



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	ABNORMAL

Machine Id
FREIGHTLINER 45291
Component
Diesel Engine
Fluid
SHELL RIMULA SUPER SAE 15W40 (22 QTS)

RECOMMENDATION

The oil change at the time of sampling has been noted. We recommend an early resample to monitor this condition.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		WC0908145	WCMFC00183	WCM1372530
Sample Date		Client Info		15 Apr 2024	06 Nov 2017	16 Sep 2016
Machine Age	mls	Client Info		254484	140212	126828
Oil Age	mls	Client Info		60000	10000	10000
Filter Age	mls	Client Info		60000	10000	10000
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				ABNORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>90	47	17	7
Chromium	ppm	ASTM D5185m	>20	2	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	0	0
Titanium	ppm	ASTM D5185m	>2	0	<1	0
Silver	ppm	ASTM D5185m	>2	0	<1	0
Aluminum	ppm	ASTM D5185m	>20	7	4	3
Lead	ppm	ASTM D5185m	>40	3	2	0
Copper	ppm	ASTM D5185m	>330	1	2	<1
Tin	ppm	ASTM D5185m	>15	<1	0	8
Vanadium	ppm	ASTM D5185m		0	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

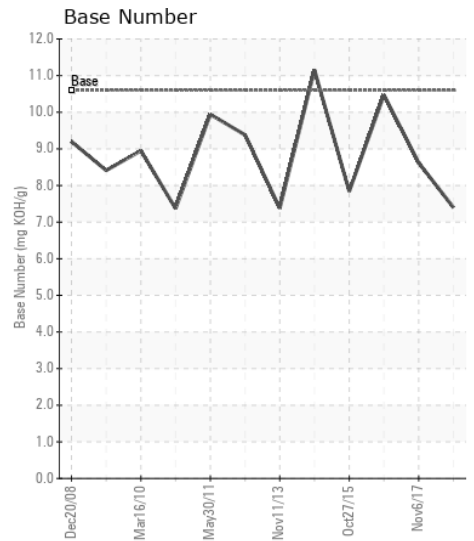
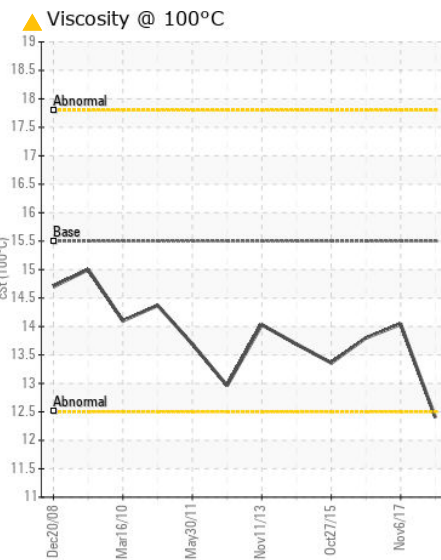
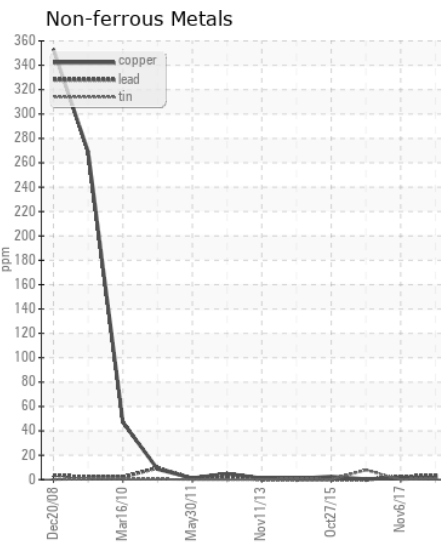
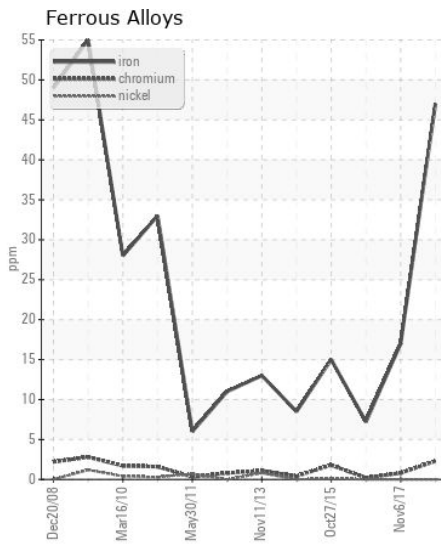
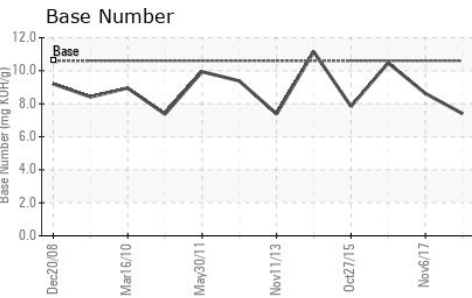
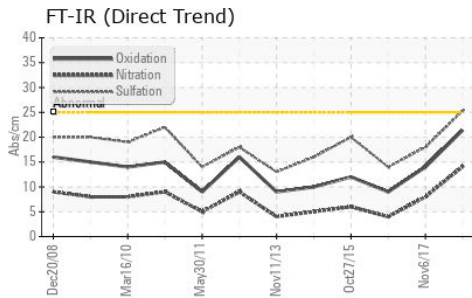
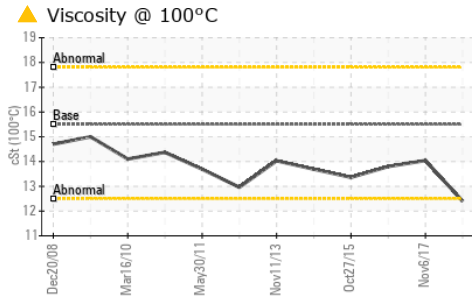
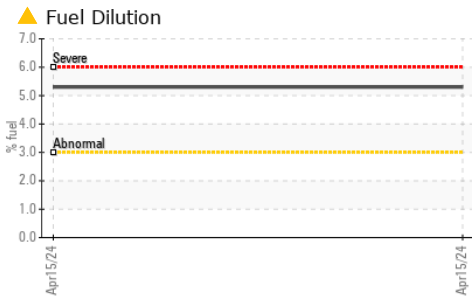
There is a moderate amount of fuel present in the oil. Tests confirm the presence of fuel in the oil.

