

### **OIL ANALYSIS REPORT**

Sample Rating Trend



# DE1025

Component Diesel Engine

PETRO CANADA DURON UHP 5W40 (--- GAL)

#### DIAGNOSIS

#### Recommendation

Confirm the source of the lubricant being utilized for top-up/fill. Resample at the next service interval to monitor.

#### Wear

Elui

All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

#### Fluid Condition

Additive levels indicate the addition of a different brand, or type of oil. The condition of the oil is acceptable for the time in service.

AL)		Ja	2021	Mar2022 Feb20	124	
SAMPLE INFOR	RMATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PC0082220	PC0058977	PC0042238
Sample Date		Client Info		23 Feb 2024	24 Mar 2022	13 Jan 2021
Machine Age	hrs	Client Info		1506	1211	715
Oil Age	hrs	Client Info		0	500	0
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINA	TION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	1.1	0.4
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	0.0
WEAR META	LS	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>100	4	6	15
Chromium	ppm	ASTM D5185(m)	>20	0	<1	<1
Nickel	ppm	ASTM D5185(m)	>4	<1	<1	<1
Titanium	ppm	ASTM D5185(m)		0	0	<1
Silver	ppm	ASTM D5185(m)	>3	0	0	0
Aluminum	ppm	ASTM D5185(m)	>20	3	3	5
Lead	ppm	ASTM D5185(m)	>40	0	0	<1
Copper	ppm	ASTM D5185(m)	>330	<1	<1	4
Tin	ppm	ASTM D5185(m)	>15	0	<1	<1
Antimony	ppm	ASTM D5185(m)		0	<1	0
Vanadium	ppm	ASTM D5185(m)		0	0	<1
Beryllium	ppm	ASTM D5185(m)		0	0	0
Cadmium	ppm	ASTM D5185(m)		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	65	373	305	43
Barium	ppm	ASTM D5185(m)	0	0	0	<1
Molybdenum	ppm	ASTM D5185(m)	65	83	105	75
Manganese	ppm	ASTM D5185(m)	0	0	<1	<1
Magnesium	ppm	ASTM D5185(m)	1160	406	606	104
Calcium	ppm	ASTM D5185(m)	820	1322	1357	1985
Phosphorus	ppm	ASTM D5185(m)	1160	1039	894	973
Zinc	ppm	ASTM D5185(m)	1260	1149	1009	1157
Sulfur	ppm	ASTM D5185(m)	3000	2938	2560	3290
Lithium	ppm	ASTM D5185(m)		<1	<1	<1
CONTAMINA	NTS	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>25	8	8	7
Sodium	ppm	ASTM D5185(m)		1	2	4
Potassium	ppm	ASTM D5185(m)	>20	1	2	8
INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	ASTM D7844*	>3	0	0	0
Nitration	Abs/cm	ASTM D7624*	>20	5.0	7.4	9.4
Sulfation	Abs/.1mm	ASTM D7415*	>30	19.3	22.3	18.8



