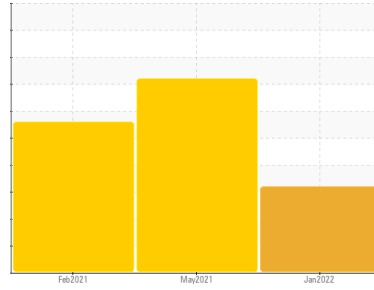


PROBLEM SUMMARY

Sample Rating Trend



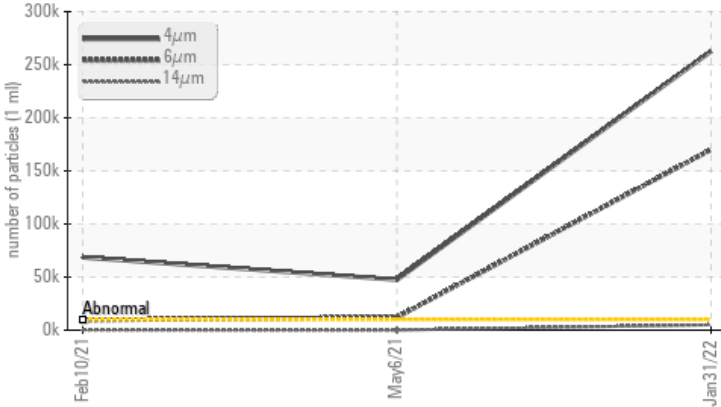
Machine Id
VILTER C

Component
Compressor

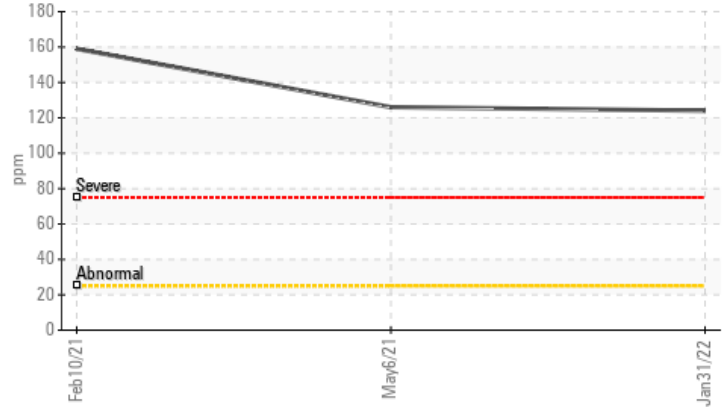
Fluid
TULCO LUBSOIL LPG WI 100 (--- GAL)

COMPONENT CONDITION SUMMARY

▲ Particle Trend



▲ Silicon (ppm)



RECOMMENDATION

We recommend you service the filters on this component if applicable. Resample at the next service interval to monitor.

PROBLEMATIC TEST RESULTS

Sample Status			ABNORMAL	SEVERE	SEVERE
Silicon	ppm	ASTM D5185m >25	▲ 124	126	159
Particles >4µm		ASTM D7647 >10000	▲ 262692	▲ 47511	▲ 68602
Particles >6µm		ASTM D7647 >1300	▲ 170047	▲ 12061	▲ 9452
Particles >14µm		ASTM D7647 >320	▲ 5045	104	290
Particles >21µm		ASTM D7647 >80	▲ 276	12	85
Oil Cleanliness		ISO 4406 (c) >20/17/15	▲ 25/25/20	▲ 23/21/14	▲ 23/20/15

Customer Id: MELMELTX
Sample No.: TO50000082
Lab Number: 05459246
Test Package: IND 2



To manage this report scan the QR code

To discuss the diagnosis or test data:
Doug Bogart +1 (800)237-1369 x4016
dougb@wearcheckusa.com

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

RECOMMENDED ACTIONS

Action	Status	Date	Done By	Description
Change Filter	MISSED	Jun 20 2022	?	We recommend you service the filters on this component if applicable.

HISTORICAL DIAGNOSIS

06 May 2021 Diag: Jonathan Hester

DIRT



We advise that you follow the water drain-off procedure for this component. The filter change at the time of sampling has been noted. Resample at the next service interval to monitor. All component wear rates are normal. There is a high amount of silt (particulates < 14 microns in size) present in the oil. Elemental level of silicon (Si) above normal indicating ingress of seal material. There is a moderate concentration of water present in the oil. The AN level is acceptable for this fluid.

view report



10 Feb 2021 Diag: Jonathan Hester

DIRT



We recommend you service the filters on this component if applicable. We recommend an early resample to monitor this condition. All component wear rates are normal. There is a high amount of silt (particulates < 14 microns in size) present in the oil. Elemental level of silicon (Si) above normal indicating ingress of seal material. The AN level is acceptable for this fluid.

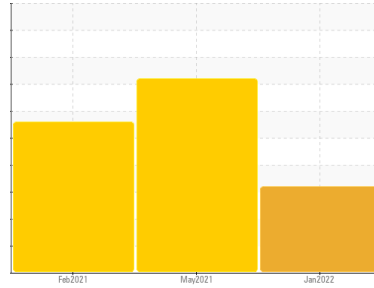
view report



Machine Id
VILTER C

Component
Compressor

Fluid
TULCO LUBSOIL LPG WI 100 (--- GAL)



DIAGNOSIS

Recommendation

We recommend you service the filters on this component if applicable. Resample at the next service interval to monitor.

Wear

All component wear rates are normal.

Contamination

There is a high amount of particulates present in the oil. Elemental level of silicon (Si) above normal indicating ingress of seal material.

Fluid Condition

The AN level is acceptable for this fluid.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number	Client Info			TO50000082	TO50000089	TO205180881
Sample Date	Client Info			31 Jan 2022	06 May 2021	10 Feb 2021
Machine Age	mths	Client Info		0	0	0
Oil Age	mths	Client Info		0	0	0
Oil Changed	Client Info			N/A	N/A	N/A
Sample Status				ABNORMAL	SEVERE	SEVERE

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>50	1	0	7
Chromium	ppm	ASTM D5185m	>10	0	0	0
Nickel	ppm	ASTM D5185m		0	<1	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m		0	0	0
Aluminum	ppm	ASTM D5185m	>25	<1	0	0
Lead	ppm	ASTM D5185m	>25	0	0	0
Copper	ppm	ASTM D5185m	>50	0	0	0
Tin	ppm	ASTM D5185m	>15	1	0	1
Antimony	ppm	ASTM D5185m		<1	2	0
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0

ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	0	0	0	<1
Barium	ppm	ASTM D5185m		0	0	0
Molybdenum	ppm	ASTM D5185m	0	0	0	0
Manganese	ppm	ASTM D5185m		0	0	<1
Magnesium	ppm	ASTM D5185m	0	0	0	0
Calcium	ppm	ASTM D5185m		0	0	0
Phosphorus	ppm	ASTM D5185m	0	8	<1	6
Zinc	ppm	ASTM D5185m	0	0	0	0
Sulfur	ppm	ASTM D5185m	0	4886	2457	3127

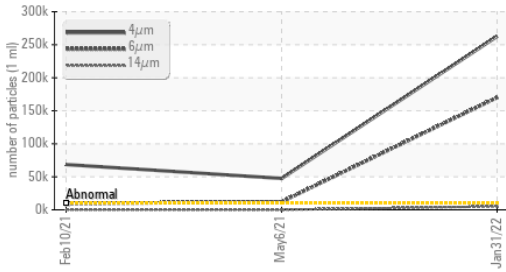
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	▲ 124	● 126	● 159
Sodium	ppm	ASTM D5185m		0	<1	0
Potassium	ppm	ASTM D5185m	>20	0	0	<1
Water	%	ASTM D6304	>2.26	0.222	▲ 0.537	0.007
ppm Water	ppm	ASTM D6304	>22600	2223.6	▲ 5370	73.0

FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>10000	▲ 262692	▲ 47511	▲ 68602
Particles >6µm		ASTM D7647	>1300	▲ 170047	▲ 12061	▲ 9452
Particles >14µm		ASTM D7647	>320	▲ 5045	104	290
Particles >21µm		ASTM D7647	>80	▲ 276	12	85
Particles >38µm		ASTM D7647	>20	4	0	4
Particles >71µm		ASTM D7647	>4	0	0	0
Oil Cleanliness		ISO 4406 (c)	>20/17/15	▲ 25/25/20	▲ 23/21/14	▲ 23/20/15

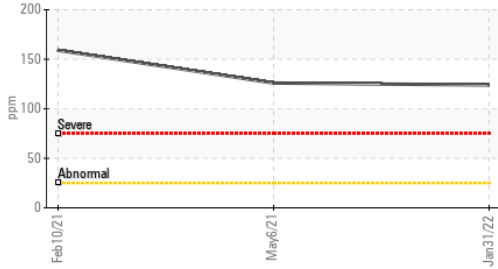
FLUID DEGRADATION		method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045		0.157	0.835	0.743

