



# WEAR CHECK

## OIL ANALYSIS REPORT

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

Machine Id  
**KALMAR 840818**  
 Component  
**Diesel Engine**  
 Fluid  
**CHEVRON DELO 400 MULTIGRADE 15W40 (--- QTS)**

### RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		<b>WC0882045</b>	WC0882094	WC0831748
Sample Date		Client Info		<b>11 Apr 2024</b>	27 Dec 2023	05 Oct 2023
Machine Age	hrs	Client Info		<b>7729</b>	7247	6910
Oil Age	hrs	Client Info		<b>482</b>	456	119
Filter Age	hrs	Client Info		<b>482</b>	456	119
Oil Changed		Client Info		<b>Changed</b>	Changed	Not Changd
Filter Changed		Client Info		<b>Changed</b>	Changed	Not Changd
Sample Status				<b>NORMAL</b>	NORMAL	NORMAL

### WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	<b>44</b>	39	11
Chromium	ppm	ASTM D5185m	>20	<b>&lt;1</b>	<1	<1
Nickel	ppm	ASTM D5185m	>4	<b>0</b>	0	0
Titanium	ppm	ASTM D5185m		<b>&lt;1</b>	0	0
Silver	ppm	ASTM D5185m	>3	<b>0</b>	0	0
Aluminum	ppm	ASTM D5185m	>20	<b>2</b>	2	2
Lead	ppm	ASTM D5185m	>40	<b>&lt;1</b>	0	<1
Copper	ppm	ASTM D5185m	>330	<b>1</b>	<1	<1
Tin	ppm	ASTM D5185m	>15	<b>&lt;1</b>	<1	0
Vanadium	ppm	ASTM D5185m		<b>0</b>	<1	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.

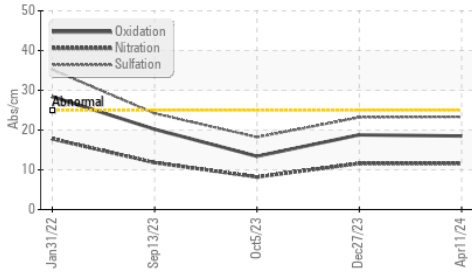
Silicon	ppm	ASTM D5185m	>25	<b>10</b>	9	7
Potassium	ppm	ASTM D5185m	>20	<b>3</b>	1	3
Fuel		WC Method	>5	<b>&lt;1.0</b>	<1.0	<1.0
Water		WC Method	>0.2	<b>NEG</b>	NEG	NEG
Glycol		WC Method		<b>NEG</b>	NEG	NEG
Soot %	%	*ASTM D7844	>3	<b>1.2</b>	1.1	0.4
Nitration	Abs/cm	*ASTM D7624	>20	<b>11.6</b>	11.6	8.2
Sulfation	Abs/.1mm	*ASTM D7415	>30	<b>23.3</b>	23.2	18.2
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

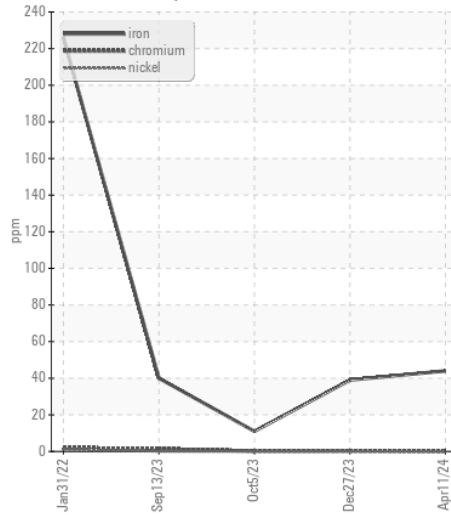
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m		<b>4</b>	2	2
Boron	ppm	ASTM D5185m	151	<b>79</b>	62	116
Barium	ppm	ASTM D5185m	0.4	<b>0</b>	0	0
Molybdenum	ppm	ASTM D5185m	250	<b>10</b>	11	11
Manganese	ppm	ASTM D5185m		<b>1</b>	<1	<1
Magnesium	ppm	ASTM D5185m	0	<b>695</b>	747	720
Calcium	ppm	ASTM D5185m	2046	<b>1295</b>	1424	1421
Phosphorus	ppm	ASTM D5185m	1043	<b>710</b>	708	741
Zinc	ppm	ASTM D5185m	943	<b>786</b>	854	877
Sulfur	ppm	ASTM D5185m	5012	<b>3359</b>	3065	3157
Oxidation	Abs/.1mm	*ASTM D7414	>25	<b>18.5</b>	18.8	13.4
Base Number (BN)	mg KOH/g	ASTM D2896	12.5	<b>6.3</b>	6.0	7.5
Visc @ 100°C	cSt	ASTM D445	14.4	<b>13.8</b>	13.8	14.1

