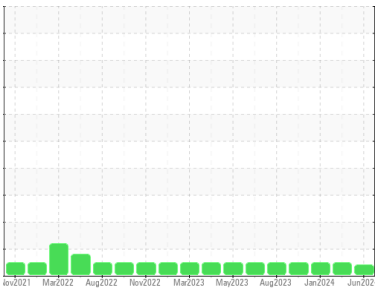
OIL ANALYSIS REPORT

Sample Rating Trend



VISCOSITY

Machine Id
1953
Component
Diesel Engine
Fluid
DIESEL ENGINE OIL SAE 5W30 (--- GAL)

DIAGNOSIS

Recommendation
Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

Wear
All component wear rates are normal.

Contamination
Fuel content negligible. There is no indication of any contamination in the oil.

Fluid Condition
The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**HRE0000548**	HRE0000140	WC0860412
Sample Date		Client Info		**13 Jun 2024**	09 Apr 2024	17 Jan 2024
Machine Age	mls	Client Info		**120127**	0	0
Oil Age	mls	Client Info		**0**	6000	6000
Oil Changed		Client Info		**Changed**	Changed	Changed
Sample Status				**ATTENTION**	NORMAL	NORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Water		WC Method	>0.2	**NEG**	NEG	NEG
Glycol		WC Method		**NEG**	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	**9**	8	8
Chromium	ppm	ASTM D5185m	>20	**0**	<1	<1
Nickel	ppm	ASTM D5185m	>4	**0**	<1	<1
Titanium	ppm	ASTM D5185m		**0**	<1	0
Silver	ppm	ASTM D5185m	>3	**0**	0	0
Aluminum	ppm	ASTM D5185m	>20	**1**	3	2
Lead	ppm	ASTM D5185m	>40	**0**	<1	0
Copper	ppm	ASTM D5185m	>330	**0**	<1	<1
Tin	ppm	ASTM D5185m	>15	**0**	0	0
Vanadium	ppm	ASTM D5185m		**0**	0	0
Cadmium	ppm	ASTM D5185m		**0**	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	250	**20**	18	27
Barium	ppm	ASTM D5185m	10	**0**	<1	4
Molybdenum	ppm	ASTM D5185m	100	**103**	188	217
Manganese	ppm	ASTM D5185m		**18**	4	3
Magnesium	ppm	ASTM D5185m	450	**452**	576	633
Calcium	ppm	ASTM D5185m	3000	**1413**	1191	1157
Phosphorus	ppm	ASTM D5185m	1150	**694**	563	575
Zinc	ppm	ASTM D5185m	1350	**812**	673	721
Sulfur	ppm	ASTM D5185m	4250	**3183**	2495	2664

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	**14**	17	18
Sodium	ppm	ASTM D5185m		**<1**	<1	0
Potassium	ppm	ASTM D5185m	>20	**0**	2	2
Fuel	%	ASTM D3524	>5	**1.6**	<1.0	<1.0

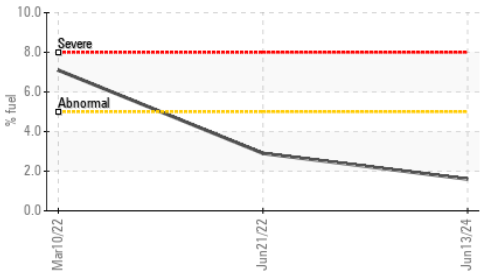
INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>3	**0**	0.1	0
Nitration	Abs/cm	*ASTM D7624	>20	**9.3**	11.2	10.9
Sulfation	Abs/.1mm	*ASTM D7415	>30	**19.5**	22.1	21.7

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**13.1**	15.8	15.4
Base Number (BN)	mg KOH/g	ASTM D2896	8.5	**4.5**	4.7	4.5

