



TRAAP

Texas Refinery Advanced Analysis Program

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	SEVERE
FLUID CONDITION	ABNORMAL

Machine Id
CATERPILLAR 420E 543808 (S/N KMW03166)

Component
Hydraulic System

Fluid
CAT TDTO 30W (--- LTR)

RECOMMENDATION

Check seals and/or filters for points of contaminant entry. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. The filter change at the time of sampling has been noted. Confirm the source of the lubricant being utilized for top-up/fill. Resample in 30-45 days to monitor this situation.

WEAR

All component wear rates are normal.

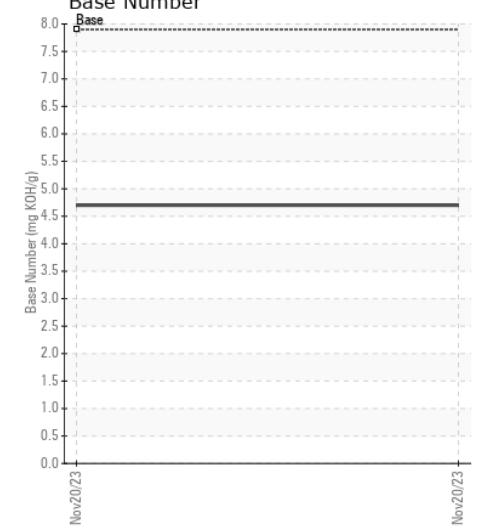
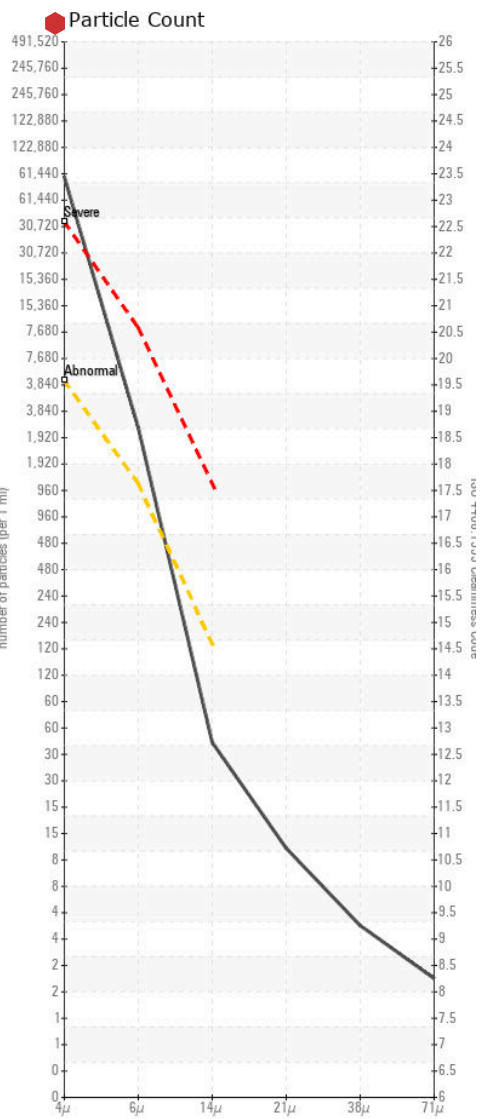
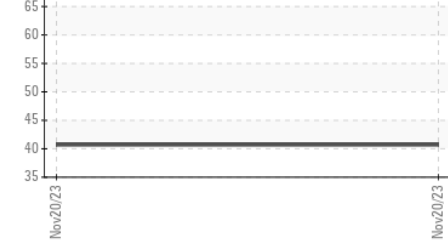
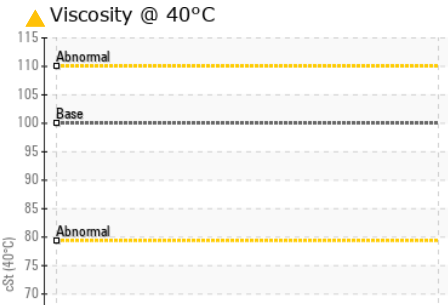
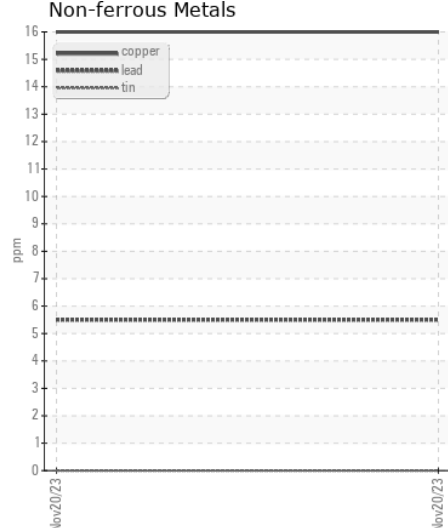
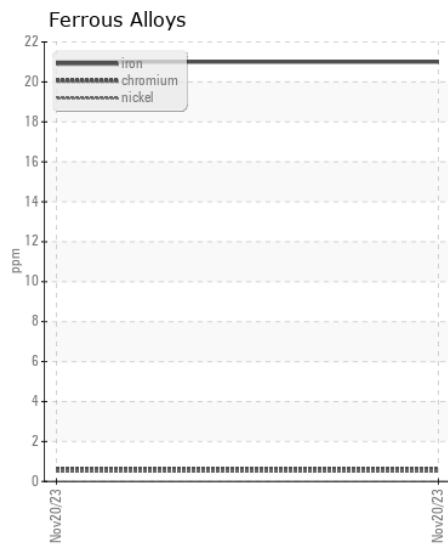
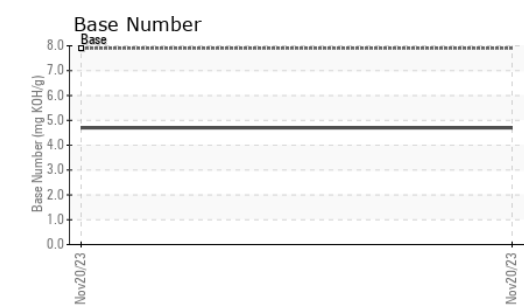
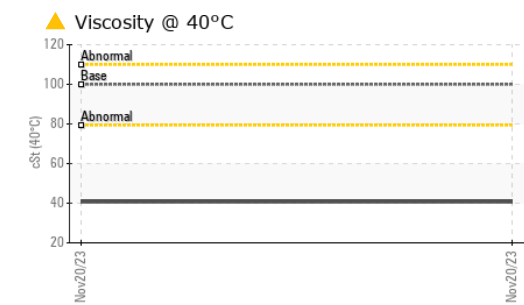
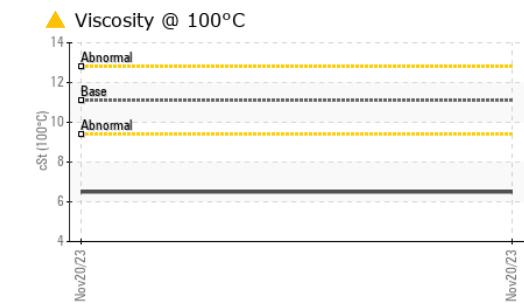
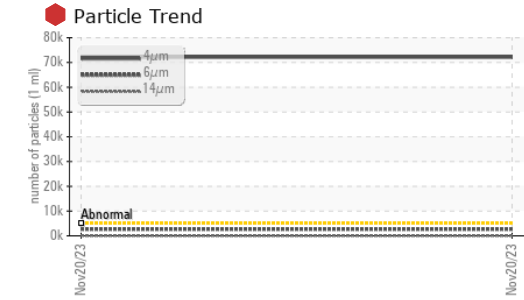
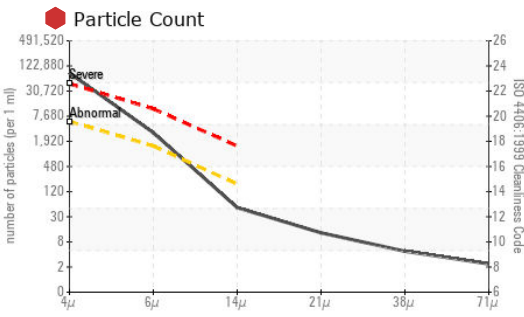
CONTAMINATION