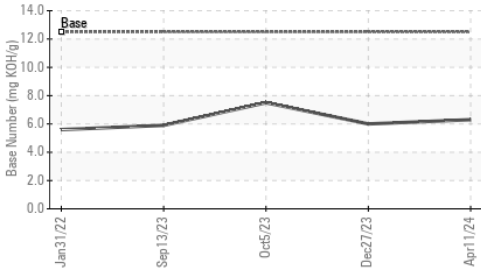
**FT-IR (Direct Trend)**



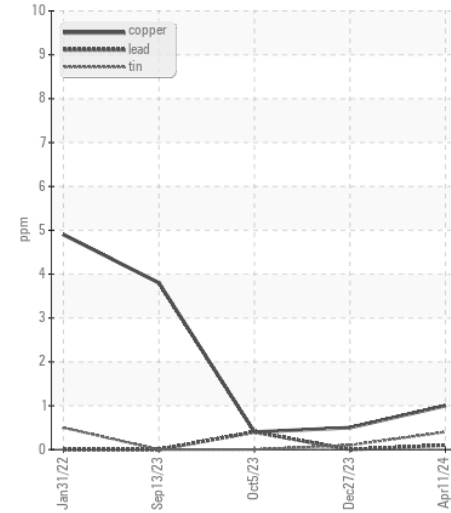
**Ferrous Alloys**



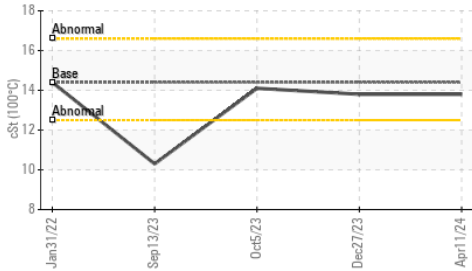
**Base Number**



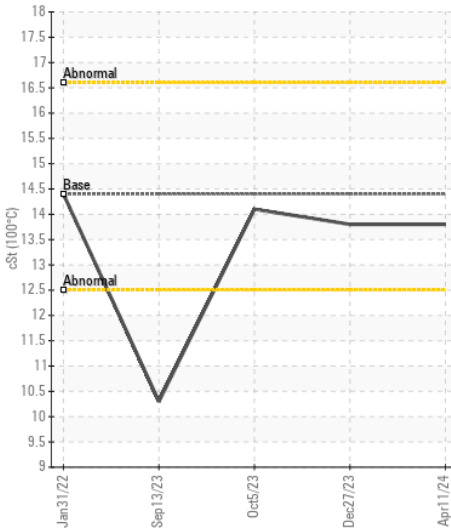
**Non-ferrous Metals**



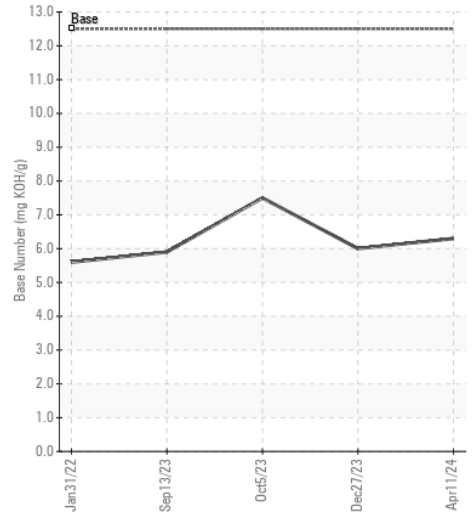
**Viscosity @ 100°C**



**Viscosity @ 100°C**



**Base Number**



Certificate L2367

**Laboratory** : WearCheck USA - 501 Madison Ave., Cary, NC 27513

**Sample No.** : WC0882045

**Lab Number** : 06153695

**Unique Number** : 10983773

**Test Package** : FLEET

**Received** : 18 Apr 2024

**Tested** : 19 Apr 2024

**Diagnosed** : 19 Apr 2024 - Wes Davis

**LTI/MILKY WAY - SEATTLE**

6110 WEST MARGINAL WAY SW

SEATTLE, WA

US 98106

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F:

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)