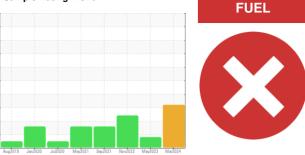


OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id

Component Diesel Engine

Fluid PETRO CANADA DURON UHP 5W40 (5 LTR)

DIAGNOSIS

Recommendation

We advise that you check the fuel injection system. The oil 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. Tests confirm the presence of fuel in the oil.

Fluid Condition

Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable due to the presence of contaminants.

Sample Date Client Info 12 Mar 2024 10 May 2023 18 Nov 2022 Aachine Age hrs Client Info 5802 4870 4378 Dil Age hrs Client Info 0 500 0 Dil Age hrs Client Info 0 500 0 Dil Age hrs Client Info 0 500 0 0 Sample Status Client Info Changed Marce Net	SAMPLE INFORM	/IATION	method	limit/base	current	history1	history2
Arachine Age hrs Client Info 5802 4870 4378 Dil Age hrs Client Info 0 500 0 Dil Age hrs Client Info Changed Changed Changed Sample Status Client Info Changed Changed Changed Changed CONTAMINATION method Imit/base current history1 history2 Water WC Method >0.2 NEG NEG NEG Wear METALS method imit/base current history1 history2 ron ppm ASTM D5185(m) >100 28 42 109 Chromium ppm ASTM D5185(m) >20 <1 1 2 kickel ppm ASTM D5185(m) >20 <1 <1 1 kiker ppm ASTM D5185(m) >20 <4 7 1 kikel ppm ASTM D5185(m) >30 0 0 0 Vuenium ppm ASTM D5185(m) 330 22 3 <t< th=""><th>Sample Number</th><th></th><th>Client Info</th><th></th><th>PC0078479</th><th>PC0058477</th><th>PC0056637</th></t<>	Sample Number		Client Info		PC0078479	PC0058477	PC0056637
Dil Age hrs Client Info 0 500 0 Dil Changed Client Info Changed Changed Changed Changed Sample Status Imit/Dase current History1 ABNORMAL CONTAMINATION method Imit/Dase current History1 History2 Water WC Method >0.2 NEG NEG NEG Diromium ppm ASTM D5185(m) >100 28 42 A 109 Diromium ppm ASTM D5185(m) >20 <1 1 2 Vickel ppm ASTM D5185(m) >20 <1 <1 <1 Diromium ppm ASTM D5185(m) >20 <1 <1 <1 Vickel ppm ASTM D5185(m) >20 <1 <1 <1 Silver ppm ASTM D5185(m) >20 <1 <1 <1 Silver ppm ASTM D5185(m) >20 <1 <1 <1 Need ppm ASTM D5185(m) >20 <1 <1 <1 Astm D5185(m) >20 <1 <1 <1 <1 Astm D5185(m) >30 0	Sample Date		Client Info		12 Mar 2024	10 May 2023	18 Nov 2022
Dil Changed Sample StatusClient InfoChanged SEVEREChanged MARGINALChanged ABNORMALCONTAMINATIONmethodlimit/basecurrenthistory1history2WaterWC Method>0.2NEGNEGNEGSlycolWC Method>0.2NEGNEGNEGWEAR METALSmethodlimit/basecurrenthistory1history2ronppmASTM D5185(m)>1002842▲109ChromiumppmASTM D5185(m)>20<11<1SilverppmASTM D5185(m)>20<1<1<1SilverppmASTM D5185(m)>20447seadppmASTM D5185(m)>20447seadppmASTM D5185(m)>20447seadppmASTM D5185(m)>33000NuminumppmASTM D5185(m)>330235TinppmASTM D5185(m)0<1<1<1ArandiumppmASTM D5185(m)0<1<1<1ArandiumppmASTM D5185(m)0<1<1<1ArandiumppmASTM D5185(m)0<000AdminumppmASTM D5185(m)0<1<1<1ArandiumppmASTM D5185(m)0<000AdmanueppmASTM D5185(m) <th>Machine Age</th> <th>hrs</th> <th>Client Info</th> <th></th> <th>5802</th> <th>4870</th> <th>4378</th>	Machine Age	hrs	Client Info		5802	4870	4378
Sample Status method Imit/base current history1 ABNORMAL CONTAMINATION method imit/base current history1 history2 Water WC Method >0.2 NEG NEG NEG Slycol WC Method >0.2 NEG NEG NEG WEAR METALS method limit/base current history1 history2 ron ppm ASTM D5185(m) >100 28 42 ▲ 109 Dhromium ppm ASTM D5185(m) >20 <1 1 2 Vickel ppm ASTM D5185(m) >20 <1 1 <1 Silver ppm ASTM D5185(m) >20 4 7 <1 Veriationum ppm ASTM D5185(m) >20 4 7 <1 Veriationum ppm ASTM D5185(m) >20 4 7 <1 Veriationum ppm ASTM D5185(m) >20 4 <td< th=""><th>Oil Age</th><th>hrs</th><th>Client Info</th><th></th><th>0</th><th>500</th><th>0</th></td<>	Oil Age	hrs	Client Info		0	500	0
CONTAMINATION method limit/base current history1 history2 Water WC Method >0.2 NEG NEG NEG Slycol WC Method NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 ron ppm ASTM D5185(m) >100 28 42 ▲ 109 Chromium ppm ASTM D5185(m) >20 <1 1 2 Vickel ppm ASTM D5185(m) >20 <1 1 2 Silver ppm ASTM D5185(m) >3 0 0 0 Silver ppm ASTM D5185(m) >330 2 3 5 Cin ppm ASTM D5185(m) >330 2 3 5 Cin ppm ASTM D5185(m) >15 0 <1 <1 Antimony ppm ASTM D5185(m) 0 0 0	Oil Changed		Client Info		Changed	Changed	Changed
Water WC Method >0.2 NEG NEG NEG Silycol WC Method Imit/base current history1 history2 WEAR METALS method Imit/base current history1 history2 ron ppm ASTM D5185(m) >100 28 42 109 Dhromium ppm ASTM D5185(m) >20 <1	Sample Status				SEVERE	MARGINAL	ABNORMAL
BalycolWC MethodNEGNEGNEGWEAR METALSmethodlimit/basecurrenthistory1history2ronppmASTM 05185(m)>1002842109ChromiumppmASTM 05185(m)>20<112slickelppmASTM 05185(m)>20<11<1FitaniumppmASTM 05185(m)>30<1<1SilverppmASTM 05185(m)>3000AuminumppmASTM 05185(m)>30235SilverppmASTM 05185(m)>44447e.adppmASTM 05185(m)>400<1<1c.adappmASTM 05185(m)>330235TinppmASTM 05185(m)>150<1<1AntimonyppmASTM 05185(m)>150<1<1AntimonyppmASTM 05185(m)0000CadmiumppmASTM 05185(m)65223422BariumppmASTM 05185(m)65485955AanganeseppmASTM 0518(m)65485955AanganeseppmASTM 0518(m)11607761076931AlagnesiumppmASTM 05185(m)126090212211134ChroneppmASTM 05185(m)126090212211134	CONTAMINATI	ON	method	limit/base	current	history1	history2
