



LIEBHERR

OIL ANALYSIS REPORT

WEAR
CONTAMINATION
FLUID CONDITION

SEVERE
ABNORMAL
NORMAL



Machine Id
LIEBHERR L580 039482

Component
Hydraulic System

Fluid
PETRO CANADA HYDREX XV ALL SEASON HYDRAULIC OIL (250 LTR)

RECOMMENDATION

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. Re-sampling is suggested to confirm test results prior to significant maintenance activities being performed. Please indicate that this is a resample on your Sample Information Form (SIF).

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		LH0280946	LH0218507	LH0218518
Sample Date		Client Info		25 Apr 2024	01 Apr 2022	27 Nov 2021
Machine Age	hrs	Client Info		17190	13123	12341
Oil Age	hrs	Client Info		0	0	0
Filter Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Filter Changed		Client Info		N/A	N/A	N/A
Sample Status				SEVERE	SEVERE	SEVERE

WEAR

Iron ppm levels are severe. The low ferrous density (PQ) index indicates the wear metal levels are due to corrosion.

PQ	UOM	Method	Limit/Abn	Current	History1	History2
PQ		ASTM D8184*		0	0	0
Iron	ppm	ASTM D5185(m)	>20	▲ 78	▲ 40	▲ 40
Chromium	ppm	ASTM D5185(m)	>10	2	2	2
Nickel	ppm	ASTM D5185(m)	>10	0	<1	0
Titanium	ppm	ASTM D5185(m)		0	0	0
Silver	ppm	ASTM D5185(m)		0	0	<1
Aluminum	ppm	ASTM D5185(m)	>10	<1	<1	<1
Lead	ppm	ASTM D5185(m)	>10	0	2	2
Copper	ppm	ASTM D5185(m)	>75	<1	3	3
Tin	ppm	ASTM D5185(m)	>10	0	<1	<1
Vanadium	ppm	ASTM D5185(m)		0	0	0
White Metal	scalar	Visual*	NONE	NONE	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	NONE	NONE	NONE

CONTAMINATION

There is a moderate amount of silt (particulates < 14 microns in size) present in the oil.

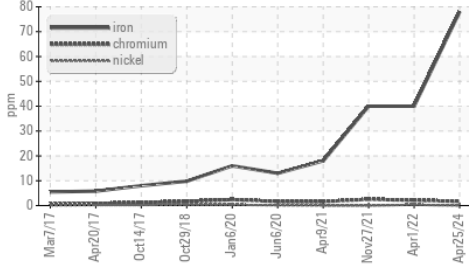
Silicon	ppm	ASTM D5185(m)	>20	3	2	2
Potassium	ppm	ASTM D5185(m)	>20	<1	1	<1
Water		WC Method	>0.1	NEG	NEG	NEG
Particles >4µm		ASTM D7647	>20000	▲ 120884	6056	9340
Particles >6µm		ASTM D7647	>5000	▲ 14331	1119	2477
Particles >14µm		ASTM D7647	>640	43	120	292
Particles >21µm		ASTM D7647	>160	7	34	94
Particles >38µm		ASTM D7647	>40	1	4	12
Particles >71µm		ASTM D7647	>10	0	1	2
Oil Cleanliness		ISO 4406 (c)	>21/19/16	▲ 24/21/13	20/17/14	20/18/15
Silt	scalar	Visual*	NONE	NONE	NONE	NONE
Debris	scalar	Visual*	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	Visual*	NONE	NONE	NONE	NONE
Appearance	scalar	Visual*	NORML	NORML	NORML	NORML
Odor	scalar	Visual*	NORML	NORML	NORML	NORML
Emulsified Water	scalar	Visual*	>0.1	NEG	NEG	NEG

FLUID CONDITION

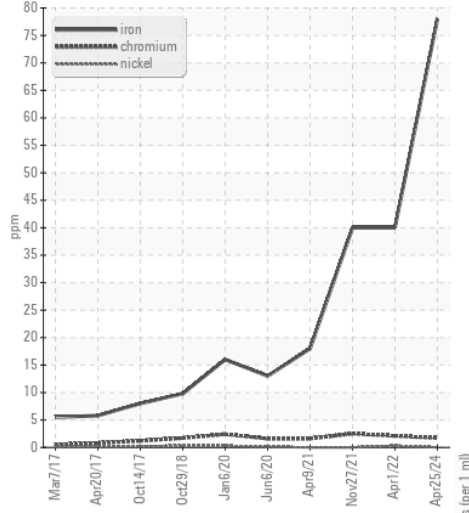
The oil is no longer serviceable as a result of the abnormal and/or severe wear.

Sodium	ppm	ASTM D5185(m)		<1	1	1
Boron	ppm	ASTM D5185(m)	0	<1	<1	<1
Barium	ppm	ASTM D5185(m)	0	0	0	0
Molybdenum	ppm	ASTM D5185(m)	0	<1	<1	<1
Manganese	ppm	ASTM D5185(m)	1	<1	<1	<1
Magnesium	ppm	ASTM D5185(m)	0	2	2	2
Calcium	ppm	ASTM D5185(m)	100	57	72	103
Phosphorus	ppm	ASTM D5185(m)	670	399	341	342
Zinc	ppm	ASTM D5185(m)	850	446	401	411
Sulfur	ppm	ASTM D5185(m)	1600	1441	865	818
Visc @ 40°C	cSt	ASTM D7279(m)	47.9	43.3	40.9	▲ 38.9

