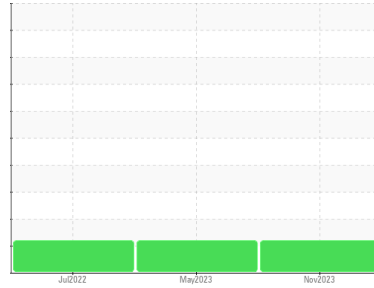


OIL ANALYSIS REPORT



Area
Haul Truck
Machine Id
HT4501
Component
Front Differential
Fluid
PETRO CANADA PRODURO FD-1 60 (77 LTR)

Sample Rating Trend



OFF SPEC



DIAGNOSIS

Recommendation

Confirm the source of the lubricant being utilized for top-up/fill. Resample at the next service interval to monitor. The fluid was specified as PETRO CANADA PRODURO FD-1 60, however, a fluid match indicates that this fluid is SAE 5W20 Transmission/Drive Train Oil. Please confirm the oil type and grade on your next sample.

Wear

All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

Viscosity of sample indicates oil is within SAE 5W20 range, advise investigate. This plus the additive levels indicates that this is not the same brand, or type of oil as reported. The condition of the oil is acceptable for the time in service.

SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	PC0067051	PC0051415	PC0048837
Sample Date	Client Info	07 Nov 2023	13 May 2023	21 Jul 2022
Machine Age	hrs	8391	6383	4116
Oil Age	hrs	0	0	0
Oil Changed	Client Info	N/A	N/A	N/A
Sample Status		ABNORMAL	ABNORMAL	ABNORMAL

CONTAMINATION

method	limit/base	current	history1	history2	
Water	WC Method	>.2	NEG	NEG	NEG

WEAR METALS

method	limit/base	current	history1	history2		
Iron	ppm	ASTM D5185(m)	>500	53	21	10
Chromium	ppm	ASTM D5185(m)	>3	<1	<1	0
Nickel	ppm	ASTM D5185(m)	>3	0	<1	0
Titanium	ppm	ASTM D5185(m)	>2	0	<1	<1
Silver	ppm	ASTM D5185(m)	>2	<1	0	0
Aluminum	ppm	ASTM D5185(m)	>30	<1	5	1
Lead	ppm	ASTM D5185(m)	>13	1	<1	1
Copper	ppm	ASTM D5185(m)	>103	50	8	20
Tin	ppm	ASTM D5185(m)	>5	<1	0	<1
Antimony	ppm	ASTM D5185(m)	>5	0	0	0
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

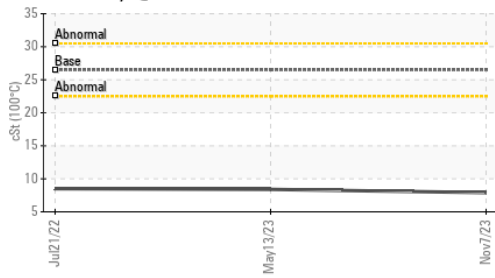
method	limit/base	current	history1	history2		
Boron	ppm	ASTM D5185(m)	92	12	3	100
Barium	ppm	ASTM D5185(m)	0	0	0	0
Molybdenum	ppm	ASTM D5185(m)	0	2	2	2
Manganese	ppm	ASTM D5185(m)	0	<1	<1	<1
Magnesium	ppm	ASTM D5185(m)	0	13	17	18
Calcium	ppm	ASTM D5185(m)	283	2260	2258	3534
Phosphorus	ppm	ASTM D5185(m)	306	901	912	1139
Zinc	ppm	ASTM D5185(m)	0	1056	1035	1321
Sulfur	ppm	ASTM D5185(m)	9080	2758	2794	2840
Lithium	ppm	ASTM D5185(m)		<1	<1	<1

CONTAMINANTS

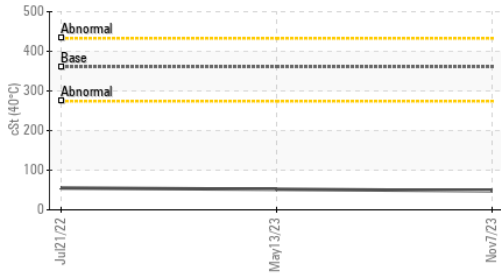
method	limit/base	current	history1	history2		
Silicon	ppm	ASTM D5185(m)	>100	5	16	10
Sodium	ppm	ASTM D5185(m)		<1	3	1
Potassium	ppm	ASTM D5185(m)	>20	0	2	0

