



LIEBHERR

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	ABNORMAL



Machine Id
24016
Component
Hydraulic System
Fluid

PETRO CANADA HYDREX XV ALL SEASON HYDRAULIC OIL (370 LTR)

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 HYDREX XV ALL SEASON HYDRAULIC OIL, however, a fluid match indicates that this fluid is ISO 32 AW Hydraulic Oil. Please confirm the oil type and grade on your next sample.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		LH0276281	LH0225797	LH0216222
Sample Date		Client Info		08 Apr 2024	10 Oct 2023	21 Apr 2023
Machine Age	hrs	Client Info		21501	20995	20510
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	Changed	N/A
Sample Status				ABNORMAL	ABNORMAL	ABNORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185(m)	>50	8	8	6
Chromium	ppm	ASTM D5185(m)	>5	3	2	2
Nickel	ppm	ASTM D5185(m)	>2	0	<1	0
Titanium	ppm	ASTM D5185(m)		0	0	0
Silver	ppm	ASTM D5185(m)		0	<1	0
Aluminum	ppm	ASTM D5185(m)	>2	<1	<1	<1
Lead	ppm	ASTM D5185(m)	>5	0	<1	0
Copper	ppm	ASTM D5185(m)	>15	2	2	2
Tin	ppm	ASTM D5185(m)	>4	0	0	0
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

The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable.

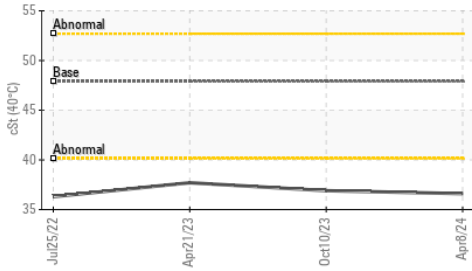
Silicon	ppm	ASTM D5185(m)	>20	0	1	1
Potassium	ppm	ASTM D5185(m)	>20	1	<1	<1
Water		WC Method	>0.1	NEG	NEG	NEG
Particles >4µm		ASTM D7647	>20000	1864	670	1083
Particles >6µm		ASTM D7647	>5000	141	95	187
Particles >14µm		ASTM D7647	>640	12	10	17
Particles >21µm		ASTM D7647	>160	4	3	5
Particles >38µm		ASTM D7647	>40	1	0	1
Particles >71µm		ASTM D7647	>10	0	0	0
Oil Cleanliness		ISO 4406 (c)	>21/19/16	18/14/11	17/14/10	17/15/11
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

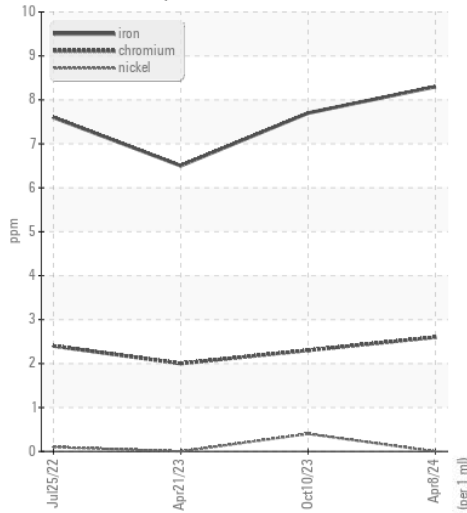
Viscosity of sample indicates oil is within ISO 32 range, advise investigate. This plus the additive levels indicates that this is not the same brand, or type of oil as reported. The condition of the oil is acceptable for the time in service.

Sodium	ppm	ASTM D5185(m)		<1	<1	<1
Boron	ppm	ASTM D5185(m)	0	4	5	5
Barium	ppm	ASTM D5185(m)	0	0	<1	0
Molybdenum	ppm	ASTM D5185(m)	0	<1	1	2
Manganese	ppm	ASTM D5185(m)	1	0	0	0
Magnesium	ppm	ASTM D5185(m)	0	31	32	36
Calcium	ppm	ASTM D5185(m)	100	166	175	189
Phosphorus	ppm	ASTM D5185(m)	670	439	443	491
Zinc	ppm	ASTM D5185(m)	850	545	551	556
Sulfur	ppm	ASTM D5185(m)	1600	1544	1538	1557
Visc @ 40°C	cSt	ASTM D7279(m)	47.9	▲ 36.6	▲ 36.9	▲ 37.7

