HUTCHENS RENTZ-EDEN

OIL ANALYSIS REPORT

WEAR	ABNORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id
CUMMINS CAPTAIN JEFF IRBY
Component
Starboard Genset
Fluid
KENDALL SUPER-D XA 15W40 (--- GAL)

RECOMMENDATION

No corrective action is recommended at this time. Resample at the next service interval to monitor.

WEAR

The iron level is abnormal. All other component wear rates are normal.

CONTAMINATION

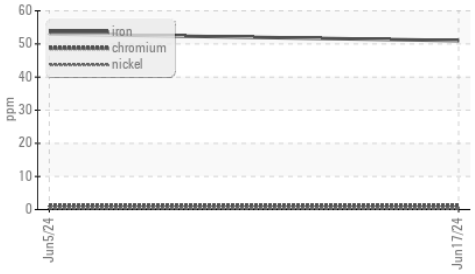
There is no indication of any contamination in the oil.

FLUID CONDITION

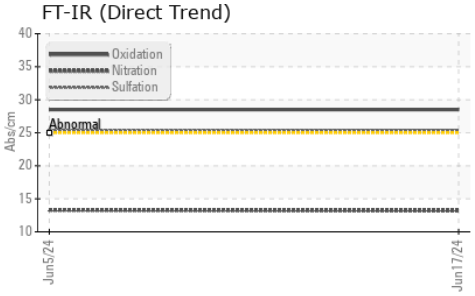
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		HRE0000282	HRE0000280	---
Sample Date		Client Info		17 Jun 2024	05 Jun 2024	---
Machine Age	hrs	Client Info		4930	4920	---
Oil Age	hrs	Client Info		500	500	---
Filter Age	hrs	Client Info		500	500	---
Oil Changed		Client Info		Not Changd	Not Changd	---
Filter Changed		Client Info		Not Changd	Not Changd	---
Sample Status				ABNORMAL	ABNORMAL	---
Iron	ppm	ASTM D5185m	>50	▲ 51	▲ 53	---
Chromium	ppm	ASTM D5185m	>4	1	1	---
Nickel	ppm	ASTM D5185m	>2	<1	<1	---
Titanium	ppm	ASTM D5185m		50	51	---
Silver	ppm	ASTM D5185m	>5	0	0	---
Aluminum	ppm	ASTM D5185m	>12	2	2	---
Lead	ppm	ASTM D5185m	>17	2	3	---
Copper	ppm	ASTM D5185m	>70	11	11	---
Tin	ppm	ASTM D5185m	>15	1	2	---
Vanadium	ppm	ASTM D5185m		<1	<1	---
White Metal	scalar	*Visual	NONE	NONE	NONE	---
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	---
Silicon	ppm	ASTM D5185m	>25	7	8	---
Potassium	ppm	ASTM D5185m	>20	10	10	---
Fuel		WC Method	>4.0	<1.0	<1.0	---
Water		WC Method	>0.1	NEG	NEG	---
Glycol		WC Method		NEG	NEG	---
Soot %	%	*ASTM D7844		0.6	0.6	---
Nitration	Abs/cm	*ASTM D7624	>20	13.2	13.3	---
Sulfation	Abs/.1mm	*ASTM D7415	>30	25.4	25.3	---
Silt	scalar	*Visual	NONE	NONE	NONE	---
Debris	scalar	*Visual	NONE	NONE	NONE	---
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	---
Appearance	scalar	*Visual	NORML	NORML	NORML	---
Odor	scalar	*Visual	NORML	NORML	NORML	---
Emulsified Water	scalar	*Visual	>0.1	NEG	NEG	---
Sodium	ppm	ASTM D5185m		24	26	---
Boron	ppm	ASTM D5185m	50	50	57	---
Barium	ppm	ASTM D5185m		0	0	---
Molybdenum	ppm	ASTM D5185m		8	10	---
Manganese	ppm	ASTM D5185m		1	2	---
Magnesium	ppm	ASTM D5185m	270	382	382	---
Calcium	ppm	ASTM D5185m	1900	1688	1688	---
Phosphorus	ppm	ASTM D5185m	1000	815	681	---
Zinc	ppm	ASTM D5185m	1260	1085	988	---
Sulfur	ppm	ASTM D5185m	3400	3079	2831	---
Oxidation	Abs/.1mm	*ASTM D7414	>25	28.5	28.5	---
Base Number (BN)	mg KOH/g	ASTM D2896	9.5	6.4	6.3	---
Visc @ 100°C	cSt	ASTM D445	15.3	14.6	14.6	---

