



WEAR	NORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	NORMAL



Machine Id
TENNESSEE MERCHANT (S/N 29700814)
Component
Port Main Engine
Fluid
CHEVRON DELO 400 MULTIGRADE 15W40 (209 GAL)

RECOMMENDATION

We suspect abnormal contamination may be due to sampling method. No corrective action is recommended at this time. Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		MW0044876	MWM731251	MW0044707
Sample Date		Client Info		14 May 2024	02 Dec 2023	17 Nov 2023
Machine Age	hrs	Client Info		6750	5895	5526
Oil Age	hrs	Client Info		782	1455	1103
Filter Age	hrs	Client Info		782	0	281
Oil Changed		Client Info		Not Changd	Not Changd	Not Changd
Filter Changed		Client Info		N/A	Changed	Not Changd
Sample Status				ABNORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>75	4	8	1
Chromium	ppm	ASTM D5185m	>8	<1	0	0
Nickel	ppm	ASTM D5185m	>2	0	0	0
Titanium	ppm	ASTM D5185m	>3	15	0	12
Silver	ppm	ASTM D5185m	>2	<1	0	0
Aluminum	ppm	ASTM D5185m	>15	3	2	2
Lead	ppm	ASTM D5185m	>18	<1	0	0
Copper	ppm	ASTM D5185m	>80	2	<1	2
Tin	ppm	ASTM D5185m	>14	<1	0	0
Vanadium	ppm	ASTM D5185m		<1	0	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

Moderate concentration of visible dirt/debris present in the oil.

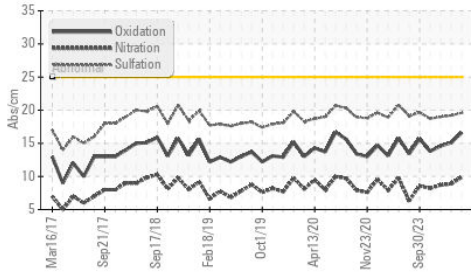
Silicon	ppm	ASTM D5185m	>20	5	6	7
Potassium	ppm	ASTM D5185m	>20	5	1	2
Fuel		WC Method	>4.0	<1.0	<1.0	<1.0
Water		WC Method	>0.1	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844		0.1	0.1	0.1
Nitration	Abs/cm	*ASTM D7624	>20	9.9	8.9	8.7
Sulfation	Abs/.1mm	*ASTM D7415	>30	19.6	19.2	19.0
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	MODER	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.1	NEG	NEG	NEG

FLUID CONDITION

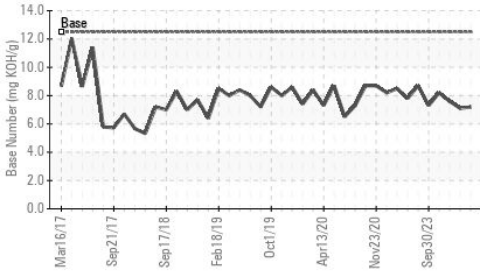
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m	>75	4	27	2
Boron	ppm	ASTM D5185m	151	128	1	116
Barium	ppm	ASTM D5185m	0.4	0	0	0
Molybdenum	ppm	ASTM D5185m	250	35	56	37
Manganese	ppm	ASTM D5185m		0	<1	<1
Magnesium	ppm	ASTM D5185m	0	819	916	738
Calcium	ppm	ASTM D5185m	2046	1704	1061	1438
Phosphorus	ppm	ASTM D5185m	1043	925	1007	692
Zinc	ppm	ASTM D5185m	943	960	1215	824
Sulfur	ppm	ASTM D5185m	5012	3891	2961	2957
Oxidation	Abs/.1mm	*ASTM D7414	>25	16.6	15.1	14.6
Base Number (BN)	mg KOH/g	ASTM D2896	12.5	7.2	7.1	7.6
Visc @ 100°C	cSt	ASTM D445	14.4	14.1	13.8	13.8

