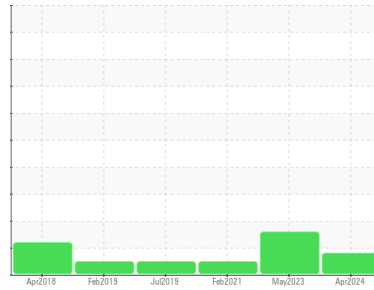


OIL ANALYSIS REPORT

Sample Rating Trend



ADDITIVES



Area

FM PLANT

Machine Id

Recirculation Blower F2109 Stage 2 (S/N F519834)

Component

Outboard Blower

Fluid

SHELL TELLUS S3 M 46 (60 LTR)

DIAGNOSIS

Recommendation

Replace the oil at your earliest convenience. Substantial Magnesium is present. This is typically used in engine oil applications. Substantial zinc if present that is ALSO not typically an element of this oil. This mixture may not be harmful, but indicates material present that should not be. Investigate the source of magnesium.

Wear

The wear rate is low and steady

Contamination

Particulate is very low. Better than new oil conditions. Moisture is nil.

Fluid Condition

Oil chemistry has changed, to include magnesium and zinc at levels that are not 'normal' for this fluid. Viscosity is good. Acid number is elevated. The oil does not currently represent a risk to the machines.

SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	PLS0000529	PLS0000503	PLS05189315
Sample Date	Client Info	07 Apr 2024	09 May 2023	02 Feb 2021
Machine Age	yrs Client Info	0	0	0
Oil Age	yrs Client Info	0	1	0
Oil Changed	Client Info	N/A	Filtered	N/A
Sample Status		ATTENTION	ABNORMAL	NORMAL

CONTAMINATION

method	limit/base	current	history1	history2
Water	WC Method	NEG	NEG	NEG

WEAR METALS

method	limit/base	current	history1	history2
PQ	ASTM D8184	10	12	14
Iron	ppm ASTM D5185m >20	<1	0	0
Chromium	ppm ASTM D5185m >20	<1	0	0
Nickel	ppm ASTM D5185m >20	<1	<1	0
Titanium	ppm ASTM D5185m	<1	0	0
Silver	ppm ASTM D5185m	<1	0	0
Aluminum	ppm ASTM D5185m >20	2	<1	0
Lead	ppm ASTM D5185m >20	<1	0	<1
Copper	ppm ASTM D5185m >20	3	2	<1
Tin	ppm ASTM D5185m >20	<1	<1	0
Antimony	ppm ASTM D5185m	---	---	0
Vanadium	ppm ASTM D5185m	<1	0	0
Cadmium	ppm ASTM D5185m	<1	0	0

ADDITIVES

method	limit/base	current	history1	history2
Boron	ppm ASTM D5185m 0	0	0	0
Barium	ppm ASTM D5185m 3	0	0	0
Molybdenum	ppm ASTM D5185m 0	<1	0	0
Manganese	ppm ASTM D5185m	<1	<1	0
Magnesium	ppm ASTM D5185m 0	43	46	0
Calcium	ppm ASTM D5185m 0	16	20	38
Phosphorus	ppm ASTM D5185m 106	193	230	57
Zinc	ppm ASTM D5185m 0	243	255	0
Sulfur	ppm ASTM D5185m	498	724	177

CONTAMINANTS

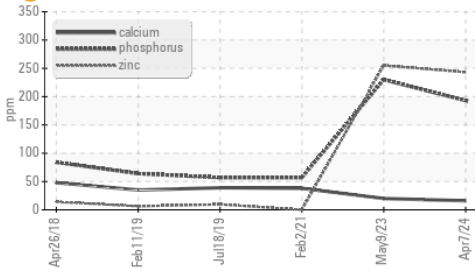
method	limit/base	current	history1	history2
Silicon	ppm ASTM D5185m >15	1	0	0
Sodium	ppm ASTM D5185m	1	2	0
Potassium	ppm ASTM D5185m >20	<1	<1	0

INFRA-RED

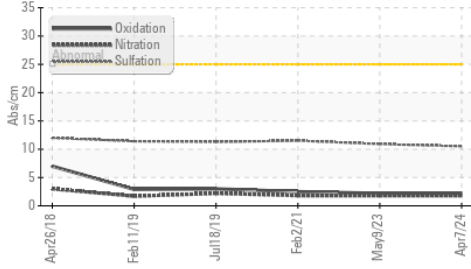
method	limit/base	current	history1	history2
Soot %	% *ASTM D7844	0	0.1	0.1
Nitration	Abs/cm *ASTM D7624	1.8	1.8	1.8
Sulfation	Abs.1mm *ASTM D7415	10.5	10.9	11.5

OIL ANALYSIS REPORT

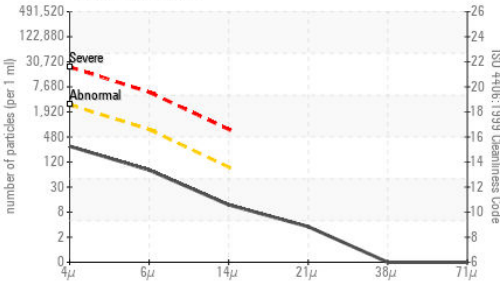
Additives



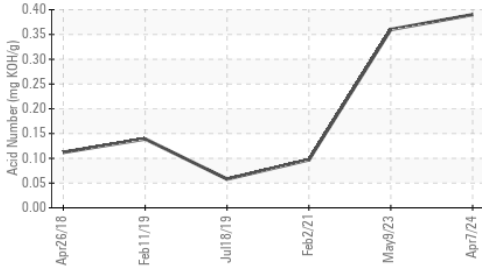
FT-IR (Direct Trend)



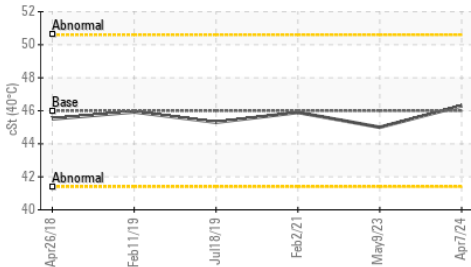
Particle Count



Acid Number



Viscosity @ 40°C



FLUID CLEANLINESS	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>2500	253	418	383
Particles >6µm	ASTM D7647	>640	68	94	56
Particles >14µm	ASTM D7647	>80	10	12	5
Particles >21µm	ASTM D7647	>20	3	3	0
Particles >38µm	ASTM D7647	>4	0	0	0
Particles >71µm	ASTM D7647	>3	0	0	0
Oil Cleanliness	ISO 4406 (c)	>18/16/13	15/13/10	16/14/11	16/13/10

FLUID DEGRADATION	method	limit/base	current	history1	history2
Oxidation	Abs./1mm	*ASTM D7414	2.2	2.2	2.5
Acid Number (AN)	mg KOH/g	ASTM D8045	0.39	0.36	0.097

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

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	46.3	45.0	45.9

SAMPLE IMAGES	method	limit/base	current	history1	history2
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Color



Bottom



Certificate L2367

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

Sample No. : PLS0000529

Lab Number : 06141143

Unique Number : 10965951

Test Package : IND 2 (Additional Tests: FT-IR, PQ, PrtCount)

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)

Received : 08 Apr 2024

Tested : 09 Apr 2024

Diagnosed : 30 May 2024 - Mike Johnson

HEXION INC - LULING PLANT

12513 QUEENIE RD

LULING, LA

US 70070

Contact: JEFF RENTFROW

jeff.rentfrow@hexion.com;mike.johnson@amrri.com

T:

F: