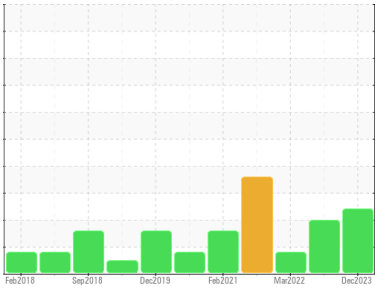
PROBLEM SUMMARY

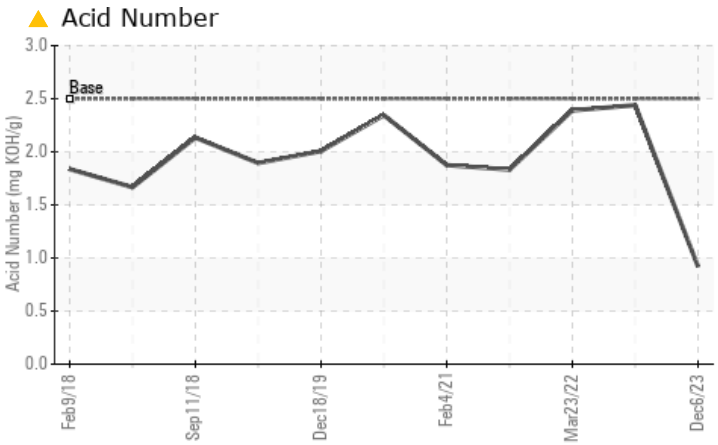
Sample Rating Trend

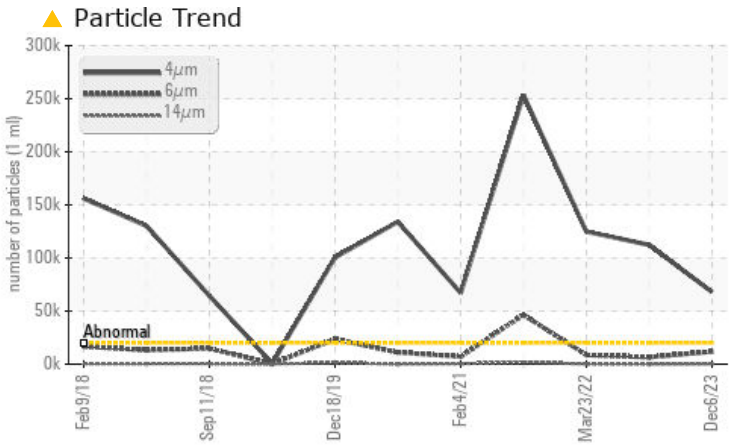


DEGRADATION

Area
COOLING TOWER
Machine Id
COOLING TOWER NORTH FAN (S/N F601GB)
Component
Gearbox
Fluid
SCHAEFFER 209 MOLY UNIVERSAL GEARLUBE ISO 220 (6 GAL)

COMPONENT CONDITION SUMMARY





RECOMMENDATION

Oil was changed based on visual and fluid health indicators. Confirm oil type as additive and Acid number indicators indicate a change in oil type. No other action required at this time. Resample at next normal interval.

PROBLEMATIC TEST RESULTS

Sample Status				**ABNORMAL**	ABNORMAL	ABNORMAL
Particles >4µm		ASTM D7647	>20000	▲ **68004**	▲ 112312	▲ 124832
Particles >6µm		ASTM D7647	>5000	▲ **11844**	▲ 6564	▲ 8639
Oil Cleanliness		ISO 4406 (c)	>21/19/16	▲ **23/21/15**	▲ 24/20/14	▲ 24/20/14
Acid Number (AN)	mg KOH/g	ASTM D8045	2.5	▲ **0.92**	2.44	2.39

Customer Id: HEXDIB
Sample No.: PLS0000655
Lab Number: 06028589
Test Package: IND 2

To manage this report scan the QR code

To discuss the diagnosis or test data:
Mike Johnson +1 (615)771-6030
mike.johnson@amrri.com

To change component or sample information:
Customer Service +1 1-800-237-1369
customerservice@wearcheck.com

RECOMMENDED ACTIONS

There are no recommended actions for this sample.