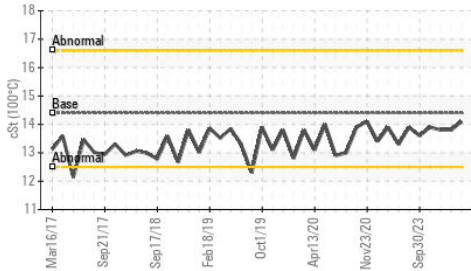
FT-IR (Direct Trend)



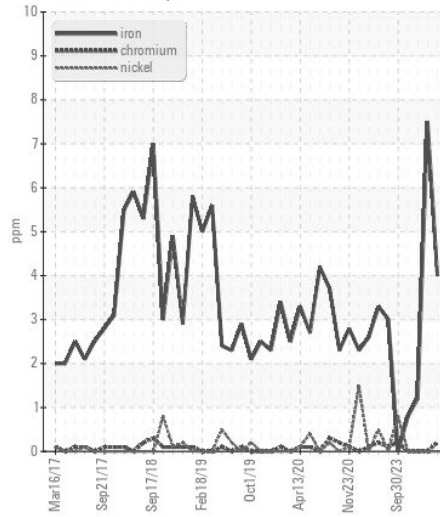
Base Number



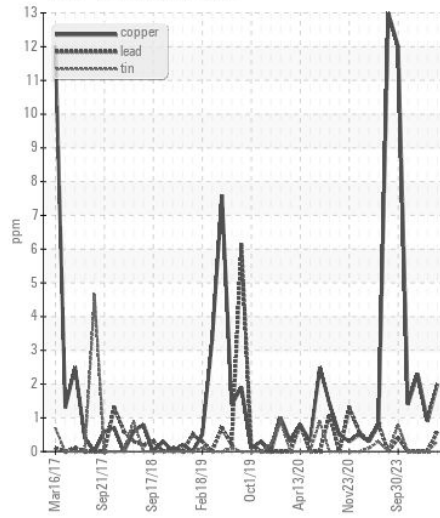
Viscosity @ 100°C



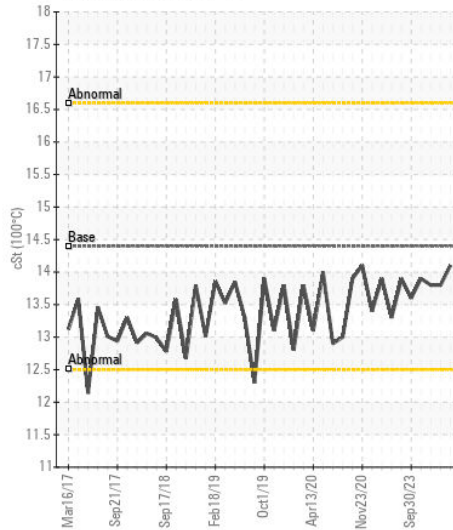
Ferrous Alloys



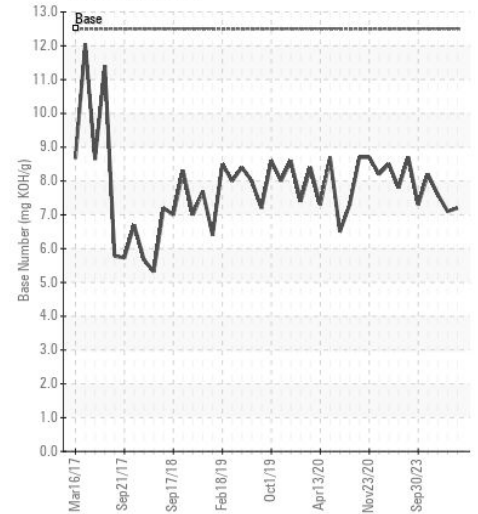
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : MW0044876
Lab Number : 06185885
Unique Number : 11042637
Test Package : MAR 2

Received : 21 May 2024
Tested : 22 May 2024
Diagnosed : 23 May 2024 - Jonathan Hester

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 US 47130
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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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