WEAR METALS method limit/base current history1 history2 ron ppm ASTM D5185(m) >100 28 42 ▲ 109 Chromium ppm ASTM D5185(m) >20 <1 1 2 Nickel ppm ASTM D5185(m) >4 <1 <1 <1 Titanium ppm ASTM D5185(m) >4 <1 <1 <1 Silver ppm ASTM D5185(m) >3 0 0 0 Lead ppm ASTM D5185(m) >20 4 4 7 Lead ppm ASTM D5185(m) 0 0 <1 1 Astmony ppm ASTM D5185(m) 0 0 <td< th=""><th>Water</th><th></th><th>WC Method</th><th>>0.2</th><th>NEG</th><th>NEG</th><th>NEG</th></td<>	Water		WC Method	>0.2	NEG	NEG	NEG
ron ppm ASTM D5185(m) >100 28 42 ▲ 109 Chromium ppm ASTM D5185(m) >20 <1 1 2 Lickel ppm ASTM D5185(m) >4 <1 <1 <1 Titanium ppm ASTM D5185(m) >4 <1 <1 <1 Silver ppm ASTM D5185(m) >3 0 0 0 Silver ppm ASTM D5185(m) >20 4 4 7 e.ead ppm ASTM D5185(m) >40 0 0 <1 <1 Copper ppm ASTM D5185(m) >330 2 3 5 5 Tin ppm ASTM D5185(m) >10 <1 <1 <1 Vanadium ppm ASTM D5185(m) 0 0 0 0 Cadmium ppm ASTM D5185(m) 0 0 0 0 Astin D5185(m) 65 22	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185(m) >20 <1	WEAR METALS	S	method	limit/base	current	history1	history2
Chromium ppm ASTM D5185(m) >20 <1	Iron	ppm	ASTM D5185(m)	>100	28	42	1 09
Nickel ppm ASTM D5185(m) >4 <1	Chromium				<1	1	
Titanium ppm ASTM D5185(m) 0 <1	Nickel			>4	<1	<1	<1
Silver ppm ASTM D5185(m) >3 0 0 0 Aluminum ppm ASTM D5185(m) >20 4 4 7 Lead ppm ASTM D5185(m) >40 0 0 <1 Copper ppm ASTM D5185(m) >330 2 3 5 Tin ppm ASTM D5185(m) >15 0 <1 <1 Antimony ppm ASTM D5185(m) >15 0 <1 <1 Antimony ppm ASTM D5185(m) Image: Current 0 0 0 Antimony ppm ASTM D5185(m) Imit/base current history1 history2 Antimony ppm ASTM D5185(m) 65 22 34 22 Cadmium ppm ASTM D5185(m) 65 48 59 55 Barium ppm ASTM D5185(m) 0 0 1 1 Magnesium ppm ASTM D5185(m)	Titanium		. ,		0	<1	<1
ead ppm ASTM D5185(m) >40 0 0 <1	Silver	ppm	ASTM D5185(m)	>3	0	0	0
ead ppm ASTM D5185(m) >40 0 0 <1	Aluminum			>20	4	4	7
ppm ASTM D5185(m) >15 0 <1	Lead	ppm		>40	0	0	<1
Tin ppm ASTM D5185(m) >15 0 <1	Copper		. ,	>330	2	3	5
Antimony ppm ASTM D5185(m) 0 <1	Tin	ppm	ASTM D5185(m)	>15	0	<1	<1
Beryllium ppm ASTM D5185(m) 0 0 0 Cadmium ppm ASTM D5185(m) 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185(m) 65 22 34 22 Barium ppm ASTM D5185(m) 0 0 0 0 Adolybdenum ppm ASTM D5185(m) 65 48 59 55 Manganese ppm ASTM D5185(m) 0 0 <<1 1 Magnesium ppm ASTM D5185(m) 1160 863 1113 1004 Calcium ppm ASTM D5185(m) 1160 776 1076 931 Phosphorus ppm ASTM D5185(m) 1260 902 1221 1134 Sulfur ppm ASTM D5185(m) 3000 2216 2824 2583	Antimony	ppm			0	<1	<1
Cadmium ppm ASTM D5185(m) 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185(m) 65 22 34 22 Barium ppm ASTM D5185(m) 0 0 0 0 0 Alganesium ppm ASTM D5185(m) 65 48 59 55 Manganese ppm ASTM D5185(m) 0 0 0 <11	Vanadium	ppm	ASTM D5185(m)		0	0	0
