



OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

SOLD LOCATIONS - LESCAM - CAMBRIDGE

Area
Machine Id
1075
Component
Diesel Engine
Fluid
SHELL ROTELLA T 15W40 (--- GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		LEC0050895	LEC0050210	LEC0049237
Sample Date		Client Info		05 Jul 2024	23 May 2024	16 Apr 2024
Machine Age	hrs	Client Info		18035	17416	16952
Oil Age	hrs	Client Info		400	400	400
Filter Age	hrs	Client Info		400	400	400
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	16	12	15
Chromium	ppm	ASTM D5185m	>20	1	2	2
Nickel	ppm	ASTM D5185m	>4	1	2	0
Titanium	ppm	ASTM D5185m		1	2	1
Silver	ppm	ASTM D5185m	>3	<1	1	0
Aluminum	ppm	ASTM D5185m	>20	4	4	4
Lead	ppm	ASTM D5185m	>40	3	3	<1
Copper	ppm	ASTM D5185m	>330	3	3	6
Tin	ppm	ASTM D5185m	>15	2	2	1
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 no indication of any contamination in the oil.

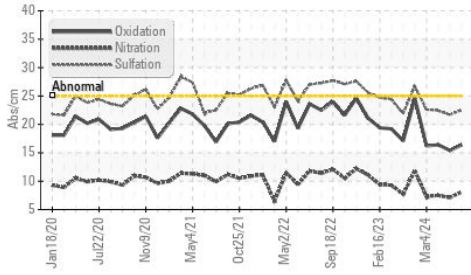
Silicon	ppm	ASTM D5185m	>120	7	9	12
Potassium	ppm	ASTM D5185m	>20	3	3	<1
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	0.3	0.2	0.2
Nitration	Abs/cm	*ASTM D7624	>20	8.1	7.1	7.5
Sulfation	Abs/.1mm	*ASTM D7415	>30	22.5	21.7	22.4
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

FLUID CONDITION

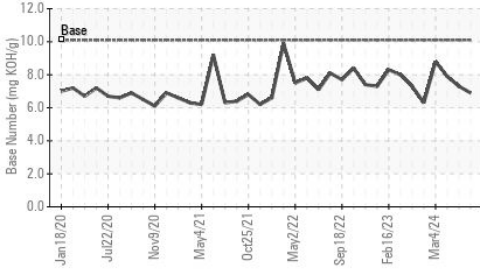
The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

Sodium	ppm	ASTM D5185m		0	2	1
Boron	ppm	ASTM D5185m	316	307	382	321
Barium	ppm	ASTM D5185m	0.0	0	0	1
Molybdenum	ppm	ASTM D5185m	1.2	92	92	97
Manganese	ppm	ASTM D5185m		<1	1	2
Magnesium	ppm	ASTM D5185m	24	417	493	576
Calcium	ppm	ASTM D5185m	2292	1486	1505	1576
Phosphorus	ppm	ASTM D5185m	1064	1010	1003	877
Zinc	ppm	ASTM D5185m	1160	1258	1200	1094
Sulfur	ppm	ASTM D5185m	4996	3042	3804	3275
Oxidation	Abs/.1mm	*ASTM D7414	>25	16.4	15.4	16.4
Base Number (BN)	mg KOH/g	ASTM D2896	10.1	6.9	7.3	7.9
Visc @ 100°C	cSt	ASTM D445	15.7	13.0	13.1	13.0

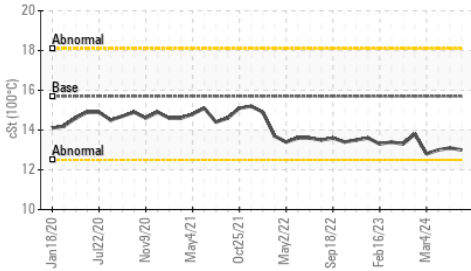
FT-IR (Direct Trend)



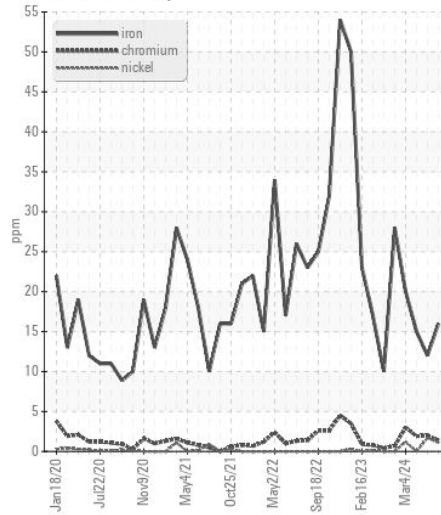
Base Number



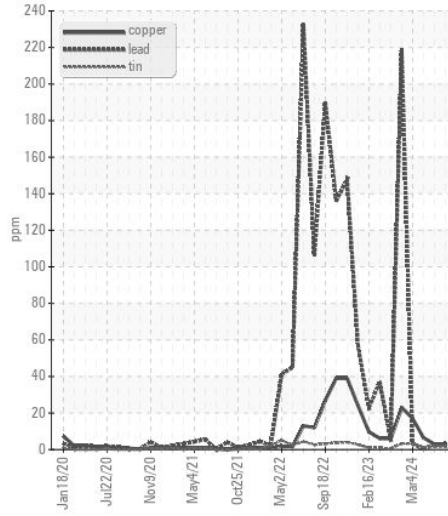
Viscosity @ 100°C



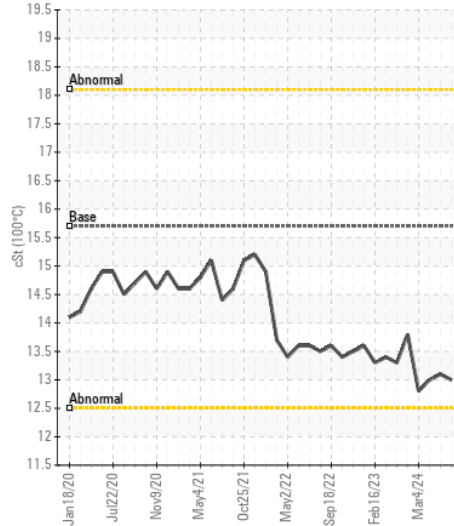
Ferrous Alloys



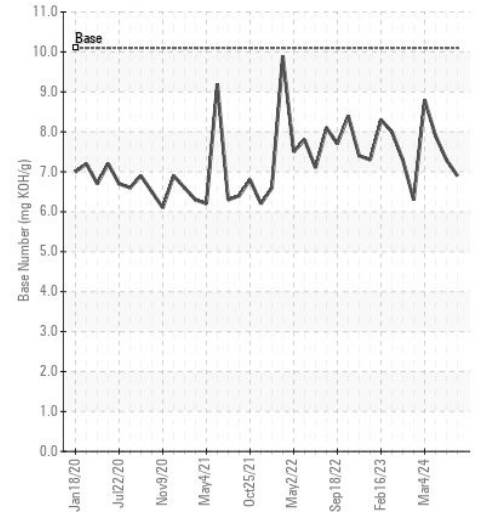
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : LEC0050895 **Received** : 18 Jul 2024
Lab Number : 06239915 **Tested** : 18 Jul 2024
Unique Number : 11128749 **Diagnosed** : 19 Jul 2024 - Don Baldridge
Test Package : CONST (Additional Tests: TBN)

HALL DRILLING LLC
 PO BOX 249
 ELLENBORO, WV
 US 26346

Contact: CHRIS PETROVICH
 chrispetrovich@halldrilling.com
 T: (304)869-3404
 F: (304)869-3408

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)