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

FLUID CONDITION

The BN result indicates that there is suitable alkalinity remaining in the oil. Viscosity of sample indicates oil is within SAE 20 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 still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		TR02607029	---	---
Sample Date		Client Info		20 Nov 2023	---	---
Machine Age	hrs	Client Info		5200	---	---
Oil Age	hrs	Client Info		5200	---	---
Filter Age	hrs	Client Info		2065	---	---
Oil Changed		Client Info		Not Changed	---	---
Filter Changed		Client Info		Changed	---	---
Sample Status				SEVERE	---	---
PQ		ASTM D8184*		0	---	---
Iron	ppm	ASTM D5185(m)	>20	21	---	---
Chromium	ppm	ASTM D5185(m)	>10	<1	---	---
Nickel	ppm	ASTM D5185(m)	>10	<1	---	---
Titanium	ppm	ASTM D5185(m)		0	---	---
Silver	ppm	ASTM D5185(m)		<1	---	---
Aluminum	ppm	ASTM D5185(m)	>10	2	---	---
Lead	ppm	ASTM D5185(m)	>10	6	---	---
Copper	ppm	ASTM D5185(m)	>75	16	---	---
Tin	ppm	ASTM D5185(m)	>10	0	---	---
Vanadium	ppm	ASTM D5185(m)		0	---	---
White Metal	scalar	Visual*	NONE	NONE	---	---
Yellow Metal	scalar	Visual*	NONE	NONE	---	---
Silicon	ppm	ASTM D5185(m)	>20	6	---	---
Potassium	ppm	ASTM D5185(m)	>20	4	---	---
Water		WC Method	>0.1	NEG	---	---
Soot %	%	ASTM D7844*		0	---	---
Nitration	Abs/cm	ASTM D7624*		3.5	---	---
Sulfation	Abs/.1mm	ASTM D7415*		14.4	---	---
Particles >4µm		ASTM D7647	>5000	72167	---	---
Particles >6µm		ASTM D7647	>1300	2703	---	---
Particles >14µm		ASTM D7647	>160	44	---	---
Particles >21µm		ASTM D7647	>40	11	---	---
Particles >38µm		ASTM D7647	>10	4	---	---
Particles >71µm		ASTM D7647	>3	2	---	---
Oil Cleanliness		ISO 4406 (c)	>19/17/14	23/19/13	---	---
Silt	scalar	Visual*	NONE	NONE	---	---
Debris	scalar	Visual*	NONE	NONE	---	---
Sand/Dirt	scalar	Visual*	NONE	NONE	---	---
Appearance	scalar	Visual*	NORML	NORML	---	---
Odor	scalar	Visual*	NORML	NORML	---	---
Emulsified Water	scalar	Visual*	>0.1	NEG	---	---
Sodium	ppm	ASTM D5185(m)		5	---	---
Boron	ppm	ASTM D5185(m)		2	---	---
Barium	ppm	ASTM D5185(m)		<1	---	---
Molybdenum	ppm	ASTM D5185(m)		<1	---	---
Manganese	ppm	ASTM D5185(m)		0	---	---
Magnesium	ppm	ASTM D5185(m)		274	---	---
Calcium	ppm	ASTM D5185(m)	2980	1009	---	---
Phosphorus	ppm	ASTM D5185(m)	1100	880	---	---
Zinc	ppm	ASTM D5185(m)	1270	1048	---	---
Sulfur	ppm	ASTM D5185(m)		4151	---	---
Oxidation	Abs/.1mm	ASTM D7414*		6.0	---	---
Base Number (BN)	mg KOH/g	ASTM D2896*	7.9	4.70	---	---
Visc @ 40°C	cSt	ASTM D7279(m)	100	40.7	---	---
Visc @ 100°C	cSt	ASTM D7279(m)	11.1	6.5	---	---
Viscosity Index (VI)	Scale	ASTM D2270*	95	110	---	---



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : TR02607029 **Received** : 08 Jan 2024
Lab Number : 02607029 **Diagnosed** : 09 Jan 2024
Unique Number : 5708115 **Diagnostician** : Kevin Marson
Test Package : MOB 2 (Additional Tests: FT-IR, KV100, PQ, TBN, VI)

WILCO CONTRACTORS
 3031 ARTHUR ST
 ROSSLYN, ON
 CA P7K 0P2
 Contact: David Cramer

To discuss this sample report, contact Customer Service at 1-800-827-0711.
 * - Denotes test methods that are outside of the ISO 17025 scope of accreditation.
 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

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