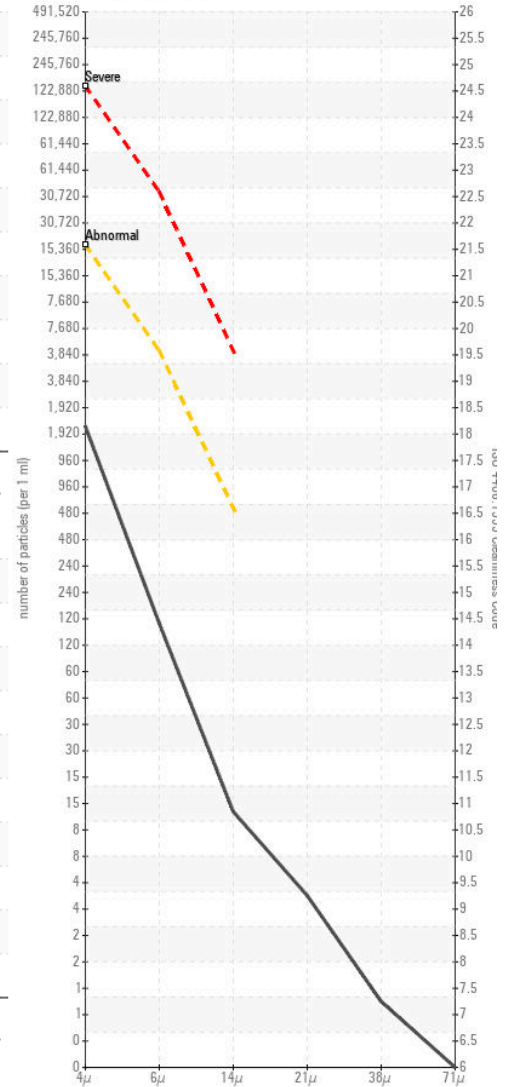
▲ Viscosity @ 40°C



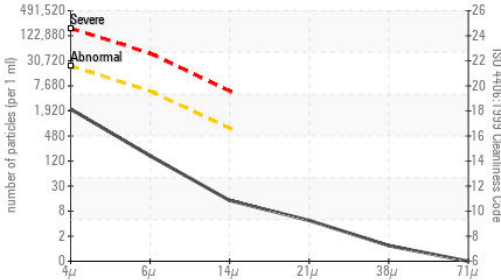
Ferrous Alloys



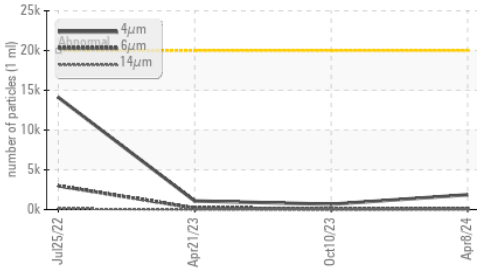
Particle Count



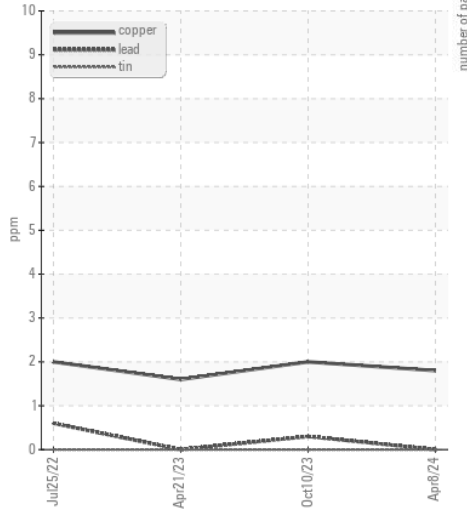
Particle Count



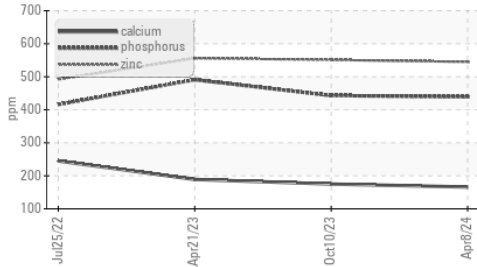
Particle Trend



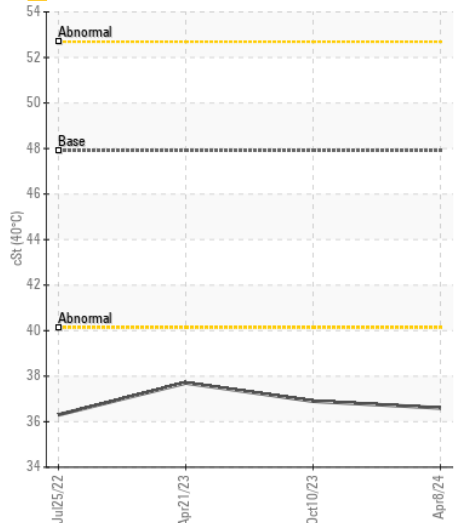
Non-ferrous Metals



Additives



▲ Viscosity @ 40°C



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : LH0276281 **Received** : 10 Apr 2024
Lab Number : 02627905 **Tested** : 11 Apr 2024
Unique Number : 5761037 **Diagnosed** : 11 Apr 2024 - Kevin Marson
Test Package : MOB 1 (Additional Tests: PrtCount)

American Iron and Metal
 75 Steel City Court
 Hamilton, ON
 CA L8H 3Y2
 Contact: Heavy Equipment
 hamiltonmobileassetmaintenance@aim-recycling.com
 T: (905)547-5533
 F: (905)544-5671

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.