120 Abnormal

110

cSt (40°C) 80 70 60 Jan 13/21

Viscosity @ 40°C

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Oxidation Abs/.tmm ASTM D7414* >25   VISUAL method limit/base   White Metal scalar Visual* NONE   Yellow Metal scalar Visual* NONE   Precipitate scalar Visual* NONE   Silt scalar Visual* NONE   Debris scalar Visual* NONE   Sand/Dirt scalar Visual* NONE   Appearance scalar Visual* NORML   Odor cSt AstmD7279(m) 95.1   <	13.7 current VLITE NONE NONE NONE NORML NORML NORML NEG 0 0 0 0 0 0 0 0 0 0 0 0 0	16.6 history1     NORML NEG NEG history1 74.0 11.5 148	14.6 history2      NEG NEG NEG history2 70.7 10.5 135
White Metal scalar Visual* NONE   Yellow Metal scalar Visual* NONE   Precipitate scalar Visual* NONE   Silt scalar Visual* NONE   Debris scalar Visual* NONE   Sand/Dirt scalar Visual* NONE   Appearance scalar Visual* NORML   Odor scalar Visual* NORML   Emulsified Water scalar Visual* >0.2   Free Water scalar Visual* NORML   Visc @ 100°C cSt ASTM D2270* 169   GRAPHS Iron (ppm) Image of the scalar Visual* Image of the scalar   Muminum (ppm) Muminum (ppm) Stalar Stalar Stalar Stalar   Muminum (ppm) Stalar Stalar	VLITE NONE NONE NONE NONE NORML NORML NEG NEG 2000 2000 2000 2000 2000 2000 2000 20	    NORML NEG NEG NEG history1 74.0 11.5	    NEG NEG NEG history2 70.7 10.5
Yellow Metal scalar Visual* NONE   Precipitate scalar Visual* NONE   Silt scalar Visual* NONE   Debris scalar Visual* NONE   Debris scalar Visual* NONE   Debris scalar Visual* NONE   Sand/Dirt scalar Visual* NONE   Appearance scalar Visual* NORML   Odor scalar Visual* NORML   Emulsified Water scalar Visual* NORML   Emulsified Water scalar Visual* >0.2   Free Water scalar Visual* >0.2   Visc @ 40°C cSt ASTM D7279(m) 95.1   Visc @ 100°C cSt ASTM D2270* 169   GRAPHS Iron (ppm) 100 100 100   Muminum (ppm) Muminum (ppm) 60 0 0	NONE NONE NONE NORML NORML NEG NEG Current 98.6 13.8 141 Lead (ppm)	    NORML NEG NEG NEG history1 74.0 11.5	    NEG NEG NEG history2 70.7 10.5
Precipitate scalar Visual* NONE Silt scalar Visual* NONE Debris scalar Visual* NONE Sand/Dirt scalar Visual* NONE Appearance scalar Visual* NORML Odor scalar Visual* NORML Odor scalar Visual* NORML Emulsified Water scalar Visual* >0.2 Free Water scalar Visual* >0.2 Free Water scalar Visual* FLUID PROPERTIES method limit/base Visc @ 40°C cSt ASTM D7279(m) 95.1 Viscosity Index (VI) Scale ASTM D7279(m) 14.3 Viscosity Index (VI) Scale ASTM D7279(m) 169 GRAPHS Iron (ppm) 4000 Aluminum (ppm) 60	NONE NONE NONE NORML NORML NEG NEG Current 98.6 13.8 141 Lead (ppm)	   NORML NEG NEG history1 74.0 11.5	   NEG NEG history2 70.7 10.5
Silt scalar Visual* NONE Debris scalar Visual* NONE Sand/Dirt scalar Visual* NONE Appearance scalar Visual* NORML Odor scalar Visual* NORML Odor scalar Visual* NORML Emulsified Water scalar Visual* >0.2 Free Water scalar Visual* >0.2 Free Water scalar Visual* FLUID PROPERTIES method limit/base Visc @ 40°C cSt ASTM D7279(m) 95.1 Visc @ 100°C cSt ASTM D7279(m) 14.3 Viscosity Index (VI) Scale ASTM D7279(m) 14.3 Viscosity Index (VI) Scale ASTM D7270* 169 GRAPHS Iron (ppm) Aluminum (ppm) 0 0 0 0 0 0 0 0 0 0 0 0 0	NONE NONE NORML NORML NEG NEG Current 98.6 13.8 141 Lead (ppm)	   NORML NEG NEG history1 74.0 11.5	   NEG NEG history2 70.7 10.5
