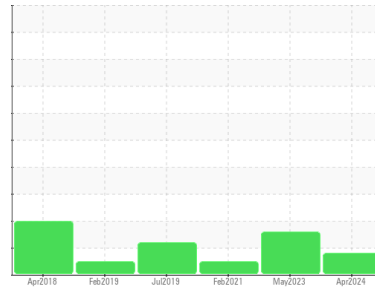


OIL ANALYSIS REPORT

Sample Rating Trend



ADDITIVES



Area

FM PLANT

Machine Id

Recirculation Blower F2209 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. The acid number is also elevated X2, further warranting an oil change.

Wear

The wear rate is low and steady

Contamination

Solid particulate is very low. Nicely done. Moisture is nil.

Fluid Condition

Oil chemistry has changed, to include magnesium and zinc at levels that are not 'normal' for this fluid. Acid number is elevated.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		PLS0000526	PLS0000502	PLS05189319
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	ATTENTION	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		17	16	12
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	<1	<1
Copper	ppm	ASTM D5185m >20	4	2	<1
Tin	ppm	ASTM D5185m >20	<1	0	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	47	51	0
Calcium	ppm	ASTM D5185m 0	12	17	40
Phosphorus	ppm	ASTM D5185m 106	212	253	57
Zinc	ppm	ASTM D5185m 0	266	283	0
Sulfur	ppm	ASTM D5185m	501	736	171

CONTAMINANTS

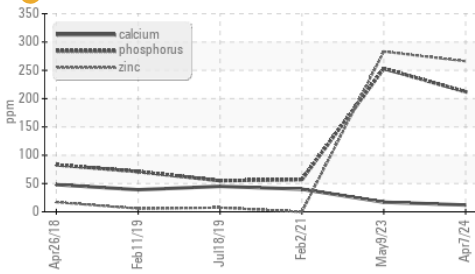
	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >15	1	<1	0
Sodium	ppm	ASTM D5185m	2	1	0
Potassium	ppm	ASTM D5185m >20	<1	<1	0

INFRA-RED

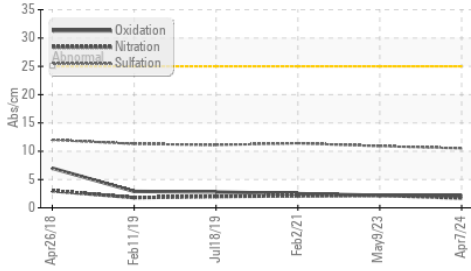
	method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	0	0.1	0.1
Nitration	Abs/cm	*ASTM D7624	1.7	2.2	2.1
Sulfation	Abs:1mm	*ASTM D7415	10.5	10.9	11.4

OIL ANALYSIS REPORT

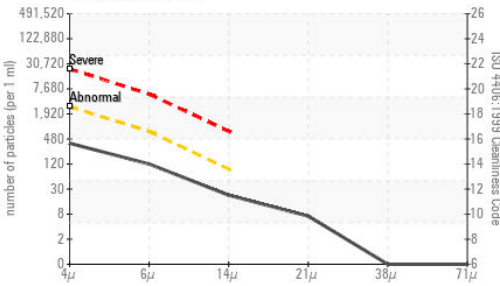
Additives



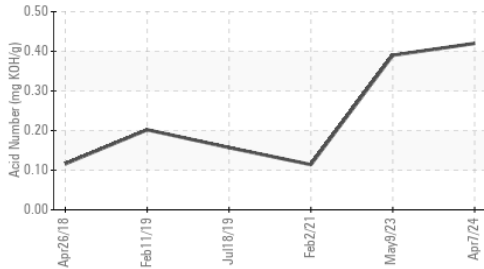
FT-IR (Direct Trend)



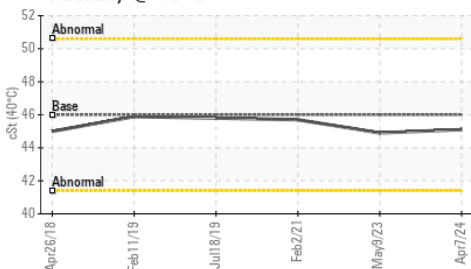
Particle Count



Acid Number



Viscosity @ 40°C



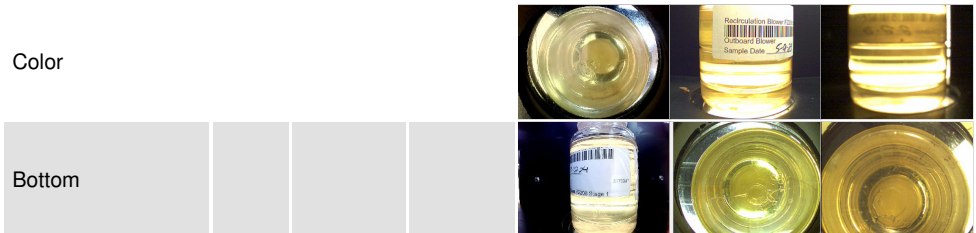
FLUID CLEANLINESS	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>2500	333	501	324
Particles >6µm	ASTM D7647	>640	106	130	74
Particles >14µm	ASTM D7647	>80	19	12	5
Particles >21µm	ASTM D7647	>20	6	2	3
Particles >38µm	ASTM D7647	>4	0	0	0
Particles >71µm	ASTM D7647	>3	0	0	0
Oil Cleanliness	ISO 4406 (c)	>18/16/13	16/14/11	16/14/11	16/13/10

FLUID DEGRADATION	method	limit/base	current	history1	history2
Oxidation	Abs/.1mm *ASTM D7414		2.1	2.2	2.5
Acid Number (AN)	mg KOH/g ASTM D8045		0.42	0.39	0.114

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		NEG	NEG	NEG
Free Water	scalar *Visual		NEG	NEG	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt ASTM D445	46.0	45.1	44.9	45.7

SAMPLE IMAGES



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : PLS0000526 **Received** : 08 Apr 2024
Lab Number : **06141141** **Tested** : 09 Apr 2024
Unique Number : 10965949 **Diagnosed** : 30 May 2024 - Mike Johnson
Test Package : IND 2 (Additional Tests: FT-IR, PQ, PrtCount)

HEXION INC - LULING PLANT
 12513 QUEENIE RD
 LULING, LA
 US 70070
 Contact: JEFF RENTFROW
 jeff.rentfrow@hexion.com;mike.johnson@amri.com

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)