



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	SEVERE
FLUID CONDITION	ABNORMAL

Machine Id
CATERPILLAR 429
 Component
Diesel Engine
 Fluid
DIESEL ENGINE OIL SAE 15W40 (--- GAL)

RECOMMENDATION

We advise that you check the fuel injection system. The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		RW0005365	RW0004515	RW0003981
Sample Date		Client Info		27 Apr 2024	02 Sep 2023	17 Jan 2023
Machine Age	hrs	Client Info		4268	3993	3683
Oil Age	hrs	Client Info		365	310	371
Filter Age	hrs	Client Info		365	310	371
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				SEVERE	SEVERE	SEVERE

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	8	9	7
Chromium	ppm	ASTM D5185m	>20	0	<1	0
Nickel	ppm	ASTM D5185m	>4	0	<1	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	<1	<1	0
Lead	ppm	ASTM D5185m	>40	0	0	0
Copper	ppm	ASTM D5185m	>330	0	1	<1
Tin	ppm	ASTM D5185m	>15	<1	<1	0
Vanadium	ppm	ASTM D5185m		0	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

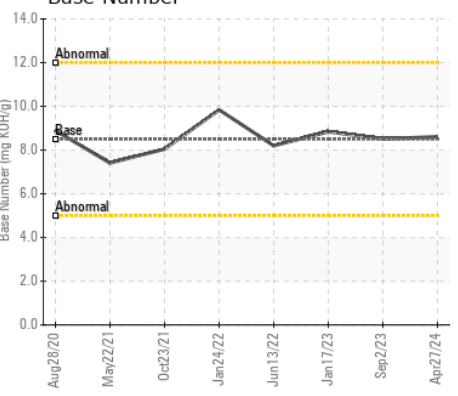
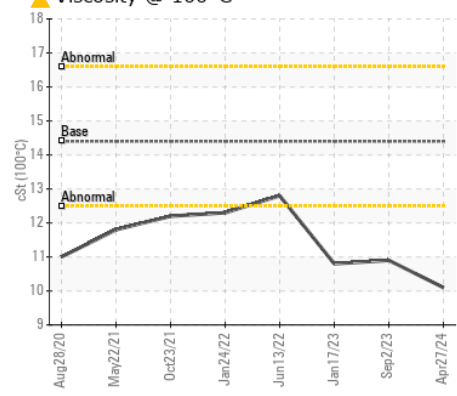
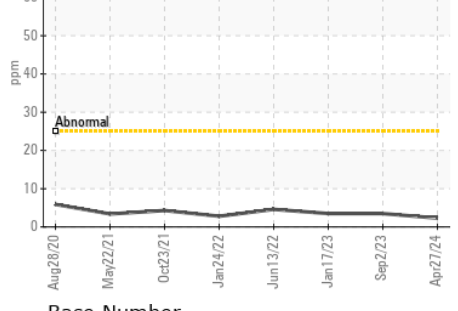
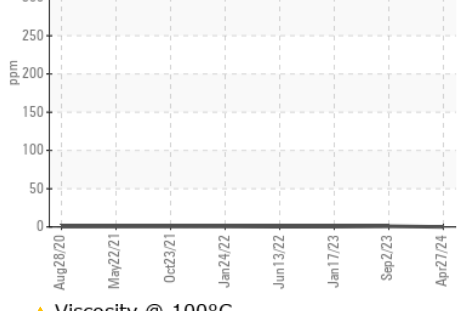
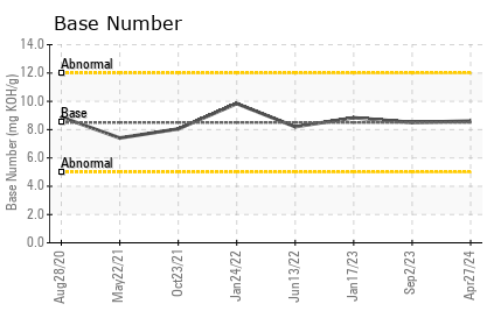
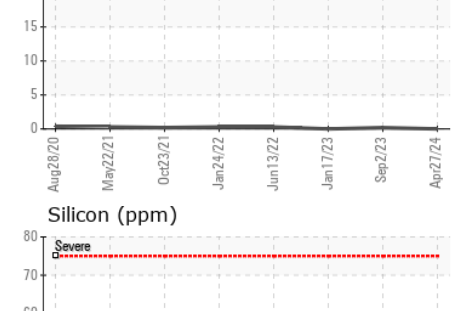
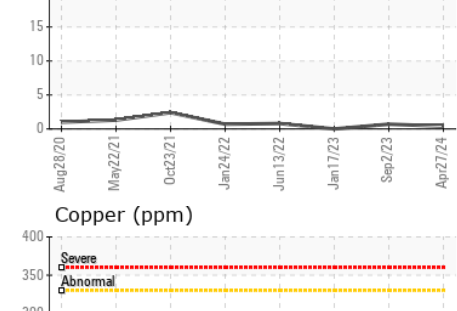
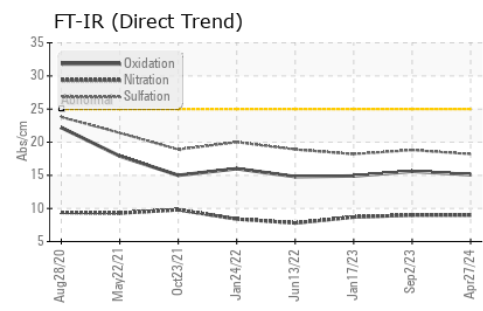
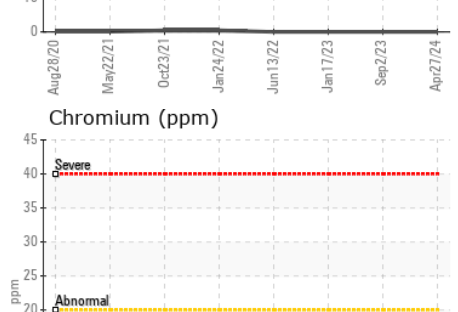
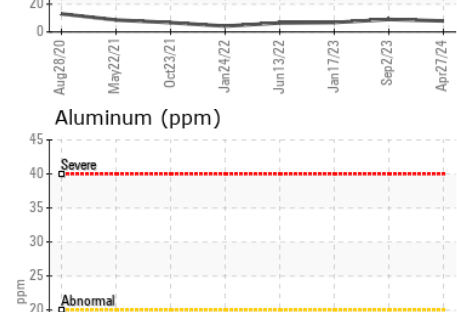
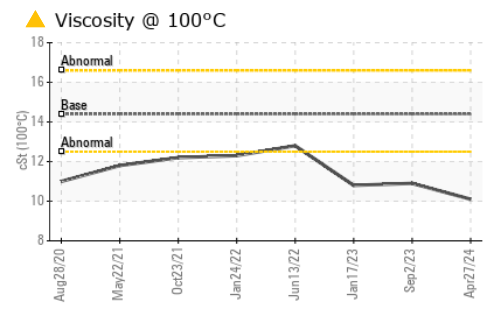
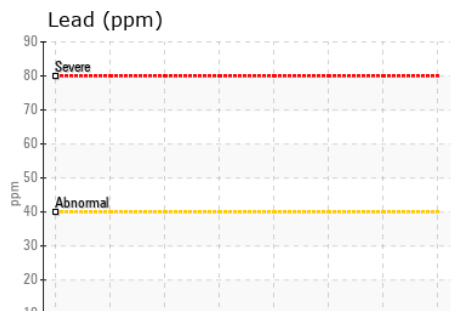
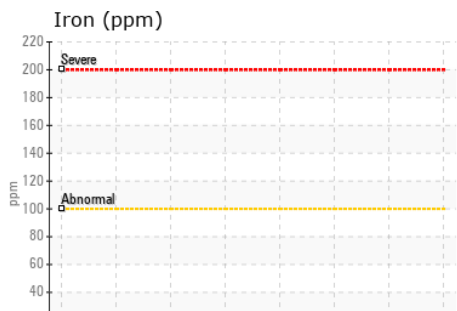
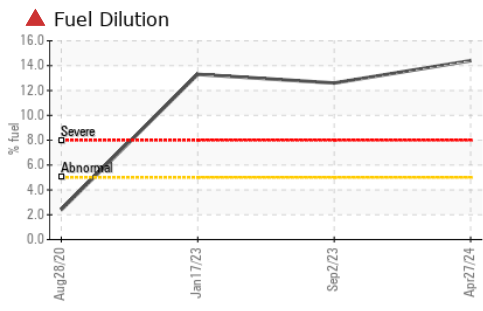
There is a high amount of fuel present in the oil. Tests confirm the presence of fuel in the oil.

Silicon	ppm	ASTM D5185m	>25	2	4	4
Potassium	ppm	ASTM D5185m	>20	0	2	2
Fuel	%	ASTM D3524	>5	▲ 14.4	▲ 12.6	▲ 13.3
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.3	0.3	0.3
Nitration	Abs/cm	*ASTM D7624	>20	9.0	9.0	8.7
Sulfation	Abs/.1mm	*ASTM D7415	>30	18.2	18.8	18.2
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	>0.2	NEG	NEG	NEG

FLUID CONDITION

The BN result indicates that there is suitable alkalinity remaining in the oil. Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable due to the presence of contaminants.

Sodium	ppm	ASTM D5185m	>158	2	1	0
Boron	ppm	ASTM D5185m	250	9	16	6
Barium	ppm	ASTM D5185m	10	<1	0	0
Molybdenum	ppm	ASTM D5185m	100	56	59	52
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m	450	773	721	727
Calcium	ppm	ASTM D5185m	3000	1000	1143	916
Phosphorus	ppm	ASTM D5185m	1150	919	965	849
Zinc	ppm	ASTM D5185m	1350	1053	1170	985
Sulfur	ppm	ASTM D5185m	4250	2968	3241	2476
Oxidation	Abs/.1mm	*ASTM D7414	>25	15.1	15.6	14.9
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	8.61	8.51	8.84
Visc @ 100°C	cSt	ASTM D445	14.4	▲ 10.1	▲ 10.9	▲ 10.8



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : RW0005365 **Received** : 10 May 2024
Lab Number : 06176223 **Tested** : 16 May 2024
Unique Number : 11022276 **Diagnosed** : 16 May 2024 - Wes Davis
Test Package : MOB 2 (Additional Tests: PercentFuel)

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 HART, MI
 US 49420
 Contact: DAN HALLACK KARL BUTCHER
 shop@hallackcontracting.com

To discuss this sample report, contact Customer Service at 1-800-237-1369.
 * - 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) T: (231)873-5081 F: (231)873-2889