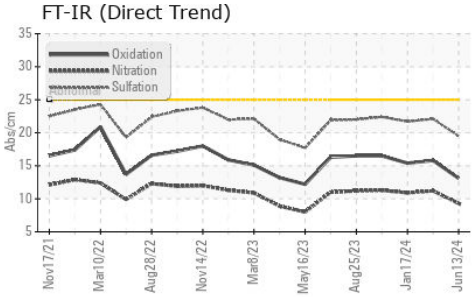
HUTCHENS RENTZ-EDEN

OIL ANALYSIS REPORT

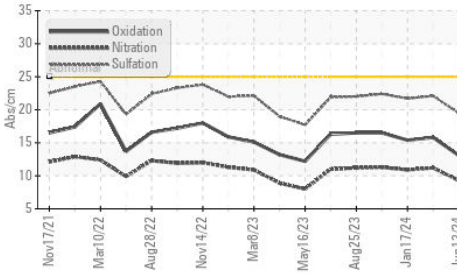
Fuel Dilution



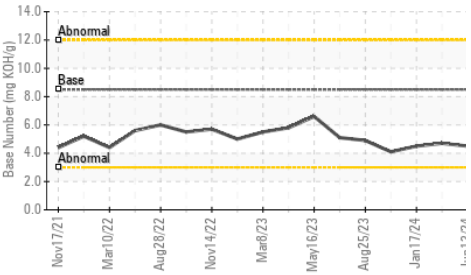
FT-IR (Direct Trend)



FT-IR (Direct Trend)



Base Number

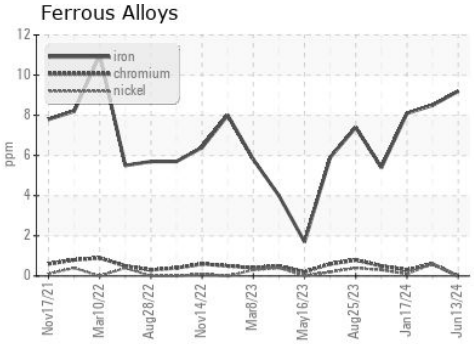


VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	**NONE**	NONE	NONE
Precipitate	scalar	*Visual	NONE	**NONE**	NONE	NONE
Silt	scalar	*Visual	NONE	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
Sand/Dirt	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
Free Water	scalar	*Visual		**NEG**	NEG	NEG

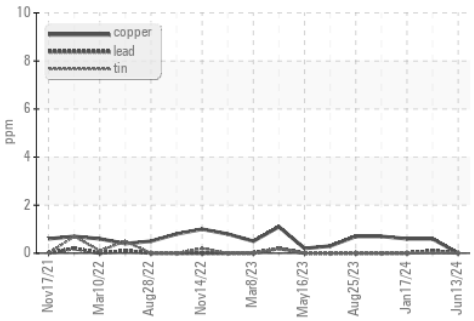
FLUID PROPERTIES		method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	10.9	**8.75**	10.0	10.7

GRAPHS

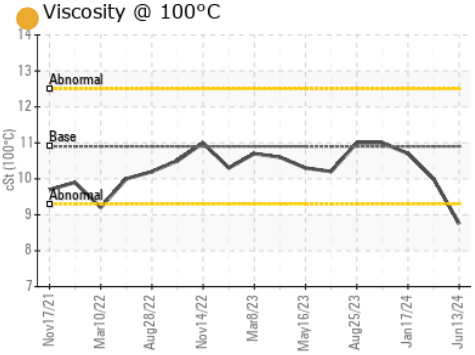
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



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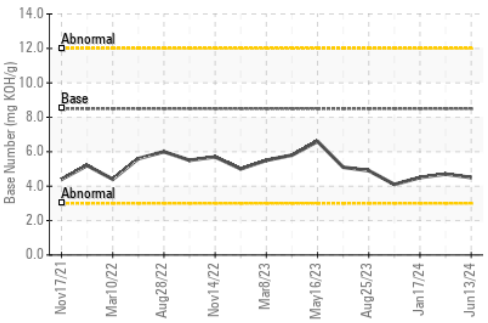

Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : HRE0000548 **Received** : 18 Jun 2024
Lab Number : 06213227 **Tested** : 24 Jun 2024
Unique Number : 11086091 **Diagnosed** : 24 Jun 2024 - Jonathan Hester
Test Package : FLEET (Additional Tests: FuelDilution, PercentFuel)

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)

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