HUTCHENS RENTZ-EDEN

OIL ANALYSIS REPORT

WEAR	NORMAL
CONTAMINATION	NORMAL
FLUID CONDITION	NORMAL

Machine Id
CATERPILLAR RH BEYMER
Component
Starboard Main Engine
Fluid
KENDALL SUPER-D XA 15W40 (--- GAL)

RECOMMENDATION

Resample at the next service interval to monitor.

WEAR

All component wear rates are normal.

CONTAMINATION

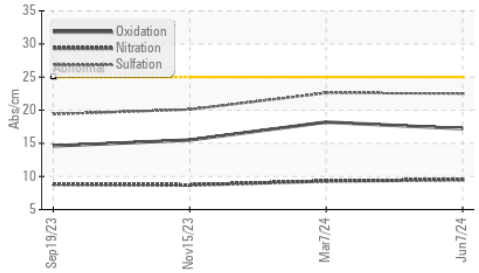
Elevated aluminum (Al) and/or lead (Pb) and potassium (K) levels in your metals analysis are likely a result of solder flux release into the lubricant and is common on new equipment/components. There is no indication of any contamination in the oil.

FLUID CONDITION

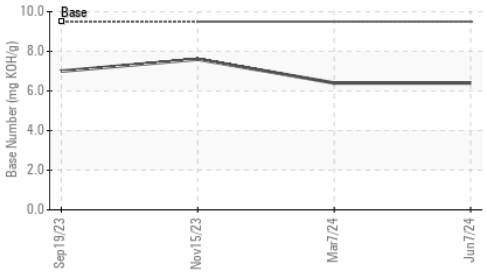
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		HRE0000251	WC0843957	WC0843977
Sample Date		Client Info		07 Jun 2024	07 Mar 2024	15 Nov 2023
Machine Age	hrs	Client Info		38018	35852	33233
Oil Age	hrs	Client Info		500	500	500
Filter Age	hrs	Client Info		500	500	500
Oil Changed		Client Info		Changed	Changed	Changed
Filter Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
Iron	ppm	ASTM D5185m	>75	27	25	11
Chromium	ppm	ASTM D5185m	>8	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	0	<1
Titanium	ppm	ASTM D5185m	>3	71	49	55
Silver	ppm	ASTM D5185m	>2	0	<1	0
Aluminum	ppm	ASTM D5185m	>15	2	2	2
Lead	ppm	ASTM D5185m	>18	1	5	<1
Copper	ppm	ASTM D5185m	>80	6	7	3
Tin	ppm	ASTM D5185m	>14	0	1	0
Vanadium	ppm	ASTM D5185m		<1	1	<1
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Silicon	ppm	ASTM D5185m	>20	4	3	4
Potassium	ppm	ASTM D5185m	>20	6	3	4
Fuel		WC Method	>4.0	<1.0	<1.0	<1.0
Water		WC Method	>0.1	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
Soot %	%	*ASTM D7844		0.4	0.4	0.2
Nitration	Abs/cm	*ASTM D7624	>20	9.5	9.3	8.7
Sulfation	Abs/.1mm	*ASTM D7415	>30	22.5	22.6	20.1
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	>0.1	NEG	NEG	NEG
Sodium	ppm	ASTM D5185m	>75	6	3	<1
Boron	ppm	ASTM D5185m	50	40	49	102
Barium	ppm	ASTM D5185m		0	0	9
Molybdenum	ppm	ASTM D5185m		13	28	36
Manganese	ppm	ASTM D5185m		0	<1	<1
Magnesium	ppm	ASTM D5185m	270	357	305	285
Calcium	ppm	ASTM D5185m	1900	1968	2130	1930
Phosphorus	ppm	ASTM D5185m	1000	990	1003	1019
Zinc	ppm	ASTM D5185m	1260	1267	1290	1171
Sulfur	ppm	ASTM D5185m	3400	3608	4452	4011
Oxidation	Abs/.1mm	*ASTM D7414	>25	17.2	18.2	15.5
Base Number (BN)	mg KOH/g	ASTM D2896	9.5	6.4	6.4	7.6
Visc @ 100°C	cSt	ASTM D445	15.3	14.4	14.2	13.6