OIL ANALYSIS REPORT

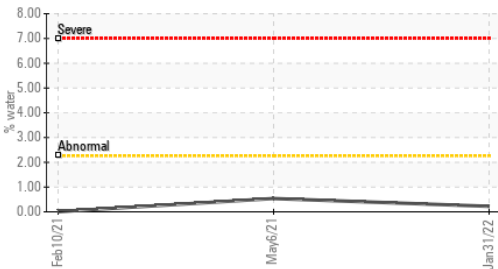
▲ Particle Trend



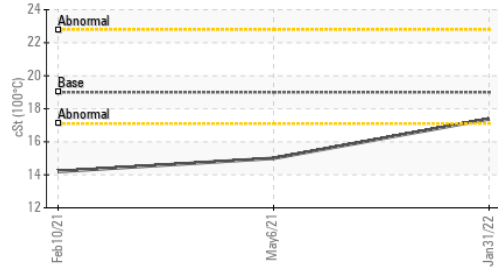
▲ Silicon (ppm)



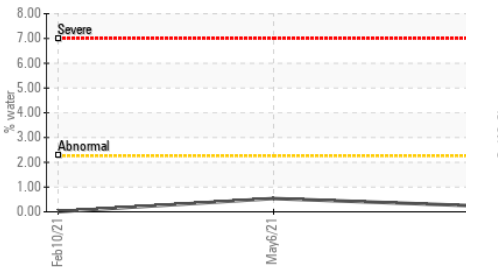
Water



Viscosity @ 100°C



Water



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	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>2.26	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG

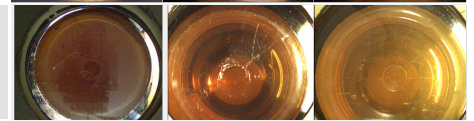
FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	113	109	98.3
Visc @ 100°C	cSt	ASTM D445	19	17.38	15.0
Viscosity Index (VI)	Scale	ASTM D2270	189	175	160

SAMPLE IMAGES	method	limit/base	current	history1	history2
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Color

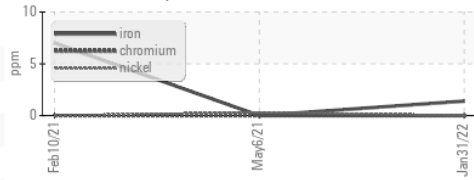


Bottom

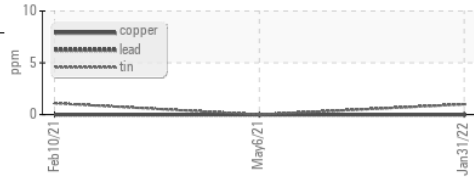


GRAPHS

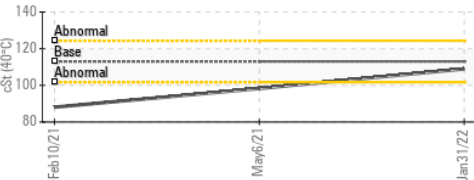
Ferrous Alloys



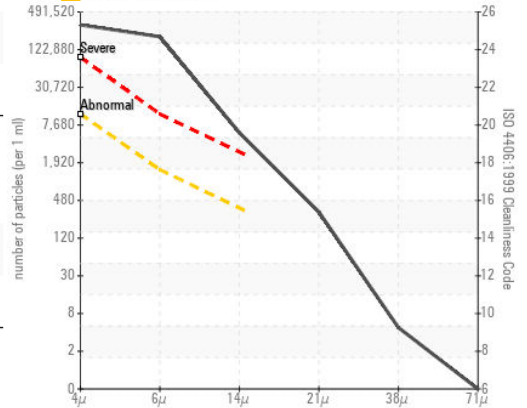
Non-ferrous Metals



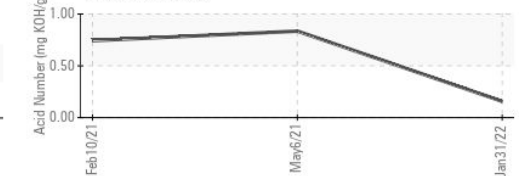
Viscosity @ 40°C



▲ Particle Count



Acid Number



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : TO50000082 **Received** : 03 Feb 2022
Lab Number : 05459246 **Diagnosed** : 09 Feb 2022
Unique Number : 9838442 **Diagnostician** : Doug Bogart
Test Package : IND 2 (Additional Tests: KF, KV100, PrtCount, VI)

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)

MELISSA RENEWABLES

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 US 75454

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 bpalmer@morrowenergy.com

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