Silt scalar Visual* NONE Debris scalar Visual* NONE Sand/Dirt scalar Visual* NONE Appearance scalar Visual* NORML Odor scalar Visual* NORML Emulsified Water scalar Visual* >0.2 Free Water scalar Visual* FLUID PROPERTIES method limit/base Visc @ 40°C cSt ASTM D7279(m) 95.1 Visc @ 100°C cSt ASTM D7279(m) 14.3 Viscosity Index (VI) Scale ASTM D7270* 169 GRAPHS Iron (ppm) 40 40 40 40 40 40 40 40 40 40	NONE NORML NORML NEG NEG 2007 98.6 13.8 141 Lead (ppm)	  NORML NEG NEG history1 74.0 11.5	  NEG NEG history2 70.7 10.5
Sand/Dirt scalar Visual* NONE Appearance scalar Visual* NORML Odor scalar Visual* NORML Emulsified Water scalar Visual* >0.2 Free Water scalar Visual* >0.2 Free Water scalar Visual* FLUID PROPERTIES method limit/base Visc @ 40°C cSt ASTM D7279(m) 95.1 Visc @ 100°C cSt ASTM D7279(m) 14.3 Viscosity Index (VI) Scale ASTM D2270* 169 GRAPHS Iron (ppm) Graphic for the second sec	NONE NORML NEG NEG 2007 98.6 13.8 141 Lead (ppm)	 NORML NEG NEG history1 74.0 11.5	  NEG NEG history2 70.7 10.5
Sand/Dirt scalar Visual* NONE Appearance scalar Visual* NORML Odor scalar Visual* NORML Emulsified Water scalar Visual* >0.2 Free Water scalar Visual* >0.2 Free Water scalar Visual* FLUID PROPERTIES method limit/base Visc @ 40°C cSt ASTM D7279(m) 95.1 Visc @ 100°C cSt ASTM D7279(m) 14.3 Viscosity Index (VI) Scale ASTM D2270* 169 GRAPHS Iron (ppm) Graphic for the second sec	NORML NORML NEG NEG 98.6 13.8 141 Lead (ppm)	 NORML NEG NEG history1 74.0 11.5	 NEG NEG history2 70.7 10.5
Odor scalar Visual* NORML   Emulsified Water scalar Visual* >0.2   Free Water scalar Visual*    Fluid PROPERTIES method limit/base   Visc @ 40°C cSt ASTM D7279(m) 95.1   Visc @ 100°C cSt ASTM D7279(m) 14.3   Viscosity Index (VI) Scale ASTM D2270* 169   GRAPHS Iron (ppm) 100 00   Severe Aluminum (ppm) 00 00   Output Banomal 00 00   Output Banom	NORML NEG NEG 2007 98.6 13.8 141 Lead (ppm)	NORML NEG NEG history1 74.0 11.5	 NEG NEG history2 70.7 10.5
Emulsified Water scalar Visual* >0.2   Free Water scalar Visual* Imit/base   Visc @ 40°C cSt ASTM D7279(m) 95.1   Visc @ 100°C cSt ASTM D7279(m) 14.3   Viscosity Index (VI) Scale ASTM D2270* 169   GRAPHS Iron (ppm) 100 100   Ahonmal 0 100 0   Output CUtyput 50 0   Aluminum (ppm) 60 60	NEG NEG current 98.6 13.8 141 Lead (ppm)	NEG NEG history1 74.0 11.5	NEG NEG history2 70.7 10.5
Free Water scalar Visual*   FLUID PROPERTIES method limit/base   Visc @ 40°C cSt ASTM D7279(m) 95.1   Visc @ 100°C cSt ASTM D7279(m) 14.3   Viscosity Index (VI) Scale ASTM D2270* 169   GRAPHS Iron (ppm) 100 100   Ahnormal 0 100 100   Aluminum (ppm) 60 0 0	NEG current 98.6 13.8 141 Lead (ppm)	NEG history1 74.0 11.5	NEG history2 70.7 10.5
FLUID PROPERTIES method limit/base   Visc @ 40°C cSt ASTM D7279(m) 95.1   Visc @ 100°C cSt ASTM D7279(m) 14.3   Viscosity Index (VI) Scale ASTM D2270* 169   GRAPHS Iron (ppm) 100 100   00 00 00 00   00 00 00 00   00 00 00 00   00 00 00 00   00 00 00 00   00 00 00 00   00 00 00 00   00 00 00 00   00 00 00 00   00 00 00 00   00 00 00 00   00 00 00 00   00 00 00 00   00 00 00 00   00 00 00 00   00 00 00 00   00 </td <td>current 98.6 13.8 141 Lead (ppm)</td> <td>history1 74.0 11.5</td> <td>history2 70.7 10.5</td>	current 98.6 13.8 141 Lead (ppm)	history1 74.0 11.5	history2 70.7 10.5
Visc @ 40°C cSt ASTM D7279(m) 95.1 Visc @ 100°C cSt ASTM D7279(m) 14.3 Viscosity Index (VI) Scale ASTM D2270* 169 GRAPHS Iron (ppm) $\frac{200}{100} \frac{100}{100} 10$	98.6 13.8 141 Lead (ppm)	74.0 11.5	70.7 10.5
Visc @ 100°C cSt ASTM D7279(m) 14.3 Viscosity Index (VI) Scale ASTM D2270* 169 GRAPHS Iron (ppm) GRAPHS	13.8 141 Lead (ppm)	11.5	10.5
Visc @ 100°C cSt ASTM D7279(m) 14.3 Viscosity Index (VI) Scale ASTM D2270* 169 GRAPHS Iron (ppm) GRAPHS	13.8 141 Lead (ppm)	11.5	10.5
Viscosity Index (VI) Scale ASTM D2270* 169 GRAPHS Iron (ppm) Graduate Strain	141 Lead (ppm)		
GRAPHS Iron (ppm) <sup>300</sup> <sup>400</sup> <sup>400</sup> <sup>200</sup> <sup>400</sup> <sup>200</sup> <sup>400</sup> <sup>200</sup> <sup>400</sup> <sup>200</sup> <sup>400</sup> <sup>200</sup> <sup>400</sup> <sup>400</sup> <sup>200</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>400</sup> <sup>40</sup>	Abnormal		
Iron (ppm)   100     2000   Severe   100     4   Abnormal   450     100   100   100	Abnormal		
300   Severe   100     200   Abnormal   60     100   100   100     100   100   100     100   Abnormal   100     100   100   1	Abnormal		
Aluminum (ppm)	Abnormal		
Aluminum (ppm)			
Aluminum (ppm)			
00 00 00 00 00 00 00 00 00 00 00 00 00			
Aluminum (ppm)	3/2	/22	40.1
Service 1	Jan 13/2 1	Mar24/22	E-h 22/24
Service 1	Chromium (p		
AD Severe AD			
	Severe		
E <sub>20</sub> - Abnormal	Abnormal		
Jan 13/21	13/21	Mar24/22	Eeh 22/24
Jan	Jan1	Mar	
Copper (ppm)	Silicon (ppm)		
400   Severa 80	Severe		
ق 200 - ق ق 200 - ق			
100 - 20	Abnormal	1	
o o	l <del></del>		
Jan13/21/2	13/21	Mar24/22	Eath 23.72.4
	Jan1	Mar	
Viscosity @ 100°C	Soot %		
20 6.0	Severe		
G 15 Base Abnormal 3 10	Abnormal		
8 10 8 2.0			
5	l ,		
Jan 13/21/2	Jan 13/21	Mar24/22	Eeh 23.74
Leb Jar	Jai	Mar	
CALA Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L	549 Green Infrastr	ucture and Partners Inc (GIPI)	. 286 . Shoring & Foundation
Sample No. : PC0082220 Received : 01 Mar 2024			Ram Forest Rd
7025:2017 Lab Number : 02619151 Tested : 01 Mar 2024			Stouffville, Of
credited Unique Number : 5736261 Diagnosed : 01 Mar 2024 - W	es Davis	-	CA L4A 2G
lest Package : MOB 1 (Additional Tests: KV40, VI, Visual)			ntact: Bill Actor
liscuss this sample report, contact Customer Service at 1-800-268-2131. t denoted (*) outside scope of accreditation, (m) method modified, (e) tested at extern		Da	acton@gipi.con T

Report Id: GFL286 [WCAMIS] 02619151 (Generated: 03/01/2024 13:36:49) Rev: 1

Validity of results and interpretation are based on the sample and information as supplied.

Contact/Location: Bill Acton - GFL286

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