



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	ABNORMAL

Machine Id
FREIGHTLINER 821

Component
Front Diesel Engine

Fluid
VALVOLINE PREMIUM BLUE (38 QTS)

RECOMMENDATION

We advise that you check for faulty combustion, plugged air filters, or aftercoolers. Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor. NOTE: High solids (carbon/soot) in the sample have limited the accuracy of Infra-Red data including Total Base Number (TBN) value.

WEAR

All component wear rates are normal.

CONTAMINATION

There is an abnormal amount of solids and carbon present in the oil.

FLUID CONDITION

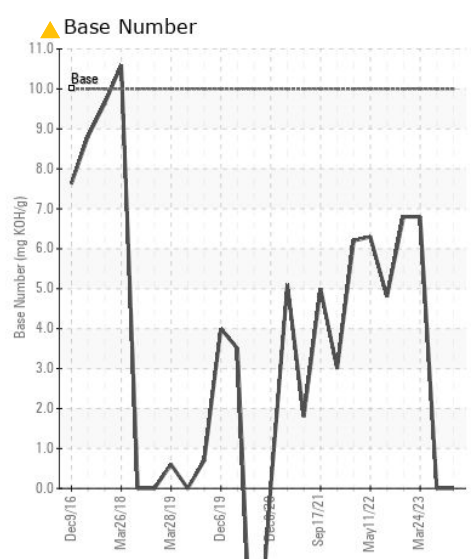
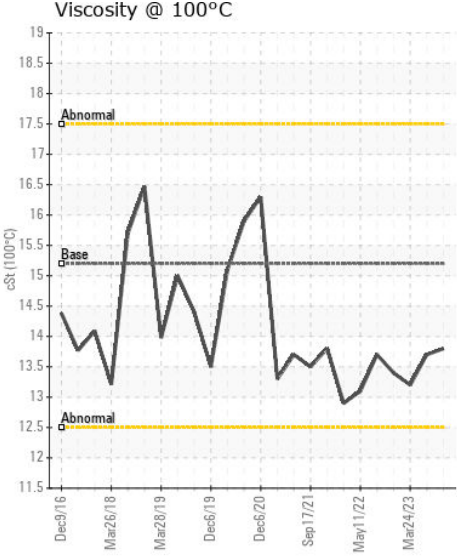
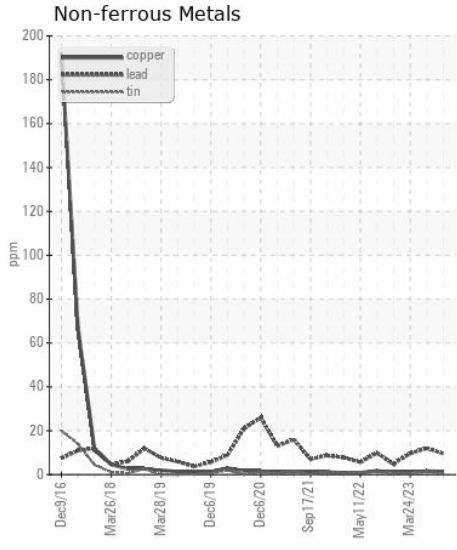
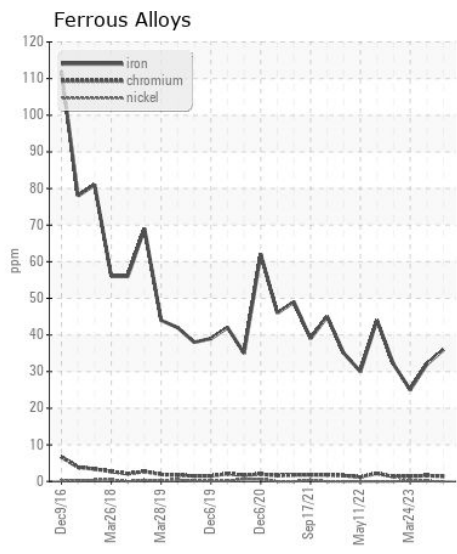
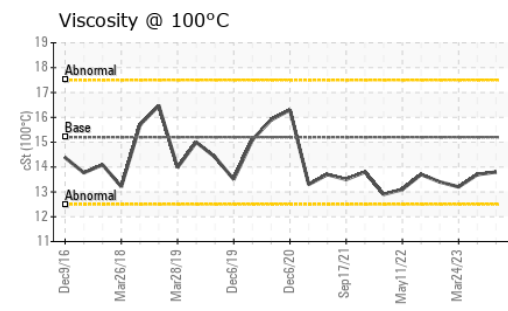
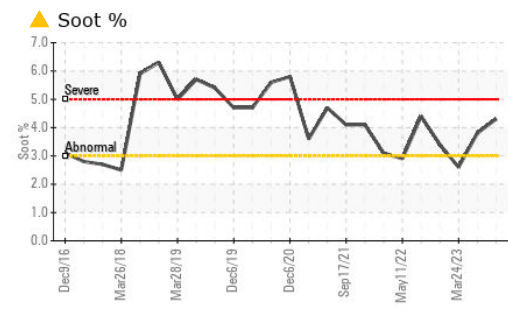
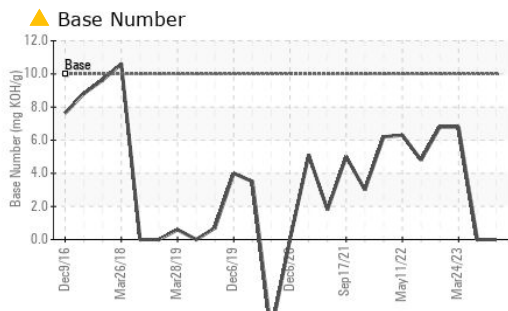
The BN level is low.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		WC0787431	WC0787437	WC0787438
Sample Date		Client Info		17 Oct 2023	23 Jun 2023	24 Mar 2023
Machine Age	mls	Client Info		636000	610000	584000
Oil Age	mls	Client Info		25000	25000	25000
Filter Age	mls	Client Info		25000	25000	25000
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				ABNORMAL	ABNORMAL	NORMAL

