



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	SEVERE
FLUID CONDITION	ABNORMAL

**SOLD LOCATIONS - LESCAM - CAMBRIDGE**

Area

Machine Id

1071

Component

Diesel Engine

Fluid

SHELL ROTELLA T 15W40 (--- GAL)

**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. We recommend an early resample to monitor this condition. NOTE: High solids (carbon/soot) in the sample have limited the accuracy of Infra-Red data including Total Base Number (TBN) value.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		LEC0049557	LEC0044141	LEC0035664
Sample Date		Client Info		02 May 2024	26 Oct 2023	19 Nov 2022
Machine Age	mls	Client Info		428860	416296	396591
Oil Age	mls	Client Info		10000	10000	10000
Filter Age	mls	Client Info		10000	10000	10000
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				SEVERE	SEVERE	SEVERE

**WEAR**

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	31	20	27
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	0	0	0
Titanium	ppm	ASTM D5185m		<1	<1	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	3	2	4
Lead	ppm	ASTM D5185m	>40	6	3	7
Copper	ppm	ASTM D5185m	>330	2	4	2
Tin	ppm	ASTM D5185m	>15	0	0	<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 an abnormal amount of solids and carbon present in the oil.

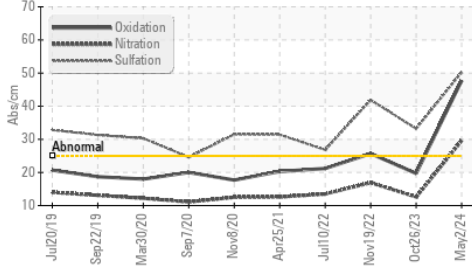
Silicon	ppm	ASTM D5185m	>120	5	6	5
Potassium	ppm	ASTM D5185m	>20	<1	0	6
Fuel	%	ASTM D3524	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	▲ 7.3	▲ 5.8	▲ 8.1
Nitration	Abs/cm	*ASTM D7624	>20	29.6	12.6	16.9
Sulfation	Abs/.1mm	*ASTM D7415	>30	50.2	33.2	41.9
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**

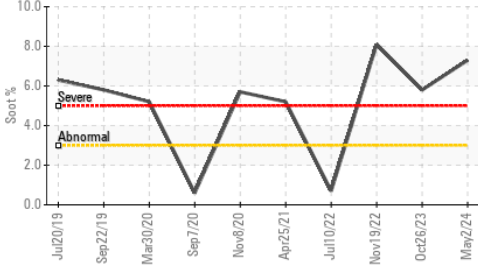
The oil viscosity is higher than normal. The BN level is low. The oil is no longer serviceable due to the presence of contaminants.

Sodium	ppm	ASTM D5185m		2	2	<1
Boron	ppm	ASTM D5185m	316	214	230	177
Barium	ppm	ASTM D5185m	0.0	0	0	0
Molybdenum	ppm	ASTM D5185m	1.2	127	121	111
Manganese	ppm	ASTM D5185m		<1	<1	<1
Magnesium	ppm	ASTM D5185m	24	639	596	621
Calcium	ppm	ASTM D5185m	2292	1646	1408	1593
Phosphorus	ppm	ASTM D5185m	1064	754	573	732
Zinc	ppm	ASTM D5185m	1160	898	751	884
Sulfur	ppm	ASTM D5185m	4996	2816	2101	2951
Oxidation	Abs/.1mm	*ASTM D7414	>25	47.7	19.7	25.7
Base Number (BN)	mg KOH/g	ASTM D2896	10.1	▲ 0.0	▲ 0.0	▲ 0.0
Visc @ 100°C	cSt	ASTM D445	15.7	▲ 17.9	▲ 16.1	▲ 17.8

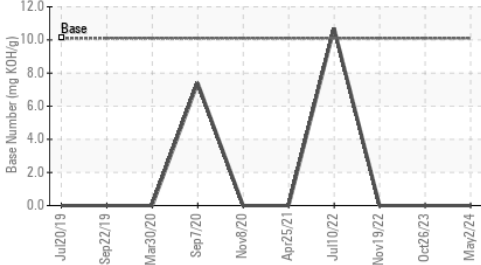
▲ FT-IR (Direct Trend)



