



Area
Scoop 10 Yard
Machine Id
LHD1502
Component
Diesel Engine
Fluid
DIESEL ENGINE OIL SAE 15W40 (--- LTR)

RECOMMENDATION

We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. We recommend that you drain the oil from the component if this has not already been done. We recommend you service the filters on this component. We recommend an early resample to monitor this condition.

WEAR

All component wear rates are normal.

CONTAMINATION

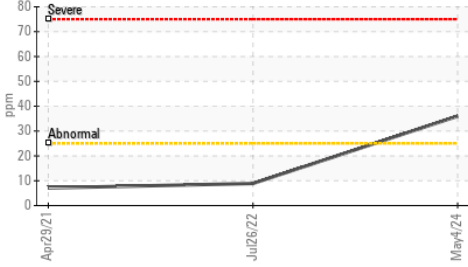
Elemental levels of silicon (Si) and aluminum (Al) indicate alumina-silicate (coarse dirt) ingress. Tests indicate that there is no fuel present in the oil.

FLUID CONDITION

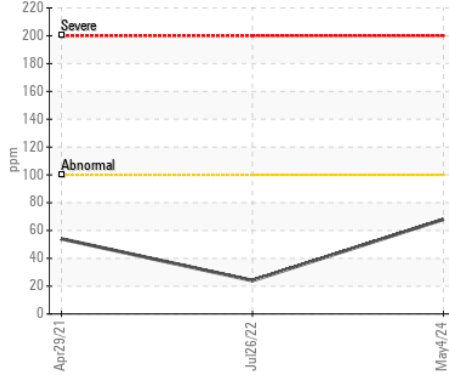
The oil is no longer serviceable due to the presence of contaminants.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		PC0048746	PC0048717	PC0046792
Sample Date		Client Info		04 May 2024	26 Jul 2022	29 Apr 2021
Machine Age	hrs	Client Info		2699	0	0
Oil Age	hrs	Client Info		0	0	0
Filter Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		N/A	N/A	N/A
Filter Changed		Client Info		N/A	N/A	N/A
Sample Status				ABNORMAL	NORMAL	NORMAL
Iron	ppm	ASTM D5185(m)	>100	68	24	54
Chromium	ppm	ASTM D5185(m)	>20	2	2	3
Nickel	ppm	ASTM D5185(m)	>4	<1	0	<1
Titanium	ppm	ASTM D5185(m)		<1	<1	<1
Silver	ppm	ASTM D5185(m)	>3	0	0	0
Aluminum	ppm	ASTM D5185(m)	>20	13	4	3
Lead	ppm	ASTM D5185(m)	>40	7	2	4
Copper	ppm	ASTM D5185(m)	>330	3	3	5
Tin	ppm	ASTM D5185(m)	>15	2	2	2
Vanadium	ppm	ASTM D5185(m)		0	0	0
Silicon	ppm	ASTM D5185(m)	>25	▲ 36	9	7
Potassium	ppm	ASTM D5185(m)	>20	2	<1	<1
Fuel	%	ASTM D7593*	>5	0.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	ASTM D7844*	>3	1.3	0.3	0.6
Nitration	Abs/cm	ASTM D7624*	>20	8.5	7.5	9.5
Sulfation	Abs/.1mm	ASTM D7415*	>30	22.5	20.9	22.8
Emulsified Water	scalar	Visual*	>0.2	NEG	NEG	NEG
Sodium	ppm	ASTM D5185(m)	>158	6	6	4
Boron	ppm	ASTM D5185(m)	250	10	2	1
Barium	ppm	ASTM D5185(m)	10	<1	0	<1
Molybdenum	ppm	ASTM D5185(m)	100	56	61	62
Manganese	ppm	ASTM D5185(m)		<1	<1	1
Magnesium	ppm	ASTM D5185(m)	450	915	1018	1049
Calcium	ppm	ASTM D5185(m)	3000	1311	1131	1096
Phosphorus	ppm	ASTM D5185(m)	1150	1017	1032	1008
Zinc	ppm	ASTM D5185(m)	1350	1231	1260	1335
Sulfur	ppm	ASTM D5185(m)	4250	2385	2683	2538
Oxidation	Abs/.1mm	ASTM D7414*	>25	14.9	15.5	18.1
Visc @ 40°C	cSt	ASTM D7279(m)	115	94.9	98.1	97.6
Visc @ 100°C	cSt	ASTM D7279(m)	14.4	13.1	13.2	12.9
Viscosity Index (VI)	Scale	ASTM D2270*	126	136	132	128

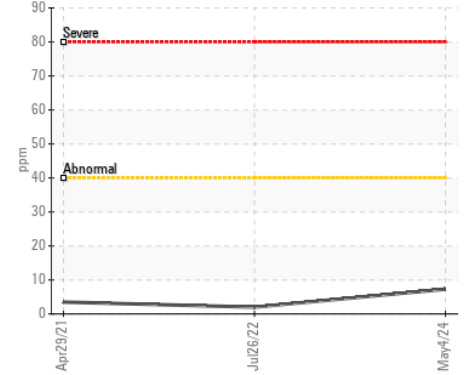
▲ Silicon (ppm)



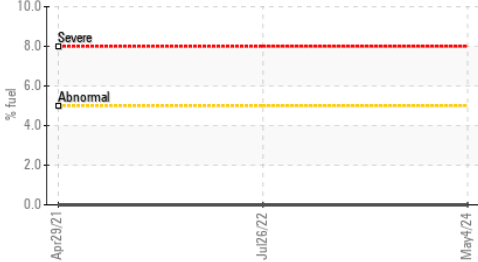
Iron (ppm)



