



Machine Id
CATERPILLAR 223-2400
Component
Diesel Engine
Fluid
DIESEL ENGINE OIL SAE 10W30 (--- GAL)

RECOMMENDATION

We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. We advise that you monitor for an abnormal oil pressure drop and noise. 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. We recommend an early resample to monitor this condition. The fluid was not specified, however, a fluid match indicates that this fluid is (GENERIC) DIESEL ENGINE OIL SAE 10W30. Please confirm.

WEAR

Copper ppm levels are severe. Bearing wear is indicated. We have assumed that this component is not breaking in (age of component not reported).

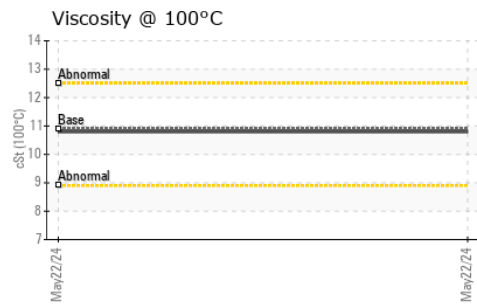
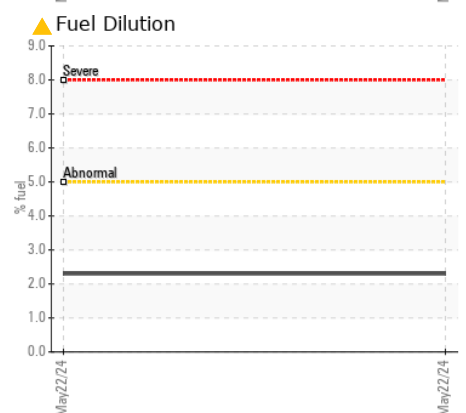
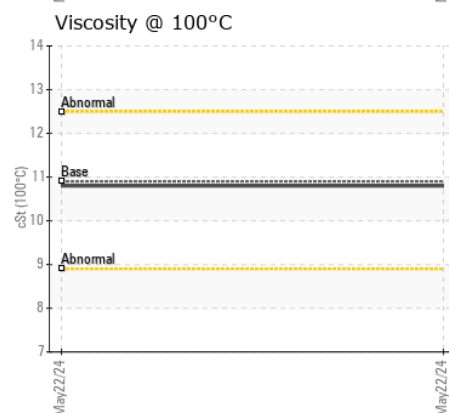
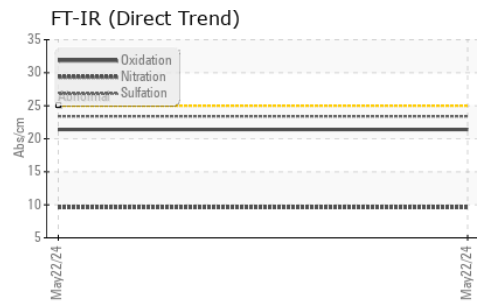
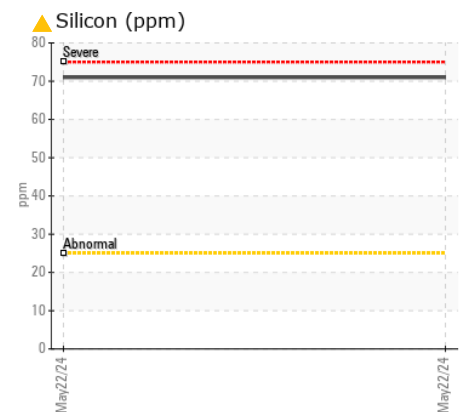
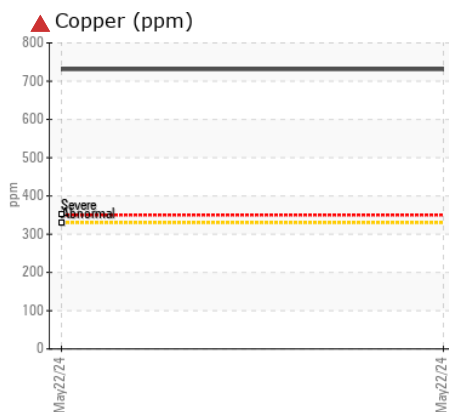
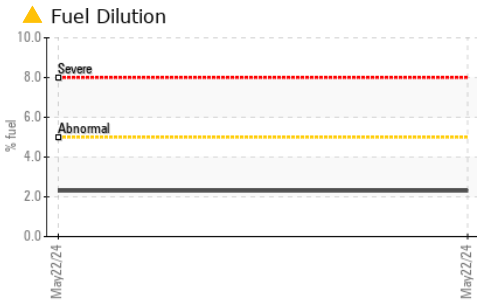
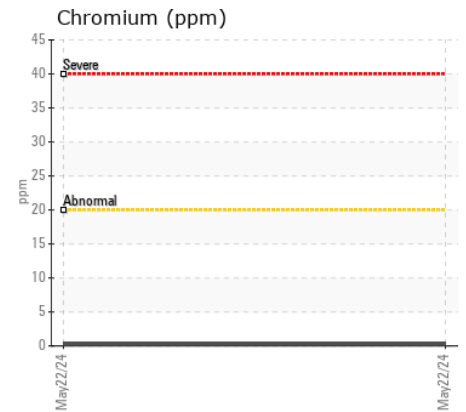
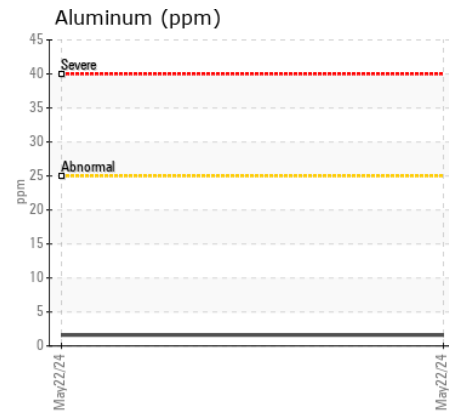
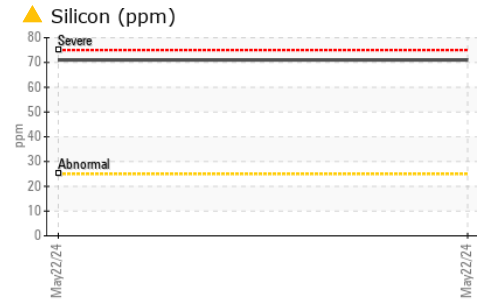
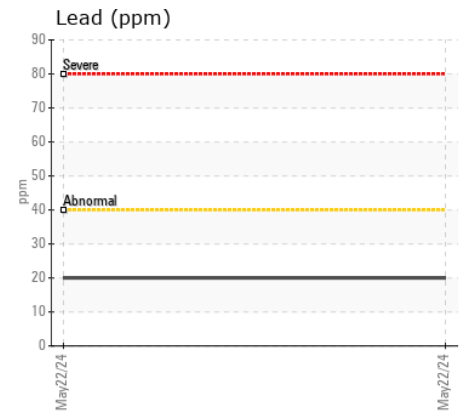
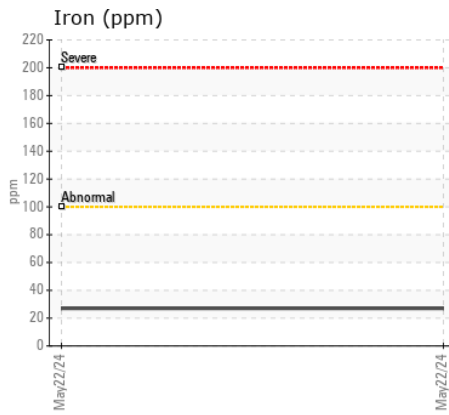
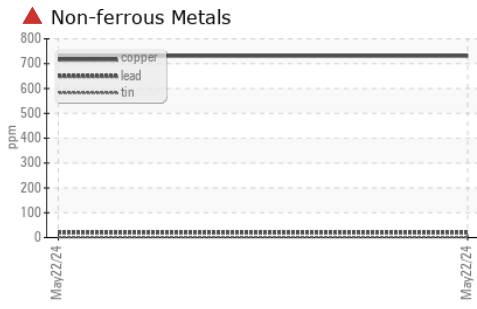
CONTAMINATION

Elevated aluminum (Al) and/or lead (Pb) and potassium (K) levels in your metals analysis are likely a result of solder flux release into the lubricant and is common on new equipment/components. Light fuel dilution occurring. There is a moderate concentration of dirt present in the oil. High amount of ingressed dirt has caused abrasive wear to the component. No other contaminants were detected in the oil.

FLUID CONDITION

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

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		PC0088760	---	---
Sample Date		Client Info		22 May 2024	---	---
Machine Age	kms	Client Info		0	---	---
Oil Age	kms	Client Info		0	---	---
Filter Age	kms	Client Info		0	---	---
Oil Changed		Client Info		N/A	---	---
Filter Changed		Client Info		N/A	---	---
Sample Status				SEVERE	---	---
Iron	ppm	ASTM D5185(m)	>100	27	---	---
Chromium	ppm	ASTM D5185(m)	>20	<1	---	---
Nickel	ppm	ASTM D5185(m)	>2	0	---	---
Titanium	ppm	ASTM D5185(m)	>2	0	---	---
Silver	ppm	ASTM D5185(m)	>2	0	---	---
Aluminum	ppm	ASTM D5185(m)	>25	2	---	---
Lead	ppm	ASTM D5185(m)	>40	20	---	---
Copper	ppm	ASTM D5185(m)	>330	▲ 731	---	---
Tin	ppm	ASTM D5185(m)	>15	2	---	---
Vanadium	ppm	ASTM D5185(m)		0	---	---
White Metal	scalar	Visual*	NONE	NONE	---	---
Yellow Metal	scalar	Visual*	NONE	NONE	---	---
Silicon	ppm	ASTM D5185(m)	>25	▲ 71	---	---
Potassium	ppm	ASTM D5185(m)	>20	3	---	---
Fuel	%	ASTM D7593*	>5	▲ 2.3	---	---
Water		WC Method	>0.2	NEG	---	---
Glycol		WC Method		NEG	---	---
Soot %	%	ASTM D7844*	>3	0.2	---	---
Nitration	Abs/cm	ASTM D7624*	>20	9.6	---	---
Sulfation	Abs/.1mm	ASTM D7415*	>30	23.4	---	---
Silt	scalar	Visual*	NONE	VLITE	---	---
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*	>0.2	NEG	---	---
Sodium	ppm	ASTM D5185(m)		5	---	---
Boron	ppm	ASTM D5185(m)	250	28	---	---
Barium	ppm	ASTM D5185(m)	10	2	---	---
Molybdenum	ppm	ASTM D5185(m)	100	41	---	---
Manganese	ppm	ASTM D5185(m)		2	---	---
Magnesium	ppm	ASTM D5185(m)	450	546	---	---
Calcium	ppm	ASTM D5185(m)	3000	1548	---	---
Phosphorus	ppm	ASTM D5185(m)	1150	901	---	---
Zinc	ppm	ASTM D5185(m)	1350	1043	---	---
Sulfur	ppm	ASTM D5185(m)	4250	2140	---	---
Oxidation	Abs/.1mm	ASTM D7414*	>25	21.4	---	---
Visc @ 40°C	cSt	ASTM D7279(m)	73	70.0	---	---
Visc @ 100°C	cSt	ASTM D7279(m)	10.9	10.8	---	---
Viscosity Index (VI)	Scale	ASTM D2270*	138	143	---	---



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PC0088760 **Received** : 29 May 2024
Lab Number : 02638351 **Tested** : 30 May 2024
Unique Number : 5787513 **Diagnosed** : 30 May 2024 - Kevin Marson
Test Package : MOB 1 (Additional Tests: FuelDilution, KV40, PercentFuel, VI, Visual)

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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.