Iron	ppm	ASTM D5185m	>200	36	32	25
Chromium	ppm	ASTM D5185m	>20	1	2	1
Nickel	ppm	ASTM D5185m	>2	0	<1	<1
Titanium	ppm	ASTM D5185m	>2	0	<1	0
Silver	ppm	ASTM D5185m	>2	0	<1	0
Aluminum	ppm	ASTM D5185m	>30	1	3	2
Lead	ppm	ASTM D5185m	>30	10	12	10
Copper	ppm	ASTM D5185m	>30	1	2	1
Tin	ppm	ASTM D5185m	>15	<1	1	<1
Vanadium	ppm	ASTM D5185m		<1	<1	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

Silicon	ppm	ASTM D5185m	>30	6	5	4
Potassium	ppm	ASTM D5185m	>20	25	4	3
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	4.3	3.8	2.6
Nitration	Abs/cm	*ASTM D7624	>20	14.9	13.6	11.7
Sulfation	Abs/.1mm	*ASTM D7415	>30	30.9	29.7	26.4
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

Sodium	ppm	ASTM D5185m		9	5	3
Boron	ppm	ASTM D5185m	2.9	22	23	27
Barium	ppm	ASTM D5185m	0.1	0	0	0
Molybdenum	ppm	ASTM D5185m	0.0	54	52	50
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m	18	765	771	837
Calcium	ppm	ASTM D5185m	2936	1281	1269	1257
Phosphorus	ppm	ASTM D5185m	998	710	659	723
Zinc	ppm	ASTM D5185m	1095	860	845	918
Sulfur	ppm	ASTM D5185m	5469	2168	2553	2900
Oxidation	Abs/.1mm	*ASTM D7414	>25	23.5	21.3	21.4
Base Number (BN)	mg KOH/g	ASTM D2896	10.0	0.0	0.0	6.8
Visc @ 100°C	cSt	ASTM D445	15.2	13.8	13.7	13.2



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0787431 **Received** : 12 Jan 2024
Lab Number : 06059974 **Diagnosed** : 16 Jan 2024
Unique Number : 10831356 **Diagnostician** : Don Baldrige
Test Package : FLEET

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Certificate L2367
 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)