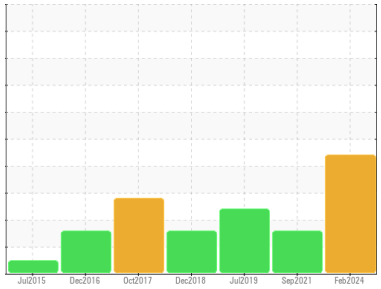
OIL ANALYSIS REPORT

Sample Rating Trend



VISCOSITY

Machine Id
CATERPILLAR 69-14
Component
Hydraulic System
Fluid
PETRO CANADA PRODURO TO-4 SAE 30 (100 LTR)

DIAGNOSIS

▲ Recommendation

We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. Confirm the source of the lubricant being utilized for top-up/fill. We recommend an early resample to monitor this condition.

Wear

All component wear rates are normal.

▲ Contamination

There is a moderate amount of particulates (2 to 100 microns in size) present in the oil.

▲ Fluid Condition

Viscosity of sample indicates oil is within ATF range, advise investigate. This plus the additive levels indicates that this is not the same brand, or type of oil as reported. The AN level is acceptable for this fluid. The oil is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**PC0022906**	PC0010387	PC0010382
Sample Date		Client Info		**06 Feb 2024**	02 Sep 2021	11 Jul 2019
Machine Age	hrs	Client Info		**8184**	9463	4974
Oil Age	hrs	Client Info		**0**	0	1000
Oil Changed		Client Info		**Not Changd**	Not Changd	Not Changd
Sample Status				**ABNORMAL**	ATTENTION	ABNORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Water		WC Method	>0.1	**NEG**	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185(m)	>20	**11**	12	10
Chromium	ppm	ASTM D5185(m)	>10	**<1**	<1	<1
Nickel	ppm	ASTM D5185(m)	>10	**<1**	<1	0
Titanium	ppm	ASTM D5185(m)		**0**	0	0
Silver	ppm	ASTM D5185(m)		**0**	0	0
Aluminum	ppm	ASTM D5185(m)	>10	**<1**	<1	<1
Lead	ppm	ASTM D5185(m)	>10	**<1**	<1	<1
Copper	ppm	ASTM D5185(m)	>75	**3**	3	2
Tin	ppm	ASTM D5185(m)	>10	**0**	<1	0
Antimony	ppm	ASTM D5185(m)		**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

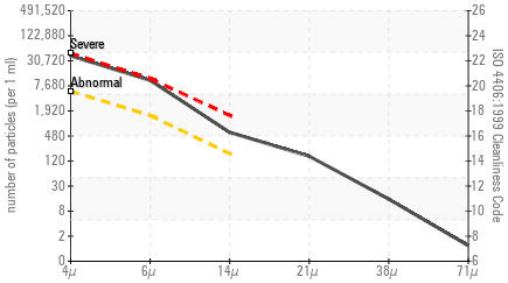
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	2	**<1**	<1	0
Barium	ppm	ASTM D5185(m)	0	**<1**	<1	<1
Molybdenum	ppm	ASTM D5185(m)	0	**0**	<1	<1
Manganese	ppm	ASTM D5185(m)	9	**0**	<1	<1
Magnesium	ppm	ASTM D5185(m)	1	**3**	4	5
Calcium	ppm	ASTM D5185(m)	3131	▲ **523**	▲ 451	▲ 392
Phosphorus	ppm	ASTM D5185(m)	1194	▲ **671**	▲ 699	▲ 622
Zinc	ppm	ASTM D5185(m)	1281	▲ **314**	▲ 289	▲ 226
Sulfur	ppm	ASTM D5185(m)	3811	▲ **1087**	▲ 947	▲ 835
Lithium	ppm	ASTM D5185(m)		**<1**	<1	<1

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>20	**2**	2	2
Sodium	ppm	ASTM D5185(m)		**2**	2	2
Potassium	ppm	ASTM D5185(m)	>20	**2**	2	2