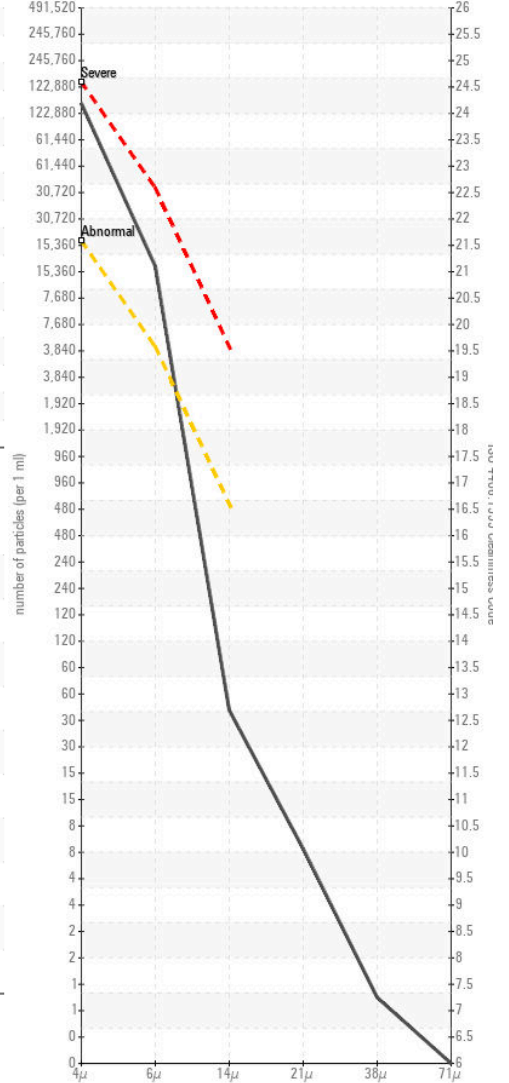
▲ Ferrous Alloys



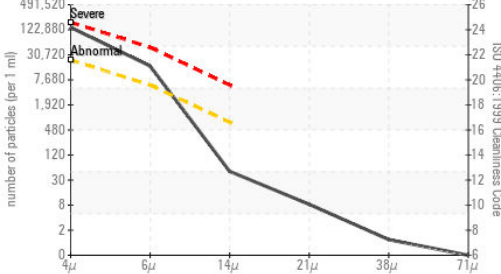
▲ Ferrous Alloys



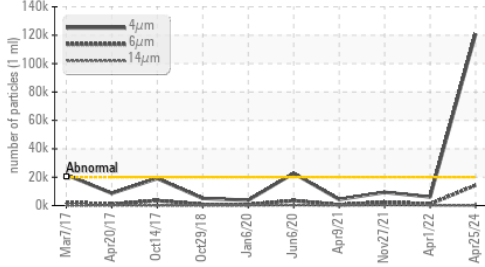
▲ Particle Count



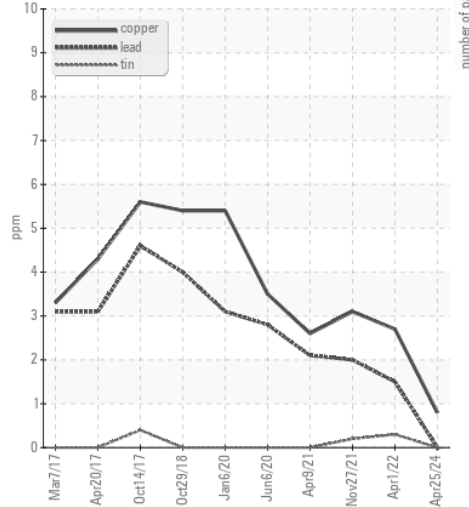
▲ Particle Count



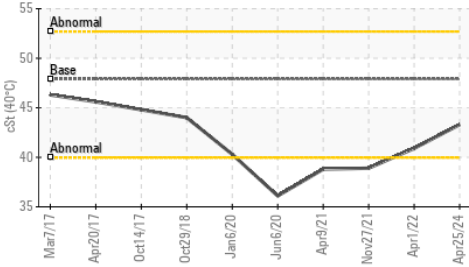
▲ Particle Trend



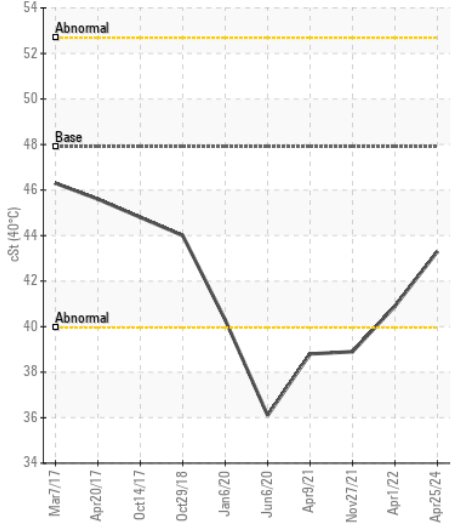
Non-ferrous Metals



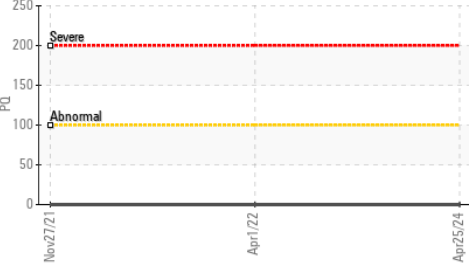
Viscosity @ 40°C



Viscosity @ 40°C



PQ



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : LH0280946 **Received** : 02 May 2024
Lab Number : 02632814 **Tested** : 03 May 2024
Unique Number : 5773967 **Diagnosed** : 03 May 2024 - Kevin Marson
Test Package : MOB 1 (Additional Tests: PQ, PrtCount)

CLOVERDALE FUEL LTD.
 PO BOX 3163
 LANGLEY, BC
 CA V3A 4R5
 Contact: Maintenance Manager

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.

T: (604)534-4314
 F: