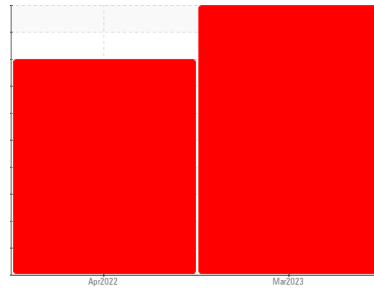


PROBLEM SUMMARY

Sample Rating Trend



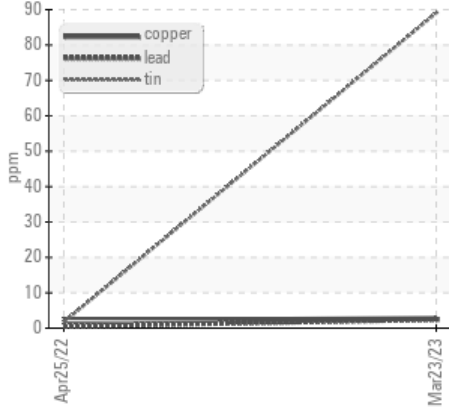
WEAR



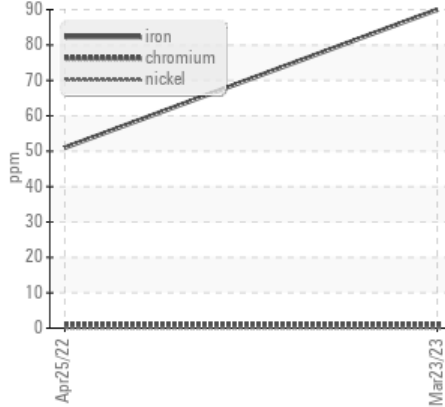
Area
[300137603]
 Machine Id
TA-58610 WHPU
 Component
Hydraulic System
 Fluid
CASTROL TRANSAQUA HT (--- GAL)

COMPONENT CONDITION SUMMARY

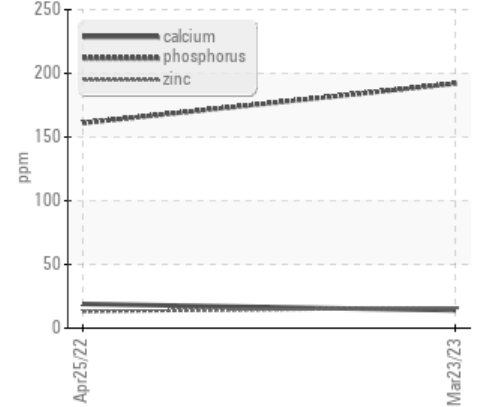
▲ Non-ferrous Metals



▲ Ferrous Alloys



Additives



RECOMMENDATION

We recommend that you drain the oil from the component if this has not already been done. Confirm the source of the lubricant being utilized for top-up/fill. We recommend an early resample to monitor this condition. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.

PROBLEMATIC TEST RESULTS

Sample Status				SEVERE	SEVERE	---
Iron	ppm	ASTM D5185(m)	>20	▲ 90	▲ 51	---
Tin	ppm	ASTM D5185(m)	>10	▲ 89	2	---

Customer Id: TERHAM
 Sample No.: PC
 Lab Number: 02551532
 Test Package: MAR 2



To manage this report scan the QR code

To discuss the diagnosis or test data:
 Kevin Marson +1 (289)291-4644 x4644
Kevin.Marson@wearcheck.com

To change component or sample information:
 Gloria Gonzalez +1 (289)291-4643 x4643
gloria.gonzalez@wearcheck.com

RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Change Fluid	SKIPPED	Apr 26 2023	?	We recommend that you drain the oil from the component if this has not already been done.
Resample	SKIPPED	Apr 26 2023	?	We recommend an early resample to monitor this condition.
Information Required	---	---	?	NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.
Check Fluid Source	SKIPPED	Apr 26 2023	?	Confirm the source of the lubricant being utilized for top-up/fill.

HISTORICAL DIAGNOSIS

ISO



25 Apr 2022 Diag: Kevin Marson

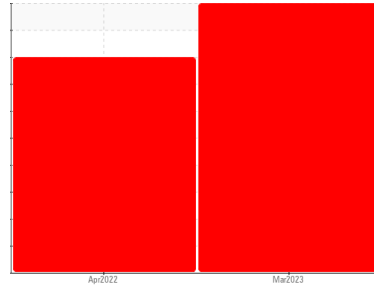
We advise that you check all areas where contaminants can enter the system. We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. The air breather requires service. If unrated, we recommend that you replace with a suitable micron rated and/or desiccant air breather. If rated, we recommend that you service/replace the breather. Resample in 30-45 days to monitor this situation. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample. Iron ppm levels are abnormal. Particles >14µm are severely high. Particles >21µm are severely high. Particles >6µm and oil cleanliness are severely high. Particles >38µm are abnormally high. The water content is negligible. The system cleanliness code is much higher than the acceptable limit for the target ISO 4406 cleanliness code. The AN level is acceptable for this fluid. The oil is no longer serviceable as a result of the abnormal and/or severe wear.

view report



OIL ANALYSIS REPORT

Sample Rating Trend



WEAR



Area
[300137603]
Machine Id
TA-58610 WHPU
Component
Hydraulic System
Fluid
CASTROL TRANSAQUA HT (--- GAL)

DIAGNOSIS

▲ Recommendation

We recommend that you drain the oil from the component if this has not already been done. Confirm the source of the lubricant being utilized for top-up/fill. We recommend an early resample to monitor this condition. NOTE: Please provide information regarding reservoir capacity, filter type and micron rating with next sample.

▲ Wear

Iron and tin ppm levels are severe.

Contamination

The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable.

Fluid Condition

Additive levels indicate the addition of a different brand, or type of oil. The AN level is acceptable for this fluid. The pH level of this fluid is within the acceptable limits. The reserve alkalinity of this fluid is acceptable. The water concentration level is acceptable for this fluid. The oil is no longer serviceable as a result of the abnormal and/or severe wear.

SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	PC	PC0040591	---
Sample Date	Client Info	23 Mar 2023	25 Apr 2022	---
Machine Age	hrs	Client Info	0	0
Oil Age	hrs	Client Info	0	0
Oil Changed	Client Info	N/A	N/A	---
Sample Status		SEVERE	SEVERE	---

WEAR METALS

method	limit/base	current	history1	history2
PQ	ASTM D8184*	5	0	---
Iron	ppm	ASTM D5185(m) >20	▲ 90	▲ 51
Chromium	ppm	ASTM D5185(m) >10	1	1
Nickel	ppm	ASTM D5185(m) >10	<1	<1
Titanium	ppm	ASTM D5185(m)	0	0
Silver	ppm	ASTM D5185(m)	<1	<1
Aluminum	ppm	ASTM D5185(m) >10	<1	<1
Lead	ppm	ASTM D5185(m) >20	2	<1
Copper	ppm	ASTM D5185(m) >20	3	2
Tin	ppm	ASTM D5185(m) >10	▲ 89	2
Antimony	ppm	ASTM D5185(m)	0	0
Vanadium	ppm	ASTM D5185(m)	<1	<1
Beryllium	ppm	ASTM D5185(m)	0	0
Cadmium	ppm	ASTM D5185(m)	<1	<1

ADDITIVES

method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185(m)	202	200
Barium	ppm	ASTM D5185(m)	0	0
Molybdenum	ppm	ASTM D5185(m)	3	2
Manganese	ppm	ASTM D5185(m)	<1	0
Magnesium	ppm	ASTM D5185(m)	2	2
Calcium	ppm	ASTM D5185(m)	14	19
Phosphorus	ppm	ASTM D5185(m) 145	192	161
Zinc	ppm	ASTM D5185(m)	16	13
Sulfur	ppm	ASTM D5185(m)	29	28
Lithium	ppm	ASTM D5185(m)	<1	3

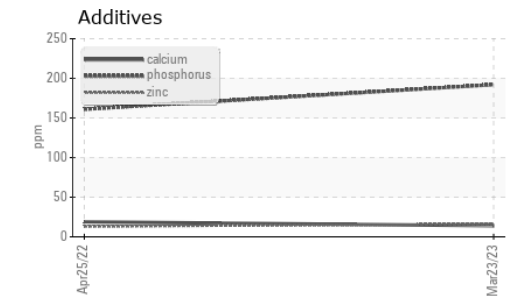
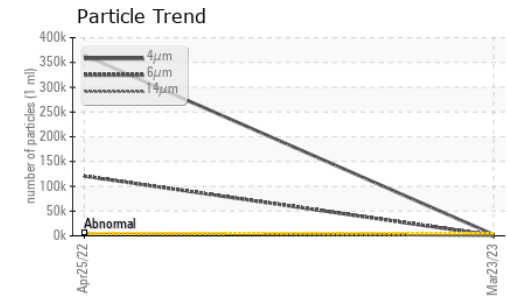
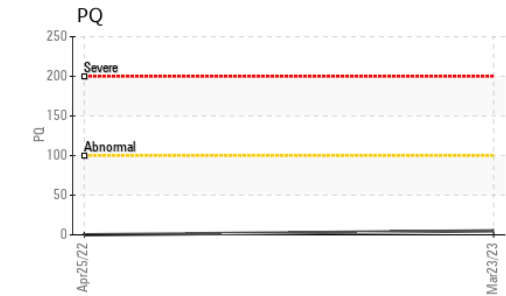
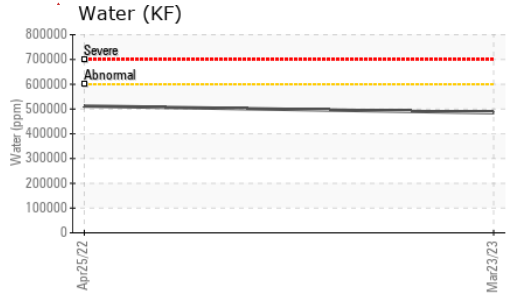
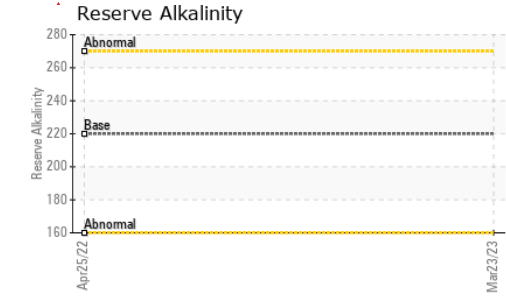
CONTAMINANTS

method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185(m) >15	5	4
Sodium	ppm	ASTM D5185(m) >650	733	674
Potassium	ppm	ASTM D5185(m) >20	32	5
Water	%	ASTM D6304* >60	48.5	51.20
ppm Water	ppm	ASTM D6304* >600000	485000	512033.3

FLUID CLEANLINESS

method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>5000	2410	364610
Particles >6µm	ASTM D7647	>1300	610	▲ 120456
Particles >14µm	ASTM D7647	>160	78	▲ 5371
Particles >21µm	ASTM D7647	>40	31	▲ 464
Particles >38µm	ASTM D7647	>10	5	▲ 12
Particles >71µm	ASTM D7647	>3	1	0
Oil Cleanliness	ISO 4406 (c)	>19/17/14	18/16/13	▲ 26/24/20

OIL ANALYSIS REPORT



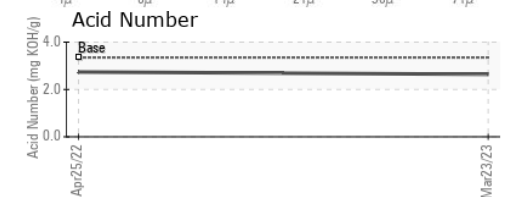
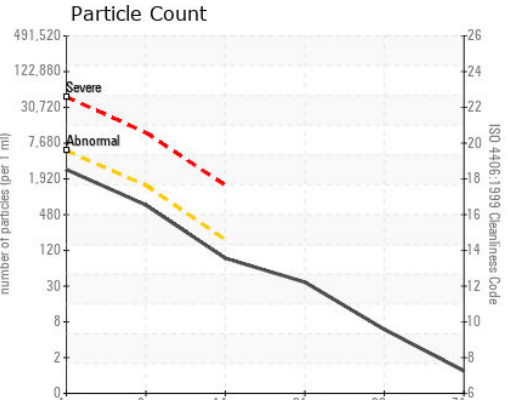
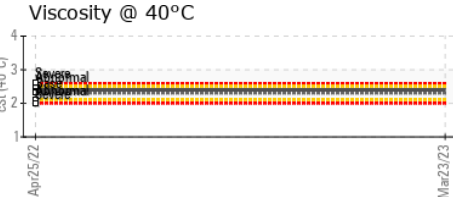
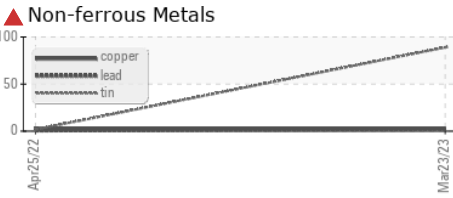
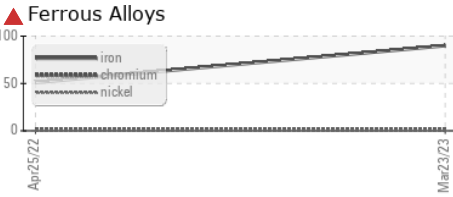
FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D974*	3.35	2.64	2.74	---
Alkiline Reserve (Oils)	ml KOH/g	ASTM D1121*	220	235	---	---

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	FRGLY	FRGLY	---
Odor	scalar	Visual*	NORML	NORML	NORML	---
Emulsified Water	scalar	Visual*	>60	>10%	>10%	---
Free Water	scalar	Visual*		NEG	NEG	---

FLUID PROPERTIES		method	limit/base	current	history1	history2
pH	Scale 0-14	ASTM D1287*		8.70	---	---
Visc @ 40°C	cSt	ASTM D7279(m)	2.3	2.4	2.4	---

SAMPLE IMAGES		method	limit/base	current	history1	history2
Color						no image
Bottom						no image

GRAPHS



Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PC
Lab Number : 02551532
Unique Number : 5564547
Test Package : MAR 2 (Additional Tests: KF, KV100, pH, PQ, ReserveAlk, TAN Man)
Received : 14 Apr 2023
Tested : 18 Apr 2023
Diagnosed : 21 Apr 2023 - Kevin Marson

Suncor - Terra Nova Projects
 Scotia Centre, 235 Water Street
 St. John's, NL
 CA A1C 1B6
 Contact: Josh Hynes
 joshynes@suncor.com
 T: (709)778-3575
 F: (709)724-2835

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.