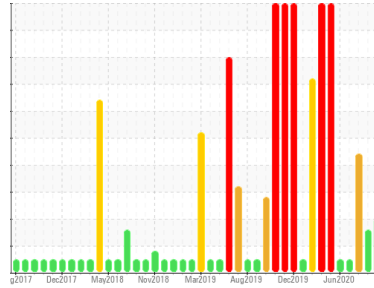


PROBLEM SUMMARY

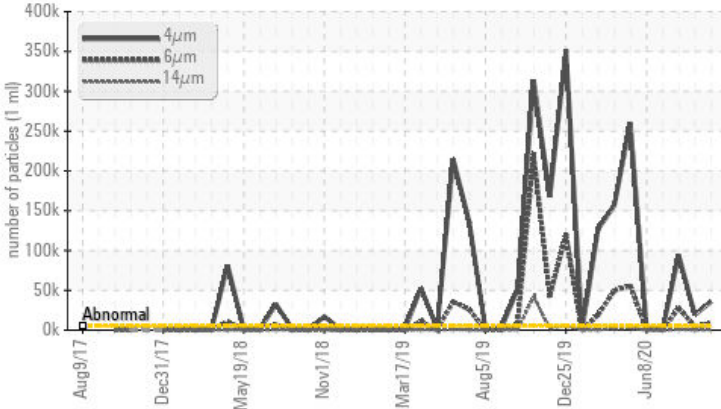
Area
Fwd Machinery Space [450222454]
 Machine Id
Thruster Fwd Aft - Seal Oil System (S/N Sample Tag CL-06005-S3)
 Component
Sealing System
 Fluid
PETRO CANADA ENERGOL GR-XP ISO 150 (65 LTR)

Sample Rating Trend



COMPONENT CONDITION SUMMARY

▲ Particle Trend



RECOMMENDATION

We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. We recommend an early resample to monitor this condition.

PROBLEMATIC TEST RESULTS

Sample Status			ABNORMAL	ABNORMAL	SEVERE
Particles >4µm	ASTM D7647	>5000	▲ 35769	▲ 19236	● 94068
Particles >6µm	ASTM D7647	>1300	▲ 8833	▲ 4139	● 27701
Particles >14µm	ASTM D7647	>160	▲ 512	153	▲ 934
Particles >21µm	ASTM D7647	>40	▲ 134	22	▲ 141
Oil Cleanliness	ISO 4406 (c)	>19/17/14	▲ 22/20/16	▲ 21/19/14	● 24/22/17

Customer Id: TERHAM
 Sample No.: PC0076461
 Lab Number: 02599117
 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 Filter	---	---	?	We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid.
Resample	---	---	?	We recommend an early resample to monitor this condition.
Filter Fluid	---	---	?	We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid.

HISTORICAL DIAGNOSIS

14 Sep 2023 Diag: Bill Quesnel

ADDITIVES



We recommend you service the filters on this component. Confirm the source of the lubricant being utilized for top-up/fill. We recommend an early resample to monitor this condition. All component wear rates are normal. There is a moderate amount of silt (particulates < 14 microns in size) present in the fluid. Additive levels indicate the addition of a different brand, or type of fluid. The AN level is acceptable for this fluid. The fluid is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

view report



14 Aug 2023 Diag: Bill Quesnel

ISO



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. All component wear rates are normal. There is a high amount of particulates (2 to 100 microns in size) present in the fluid. The AN level is acceptable for this fluid. The fluid is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

view report



06 Jul 2020 Diag: Kevin Marson

NORMAL

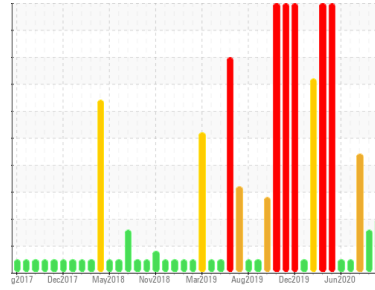


Resample at the next service interval to monitor. All component wear rates are normal. The system cleanliness is acceptable for your target ISO 4406 cleanliness code. The system and fluid cleanliness is acceptable. The AN level is acceptable for this fluid. The condition of the fluid is suitable for further service.

view report



Area
Fwd Machinery Space [450222454]
 Machine Id
Thruster Fwd Aft - Seal Oil System (S/N Sample Tag CL-06005-S3)
 Component
Sealing System
 Fluid
PETRO CANADA ENERGOL GR-XP ISO 150 (65 LTR)



DIAGNOSIS

Recommendation
 We advise that you perform a filter service, and use off-line filtration to improve the cleanliness of the system fluid. We recommend an early resample to monitor this condition.

