



# OIL ANALYSIS REPORT

WEAR	<b>NORMAL</b>
CONTAMINATION	<b>NORMAL</b>
FLUID CONDITION	<b>NORMAL</b>



Machine Id  
**CATERPILLAR D4K2 002117 (S/N KR202630)**  
Component  
**Diesel Engine**  
Fluid  
**CASTROL HYPURON 15W40 (3 GAL)**

## RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>WC0800512</b>	WC0758007	WC0701071
Sample Date		Client Info		<b>07 Dec 2023</b>	31 Mar 2023	07 Oct 2022
Machine Age	hrs	Client Info		<b>5693</b>	5242	4731
Oil Age	hrs	Client Info		<b>451</b>	511	521
Filter Age	hrs	Client Info		<b>451</b>	511	521
Oil Changed		Client Info		<b>Changed</b>	Changed	Changed
Filter Changed		Client Info		<b>Changed</b>	Changed	Changed
Sample Status				<b>NORMAL</b>	NORMAL	NORMAL

## WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	<b>60</b>	49	34
Chromium	ppm	ASTM D5185m	>20	<b>1</b>	0	<1
Nickel	ppm	ASTM D5185m	>2	<b>&lt;1</b>	0	0
Titanium	ppm	ASTM D5185m	>2	<b>&lt;1</b>	0	<1
Silver	ppm	ASTM D5185m	>2	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>25	<b>8</b>	5	6
Lead	ppm	ASTM D5185m	>40	<b>&lt;1</b>	0	0
Copper	ppm	ASTM D5185m	>330	<b>2</b>	3	12
Tin	ppm	ASTM D5185m	>15	<b>&lt;1</b>	0	<1
Vanadium	ppm	ASTM D5185m		<b>&lt;1</b>	0	0
White Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE

## CONTAMINATION

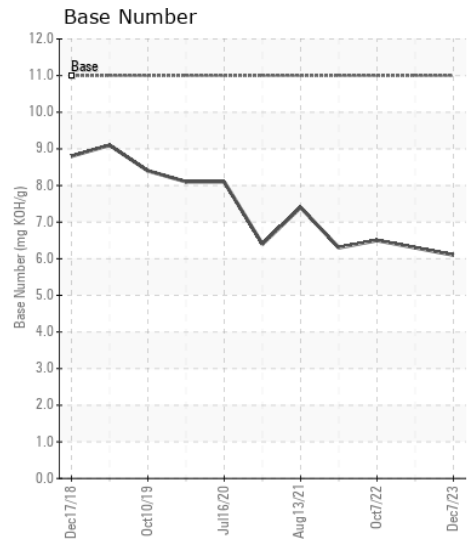
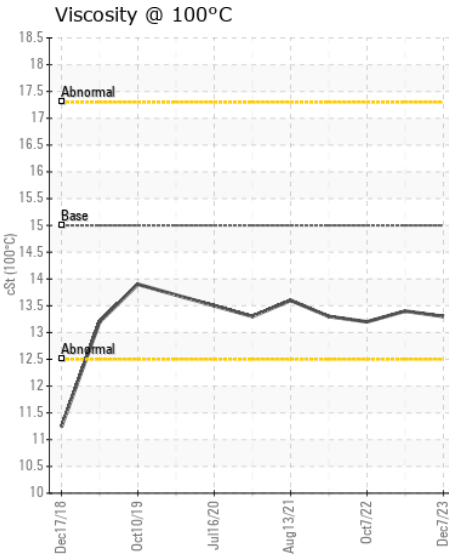
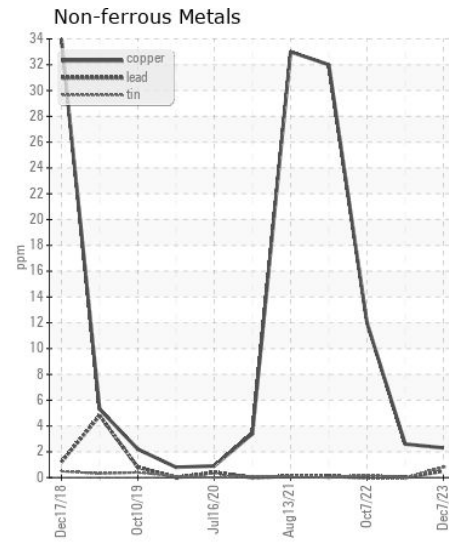
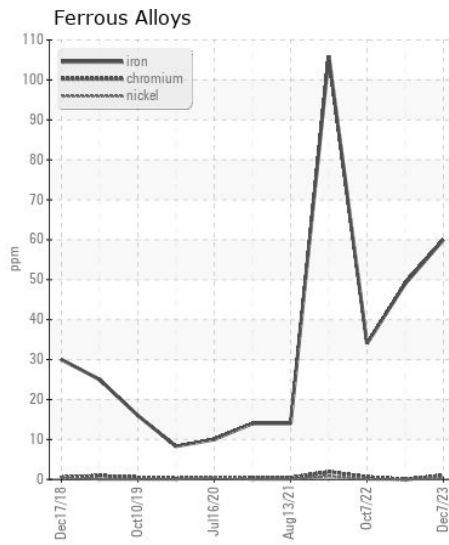
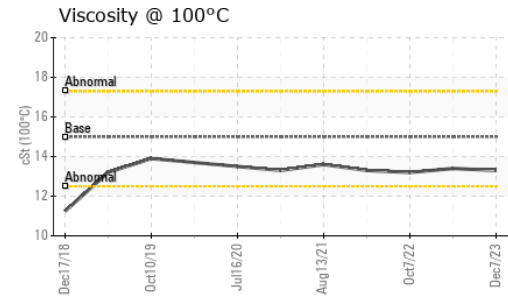
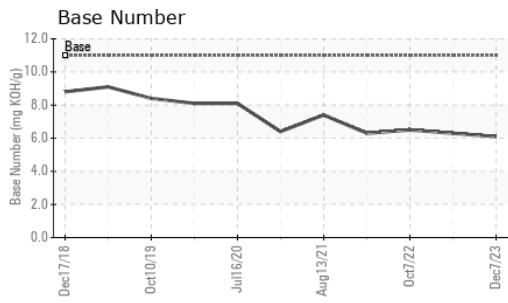
There is no indication of any contamination in the oil.

Silicon	ppm	ASTM D5185m	>25	<b>8</b>	6	6
Potassium	ppm	ASTM D5185m	>20	<b>&lt;1</b>	0	2
Fuel		WC Method	>5	<b>&lt;1.0</b>	<1.0	<1.0
Water		WC Method	>0.2	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844	>3	<b>0.2</b>	0.2	0.2
Nitration	Abs/cm	*ASTM D7624	>20	<b>9.8</b>	9.8	10.5
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>19.3</b>	19.9	21.5
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	*Visual	NONE	<b>LIGHT</b>	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Appearance	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Odor	scalar	*Visual	NORML	<b>NORML</b>	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	<b>NEG</b>	NEG	NEG

## FLUID CONDITION

The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m		<b>5</b>	3	3
Boron	ppm	ASTM D5185m		<b>37</b>	37	23
Barium	ppm	ASTM D5185m		<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m		<b>90</b>	89	88
Manganese	ppm	ASTM D5185m		<b>&lt;1</b>	<1	<1
Magnesium	ppm	ASTM D5185m		<b>88</b>	93	107
Calcium	ppm	ASTM D5185m		<b>2015</b>	2168	2160
Phosphorus	ppm	ASTM D5185m		<b>1059</b>	959	940
Zinc	ppm	ASTM D5185m		<b>1189</b>	1165	1147
Sulfur	ppm	ASTM D5185m		<b>3560</b>	3900	4219
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>15.4</b>	15.9	16.5
Base Number (BN)	mg KOH/g	ASTM D2896	11	<b>6.1</b>	6.3	6.5
Visc @ 100°C	cSt	ASTM D445	15.0	<b>13.3</b>	13.4	13.2



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : WC0800512 **Received** : 12 Jan 2024  
**Lab Number** : 06060113 **Diagnosed** : 16 Jan 2024  
**Unique Number** : 10831495 **Diagnostician** : Doug Bogart  
**Test Package** : CONST ( Additional Tests: TBN )

**CJ MILLER LLC**  
 2903 DEDE RD  
 FINKSBURG, MD  
 US 21048  
 Contact: JOE ROSS  
 jross@cjmillerllc.com  
 T: (410)239-8006  
 F: (410)239-1051

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)