



WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id
2130
Component
Diesel Engine
Fluid
DIESEL ENGINE OIL SAE 5W30 (--- GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		HRE0000663	WC0717354	WC0686096
Sample Date		Client Info		29 Jun 2024	29 Dec 2022	01 Jul 2022
Machine Age	mls	Client Info		509176	364466	312482
Oil Age	mls	Client Info		50000	100000	50000
Filter Age	mls	Client Info		50000	50000	50000
Oil Changed		Client Info		Changed	Changed	Not Changd
Filter Changed		Client Info		Changed	Changed	Not Changd
Sample Status				NORMAL	ATTENTION	NORMAL

WEAR

All component wear rates are normal.

Iron	ppm	ASTM D5185m	>100	55	5	26
Chromium	ppm	ASTM D5185m	>20	<1	0	<1
Nickel	ppm	ASTM D5185m	>4	0	0	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	<1	0	<1
Aluminum	ppm	ASTM D5185m	>20	12	1	5
Lead	ppm	ASTM D5185m	>40	0	0	<1
Copper	ppm	ASTM D5185m	>330	4	<1	3
Tin	ppm	ASTM D5185m	>15	<1	0	1
Vanadium	ppm	ASTM D5185m		0	0	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.

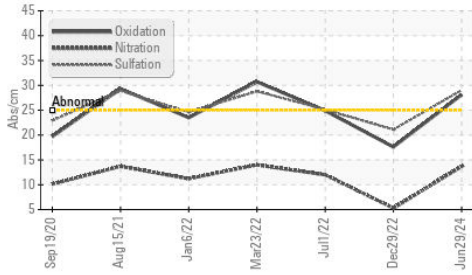
Silicon	ppm	ASTM D5185m	>25	13	6	9
Potassium	ppm	ASTM D5185m	>20	8	3	10
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844	>3	1.3	0.1	0.7
Nitration	Abs/cm	*ASTM D7624	>20	13.7	5.3	12.0
Sulfation	Abs/.1mm	*ASTM D7415	>30	29.0	21.1	25.1
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

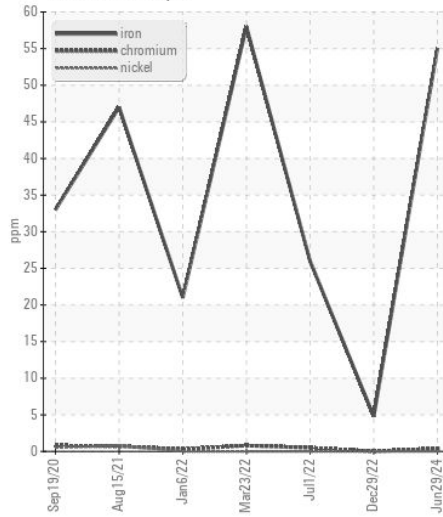
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

Sodium	ppm	ASTM D5185m		6	<1	4
Boron	ppm	ASTM D5185m	250	8	76	15
Barium	ppm	ASTM D5185m	10	0	1	0
Molybdenum	ppm	ASTM D5185m	100	62	35	65
Manganese	ppm	ASTM D5185m		1	<1	<1
Magnesium	ppm	ASTM D5185m	450	1127	487	1207
Calcium	ppm	ASTM D5185m	3000	860	1468	970
Phosphorus	ppm	ASTM D5185m	1150	1100	701	1062
Zinc	ppm	ASTM D5185m	1350	1332	833	1343
Sulfur	ppm	ASTM D5185m	4250	3527	2208	3736
Oxidation	Abs/.1mm	*ASTM D7414	>25	28.1	17.6	24.9
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	4.9	10	6.2
Visc @ 100°C	cSt	ASTM D445	10.9	12.2	13.5	12.1

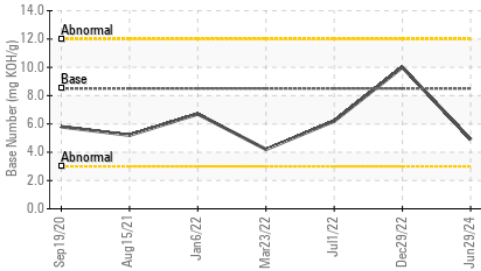
FT-IR (Direct Trend)



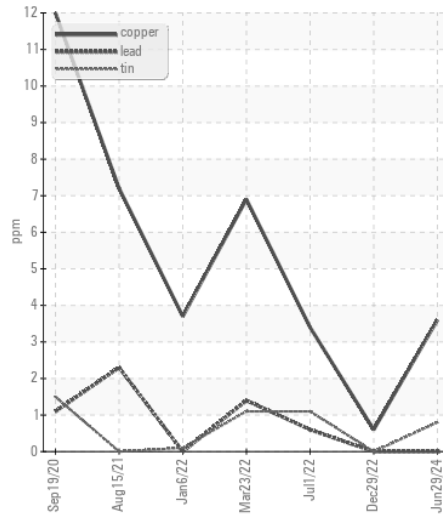
Ferrous Alloys



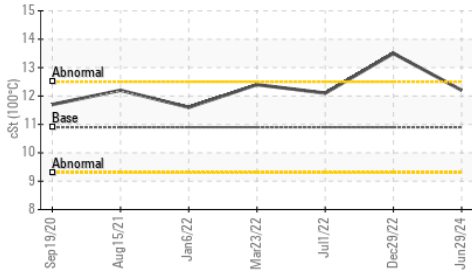
Base Number



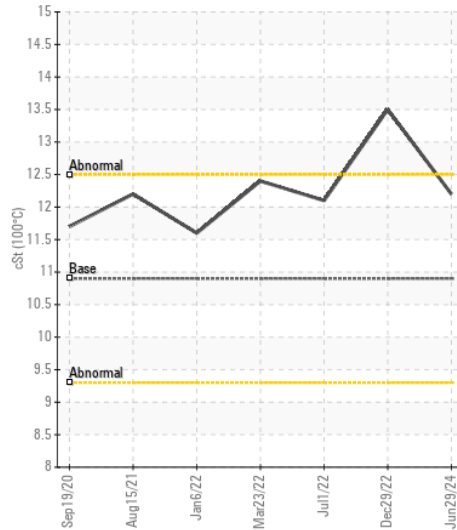
Non-ferrous Metals



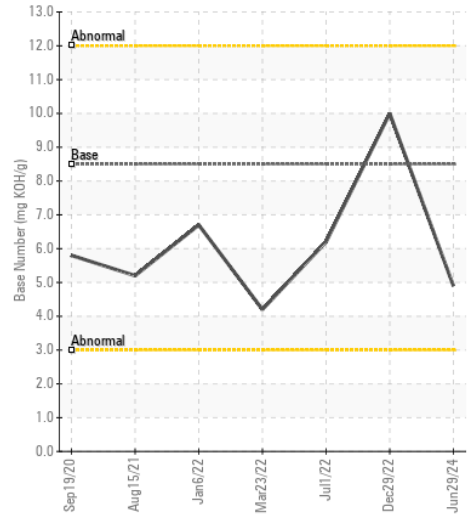
Viscosity @ 100°C



Viscosity @ 100°C



Base Number



Certificate L2367

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

Sample No. : HRE0000663

Lab Number : 06227234

Unique Number : 11110727

Test Package : FLEET

Received : 03 Jul 2024

Tested : 06 Jul 2024

Diagnosed : 06 Jul 2024 - Don Baldrige

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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)