



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL



Machine Id
207190 CATERPILLAR D5KXL2
Component
Diesel Engine
Fluid
SHELL 15W40 (--- GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		WC0910263	WC0661314	WC77270017
Sample Date		Client Info		18 Jun 2024	22 Oct 2022	26 Feb 2021
Machine Age	hrs	Client Info		5013	4933	3095
Oil Age	hrs	Client Info		500	587	---
Filter Age	hrs	Client Info		500	587	---
Oil Changed		Client Info		Changed	Changed	Not Changd
Filter Changed		Client Info		Changed	Changed	Not Changd
Sample Status				NORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	21	23	9
Chromium	ppm	ASTM D5185m	>20	<1	1	0
Nickel	ppm	ASTM D5185m	>2	0	0	0
Titanium	ppm	ASTM D5185m	>2	10	<1	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>25	6	4	10
Lead	ppm	ASTM D5185m	>40	0	<1	0
Copper	ppm	ASTM D5185m	>330	2	2	2
Tin	ppm	ASTM D5185m	>15	0	<1	0
Vanadium	ppm	ASTM D5185m		<1	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	---
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	---

CONTAMINATION

There is no indication of any contamination in the oil.

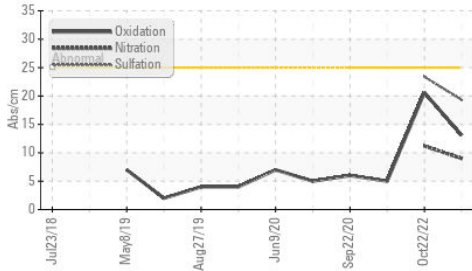
Silicon	ppm	ASTM D5185m	>25	8	8	10
Potassium	ppm	ASTM D5185m	>20	2	0	22
Chlorine	ppm	ASTM D5185m		---	---	0
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	0.0
Soot %	%	*ASTM D7844	>3	0.2	0.7	0.28
Nitration	Abs/cm	*ASTM D7624	>20	9.0	11.2	---
Sulfation	Abs/.1mm	*ASTM D7415	>30	19.3	23.4	---
Silt	scalar	*Visual	NONE	NONE	NONE	---
Debris	scalar	*Visual	NONE	NONE	NONE	---
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	---
Appearance	scalar	*Visual	NORML	NORML	NORML	---
Odor	scalar	*Visual	NORML	NORML	NORML	---
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	---

FLUID CONDITION

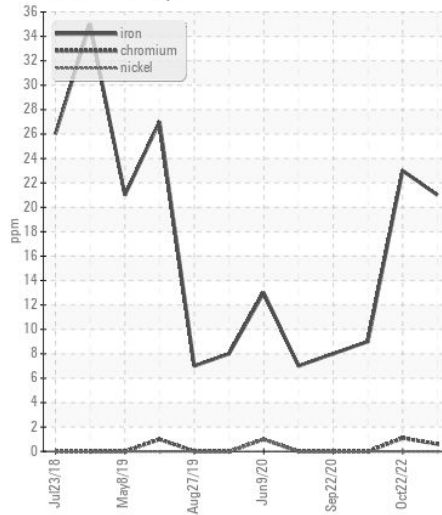
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

Sodium	ppm	ASTM D5185m	>150	2	2	3
Boron	ppm	ASTM D5185m		20	42	57
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		30	73	40
Manganese	ppm	ASTM D5185m		<1	<1	0
Magnesium	ppm	ASTM D5185m		100	222	494
Calcium	ppm	ASTM D5185m		2441	2090	1646
Phosphorus	ppm	ASTM D5185m		1016	925	776
Zinc	ppm	ASTM D5185m		1282	1089	840
Sulfur	ppm	ASTM D5185m		4574	3856	---
Oxidation	Abs/.1mm	*ASTM D7414	>25	13.1	20.6	5
Base Number (BN)	mg KOH/g	ASTM D2896		5.7	8.3	---
Visc @ 100°C	cSt	ASTM D445		12.9	14.0	12.7

