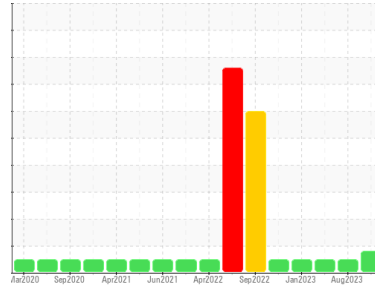


OIL ANALYSIS REPORT

Sample Rating Trend



WEAR



Machine Id
DR149

Component
Diesel Engine

Fluid
PETRO CANADA DURON UHP 5W40 (36 LTR)

DIAGNOSIS

Recommendation

The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Wear

Copper ppm levels are abnormal. Bearing wear is indicated.

Contamination

Elevated aluminum (Al) and/or lead (Pb) and potassium (K) levels in your metals analysis are likely a result of solder flux release into the lubricant and is common on new equipment/components. There is no indication of any contamination in the oil.

Fluid Condition

The oil is no longer serviceable as a result of the abnormal and/or severe wear.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		PC0082676	PC0078256	PC0075295
Sample Date	Client Info		09 Jan 2024	09 Aug 2023	24 Apr 2023
Machine Age	hrs	Client Info	17940	17138	16970
Oil Age	hrs	Client Info	250	250	0
Oil Changed	Client Info		Changed	Changed	Changed
Sample Status			ABNORMAL	NORMAL	NORMAL

CONTAMINATION

	method	limit/base	current	history1	history2
Fuel	WC Method	>5	<1.0	<1.0	<1.0
Water	WC Method	>0.2	NEG	NEG	NEG

WEAR METALS

	method	limit/base	current	history1	history2	
Iron	ppm	ASTM D5185(m)	>100	56	30	13
Chromium	ppm	ASTM D5185(m)	>20	<1	<1	<1
Nickel	ppm	ASTM D5185(m)	>4	<1	0	<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	6	3
Lead	ppm	ASTM D5185(m)	>40	19	<1	<1
Copper	ppm	ASTM D5185(m)	>330	755	10	10
Tin	ppm	ASTM D5185(m)	>15	1	<1	<1
Antimony	ppm	ASTM D5185(m)		0	0	<1
Vanadium	ppm	ASTM D5185(m)		0	0	0
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	27	35	47
Barium	ppm	ASTM D5185(m)	0	0	0	0
Molybdenum	ppm	ASTM D5185(m)	65	57	56	57
Manganese	ppm	ASTM D5185(m)	0	0	<1	<1
Magnesium	ppm	ASTM D5185(m)	1160	1075	1092	1063
Calcium	ppm	ASTM D5185(m)	820	833	818	843
Phosphorus	ppm	ASTM D5185(m)	1160	984	1035	1046
Zinc	ppm	ASTM D5185(m)	1260	1145	1168	1140
Sulfur	ppm	ASTM D5185(m)	3000	2676	2725	2774
Lithium	ppm	ASTM D5185(m)		<1	<1	<1

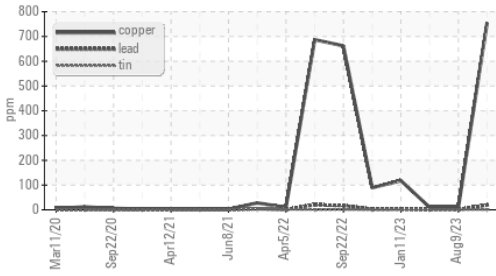
CONTAMINANTS

	method	limit/base	current	history1	history2	
Silicon	ppm	ASTM D5185(m)	>25	3	4	4
Sodium	ppm	ASTM D5185(m)		4	4	4
Potassium	ppm	ASTM D5185(m)	>20	7	14	6
Glycol	%	ASTM D7922*		0.0	NEG	NEG

INFRA-RED

	method	limit/base	current	history1	history2	
Soot %	%	ASTM D7844*	>3	0.5	0.4	0.1
Nitration	Abs/cm	ASTM D7624*	>20	10.2	8.8	8.0
Sulfation	Abs/.1mm	ASTM D7415*	>30	21.4	22.0	20.3

▲ Non-ferrous Metals



FLUID DEGRADATION method limit/base current history1 history2

Oxidation	Abs./1mm	ASTM D7414*	>25	19.7	18.3	17.6
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VISUAL method limit/base current history1 history2

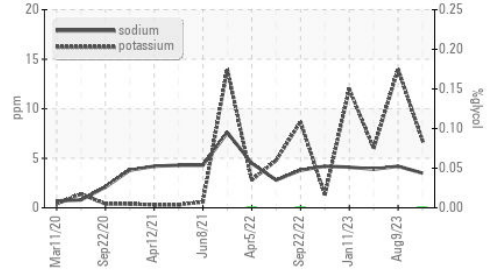
Emulsified Water	scalar	Visual*	>0.2	NEG	NEG	NEG
Free Water	scalar	Visual*		NEG	NEG	NEG

FLUID PROPERTIES method limit/base current history1 history2

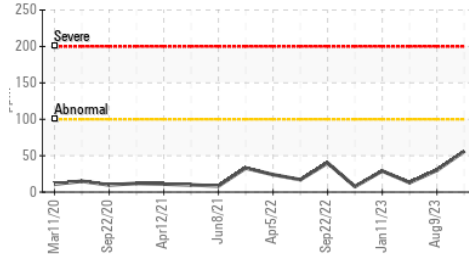
Visc @ 40°C	cSt	ASTM D7279(m)	95.1	82.2	84.9	84.6
Visc @ 100°C	cSt	ASTM D7279(m)	14.3	13.6	14.0	13.8
Viscosity Index (VI)	Scale	ASTM D2270*	169	169	170	167

GRAPHS

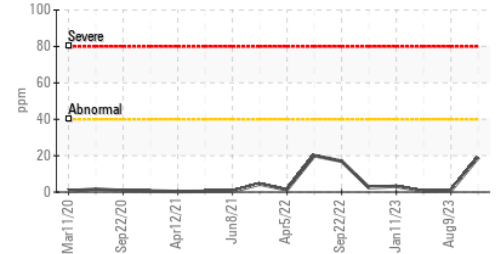
Glycol Contamination



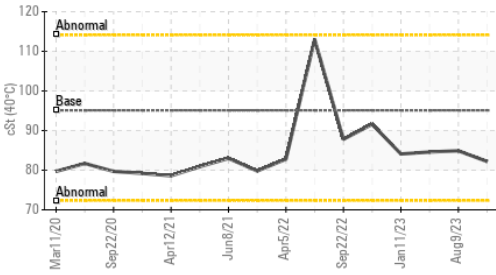
Iron (ppm)



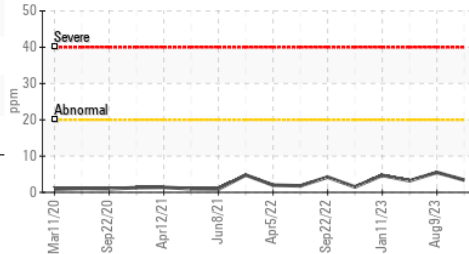
Lead (ppm)



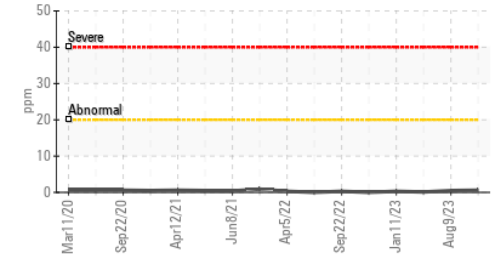
Viscosity @ 40°C



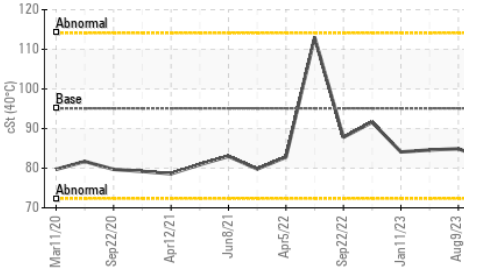
Aluminum (ppm)



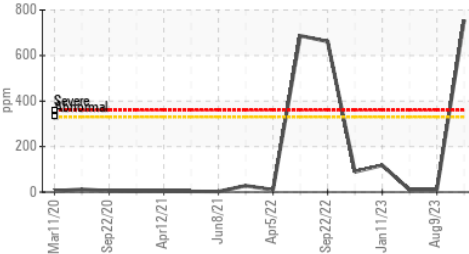
Chromium (ppm)



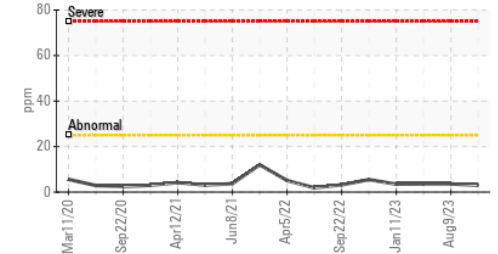
Viscosity @ 40°C



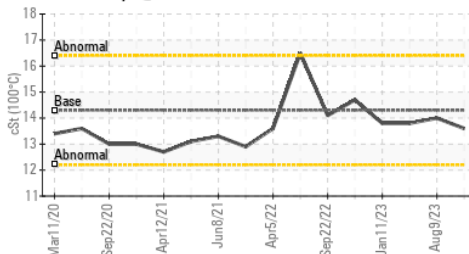
▲ Copper (ppm)



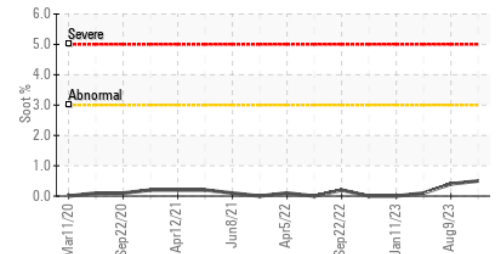
Silicon (ppm)



Viscosity @ 100°C



Soot %



ISO 17025:2017
Accredited
Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9 Green Infrastructure and Partners Inc (GIPI) - 286 - Shoring & Foundations
Sample No. : PC0082676 **Received** : 26 Jan 2024
Lab Number : 02611390 **Diagnosed** : 30 Jan 2024
Unique Number : 5720485 **Diagnostician** : Bill Quesnel
Test Package : MOB 1 (Additional Tests: GLYCOL, KV40, VI)

To discuss this sample report, contact Customer Service at 1-800-268-2131.
 Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab.
 Validity of results and interpretation are based on the sample and information as supplied.

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