



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	SEVERE
FLUID CONDITION	NORMAL

Area
DIAMOND EXPRESS TRANSPORTATION

Machine Id
PETERBILT TRUCK 74

Component
Diesel Engine

Fluid
SHELL ROTELLA T3 15W40 (--- QTS)

RECOMMENDATION

We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. The filter change at the time of sampling has been noted. Resample in 30-45 days to monitor this situation.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		KL0008986	KL0012708	KL0012709
Sample Date		Client Info		19 Feb 2024	22 Jan 2024	07 Nov 2023
Machine Age	mls	Client Info		720097	710036	700237
Oil Age	mls	Client Info		29537	19536	9677
Filter Age	mls	Client Info		10000	9799	9677
Oil Changed		Client Info		Not Chngd	Not Chngd	Not Chngd
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				SEVERE	ABNORMAL	ABNORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>165	38	37	16
Chromium	ppm	ASTM D5185m	>5	2	2	1
Nickel	ppm	ASTM D5185m	>4	<1	0	0
Titanium	ppm	ASTM D5185m	>2	6	6	3
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	8	8	3
Lead	ppm	ASTM D5185m	>150	7	4	<1
Copper	ppm	ASTM D5185m	>90	1	3	<1
Tin	ppm	ASTM D5185m	>5	2	<1	0
Vanadium	ppm	ASTM D5185m		<1	<1	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