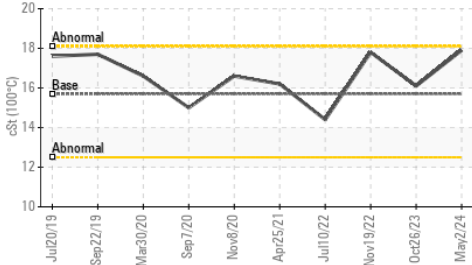
▲ Soot %



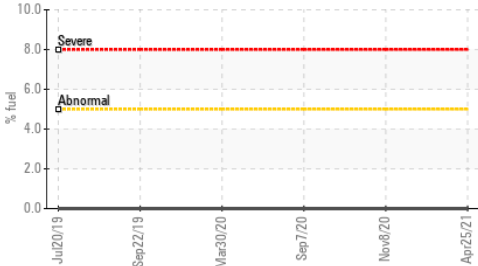
▲ Base Number



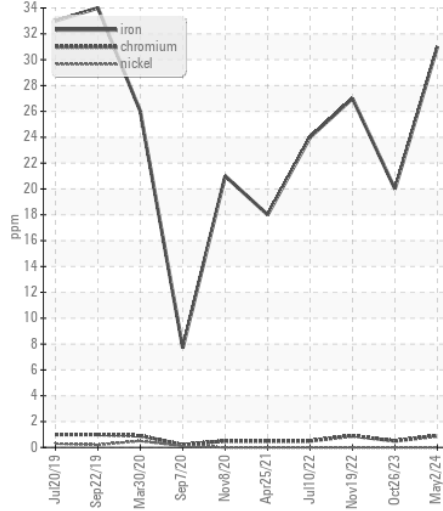
▲ Viscosity @ 100°C



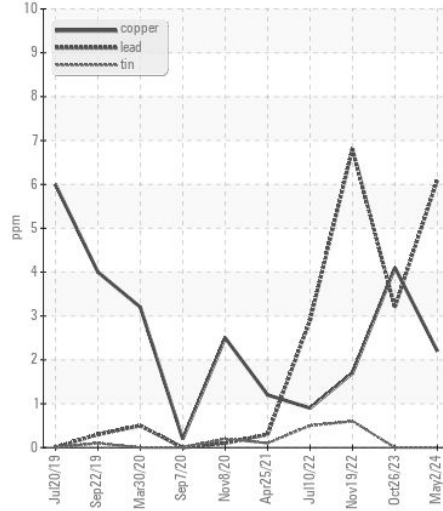
Fuel Dilution



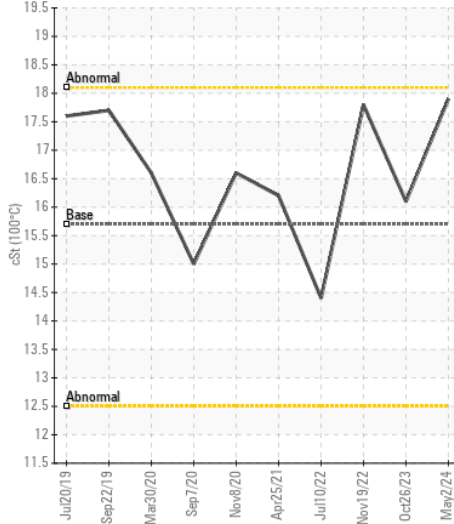
Ferrous Alloys



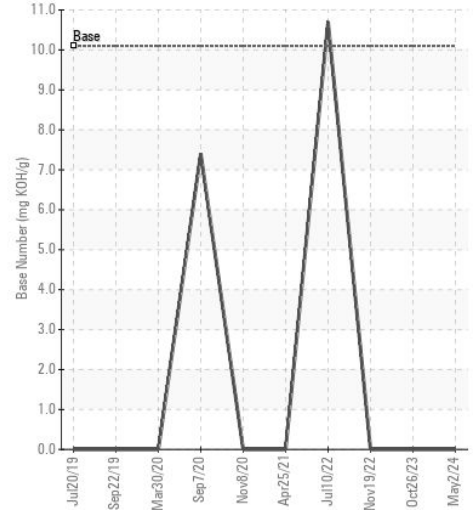
Non-ferrous Metals



▲ Viscosity @ 100°C



▲ Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513

Sample No. : LEC0049557

Lab Number : 06176979

Unique Number : 11023032

Test Package : CONST ( Additional Tests: FuelDilution, TBN )

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)

Received : 13 May 2024

Tested : 14 May 2024

Diagnosed : 14 May 2024 - Don Baldrige

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