OIL ANALYSIS REPORT

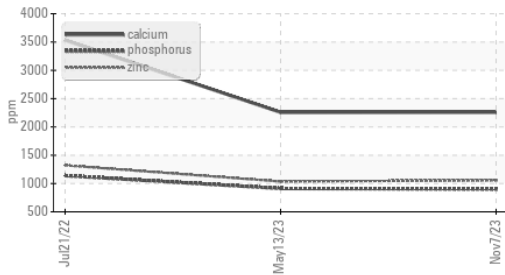
▲ Viscosity @ 100°C



▲ Viscosity @ 40°C



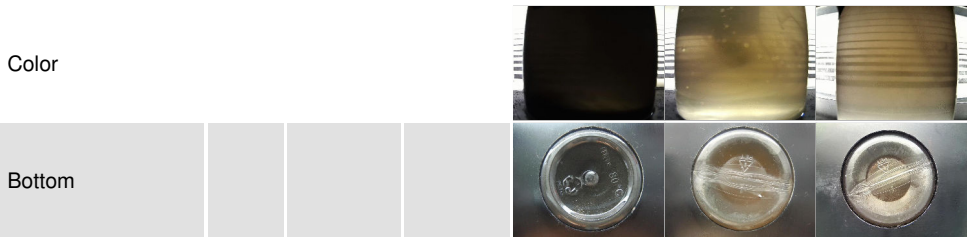
Additives



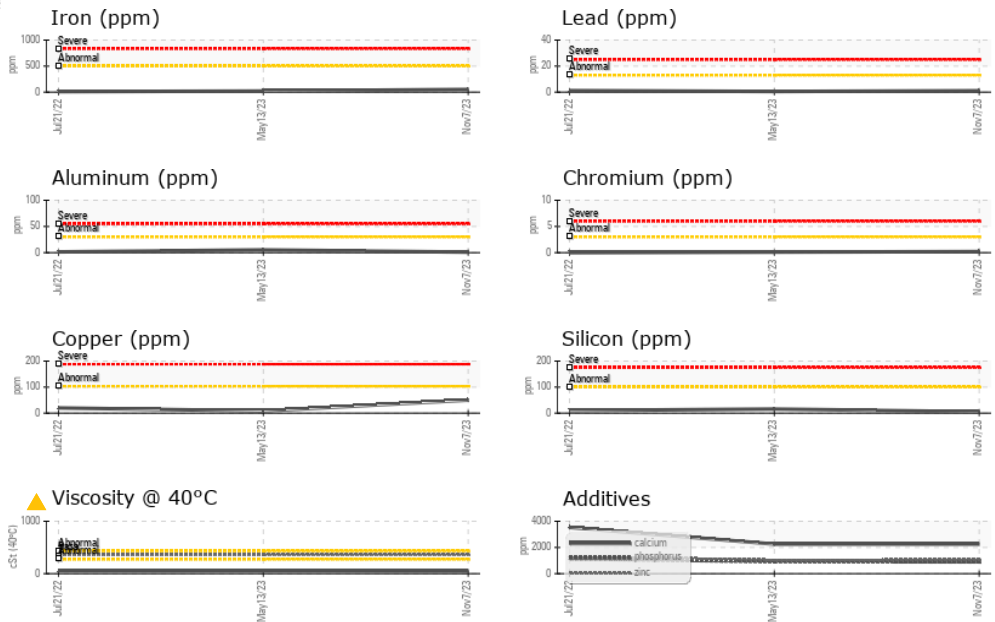
VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	LIGHT	NONE
Yellow Metal	scalar	Visual*	NONE	NONE	NONE
Precipitate	scalar	Visual*	NONE	NONE	NONE
Silt	scalar	Visual*	NONE	VLITE	LIGHT
Debris	scalar	Visual*	NONE	NONE	NONE
Sand/Dirt	scalar	Visual*	NONE	NONE	NONE
Appearance	scalar	Visual*	NORML	NORML	NORML
Odor	scalar	Visual*	NORML	NORML	NORML
Emulsified Water	scalar	Visual*	>.2	NEG	NEG
Free Water	scalar	Visual*		NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	360.6 ▲ 48.1	▲ 51.9	▲ 55
Visc @ 100°C	cSt	ASTM D7279(m)	26.49 ▲ 7.9	▲ 8.4	▲ 8.5
Viscosity Index (VI)	Scale	ASTM D2270*	98 ▲ 133	▲ 136	▲ 128

SAMPLE IMAGES



GRAPHS



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PC0067051 **Received** : 21 Nov 2023
Lab Number : 02597949 **Diagnosed** : 22 Nov 2023
Unique Number : 5683029 **Diagnostician** : Kevin Marson
Test Package : MOB 1 (Additional Tests: KV100, VI)

Lakeshore Gold Timmins West
 Timmins, ON
 CA
 Contact: Adam Koscielak
 adam.koscielak@HFSinclair.com
 T:
 F:

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.