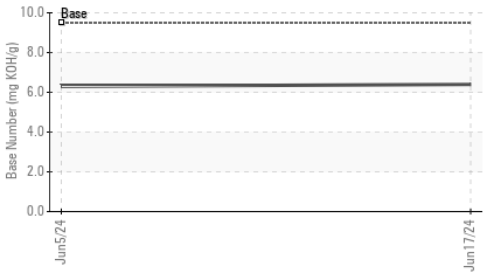
Ferrous Alloys



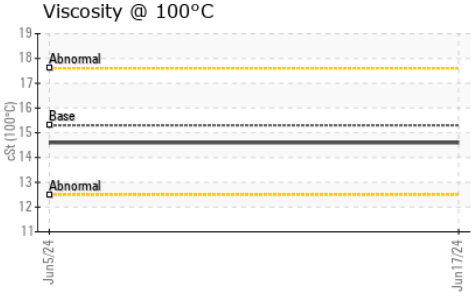
FT-IR (Direct Trend)



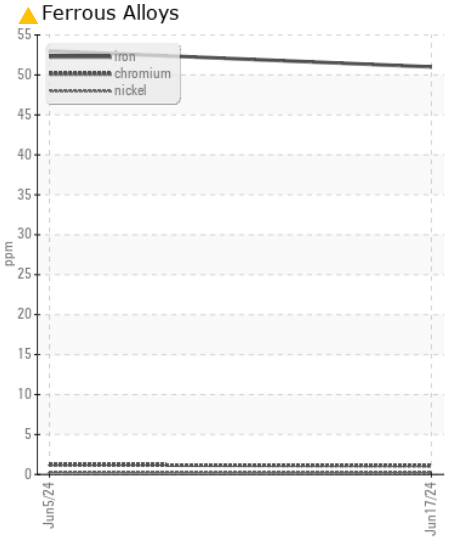
Base Number



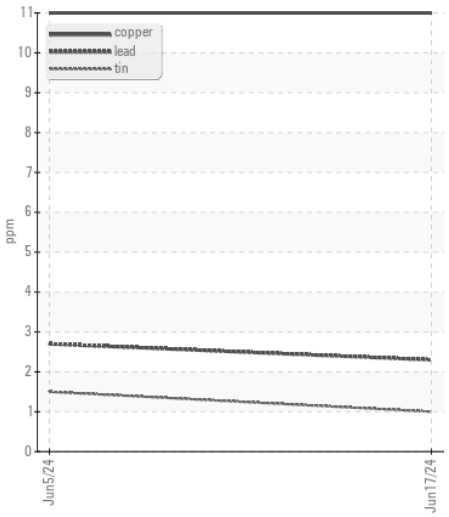
Viscosity @ 100°C



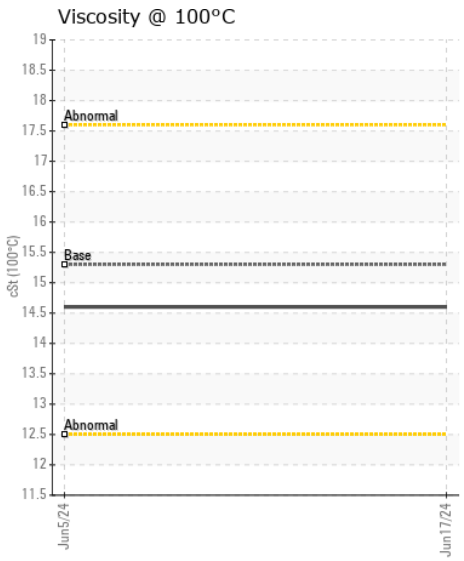
Ferrous Alloys



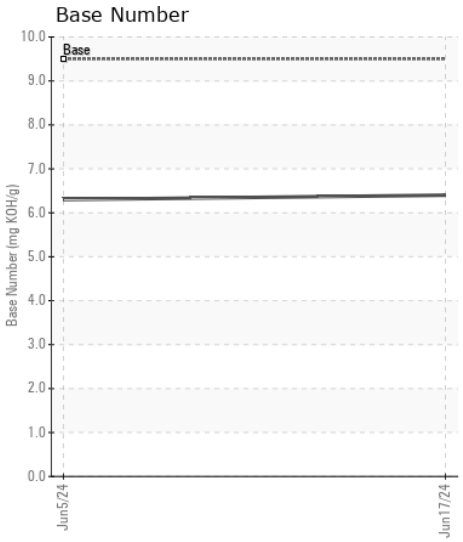
Non-ferrous Metals



Viscosity @ 100°C



Base Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : HRE0000282
Lab Number : 06216465
Unique Number : 11089329
Test Package : FLEET

Received : 20 Jun 2024
Tested : 22 Jun 2024
Diagnosed : 23 Jun 2024 - Don Baldridge

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)

SUPERIOR MARINE
201 KELLY LANE
CHESAPEAKE, OH
US 45619
Contact: DARRELL KEARNS
darrellkearns@superiormarineinc.com
T:
F: