221	17 2 59 <1 850 1310 1113 1283	2 0 61 <1 1019 1226 958 1336
Boron Barium 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	2 0 50 0 950 1050 995	5 <1 56 <1 880 1078 1006	17 2 59 <1 850 1310 1113	2 0 61 <1 1019 1226 958
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	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	5 <1 56 <1 880 1078 1006 1221	17 2 59 <1 850 1310 1113 1283	2 0 61 <1 1019 1226 958 1336
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	2 0 50 950 1050 995 1180 2600	5 <1 56 <1 880 1078 1006 1221 3036 current 3	17 2 59 <1 850 1310 1113 1283 3585 history1 4	2 0 61 <1 1019 1226 958 1336 3089 history2 6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	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	2 0 50 950 1050 995 1180 2600	5 <1 56 <1 880 1078 1006 1221 3036 <u>current</u> 3 2	17 2 59 <1 850 1310 1113 1283 3585 history1 4 0	2 0 61 <1 1019 1226 958 1336 3089 history2 6 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	2 0 50 950 1050 995 1180 2600 limit/base	5 <1 56 <1 880 1078 1006 1221 3036 current 3	17 2 59 <1 850 1310 1113 1283 3585 history1 4	2 0 61 <1 1019 1226 958 1336 3089 history2 6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	2 0 50 950 1050 995 1180 2600 limit/base	5 <1 56 <1 880 1078 1006 1221 3036 <u>current</u> 3 2	17 2 59 <1 850 1310 1113 1283 3585 history1 4 0 7 history1	2 0 61 <1 1019 1226 958 1336 3089 history2 6 3 8 8
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 limit/base >25 >20 limit/base >3	5 <1 56 <1 880 1078 1006 1221 3036 <i>current</i> 3 2 3 <i>current</i> 0.7	17 2 59 <1 850 1310 1113 1283 3585 history1 4 0 7 history1 0.7	2 0 61 <1 1019 1226 958 1336 3089 history2 6 3 8 8 history2 1.1
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 TS ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 limit/base >25 >20 limit/base >3	5 <1 56 <1 880 1078 1006 1221 3036 <i>current</i> 3 2 3 <i>current</i> 0.7 7.4	17 2 59 <1 850 1310 1113 1283 3585 history1 4 0 7 history1	2 0 61 <1 1019 1226 958 1336 3089 history2 6 3 8 history2 1.1 1.1 10.1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm TS ppm ppm	ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 limit/base >25 >20 limit/base >3	5 <1 56 <1 880 1078 1006 1221 3036 <i>current</i> 3 2 3 <i>current</i> 0.7	17 2 59 <1 850 1310 1113 1283 3585 history1 4 0 7 history1 0.7	2 0 61 <1 1019 1226 958 1336 3089 history2 6 3 8 8 history2 1.1
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 ppm	ASTM D5185m ASTM D5185m	2 0 50 950 1050 995 1180 2600 <i>limit/base</i> >25 >20 <i>limit/base</i> >3 >20	5 <1 56 <1 880 1078 1006 1221 3036 <i>current</i> 3 2 3 <i>current</i> 0.7 7.4	17 2 59 <1 850 1310 1113 1283 3585 history1 4 0 7 history1 0.7 8.6	2 0 61 <1 1019 1226 958 1336 3089 history2 6 3 8 history2 1.1 1.1 10.1
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	5 <1 56 <1 880 1078 1006 1221 3036 Current 3 2 3 Current 0.7 7.4 18.4	17 2 59 <1 850 1310 1113 1283 3585 history1 4 0 7 history1 0.7 8.6 20.0	2 0 61 <1 1019 1226 958 1336 3089 history2 6 3 8 8 history2 1.1 1.1 10.1 22.4
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 *ASTM D7415	2 0 0 50 0 950 1050 995 1180 2600 2600 255 20 220 20 3 20 20 3 3 20 3 3 20 3 3 20 3 3 3 20 3 3 3 20 3 3 3 20 3 3 3 3	5 <1 56 <1 880 1078 1006 1221 3036 current 3 2 3 2 3 current 0.7 7.4 18.4 current	17 2 59 <1 850 1310 1113 1283 3585 history1 4 0 7 history1 0.7 8.6 20.0 history1	2 0 61 <1 1019 1226 958 1336 3089 history2 6 3 8 history2 1.1 10.1 22.4 history2



OIL ANALYSIS REPORT



	VISUAL		method	limit/base	current	history1	history2				
\mathbf{X}		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				
Aug 15/21 - Feb 2/22 - Apr30/23 -	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML				
Bny	Feb Apr3	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			
<u> </u>		Visc @ 100°C	cSt	ASTM D445	12.00	11.6	11.6	11.4			
		GRAPHS									
		Iron (ppm)				Lead (ppm)					
		²⁵⁰ T			100	T :: T :: T (
Aug15/21	Feb2/22 -	200 - Severe			- 80) - Severe					
Aug	Feit Apr3	a 150 100 - Abnormal			E 60						
		and the second s			H 40	Abnormal					
		50-			20						
		0 10 10 10 10 10 10 10 10 10 10 10 10 10	121	122			./21	/22			
		Jul6/19 May7/20	Aug15/21.	Feb 2/22	Apr30/23	Jul6/19 May7/20	Jan11/21 Aug15/21	Feb 2/22 Apr30/23			
		Aluminum (ppm)				Chromium (p	pm)				
		50 40 Severe			50	Seuera					
					- 40						
		Abnormal			³⁰ 20	Abnormal					
				~							
			\sim	\sim	10						
		Jul6/19 May7/20	Aug15/21-	Feb2/22	AprsU/23	Jul6/19	Jan 11/21-	Feb2/22 -			
			BnW	2	Apr	2	Aug	Fel			
		Copper (ppm)			0.0	Silicon (ppm)					
		500			80						
		400 Severe			60						
		톱 300 -		1 1	튭.40	Abnormal					
		200			20	Abnormal					
			21	22			21- 21	22			
		Jul6/19 May7/20	Aug15/21	Feb2/22	Apr3U/23	Jul6/19 May7/20	Jan 11/21 Aug 15/21	Feb 2/22 Apr3 0/23			
		Viscosity @ 100°C				Base Number		-			
		16 14 Abnormal			(B)HO 8.0						
		Double for the second s			۲ ۳ 6.0						
		(2-001) 12-Base 753			e 4.0)					
		10 - Abnormal			(b)H08 8.0 6.0 9 mmpart 8 g 8 g 8 g 8 g 8 g 8 g 8 g 8 g 8 g 8 g)-					
		20	21	22	- 0.0		21	22			
		Jul6/19 May7/20	Aug15/21	Feb2/22	Apr3U/23	Jul6/19 May7/20	Jan 1 1/2 1 Aug 1 5/2 1	Feb 2/22 Apr30/23			
	Laboratory Sample No. Lab Number Unique Number Test Package	: WearCheck USA - 501 Madison Ave., C : PCA0097400 Received : 20 : 05984528 Diagnosed : 23 : 10701823 Diagnostician : We : MOB 1 (Additional Tests: TBN)			ry, NC 27513 MILLER TRUCK LEASING Dct 2023 66 KELLER AVE Dct 2023 LANCASTEF s Davis US 1 Contact: RON ROBE			ELLER AVENU ANCASTER, P US 1760			
			ntact Customer Service at 1-800-237-1369.					rroberts@millertransgroup.cor			

J.

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