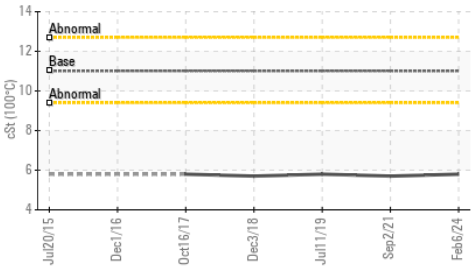
FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>5000	▲ **34965**	2244	▲ 16853
Particles >6µm		ASTM D7647	>1300	▲ **9028**	313	▲ 2485
Particles >14µm		ASTM D7647	>160	▲ **516**	21	127
Particles >21µm		ASTM D7647	>40	▲ **138**	8	29
Particles >38µm		ASTM D7647	>10	**13**	0	0
Particles >71µm		ASTM D7647	>3	**1**	0	0
Oil Cleanliness		ISO 4406 (c)	>19/17/14	▲ **22/20/16**	18/15/12	▲ 21/18/14

OIL ANALYSIS REPORT

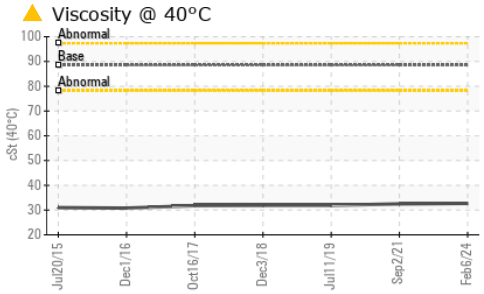
Particle Count



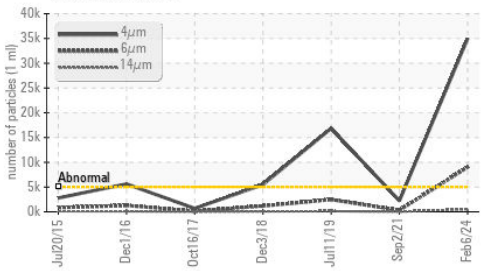
Viscosity @ 100°C



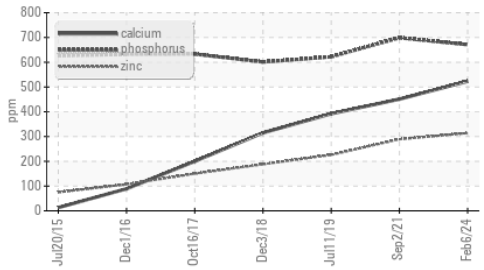
Viscosity @ 40°C



Particle Trend



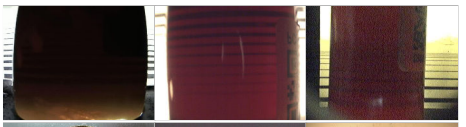
Additives



FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*		**0.33**	0.54	0.333

VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	Visual*	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	Visual*	NONE	**NONE**	NONE	NONE
Precipitate	scalar	Visual*	NONE	**NONE**	NONE	NONE
Silt	scalar	Visual*	NONE	**NONE**	NONE	NONE
Debris	scalar	Visual*	NONE	**NONE**	NONE	VLITE
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
Free Water	scalar	Visual*		**NEG**	NEG	NEG

FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D7279(m)	88.5	▲ **32.7**	32.5	31.9
Visc @ 100°C	cSt	ASTM D7279(m)	11.01	▲ **5.8**	5.7	5.8
Viscosity Index (VI)	Scale	ASTM D2270*	110	**120**	116	125

SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
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ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PC0022906
Lab Number : 02616640
Unique Number : 5733750
Test Package : IND 2 (Additional Tests: KV100, VI)

Received : 20 Feb 2024
Tested : 21 Feb 2024
Diagnosed : 21 Feb 2024 - Kevin Marson

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.

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