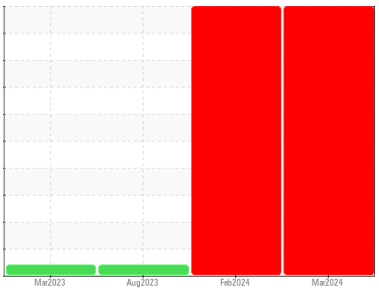
PROBLEM SUMMARY

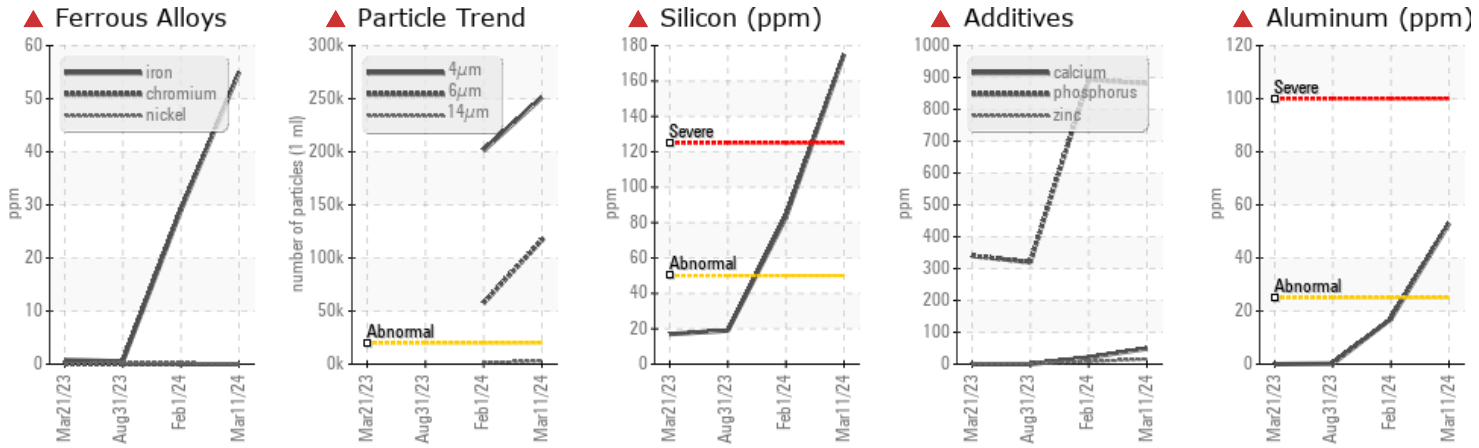
Sample Rating Trend



WEAR

Machine Id
REACTOR 5
Component
Gearbox
Fluid
SWEPCO 757 ISO 220 (--- GAL)

COMPONENT CONDITION SUMMARY



RECOMMENDATION

Flush and refill the gearbox. Acid number is elevated, and viscosity is low. Consider wether there is any possibility of Aluminum-Silicon-Calcium materials that could be airborne in the production area. Change / upgrade breathers if possible. IF the sample was drained from a drain port, or siphoned with a tube, the results may be worse that the actual machine conditions. Sample using fixed sample ports and repeatability if possible.Resample immediately to determine if the variables repeat. If so - additional diagnostics are warranted.Given that reactor 4 and 5 are showing similar levels of unusual change - look for possibilities that are common to both sumps. Atmospheric elements. Oil handling containers. Filter systems in use between machines. Aftermarket additives in use.

PROBLEMATIC TEST RESULTS

Sample Status				**SEVERE**	SEVERE	ABNORMAL
Iron	ppm	ASTM D5185(m)	>200	▲ **55**	▲ 29	<1
Aluminum	ppm	ASTM D5185(m)	>25	▲ **53**	▲ 17	<1
Calcium	ppm	ASTM D5185(m)		▲ **49**	▲ 21	<1
Silicon	ppm	ASTM D5185(m)	>50	▲ **175**	▲ 83	19
Sodium	ppm	ASTM D5185(m)		▲ **35**	▲ 16	<1
Particles >4µm		ASTM D7647	>20000	▲ **251085**	▲ 201108	---
Particles >6µm		ASTM D7647	>5000	▲ **116833**	▲ 57523	---
Particles >14µm		ASTM D7647	>640	▲ **2821**	▲ 1439	---
Oil Cleanliness		ISO 4406 (c)	>21/19/16	▲ **25/24/19**	▲ 25/23/18	---
Acid Number (AN)	mg KOH/g	ASTM D974*		▲ **1.32**	▲ 1.48	0.19
Visc @ 40°C	cSt	ASTM D7279(m)	212.9	▲ **191**	▲ 191	▲ 178

Customer Id: HEXEDM
Sample No.: PLS0000752
Lab Number: 02629022
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:
Gloria Gonzalez +1 (289)291-4643 x4643
gloria.gonzalez@wearcheck.com

RECOMMENDED ACTIONS

There are no recommended actions for this sample.