Wear
 All component wear rates are normal.

Contamination
 There is a moderate amount of particulates (2 to 100 microns in size) present in the fluid.

Fluid Condition
 The AN level is acceptable for this fluid. The fluid is still serviceable provided that the contaminant(s) can be reduced to acceptable levels.

SAMPLE INFORMATION

method	limit/base	current	history1	history2
Sample Number	Client Info	PC0076461	PC	PC0062024
Sample Date	Client Info	09 Nov 2023	14 Sep 2023	14 Aug 2023
Machine Age	hrs	0	0	0
Oil Age	hrs	0	0	0
Oil Changed	Client Info	N/A	N/A	N/A
Sample Status		ABNORMAL	ABNORMAL	SEVERE

CONTAMINATION

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

WEAR METALS

method	limit/base	current	history1	history2
PQ	ASTM D8184*	0	0	0
Iron	ppm ASTM D5185(m) >100	2	3	1
Chromium	ppm ASTM D5185(m) >3	0	0	0
Nickel	ppm ASTM D5185(m) >8	0	0	<1
Titanium	ppm ASTM D5185(m)	0	0	0
Silver	ppm ASTM D5185(m)	<1	<1	0
Aluminum	ppm ASTM D5185(m) >3	0	0	0
Lead	ppm ASTM D5185(m)	0	<1	0
Copper	ppm ASTM D5185(m) >3	<1	<1	<1
Tin	ppm ASTM D5185(m)	0	0	0
Antimony	ppm ASTM D5185(m)	0	0	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

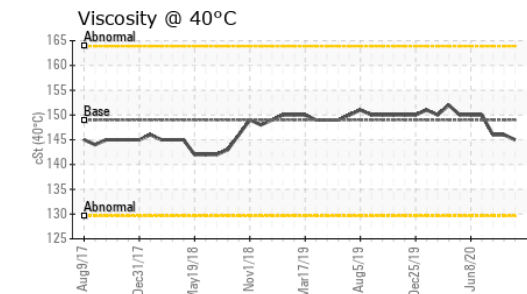
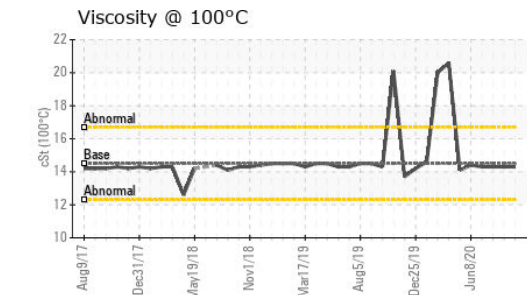
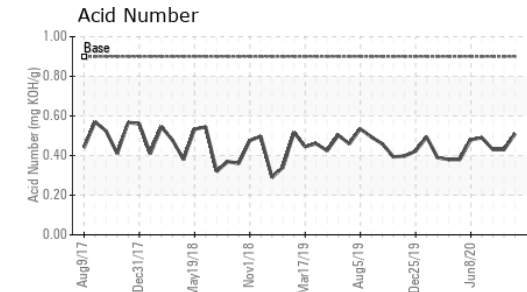
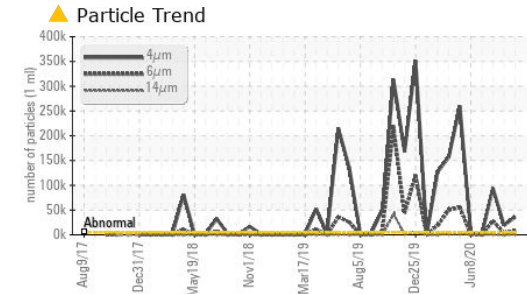
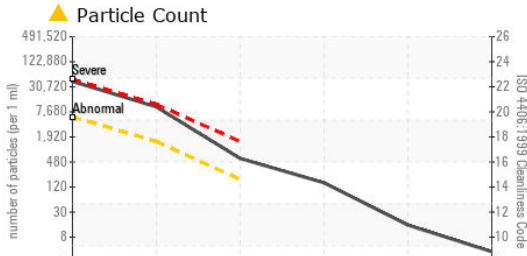
ADDITIVES

method	limit/base	current	history1	history2
Boron	ppm ASTM D5185(m)	12	9	15
Barium	ppm ASTM D5185(m)	<1	<1	0
Molybdenum	ppm ASTM D5185(m)	0	0	0
Manganese	ppm ASTM D5185(m)	0	0	0
Magnesium	ppm ASTM D5185(m)	<1	2	<1
Calcium	ppm ASTM D5185(m)	6	▲ 30	13
Phosphorus	ppm ASTM D5185(m)	169	178	207
Zinc	ppm ASTM D5185(m)	5	15	6
Sulfur	ppm ASTM D5185(m)	10919	16007	15848
Lithium	ppm ASTM D5185(m)	<1	<1	<1

CONTAMINANTS

method	limit/base	current	history1	history2
Silicon	ppm ASTM D5185(m) >25	5	3	11
Sodium	ppm ASTM D5185(m)	2	2	<1
Potassium	ppm ASTM D5185(m) >20	0	0	<1

OIL ANALYSIS REPORT



ISO 17025:2017
Accredited
Laboratory

Laboratory : WearCheck - C8-1175 Appleby Line, Burlington, ON L7L 5H9
Sample No. : PC0076461
Lab Number : 02599117
Unique Number : 5684197
Test Package : MAR 2 (Additional Tests: KV100, PQ, PrtCount, TAN Man, VI)

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.

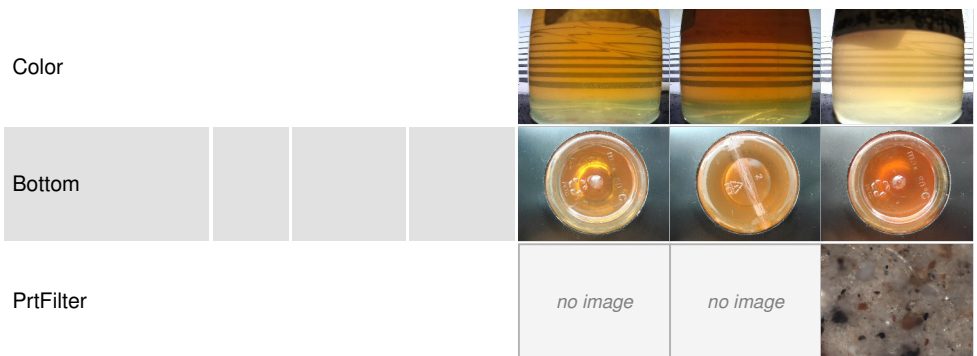
FLUID CLEANLINESS	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>5000	▲ 35769	▲ 19236	● 94068
Particles >6µm	ASTM D7647	>1300	▲ 8833	▲ 4139	● 27701
Particles >14µm	ASTM D7647	>160	▲ 512	153	▲ 934
Particles >21µm	ASTM D7647	>40	▲ 134	22	▲ 141
Particles >38µm	ASTM D7647	>10	13	1	1
Particles >71µm	ASTM D7647	>3	3	1	0
Oil Cleanliness	ISO 4406 (c)	>19/17/14	▲ 22/20/16	▲ 21/19/14	● 24/22/17

FLUID DEGRADATION	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g ASTM D974*	0.9	0.51	0.43	0.43

VISUAL	method	limit/base	current	history1	history2
White Metal	scalar Visual*	NONE	NONE	NONE	VLITE
Yellow Metal	scalar Visual*	NONE	NONE	NONE	NONE
Precipitate	scalar Visual*	NONE	NONE	NONE	NONE
Silt	scalar Visual*	NONE	NONE	NONE	VLITE
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*		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)	149	145	146	146
Visc @ 100°C	cSt ASTM D7279(m)	14.5	14.3	14.3	14.3
Viscosity Index (VI)	Scale ASTM D2270*		95	95	95

SAMPLE IMAGES



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