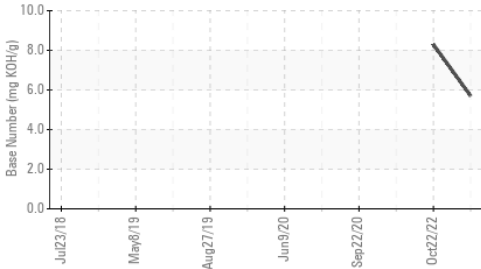
FT-IR (Direct Trend)



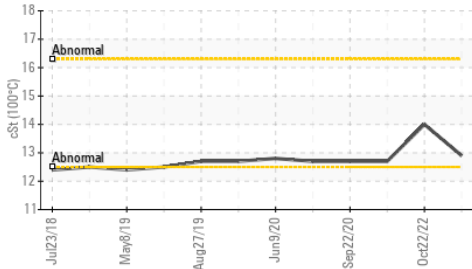
Ferrous Alloys



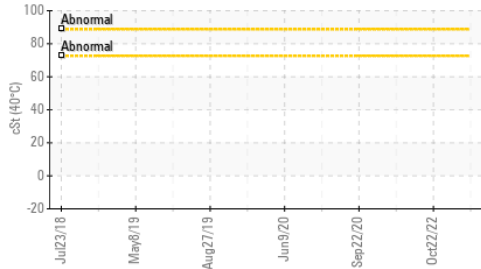
Base Number



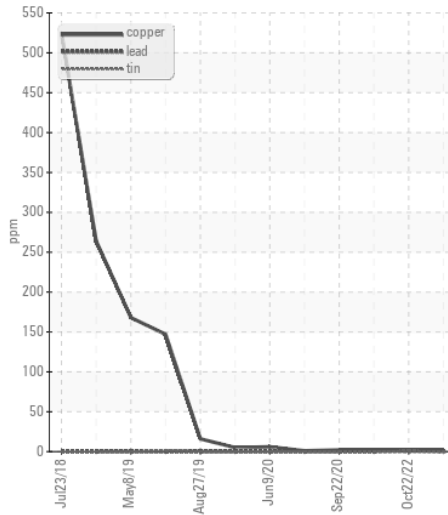
Viscosity @ 100°C



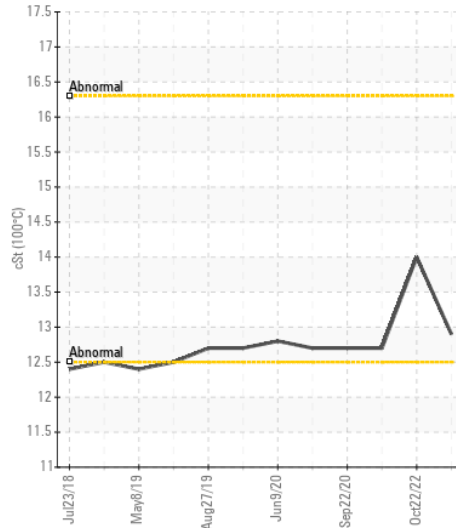
Viscosity @ 40°C



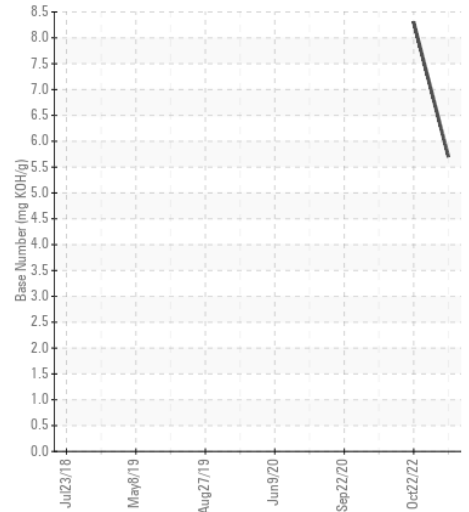
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0910263
Lab Number : 06223302
Unique Number : 11101499
Test Package : FLEET (Additional Tests: KV40)

Received : 28 Jun 2024
Tested : 01 Jul 2024
Diagnosed : 01 Jul 2024 - Don Baldrige

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)

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