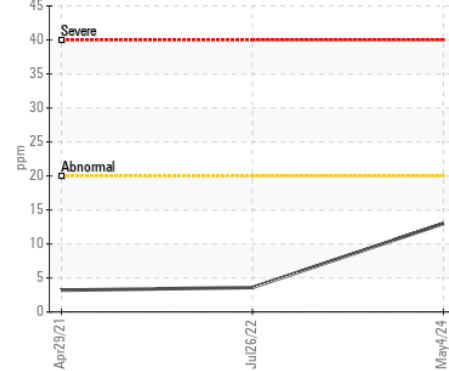
Lead (ppm)



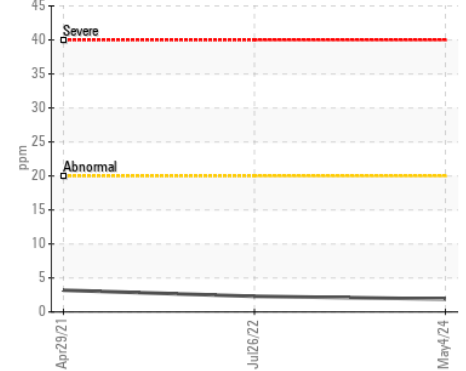
Fuel Dilution



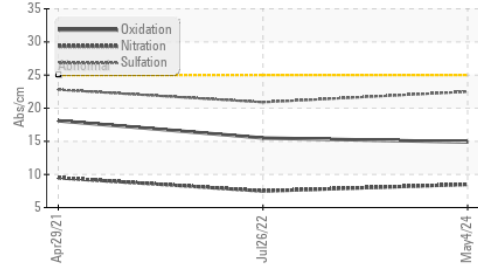
Aluminum (ppm)



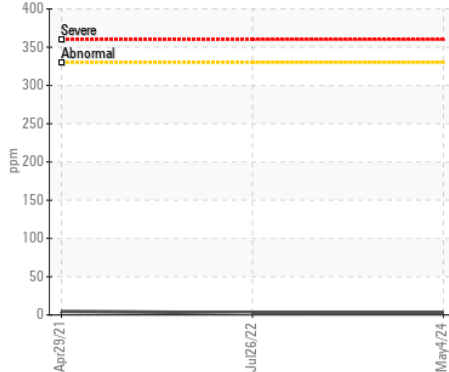
Chromium (ppm)



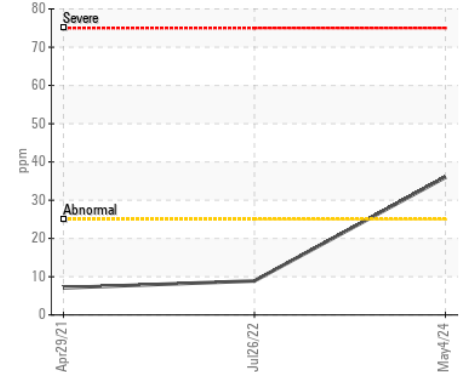
FT-IR (Direct Trend)



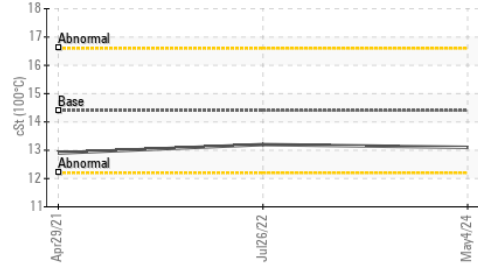
Copper (ppm)



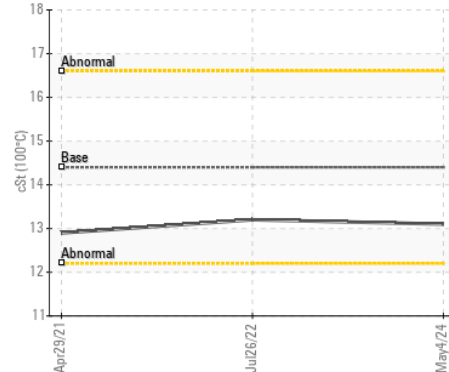
▲ Silicon (ppm)



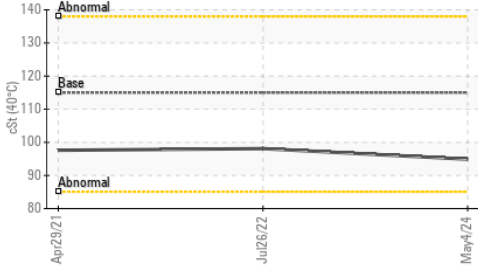
Viscosity @ 100°C



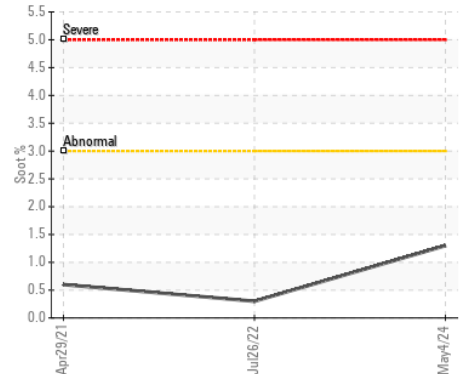
Viscosity @ 100°C



Viscosity @ 40°C



Soot %



ISO 17025:2017
Accredited
Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PC0048746
Lab Number : 02638361
Unique Number : 5787523
Test Package : MOB 1 (Additional Tests: FUELDILUTION, KV40, PercentFuel, VI)

Received : 29 May 2024
Tested : 31 May 2024
Diagnosed : 31 May 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.