



**CHALMERS**  
Lubrication Service  
(704) 660-LUBE(5823)

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL



Machine Id  
**CATERPILLAR 322CL 3009 (S/N BKJ00620)**  
Component  
**Diesel Engine**  
Fluid  
**DIESEL ENGINE OIL SAE 15W40 (9 GAL)**

**RECOMMENDATION**

Resample at the next service interval to monitor. Please specify the brand, type, and viscosity of the oil on your next sample.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>CL0005359</b>	CL0005079	CL0004913
Sample Date		Client Info		<b>19 Apr 2024</b>	14 Jan 2024	17 Nov 2023
Machine Age	hrs	Client Info		<b>14290</b>	14000	13795
Oil Age	hrs	Client Info		<b>290</b>	0	0
Filter Age	hrs	Client Info		<b>0</b>	0	0
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>6</b>	2	4
Chromium	ppm	ASTM D5185m	>20	<b>0</b>	<1	0
Nickel	ppm	ASTM D5185m	>2	<b>0</b>	0	<1
Titanium	ppm	ASTM D5185m	>2	<b>0</b>	0	0
Silver	ppm	ASTM D5185m	>2	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>25	<b>2</b>	2	3
Lead	ppm	ASTM D5185m	>40	<b>2</b>	1	1
Copper	ppm	ASTM D5185m	>330	<b>&lt;1</b>	1	<1
Tin	ppm	ASTM D5185m	>15	<b>0</b>	<1	1
Vanadium	ppm	ASTM D5185m		<b>0</b>	<1	<1
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.

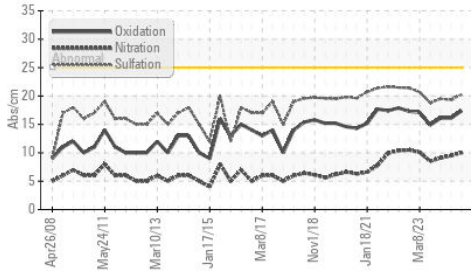
Silicon	ppm	ASTM D5185m	>25	<b>3</b>	3	3
Potassium	ppm	ASTM D5185m	>20	<b>0</b>	2	3
Fuel		WC Method	>5	<b>&lt;1.0</b>	<1.0	<1.0
Water		WC Method	>0.2	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844	>3	<b>0.2</b>	0.1	0.2
Nitration	Abs/cm	*ASTM D7624	>20	<b>10.0</b>	9.5	9.1
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>20.3</b>	19.3	19.5
Silt	scalar	*Visual	NONE	<b>NONE</b>	NONE	NONE
Debris	scalar	*Visual	NONE	<b>NONE</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**

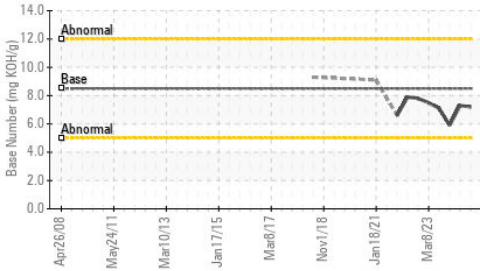
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m	>158	<b>1</b>	1	2
Boron	ppm	ASTM D5185m	250	<b>62</b>	60	68
Barium	ppm	ASTM D5185m	10	<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m	100	<b>91</b>	80	66
Manganese	ppm	ASTM D5185m		<b>0</b>	0	<1
Magnesium	ppm	ASTM D5185m	450	<b>26</b>	17	19
Calcium	ppm	ASTM D5185m	3000	<b>2482</b>	2157	2210
Phosphorus	ppm	ASTM D5185m	1150	<b>1074</b>	1012	1072
Zinc	ppm	ASTM D5185m	1350	<b>1390</b>	1231	1210
Sulfur	ppm	ASTM D5185m	4250	<b>4767</b>	3698	3694
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>17.4</b>	16.1	16.1
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	<b>7.2</b>	7.3	5.9
Visc @ 100°C	cSt	ASTM D445	14.4	<b>14.6</b>	14.5	14.7

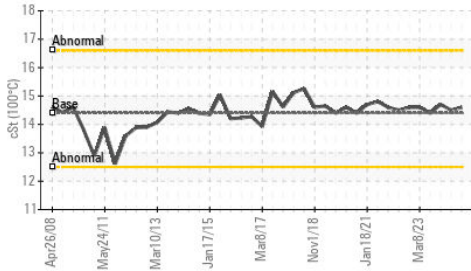
**FT-IR (Direct Trend)**



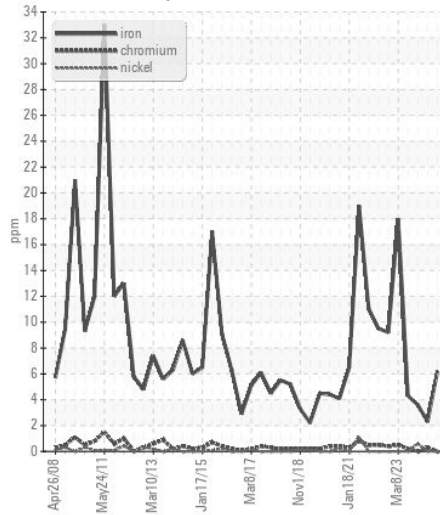
**Base Number**



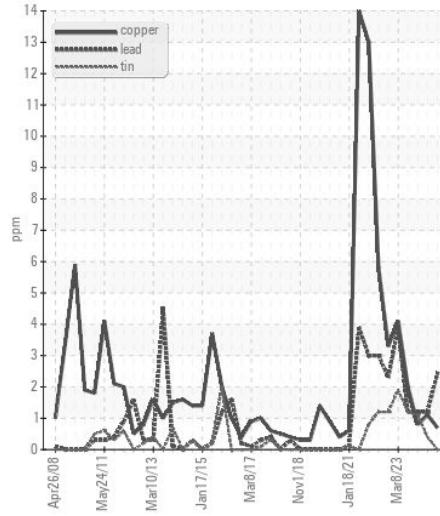
**Viscosity @ 100°C**



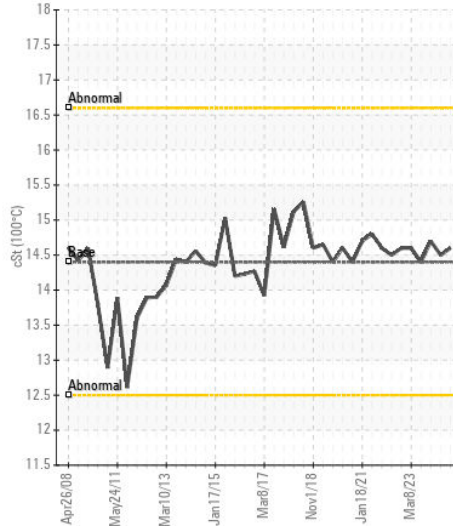
**Ferrous Alloys**



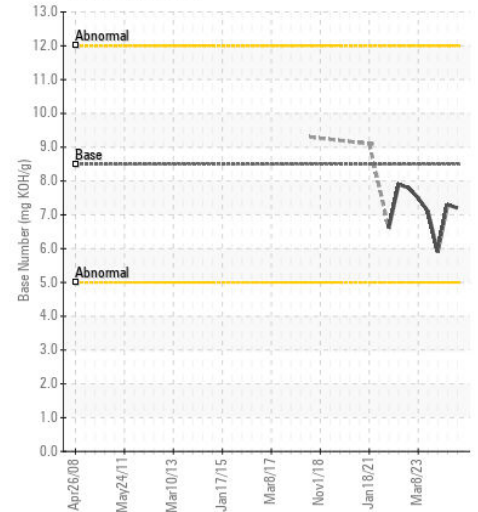
**Non-ferrous Metals**



**Viscosity @ 100°C**



**Base Number**



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513  
**Sample No.** : CL0005359 **Received** : 24 Apr 2024  
**Lab Number** : 06159624 **Tested** : 25 Apr 2024  
**Unique Number** : 10995047 **Diagnosed** : 25 Apr 2024 - Wes Davis  
**Test Package** : CONST ( Additional Tests: TBN )

**PURCELL CONSTRUCTION**  
 3100 HIGH RIDGE RD  
 CHARLOTTE, NC  
 US 28270  
 Contact: BEN MILKE  
 ben@purcellconst.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:  
F: