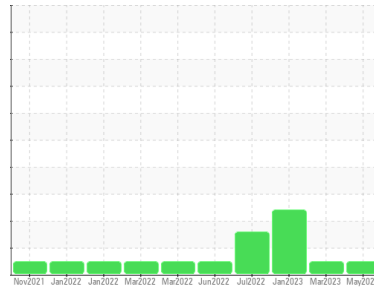




OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Machine Id
72223
 Component
Diesel Engine
 Fluid

CHEVRON DELO 400 MULTIGRADE 15W40 (--- GAL)

DIAGNOSIS

Recommendation

Engine failure.

Wear

All component wear rates are normal. The wear metal levels do not reflect the reported failure.

Contamination

There is no indication of any contamination in the oil.

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.

SAMPLE INFORMATION

Sample Number	Client Info	method	limit/base	current	history1	history2
WC0681072	WC0528541				WC0681160	
Sample Date	Client Info			25 May 2024	08 Mar 2023	27 Jan 2023
Machine Age	hrs	Client Info		0	7795	7124
Oil Age	hrs	Client Info		0	671	941
Oil Changed	Client Info			Not Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	ATTENTION

CONTAMINATION

Fuel	WC Method	limit/base	current	history1	history2
		>5	<1.0	<1.0	<1.0
Water	WC Method	>0.2	NEG	NEG	NEG
Glycol	WC Method		NEG	0.0	NEG

WEAR METALS

Iron	ppm	ASTM D5185m	limit/base	current	history1	history2
			>100	44	23	57
Chromium	ppm	ASTM D5185m	>20	2	2	3
Nickel	ppm	ASTM D5185m	>4	<1	0	0
Titanium	ppm	ASTM D5185m		16	18	19
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	16	11	11
Lead	ppm	ASTM D5185m	>40	<1	<1	<1
Copper	ppm	ASTM D5185m	>330	46	4	6
Tin	ppm	ASTM D5185m	>15	4	<1	0
Vanadium	ppm	ASTM D5185m		<1	<1	<1
Cadmium	ppm	ASTM D5185m		2	0	0

ADDITIVES

Boron	ppm	ASTM D5185m	limit/base	current	history1	history2
			151	88	33	22
Barium	ppm	ASTM D5185m	0.4	<1	0	0
Molybdenum	ppm	ASTM D5185m	250	32	56	154
Manganese	ppm	ASTM D5185m		2	2	2
Magnesium	ppm	ASTM D5185m	0	726	829	749
Calcium	ppm	ASTM D5185m	2046	1655	1784	1685
Phosphorus	ppm	ASTM D5185m	1043	705	754	694
Zinc	ppm	ASTM D5185m	943	833	954	823
Sulfur	ppm	ASTM D5185m	5012	3287	3532	3540

CONTAMINANTS

Silicon	ppm	ASTM D5185m	limit/base	current	history1	history2
			>25	8	8	16
Sodium	ppm	ASTM D5185m		18	131	704
Potassium	ppm	ASTM D5185m	>20	11	23	98

INFRA-RED

Soot %	%	*ASTM D7844	limit/base	current	history1	history2
			>3	0.2	0.4	0.5
Nitration	Abs/cm	*ASTM D7624	>20	9.1	11.0	12.8
Sulfation	Abs/.1mm	*ASTM D7415	>30	19.2	24.5	27.0

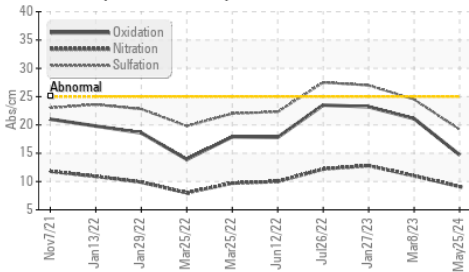
FLUID DEGRADATION

Oxidation	Abs/.1mm	*ASTM D7414	limit/base	current	history1	history2
			>25	14.7	21.1	23.2
Base Number (BN)	mg KOH/g	ASTM D2896	12.5	8.1	6.1	6.5