Silicon	ppm	ASTM D5185m	>25	6	4	2
Potassium	ppm	ASTM D5185m	>20	3	4	4
Fuel	%	ASTM D3524	>3.0	▲ 5.3	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>6	1.7	0.2	0
Nitration	Abs/cm	*ASTM D7624	>20	14.1	8.	4.
Sulfation	Abs/.1mm	*ASTM D7415	>30	25.3	18.	14.
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	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	>0.2	NEG	NEG	NEG

FLUID CONDITION

The BN result indicates that there is suitable alkalinity remaining in the oil. Fuel is present in the oil and is lowering the viscosity. The oil is no longer serviceable due to the presence of contaminants.

Sodium	ppm	ASTM D5185m		1	2	3
Boron	ppm	ASTM D5185m		6	42	161
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m		63	67	68
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m		934	418	353
Calcium	ppm	ASTM D5185m	2840	1074	1885	1712
Phosphorus	ppm	ASTM D5185m	1150	977	1061	948
Zinc	ppm	ASTM D5185m	1270	1195	1218	1092
Sulfur	ppm	ASTM D5185m	2829	3330	2905	2952
Oxidation	Abs/.1mm	*ASTM D7414	>25	21.4	14.	9.
Base Number (BN)	mg KOH/g	ASTM D2896	10.6	7.4	8.62	10.47
Visc @ 100°C	cSt	ASTM D445	15.5	▲ 12.4	14.04	13.8



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0908145 **Received** : 21 May 2024
Lab Number : 06187116 **Tested** : 28 May 2024
Unique Number : 11043868 **Diagnosed** : 28 May 2024 - Wes Davis
Test Package : FLEET (Additional Tests: FuelDilution, PercentFuel)

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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)