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185(m) 65 22 34 22 Barium ppm ASTM D5185(m) 0 0 0 0 Molybdenum ppm ASTM D5185(m) 65 48 59 55 Manganese ppm ASTM D5185(m) 0 0 <1 1 Magnesium ppm ASTM D5185(m) 1160 863 1113 1004 Calcium ppm ASTM D5185(m) 1160 776 1076 931 Phosphorus ppm ASTM D5185(m) 1260 902 1221 1134 Sulfur ppm ASTM D5185(m) 3000 2216 2824 2583	Beryllium	ppm	ASTM D5185(m)		0	0	0
Boron ppm ASTM D5185(m) 65 22 34 22 Barium ppm ASTM D5185(m) 0 0 0 0 0 Molybdenum ppm ASTM D5185(m) 65 48 59 55 Manganese ppm ASTM D5185(m) 0 0 <1 1 Magnesium ppm ASTM D5185(m) 1160 863 1113 1004 Calcium ppm ASTM D5185(m) 1160 867 884 801 Phosphorus ppm ASTM D5185(m) 1160 776 1076 931 Cinc ppm ASTM D5185(m) 1260 902 1221 1134 Sulfur ppm ASTM D5185(m) 3000 2216 2824 2583	Cadmium		ASTM D5185(m)		0	0	0
Barium ppm ASTM D5185(m) 0 11 0 3 11 1 0 4 3 1 1 1 0 4 3 1 1 1 0 4 3 1 1 1 0 4 3 1 1 1 0 4 3 1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185(m) 65 48 59 55 Manganese ppm ASTM D5185(m) 0 0 0 <1	Boron	ppm	ASTM D5185(m)	65	22	34	22
Manganese ppm ASTM D5185(m) 0 0 <1	Barium	ppm	ASTM D5185(m)	0	0	0	0
Magnesium ppm ASTM D5185(m) 1160 863 1113 1004 Calcium ppm ASTM D5185(m) 820 687 884 801 Phosphorus ppm ASTM D5185(m) 1160 776 1076 931 Zinc ppm ASTM D5185(m) 1260 902 1221 1134 Sulfur ppm ASTM D5185(m) 3000 2216 2824 2583	Molybdenum	ppm	ASTM D5185(m)	65	48	59	55
Calcium ppm ASTM D5185(m) 820 687 884 801 Phosphorus ppm ASTM D5185(m) 1160 776 1076 931 Zinc ppm ASTM D5185(m) 1260 902 1221 1134 Sulfur ppm ASTM D5185(m) 3000 2216 2824 2583	Manganese	ppm	ASTM D5185(m)	0	0	<1	1
Phosphorus ppm ASTM D5185(m) 1160 776 1076 931 Zinc ppm ASTM D5185(m) 1260 902 1221 1134 Sulfur ppm ASTM D5185(m) 3000 2216 2824 2583	Magnesium	ppm	ASTM D5185(m)	1160	863	1113	1004
Zinc ppm ASTM D5185(m) 1260 902 1221 1134 Sulfur ppm ASTM D5185(m) 3000 2216 2824 2583	Calcium	ppm	ASTM D5185(m)	820	687	884	801
Sulfur ppm ASTM D5185(m) 3000 2216 2824 2583	Phosphorus	ppm	ASTM D5185(m)	1160	776	1076	931
	Zinc	ppm	ASTM D5185(m)	1260	902	1221	1134
ithium ppm ASTM D5185(m) <1	Sulfur	ppm	ASTM D5185(m)	3000	2216	2824	2583
	Lithium	ppm	ASTM D5185(m)		<1	<1	<1
CONTAMINANTS method limit/base current history1 history2	CONTAMINAN	TS	method	limit/base	current	history1	history2
Silicon ppm ASTM D5185(m) >25 4 6 11	Silicon	ppm	ASTM D5185(m)	>25	4	6	11
Sodium ppm ASTM D5185(m) 4 7 10	Sodium	ppm	ASTM D5185(m)		4	7	10
Potassium ppm ASTM D5185(m) >20 1 1 4	Potassium	ppm	ASTM D5185(m)	>20	1	1	4
Suel % ASTM D7593* >5 ▲ 19.8 ▲ 4.4 ▲ 7.1	Fuel	%	ASTM D7593*	>5	1 9.8	4 .4	▲ 7.1
INFRA-RED method limit/base current history1 history2	INFRA-RED		method	limit/base	current	history1	history2
Soot % % ASTM D7844* >3 0.7 0.4 1.1	Soot %	%	ASTM D7844*	>3	0.7	0.4	1.1
	Nitration	Abs/cm					
Sulfation Abs/.1mm ASTM D7415* >30 21.2 21.6 25.0							



OIL ANALYSIS REPORT

Viscosity @ 40° Abnormal	.		FLUID DEGRA	DATION	method	limit/base	current	history1	history2
			Oxidation	Abs/.1mm	ASTM D7414*	>25	20.6	21.8	23.8
Base			VISUAL		method	limit/base	current	history1	history2
Abnormal			Emulsified Water	scalar	Visual*	>0.2	NEG	NEG	NEG
		$\langle \rangle$	Free Water	scalar	Visual*		NEG	NEG	NEG
		5	FLUID PROPE	RTIES	method	limit/base	current	history1	history2
Aug27/19 Jan20/20 Jul8/20	May18/21 Sep2/21	Nov18/22 May10/23 Mar12/24	Visc @ 40°C	cSt	ASTM D7279(m)	95.1	50.6	79.4	71.5
4		~ ~ ~	Visc @ 100°C	cSt	ASTM D7279(m)	14.3	9 .3	13.1	<mark>▲</mark> 12.0
Viscosity @ 100	J°C		Viscosity Index (VI)	Scale	ASTM D2270*	169	168	166	165
Abnormal	1 1 		GRAPHS						
Base			Iron (ppm)			10	Lead (ppm)		
Abhreanal			200 - Severe			8) - Severe		
			150 - Abnormal			e 6)		
	+ +	33 5	abnormal		\wedge	udd 4) - Abnormal		
Aug27/19 Jan20/20 Jul8/20	May18/21 Sep2/21	Nov18/22 May10/23 Acceter	50	/	\sim	2)-		
		2 2 4	Jul8/20	2/21	/22	/24	02//201 02//201 02//8/nL	8/21-	/22
Viscosity @ 40° Abnormal	γ ΄		Aug27/19 Jan20/20 Jul8/20	May18/21 Sep2/21	Nov18/22 May10/23	Mar12/24	Aug27/19 Jan20/20 Jul8/20	May18/21	Nov18/22 May10/23
Base			Aluminum (ppm)			5	Chromium (pp	om)	
			40 - Severe			4	Smuoro		
Abnownal			30 Abnormal			3) -		
			E 20 - Abnormal			und 2	Abnormal		
	21	13 13	10			1)-		
Aug27/19 Jan20/20 Jul8/20	May18/21 Sep2/21	Nov18/22 May10/23		21	22	24	20	21	22
			Aug27/19 Jan20/20 Jul8/20	May18/21 Sep2/21	Nov18/22 May10/23	Mar12/24	Aug27/19 . Jan20/20 . Jul8/20 .	May18/21 Sep2/21	Nov18/22 May10/23
			Copper (ppm)				Silicon (ppm)		_
			400 Severe			8	Severe	I I I I	
			300 -			6			
			톱 200			튭 4	Abnormal		
			100 -)-		
					3 2	4			3
			Aug27/19 Jan20/20 Jul8/20	May18/21 Sep2/21	Nov18/22 May10/23	Mar12/24	Aug27/19 Jan20/20 Jul8/20	May18/2 Sep2/2	Nov18/22 May10/23
			Viscosity @ 100°C		~ 2		Fuel Dilution	2	~ 2
			18 Abnormal			20.) T		
			16			15.)-		/
			0014 3014 3012		~	필 과 2 ^{10.1}	Severe		/
			83 12 10			5.	Abasenal		
			8						
			Aug27/19 Jan20/20	May18/21 Sep2/21	Nov18/22 May10/23	Mar12/24	Aug27/19 Jan20/20 Jul8/20	May18/21 Sep2/21	Nov18/22 May10/23
			Auç Jar	S. S	Nov	Ma	Aug Jar J	Na S	May
326393.61	CALA	Laboratory	: WearCheck - C8-1175				_ 5H9 Green Infrastru) - 286 - Shoring & Foundati
	Testing Accreditation No. 1005218	Sample No. Lab Number	: PC0078479	Recei Teste		3 Mar 2024 9 Mar 2024		151	Ram Forest R Stouffville, C
	ISO 17025:2017 Accredited Laboratory	Unique Number	: 5747761	Diagn	iosed : 19	Mar 2024 - W			CA L4A 20
			: MOB 1 (Additional Te contact Customer Servi				uel, VI)		Shannon Abbo abbott@gipi.co
			e of accreditation, (m) m						: (905)750-59