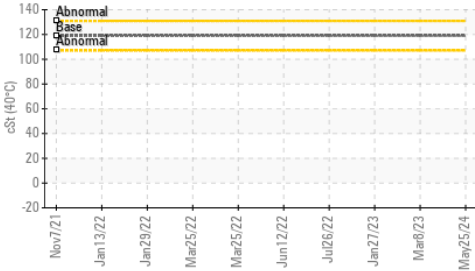


OIL ANALYSIS REPORT

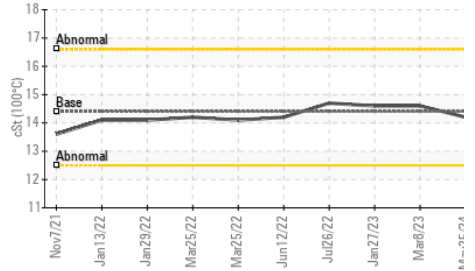
FT-IR (Direct Trend)



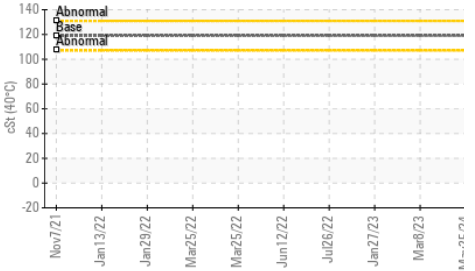
Viscosity @ 40°C



Viscosity @ 100°C



Viscosity @ 40°C

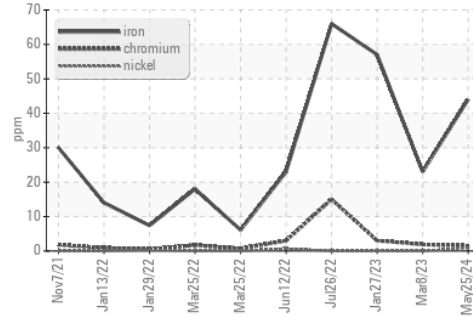


VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG

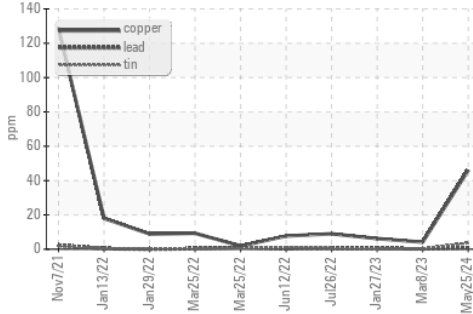
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.4	14.2	14.6

GRAPHS

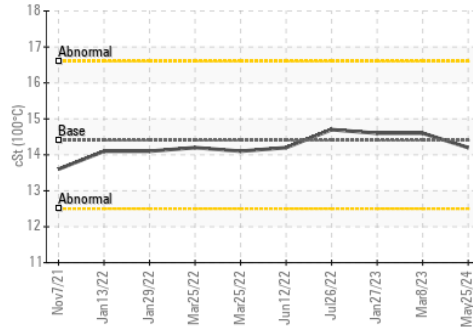
Ferrous Alloys



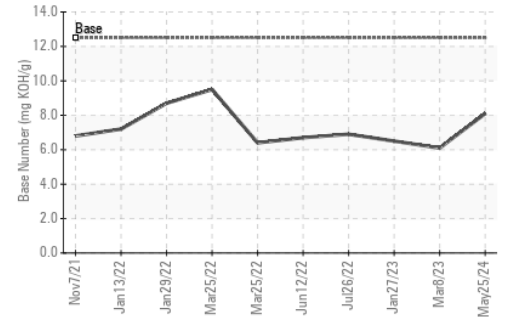
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0681072 **Received** : 13 Jun 2024
Lab Number : 06209522 **Tested** : 17 Jun 2024
Unique Number : 11076983 **Diagnosed** : 17 Jun 2024 - Don Baldrige
Test Package : FLEET (Additional Tests: KV40)

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KOTZEBUE, AK
US 99752
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F: (800)418-0974

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)