



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id
FREIGHTLINER 821
Component
Front Diesel Engine
Fluid
VALVOLINE PREMIUM BLUE (38 QTS)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		WC0876877	WC0878431	WC0878437
Sample Date		Client Info		01 Apr 2024	17 Oct 2023	23 Jun 2023
Machine Age	mls	Client Info		662000	636000	610000
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				NORMAL	ABNORMAL	ABNORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>200	32	36	32
Chromium	ppm	ASTM D5185m	>20	2	1	2
Nickel	ppm	ASTM D5185m	>2	<1	0	<1
Titanium	ppm	ASTM D5185m	>2	0	0	<1
Silver	ppm	ASTM D5185m	>2	0	0	<1
Aluminum	ppm	ASTM D5185m	>30	3	1	3
Lead	ppm	ASTM D5185m	>30	7	10	12
Copper	ppm	ASTM D5185m	>30	0	1	2
Tin	ppm	ASTM D5185m	>15	2	<1	1
Vanadium	ppm	ASTM D5185m		0	<1	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

There is no indication of any contamination in the oil.

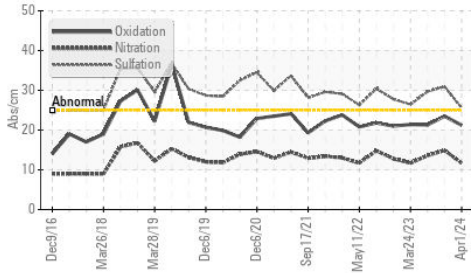
Silicon	ppm	ASTM D5185m	>30	5	6	5
Potassium	ppm	ASTM D5185m	>20	3	25	4
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	2.4	▲ 4.3	▲ 3.8
Nitration	Abs/cm	*ASTM D7624	>20	11.7	14.9	13.6
Sulfation	Abs/.1mm	*ASTM D7415	>30	25.6	30.9	29.7
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

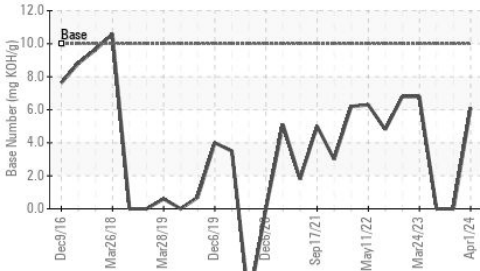
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m		5	9	5
Boron	ppm	ASTM D5185m	2.9	29	22	23
Barium	ppm	ASTM D5185m	0.1	0	0	0
Molybdenum	ppm	ASTM D5185m	0.0	51	54	52
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m	18	815	765	771
Calcium	ppm	ASTM D5185m	2936	1244	1281	1269
Phosphorus	ppm	ASTM D5185m	998	764	710	659
Zinc	ppm	ASTM D5185m	1095	924	860	845
Sulfur	ppm	ASTM D5185m	5469	2807	2168	2553
Oxidation	Abs/.1mm	*ASTM D7414	>25	21.2	23.5	21.3
Base Number (BN)	mg KOH/g	ASTM D2896	10.0	6.1	▲ 0.0	▲ 0.0
Visc @ 100°C	cSt	ASTM D445	15.2	13.1	13.8	13.7

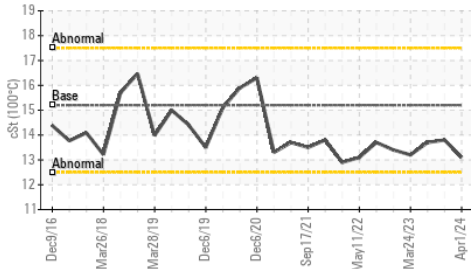
FT-IR (Direct Trend)



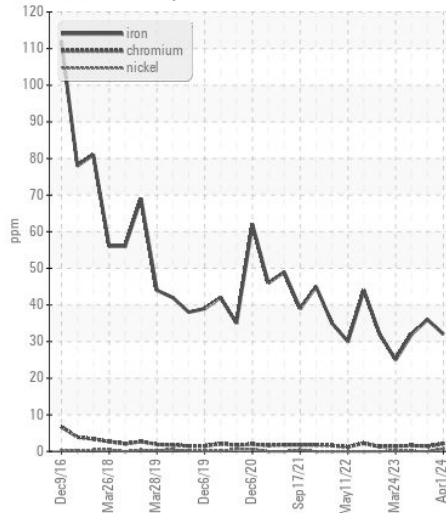
Base Number



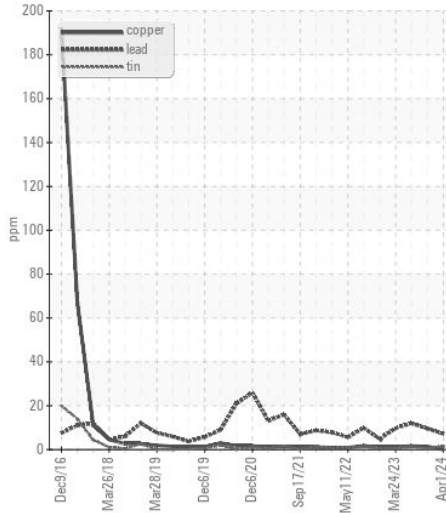
Viscosity @ 100°C



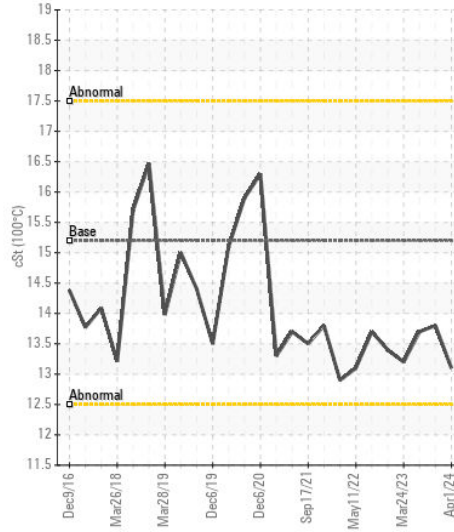
Ferrous Alloys



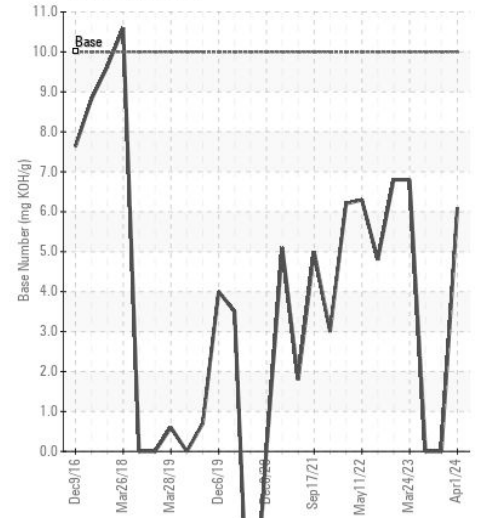
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : WC0876877
Lab Number : 06146414
Unique Number : 10976492
Test Package : FLEET

ROUTH TRANSPORTATION INC
 2830 BENNY LINEBERRY RD
 CLIMAX, NC
 US 27233

Contact: BRAD ROUTH
 routhtra@bellsouth.net

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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