HISTORICAL DIAGNOSIS

WEAR

01 Feb 2024 Diag: Mike Johnson

Filter the oil using B6=75 or better quality filter media. Consider wether there is any possibility of Aluminum-Silicon-Calcium materials that could be airborne in the production area. Change / upgrade breathers if possible. IF the sample was drained from a drain port, or siphoned with a tube, the results may be worse that the actual machine conditions. Sample using fixed sample ports and repeatability if possible.

Resample immediately to determine if the variables repeat. If so - additional diagnostics are warranted.

Given that reactor 4 and 5 are showing similar levels of unusual change - look for possibilities that are common to both sumps. Atmospheric elements. Oil handling containers. Filter systems in use between machines. Aftermarket additives in use.Iron and Aluminum have risen dramatically. Please indicate where there is any Aluminum or Calcium thickened greases in use around this drive, and communicate that to AMRRI. These three chemicals represents machine metals, contaminant metals and additive metals. This is an unusual combination of items to increase concurrently. Particulate is substantially elevated. Filter if possible to remove particulate. Fluid Acid Number (AN) is abnormally high, and the Visc @ 40°C is abnormally low.

view report

VISCOSITY

31 Aug 2023 Diag: Kevin Marson

Resample at the next service interval to monitor. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.All component wear rates are normal. There is no indication of any contamination in the oil. Viscosity of sample indicates oil is within ISO 150 range, advise investigate. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report

VISCOSITY

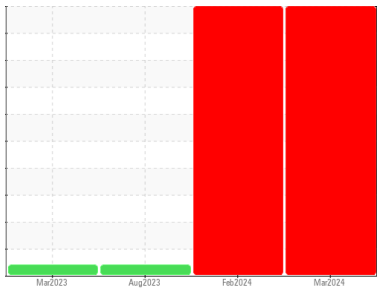
21 Mar 2023 Diag: Kevin Marson

Resample at the next service interval to monitor. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.All component wear rates are normal. There is no indication of any contamination in the oil. Viscosity of sample indicates oil is within ISO 150 range, advise investigate. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report

OIL ANALYSIS REPORT

Sample Rating Trend



WEAR

Machine Id
REACTOR 5
Component
Gearbox
Fluid
SWEPCO 757 ISO 220 (--- GAL)

DIAGNOSIS

▲ Recommendation

Flush and refill the gearbox. Acid number is elevated, and viscosity is low. Consider wether there is any possibility of Aluminum-Silicon-Calcium materials that could be airborne in the production area. Change / upgrade breathers if possible. IF the sample was drained from a drain port, or siphoned with a tube, the results may be worse that the actual machine conditions. Sample using fixed sample ports and repeatability if possible.Resample immediately to determine if the variables repeat. If so - additional diagnostics are warranted.Given that reactor 4 and 5 are showing similar levels of unusual change - look for possibilities that are common to both sumps. Atmospheric elements. Oil handling containers. Filter systems in use between machines. Aftermarket additives in use.

▲ Wear

Iron and Aluminum have risen dramatically, but not to the. Please indicate where there is any Aluminum or Calcium thickened greases in use around this drive, and communicate that to AMRRI. These three chemicals represents machine metals, contaminant metals and additive metals. This is an unusual combination of items to increase concurrently.

▲ Contamination

Particulate is substantially elevated. Filter if possible to remove particulate.

▲ Fluid Condition

Fluid Acid Number (AN) is abnormally high, and the Visc @ 40°C is abnormally low.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**PLS0000752**	PLS0000760	WC0820457
Sample Date		Client Info		**11 Mar 2024**	01 Feb 2024	31 Aug 2023
Machine Age	hrs	Client Info		**0**	0	0
Oil Age	hrs	Client Info		**8000**	0	0
Oil Changed		Client Info		**Changed**	N/A	N/A
Sample Status				**SEVERE**	SEVERE	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*		**1**	0	0
Iron	ppm	ASTM D5185(m)	>200	▲ **55**	▲ 29	<1
Chromium	ppm	ASTM D5185(m)	>15	**0**	0	0
Nickel	ppm	ASTM D5185(m)	>15	**0**	<1	<1
Titanium	ppm	ASTM D5185(m)		**1**	0	0
Silver	ppm	ASTM D5185(m)		**0**	0	0
Aluminum	ppm	ASTM D5185(m)	>25	▲ **53**	▲ 17	<1
Lead	ppm	ASTM D5185(m)	>100	**0**	<1	0
Copper	ppm	ASTM D5185(m)	>200	**1**	<1	<1
Tin	ppm	ASTM D5185(m)	>25	**0**	0	0
Antimony	ppm	ASTM D5185(m)	>5	**<1**	<1	0
Vanadium	ppm	ASTM D5185(m)		**0**	0	0
Beryllium	ppm	ASTM D5185(m)		**0**	0	0
Cadmium	ppm	ASTM D5185(m)		**0**	0	0

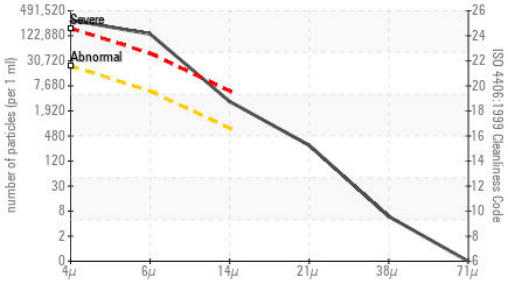
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)		**144**	152	1
Barium	ppm	ASTM D5185(m)		**<1**	<1	0
Molybdenum	ppm	ASTM D5185(m)		**0**	0	0
Manganese	ppm	ASTM D5185(m)		**<1**	0	0
Magnesium	ppm	ASTM D5185(m)		**10**	4	0
Calcium	ppm	ASTM D5185(m)		▲ **49**	▲ 21	<1
Phosphorus	ppm	ASTM D5185(m)		**881**	893	320
Zinc	ppm	ASTM D5185(m)		**16**	8	2
Sulfur	ppm	ASTM D5185(m)		**15098**	15560	36
Lithium	ppm	ASTM D5185(m)		**2**	2	<1

CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m)	>50	▲ **175**	▲ 83	19
Sodium	ppm	ASTM D5185(m)		▲ **35**	▲ 16	<1
Potassium	ppm	ASTM D5185(m)	>20	**1**	<1	0

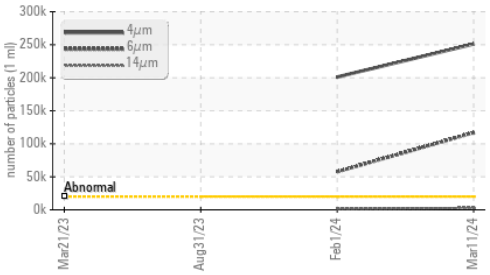
INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	ASTM D7844*		**0**	0	---
Nitration	Abs/cm	ASTM D7624*		**4.1**	3.9	---
Sulfation	Abs/.1mm	ASTM D7415*		**19.6**	19.4	---

OIL ANALYSIS REPORT

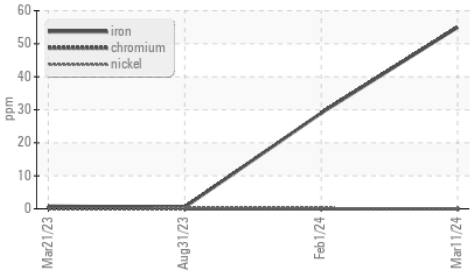
Particle Count



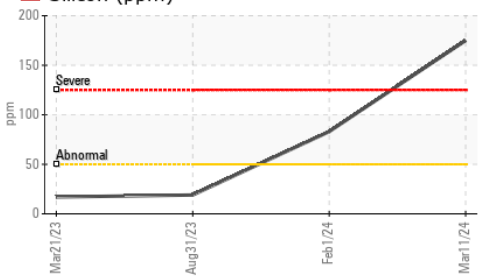
Particle Trend



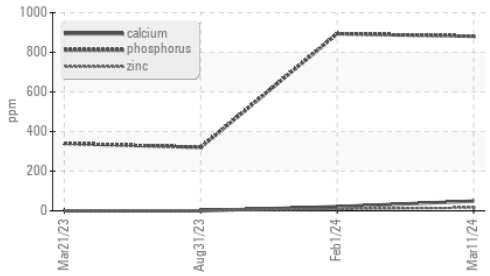
Ferrous Alloys



Silicon (ppm)



Additives



FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>20000	▲ **251085**	▲ 201108	---
Particles >6µm		ASTM D7647	>5000	▲ **116833**	▲ 57523	---
Particles >14µm		ASTM D7647	>640	▲ **2821**	▲ 1439	---
Particles >21µm		ASTM D7647	>160	● **252**	● 227	---
Particles >38µm		ASTM D7647	>40	**5**	12	---
Particles >71µm		ASTM D7647	>10	**0**	1	---
Oil Cleanliness		ISO 4406 (c)	>21/19/16	▲ **25/24/19**	▲ 25/23/18	---

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	ASTM D7414*		**6.3**	6.1	---
Acid Number (AN)	mg KOH/g	ASTM D974*		▲ **1.32**	▲ 1.48	0.19

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	**VLITE**	NONE	NONE
Debris	scalar	Visual*	NONE	**VLITE**	NONE	VLITE
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 D7279(m)	212.9	▲ **191**	▲ 191	▲ 178

SAMPLE IMAGES	method	limit/base	current	history1	history2
Color					
Bottom					

ISO 17025:2017 Accredited Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PLS0000752
Lab Number : 02629022
Unique Number : 5762154
Test Package : IND 2 (Additional Tests: FT-IR, PQ, PrtCount, TAN Man)
Received : 15 Apr 2024
Tested : 16 Apr 2024
Diagnosed : 27 May 2024 - Mike Johnson

To discuss this sample report, contact Customer Service at 1-800-268-2131.
Test denoted (*) outside scope of accreditation, (m) method modified, (e) tested at external lab.
Validity of results and interpretation are based on the sample and information as supplied.

Hexion Canada Inc. - EDMONTON PLANT
12621 - 156th Street NW
Edmonton, AB
CA T5V 1E1
Contact: Scott Mckenzie
scott.mckenzie@henxion.com
T: (780)447-8469
F: (780)447-7268