HISTORICAL DIAGNOSIS

14 Dec 2022 Diag: Mike Johnson

WEAR

Filter oil if possible using B6=75 filter media or better. No other action required at this time. Resample at next normal interval.Wear particles are notable but steady. Contamination is exceptionally elevated. Filtration will help to extend machine life. Fluid health is acceptable for continued use.

view report

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23 Mar 2022 Diag: Mike Johnson

ISO

Filter the oil if possible using B6=75 media. Please contact Mike Johnson for additional support if you wish to pursue this option. We will scrutinize the FTIR Oxidation values moving forward. No other corrective action at this time.The wear rate is moderate and steady. The ISO cleanliness values are elevated. Filter if possible. Fluid health parameters suggest that we should scrutinize oxidation values moving forward, and be prepared to make a sump change if there is continued rise. TAN is a lagging indicator of change, and will be a secondary consideration.

view report

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14 Dec 2021 Diag: Mike Johnson

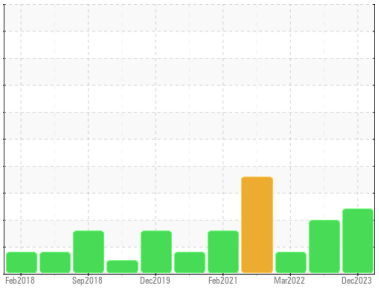
ISO

Filter with B6=75 filter media or better if possible. If filtering is not possible, resample immediately to confirm levels and consider oil change if sample is consistent.Wear particles are low and acceptable. Particulate contamination is substantially elevated, which can reduce longevity of the machine. Fluid health is acceptable for continued use.

view report

OIL ANALYSIS REPORT

Sample Rating Trend



DEGRADATION

Area
COOLING TOWER
Machine Id
COOLING TOWER NORTH FAN (S/N F601GB)
Component
Gearbox
Fluid
SCHAEFFER 209 MOLY UNIVERSAL GEARLUBE ISO 220 (6 GAL)

DIAGNOSIS

Recommendation
Oil was changed based on visual and fluid health indicators. Confirm oil type as additive and Acid number indicators indicate a change in oil type. No other action required at this time. Resample at next normal interval.

Wear
Wear particles are low and improved from previous samples.

Contamination
Contamination is elevated. Filtration can help to extend machine life.

Fluid Condition
Fluid health is acceptable for continued use.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**PLS0000655**	PLS0000422	PLS0000415
Sample Date		Client Info		**06 Dec 2023**	14 Dec 2022	23 Mar 2022
Machine Age	yrs	Client Info		**0**	8	8
Oil Age	yrs	Client Info		**0**	2	5
Oil Changed		Client Info		**N/A**	N/A	N/A
Sample Status				**ABNORMAL**	ABNORMAL	ABNORMAL

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

WEAR METALS		method	limit/base	current	history1	history2
PQ		ASTM D8184		**16**	23	28
Iron	ppm	ASTM D5185m	>200	**9**	▲ 64	58
Chromium	ppm	ASTM D5185m	>15	**0**	<1	<1
Nickel	ppm	ASTM D5185m	>15	**<1**	0	0
Titanium	ppm	ASTM D5185m		**0**	0	0
Silver	ppm	ASTM D5185m		**0**	1	0
Aluminum	ppm	ASTM D5185m	>25	**2**	2	1
Lead	ppm	ASTM D5185m	>100	**3**	<1	<1
Copper	ppm	ASTM D5185m	>200	**<1**	<1	<1
Tin	ppm	ASTM D5185m	>25	**0**	0	0
Antimony	ppm	ASTM D5185m	>5	**---**	---	---
Vanadium	ppm	ASTM D5185m		**0**	<1	0
Cadmium	ppm	ASTM D5185m		**0**	0	0

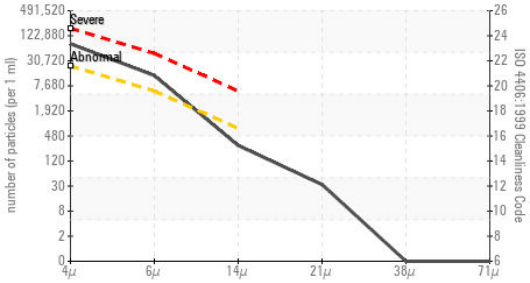
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	65	**12**	88	85
Barium	ppm	ASTM D5185m		**0**	0	0
Molybdenum	ppm	ASTM D5185m	325	**190**	343	344
Manganese	ppm	ASTM D5185m		**<1**	1	1
Magnesium	ppm	ASTM D5185m		**2**	3	6
Calcium	ppm	ASTM D5185m		**4**	55	86
Phosphorus	ppm	ASTM D5185m	875	**636**	908	874
Zinc	ppm	ASTM D5185m		**552**	99	103
Sulfur	ppm	ASTM D5185m	16000	**14954**	19771	14889

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>50	**4**	8	6
Sodium	ppm	ASTM D5185m		**4**	5	5
Potassium	ppm	ASTM D5185m	>20	**2**	8	5

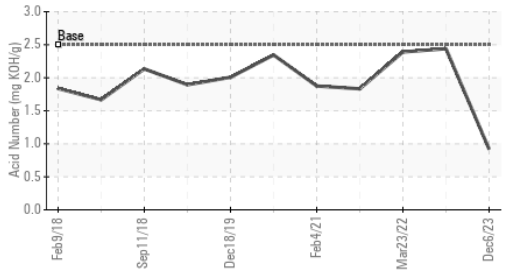
INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844		**0**	0.1	0.1
Nitration	Abs/cm	*ASTM D7624		**4.0**	4.7	4.7
Sulfation	Abs/.1mm	*ASTM D7415		**13.0**	17.9	17.3

OIL ANALYSIS REPORT

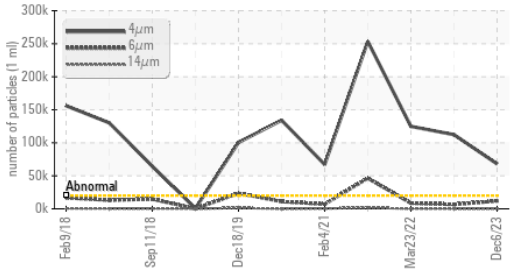
Particle Count



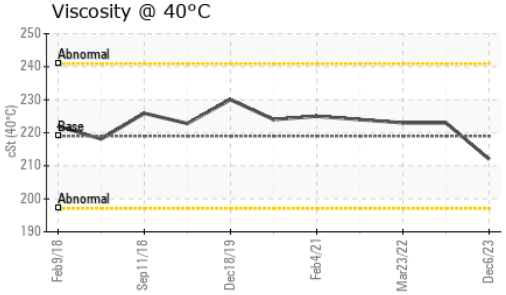
Acid Number



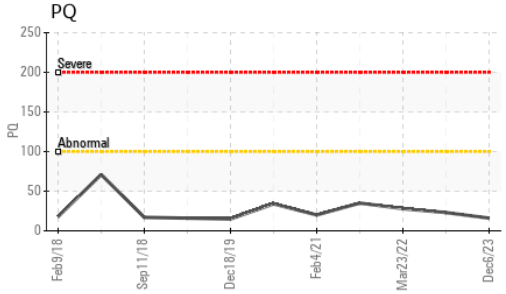
Particle Trend



Viscosity @ 40°C



PQ

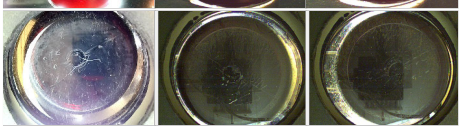


FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>20000	▲ **68004**	▲ 112312	▲ 124832
Particles >6µm		ASTM D7647	>5000	▲ **11844**	▲ 6564	▲ 8639
Particles >14µm		ASTM D7647	>640	**250**	97	122
Particles >21µm		ASTM D7647	>160	**29**	19	27
Particles >38µm		ASTM D7647	>40	**0**	1	4
Particles >71µm		ASTM D7647	>10	**0**	1	1
Oil Cleanliness		ISO 4406 (c)	>21/19/16	▲ **23/21/15**	▲ 24/20/14	▲ 24/20/14

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414		**3.8**	6.3	6.1
Acid Number (AN)	mg KOH/g	ASTM D8045	2.5	▲ **0.92**	2.44	2.39

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 @ 40°C	cSt	ASTM D445	219	**212**	223	223

SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					

Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : PLS0000655 **Recieved** : 07 Dec 2023
Lab Number : 06028589 **Diagnosed** : 15 Dec 2023
Unique Number : 10778380 **Diagnostician** : Mike Johnson
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)

HEXION - DIBOLL PLANT
100 W BORDEN DR
DIBOLL, TX
US 75941
Contact: DENISE ROBERTSON
denise.robertson@hexion.com;mike.johnson@amrri.com
T: (936)829-8029
F: (936)829-8003