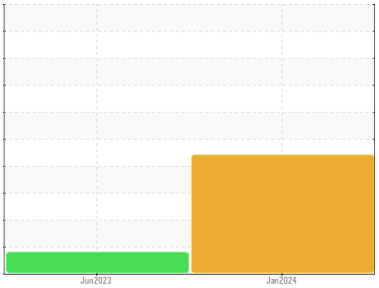
OIL ANALYSIS REPORT

Area
Haul Truck
Machine Id
HT5023
Component
Front Left Wheel Hub
Fluid
PETRO CANADA TRAXON 85W140 (13 LTR)

Sample Rating Trend



DIRT

DIAGNOSIS

Recommendation
We advise that you check for visible metal particles in the oil. We advise that you check all areas where dirt can enter the system. We recommend that you drain the oil from the component if this has not already been done. Confirm the source of the lubricant being utilized for top-up/fill. We recommend an early resample to monitor this condition.

Wear
Light concentration of visible metal present. Gear wear is indicated.

Contamination
There is a moderate concentration of dirt present in the oil. High amount of ingressed dirt has caused abrasive wear to the component.

Fluid Condition
Viscosity of sample indicates oil is within SAE 40 range, advise investigate. This plus the additive levels indicates that this is not the same brand, or type of oil as reported. 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		**PC0067107**	PC0050688	---
Sample Date		Client Info		**20 Jan 2024**	04 Jun 2023	---
Machine Age	hrs	Client Info		**10587**	9532	---
Oil Age	hrs	Client Info		**0**	0	---
Oil Changed		Client Info		**N/A**	N/A	---
Sample Status				**ABNORMAL**	ABNORMAL	---

CONTAMINATION		method	limit/base	current	history1	history2
Water		WC Method	>0.2	**NEG**	NEG	---

WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184*		**169**	---	---
Iron	ppm	ASTM D5185(m)	>500	▲ **550**	53	---
Chromium	ppm	ASTM D5185(m)	>8	**6**	<1	---
Nickel	ppm	ASTM D5185(m)	>5	**3**	<1	---
Titanium	ppm	ASTM D5185(m)		**0**	0	---
Silver	ppm	ASTM D5185(m)		**0**	<1	---
Aluminum	ppm	ASTM D5185(m)	>5	**10**	<1	---
Lead	ppm	ASTM D5185(m)	>5	**2**	<1	---
Copper	ppm	ASTM D5185(m)	>50	**37**	6	---
Tin	ppm	ASTM D5185(m)		**0**	0	---
Antimony	ppm	ASTM D5185(m)	>5	**0**	0	---
Vanadium	ppm	ASTM D5185(m)		**0**	0	---
Beryllium	ppm	ASTM D5185(m)		**0**	0	---
Cadmium	ppm	ASTM D5185(m)		**0**	0	---

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	243	**13**	36	---
Barium	ppm	ASTM D5185(m)	0	**0**	0	---
Molybdenum	ppm	ASTM D5185(m)		**<1**	<1	---
Manganese	ppm	ASTM D5185(m)		**6**	<1	---
Magnesium	ppm	ASTM D5185(m)	0	**5**	7	---
Calcium	ppm	ASTM D5185(m)	0	**507**	310	---
Phosphorus	ppm	ASTM D5185(m)	988	**468**	597	---
Zinc	ppm	ASTM D5185(m)	0	**212**	78	---
Sulfur	ppm	ASTM D5185(m)	24530	**10115**	17828	---
Lithium	ppm	ASTM D5185(m)		**<1**	<1	---

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>25	▲ **31**	2	---
Sodium	ppm	ASTM D5185(m)		**4**	0	---
Potassium	ppm	ASTM D5185(m)	>20	**3**	<1	---

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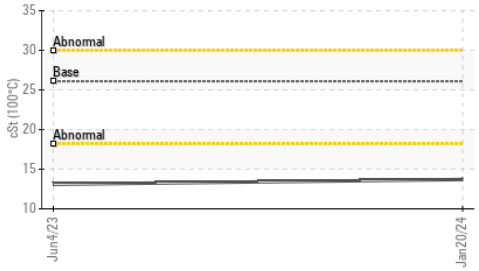
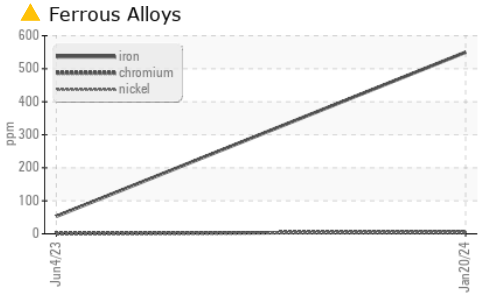
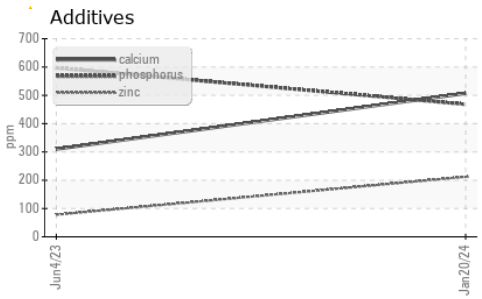
Viscosity @ 100°C



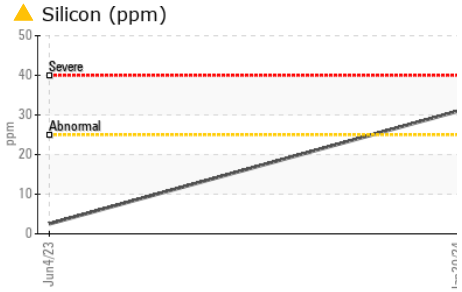
Ferrous Alloys



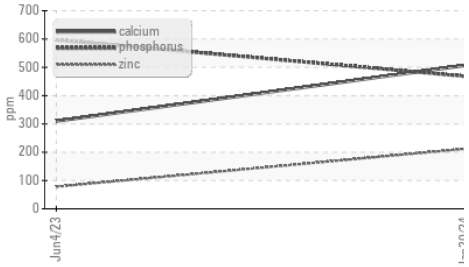
Additives



Silicon (ppm)

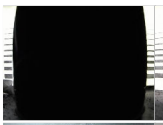
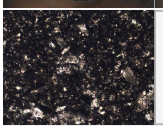


Additives



VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	▲ **LTMOD**	VLITE	---
Yellow Metal	scalar	Visual*	NONE	**NONE**	NONE	---
Precipitate	scalar	Visual*	NONE	**NONE**	NONE	---
Silt	scalar	Visual*	NONE	**NONE**	NONE	---
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*	>0.2	**NEG**	NEG	---
Free Water	scalar	Visual*		**NEG**	NEG	---

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	355.4	▲ **131**	▲ 115	---
Visc @ 100°C	cSt	ASTM D7279(m)	26.1	▲ **13.7**	▲ 13.1	---
Viscosity Index (VI)	Scale	ASTM D2270*	97	**100**	108	---

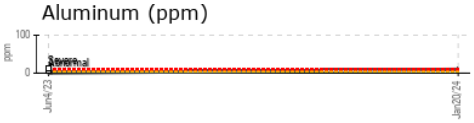
SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					*no image*
Bottom					*no image*
PrtFilter				*no image*	*no image*

GRAPHS

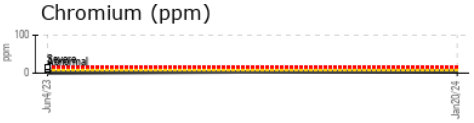
Iron (ppm)

Lead (ppm)

Aluminum (ppm)

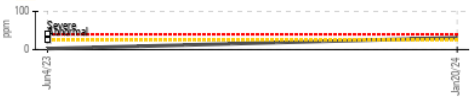


Chromium (ppm)

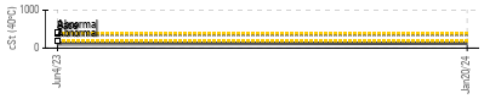


Copper (ppm)

Silicon (ppm)



Viscosity @ 40°C



PQ

ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PC0067107
Lab Number : 02614454
Unique Number : 5723549
Test Package : MOB 1 (Additional Tests: BottomAnalysis, FILTERPATCH, KV100, PQ, VI)

Received : 09 Feb 2024
Tested : 14 Feb 2024
Diagnosed : 14 Feb 2024 - Kevin Marson

Lakeshore Gold Timmins West
Timmins, ON
CA
Contact: Dale Arseneau
darseneau@ca.panamericansilver.com
T: (705)269-4344
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.