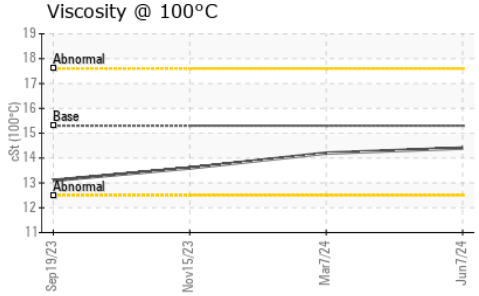
FT-IR (Direct Trend)



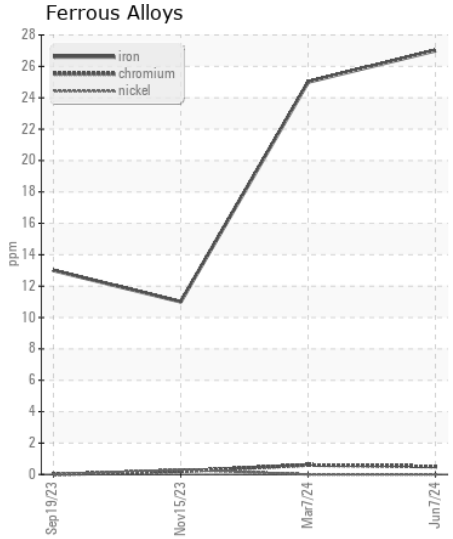
Base Number



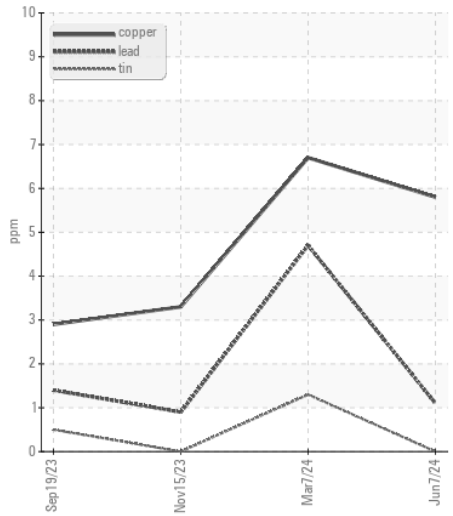
Viscosity @ 100°C



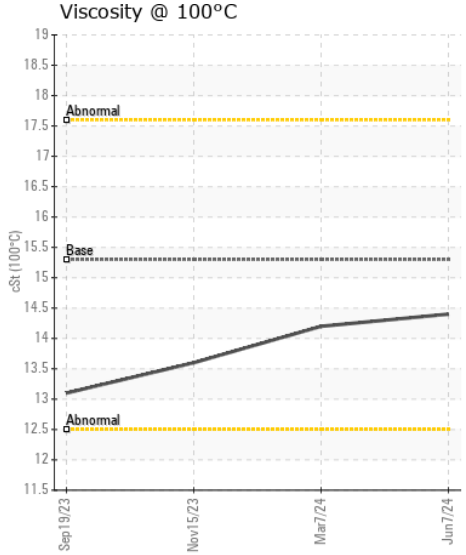
Ferrous Alloys



Non-ferrous Metals



Viscosity @ 100°C



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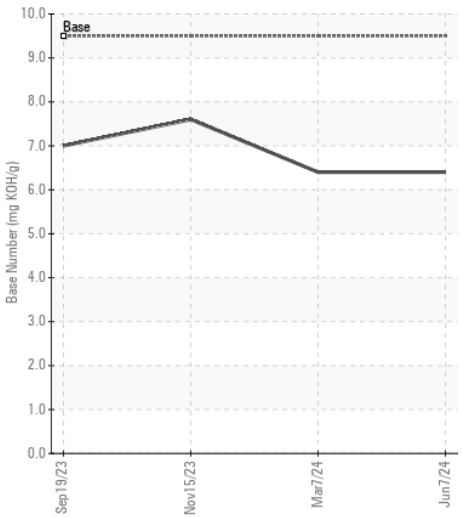

Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : HRE0000251
Lab Number : 06216471
Unique Number : 11089335
Test Package : FLEET

Received : 20 Jun 2024
Tested : 22 Jun 2024
Diagnosed : 22 Jun 2024 - Wes Davis

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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