



WEAR	NORMAL
CONTAMINATION	ABNORMAL
FLUID CONDITION	NORMAL

Machine Id
109219
Component
Diesel Engine
Fluid
SHELL ROTELLA T 15W40 (--- QTS)

RECOMMENDATION

Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		IL0032927	IL0027564	IL0027740
Sample Date		Client Info		01 Jul 2024	26 Apr 2023	24 Oct 2022
Machine Age	mls	Client Info		385839	341339	317433
Oil Age	mls	Client Info		18406	23406	43372
Filter Age	mls	Client Info		18406	23406	43372
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	>100	13	12	27
Chromium	ppm	ASTM D5185m	>20	<1	0	1
Nickel	ppm	ASTM D5185m	>4	0	0	0
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m	>3	<1	0	<1
Aluminum	ppm	ASTM D5185m	>20	3	3	6
Lead	ppm	ASTM D5185m	>40	<1	0	8
Copper	ppm	ASTM D5185m	>330	<1	0	2
Tin	ppm	ASTM D5185m	>15	<1	0	1
Vanadium	ppm	ASTM D5185m		<1	0	0
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE

CONTAMINATION

Elemental level of silicon (Si) above normal.

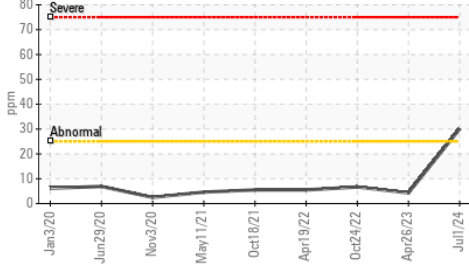
Silicon	ppm	ASTM D5185m	>25	▲ 30	4	7
Potassium	ppm	ASTM D5185m	>20	8	6	9
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.5	0.4	0.6
Nitration	Abs/cm	*ASTM D7624	>20	9.8	9.4	12.4
Sulfation	Abs/.1mm	*ASTM D7415	>30	22.6	20.4	28.0
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

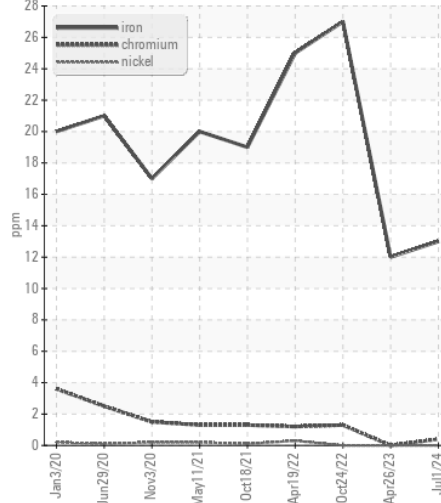
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

Sodium	ppm	ASTM D5185m		0	2	2
Boron	ppm	ASTM D5185m	316	72	65	19
Barium	ppm	ASTM D5185m	0.0	<1	0	0
Molybdenum	ppm	ASTM D5185m	1.2	29	67	81
Manganese	ppm	ASTM D5185m		0	<1	<1
Magnesium	ppm	ASTM D5185m	24	254	51	167
Calcium	ppm	ASTM D5185m	2292	1997	2250	2119
Phosphorus	ppm	ASTM D5185m	1064	898	1014	973
Zinc	ppm	ASTM D5185m	1160	1217	1335	1236
Sulfur	ppm	ASTM D5185m	4996	3027	4041	3783
Oxidation	Abs/.1mm	*ASTM D7414	>25	18.6	17.2	23.0
Base Number (BN)	mg KOH/g	ASTM D2896	10.1	7.0	4.9	5.3
Visc @ 100°C	cSt	ASTM D445	15.7	13.8	14.1	13.4

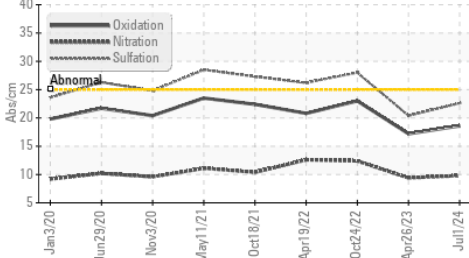
▲ Silicon (ppm)