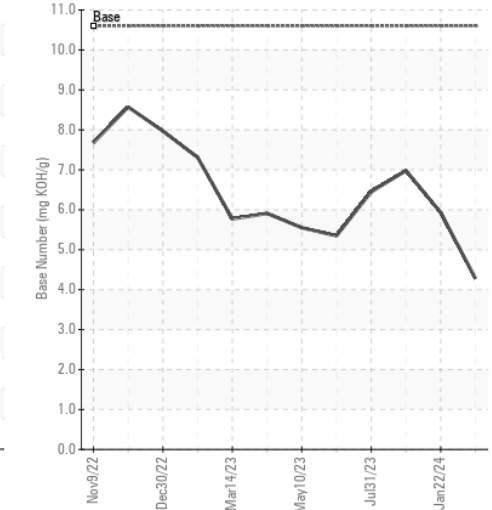
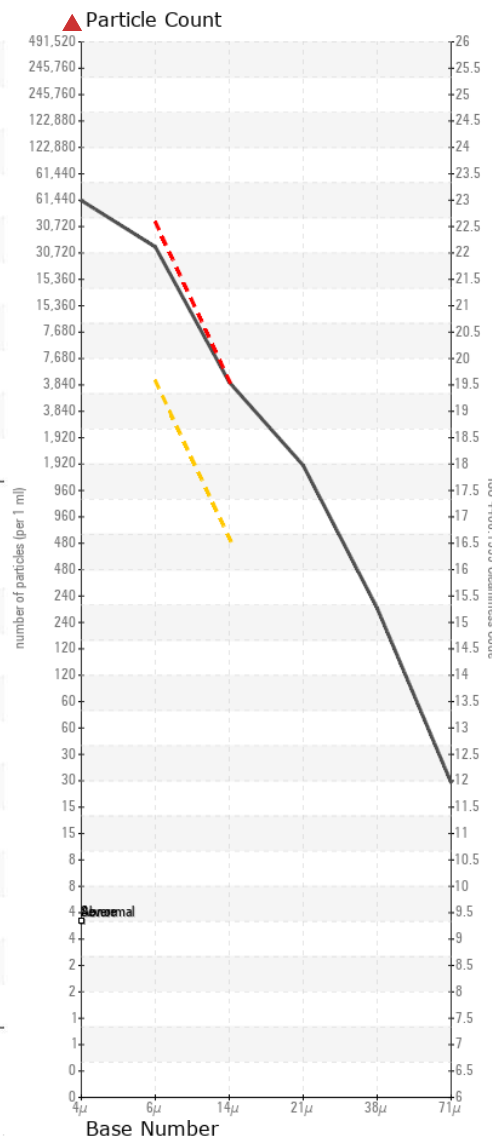
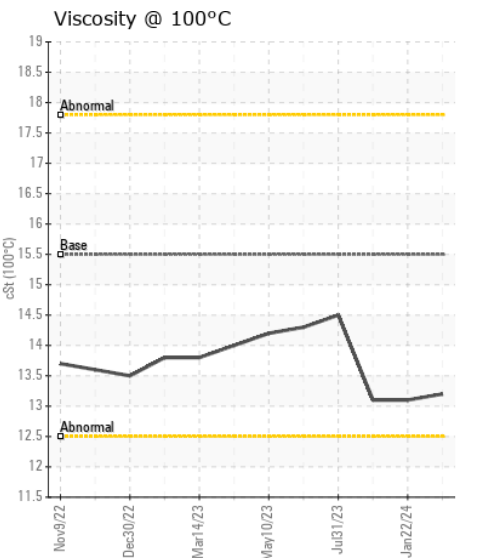
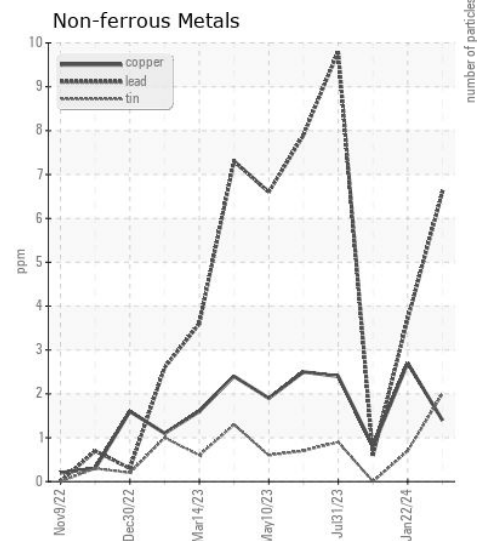
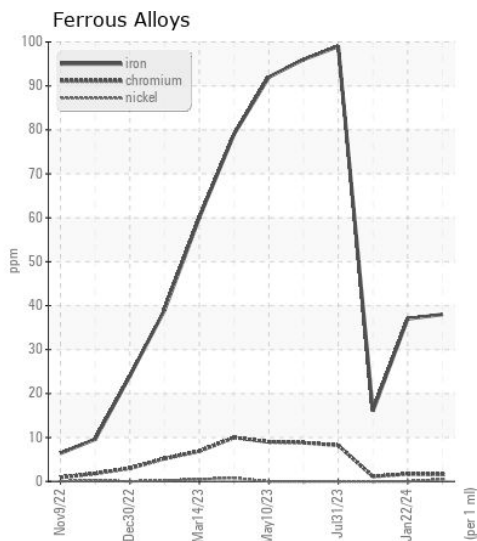
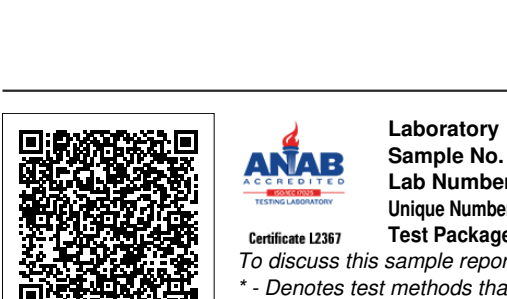
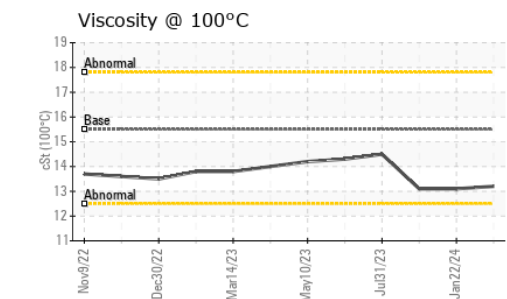
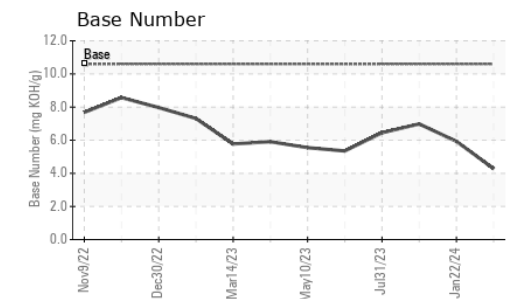
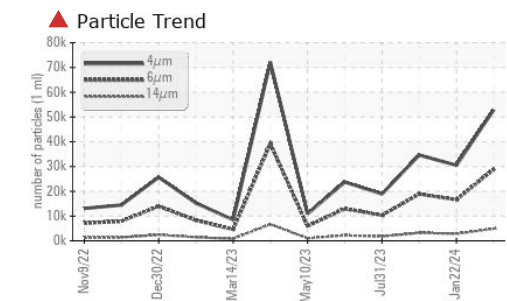
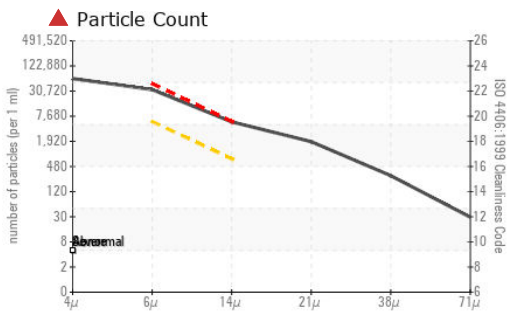
There is a high amount of particulates (2 to 100 microns in size) present in the oil.

Silicon	ppm	ASTM D5185m	>35	7	7	4
Potassium	ppm	ASTM D5185m	>20	14	17	5
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	>7.5	0.5	0.4	0.3
Nitration	Abs/cm	*ASTM D7624	>20	10.5	10.1	8.7
Sulfation	Abs/.1mm	*ASTM D7415	>30	26.2	24.2	20.5
Particles >4µm		ASTM D7647		52877	30501	34625
Particles >6µm		ASTM D7647	>5000	▲ 28805	▲ 16616	▲ 18862
Particles >14µm		ASTM D7647	>640	▲ 4902	▲ 2828	▲ 3210
Particles >21µm		ASTM D7647	>160	▲ 1651	▲ 953	▲ 1081
Particles >38µm		ASTM D7647	>40	▲ 255	▲ 147	▲ 167
Particles >71µm		ASTM D7647	>10	▲ 26	▲ 15	▲ 17
Oil Cleanliness		ISO 4406 (c)	>19/16	▲ 22/19	▲ 21/19	▲ 21/19
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.

Sodium	ppm	ASTM D5185m		4	1	2
Boron	ppm	ASTM D5185m	10	11	18	21
Barium	ppm	ASTM D5185m	0	0	0	0
Molybdenum	ppm	ASTM D5185m	10	13	18	13
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m	10	125	131	101
Calcium	ppm	ASTM D5185m	2600	2557	2819	2196
Phosphorus	ppm	ASTM D5185m	1050	956	1062	949
Zinc	ppm	ASTM D5185m	1250	1355	1466	1131
Sulfur	ppm	ASTM D5185m	3900	3663	4496	3406
Oxidation	Abs/.1mm	*ASTM D7414	>25	19.3	16.3	14.5
Base Number (BN)	mg KOH/g	ASTM D2896	10.6	4.28	5.93	6.98
Visc @ 100°C	cSt	ASTM D445	15.5	13.2	13.1	13.1



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : KL0008986 **Received** : 28 Feb 2024
Lab Number : 06103808 **Tested** : 29 Feb 2024
Unique Number : 10902038 **Diagnosed** : 29 Feb 2024 - Wes Davis
Test Package : MOB 2 (Additional Tests: PrtCount)

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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)