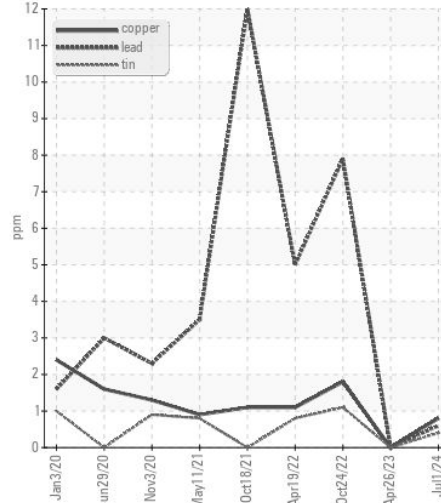
Ferrous Alloys



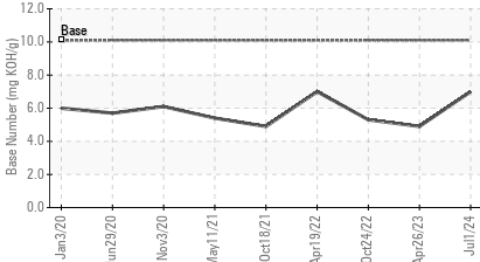
FT-IR (Direct Trend)



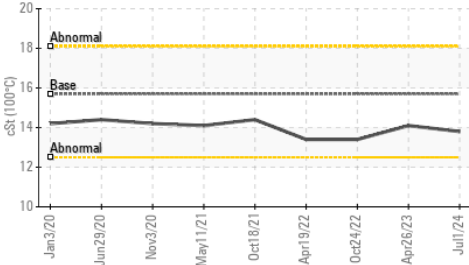
Non-ferrous Metals



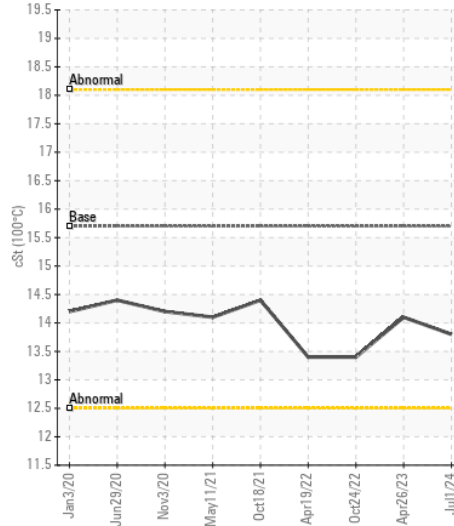
Base Number



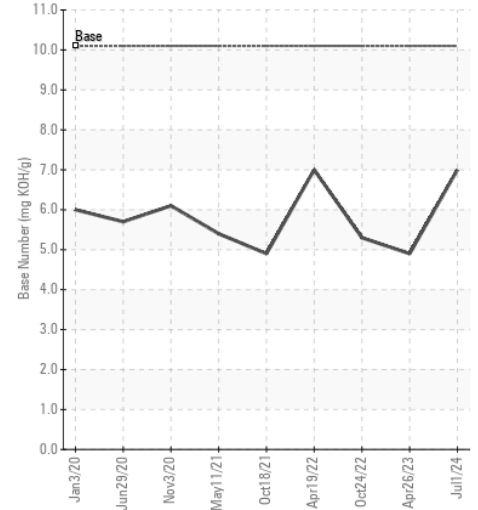
Viscosity @ 100°C



Viscosity @ 100°C



Base Number



Certificate L2367

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

Sample No. : IL0032927

Lab Number : 06235608

Unique Number : 11124442

Test Package : FLEET

Received : 15 Jul 2024

Tested : 15 Jul 2024

Diagnosed : 16 Jul 2024 - Don Baldridge

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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)