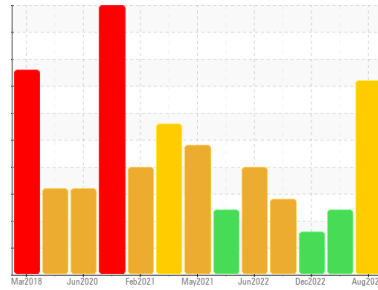




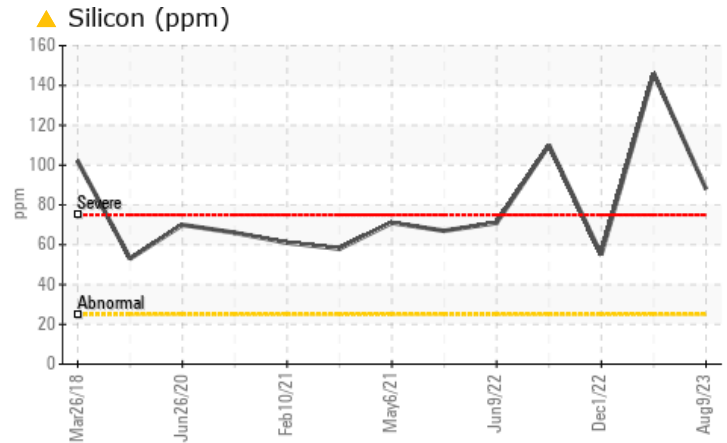
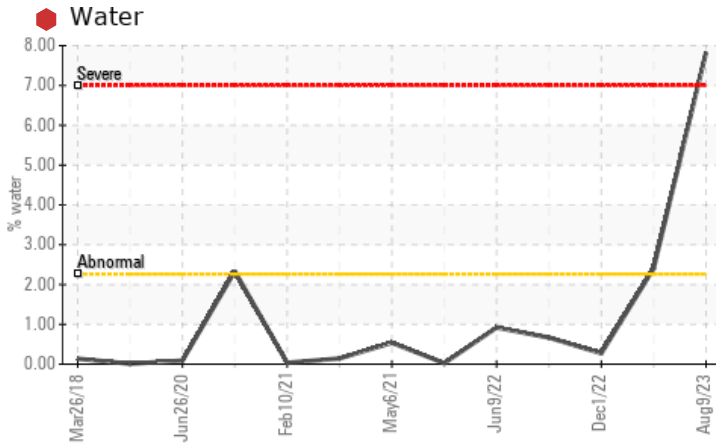
Machine Id
VILTER A

Component
Compressor

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



COMPONENT CONDITION SUMMARY



RECOMMENDATION

We advise that you check for the source of water entry. We recommend that you drain the oil from the component if this has not already been done. The filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition. We were unable to perform a particle count due to a high concentration of particles present in this sample.

PROBLEMATIC TEST RESULTS

Sample Status				SEVERE	ABNORMAL	ABNORMAL
Silicon	ppm	ASTM D5185m	>25	▲ 88	▲ 146	▲ 55
Water	%	ASTM D6304	>2.26	● 7.83	2.406	0.271
ppm Water	ppm	ASTM D6304	>22600	● 78300	24061.4	2717.5
Silt	scalar	*Visual	NONE	▲ MODER	▲ MODER	NONE
Emulsified Water	scalar	*Visual	>2.26	● 0.2%	NEG	NEG
Free Water	scalar	*Visual		▲ 1.0	NEG	NEG

Customer Id: MELMELTX
Sample No.: TO60001322
Lab Number: 05924358
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 Fluid	---	---	?	We recommend that you drain the oil from the component if this has not already been done.
Resample	---	---	?	We recommend an early resample to monitor this condition.
Alert	---	---	?	We were unable to perform a particle count due to a high concentration of particles present in this sample.
Check Water Access	---	---	?	We advise that you check for the source of water entry.

HISTORICAL DIAGNOSIS

19 Jul 2023 Diag: Don Baldrige

DIRT



No corrective action is recommended at this time. The filter change at the time of sampling has been noted. Resample at the next service interval to monitor. We were unable to perform a particle count due to a high concentration of particles present in this sample. All component wear rates are normal. Elemental level of silicon (Si) above normal. There is a moderate amount of visible silt present in the sample. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report



01 Dec 2022 Diag: Doug Bogart

DIRT



No corrective action is recommended at this time. 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. Elemental level of silicon (Si) above normal. The amount and size of particulates present in the system are acceptable. The AN level is acceptable for this fluid. The condition of the oil is suitable for further service.

view report



09 Jun 2022 Diag: Don Baldrige

DIRT



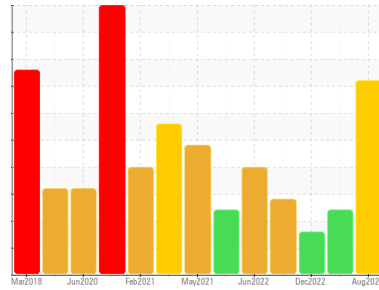
No corrective action is recommended at this time. The filter change at the time of sampling has been noted. Resample at the next service interval to monitor. All component wear rates are normal. There is a high amount of silt (particulates < 14 microns in size) present in the oil. Elemental level of silicon (Si) above normal indicating ingress of seal material. 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



WATER



Machine Id
VILTER A

Component
Compressor

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

DIAGNOSIS

Recommendation

We advise that you check for the source of water entry. We recommend that you drain the oil from the component if this has not already been done. The filter change at the time of sampling has been noted. We recommend an early resample to monitor this condition. We were unable to perform a particle count due to a high concentration of particles present in this sample.

Wear

All component wear rates are normal.

Contamination

Elemental level of silicon (Si) above normal indicating ingress of seal material. There is a moderate amount of visible silt present in the sample. There is a high concentration of water present in the oil. Free water present.

Fluid Condition

The AN level is acceptable for this fluid. The oil is no longer serviceable due to the presence of contaminants.

SAMPLE INFORMATION

	method	limit/base	current	history1	history2
Sample Number	Client Info		TO60001322	TO60000421	TO50000126
Sample Date	Client Info		09 Aug 2023	19 Jul 2023	01 Dec 2022
Machine Age	wks	Client Info	0	0	0
Oil Age	wks	Client Info	0	0	0
Oil Changed	Client Info		Filtered	Filtered	Filtered
Sample Status			SEVERE	ABNORMAL	ABNORMAL

WEAR METALS

	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m >50	5	3	<1
Chromium	ppm	ASTM D5185m >10	0	0	0
Nickel	ppm	ASTM D5185m	0	<1	<1
Titanium	ppm	ASTM D5185m	0	0	0
Silver	ppm	ASTM D5185m	0	<1	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	1	1
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	0
Barium	ppm	ASTM D5185m	0	<1	0
Molybdenum	ppm	ASTM D5185m 0	0	0	0
Manganese	ppm	ASTM D5185m	0	0	0
Magnesium	ppm	ASTM D5185m 0	5	0	2
Calcium	ppm	ASTM D5185m	0	0	0
Phosphorus	ppm	ASTM D5185m 0	4	0	36
Zinc	ppm	ASTM D5185m 0	0	0	4
Sulfur	ppm	ASTM D5185m 0	8826	9421	8505

CONTAMINANTS

	method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m >25	▲ 88	▲ 146	▲ 55
Sodium	ppm	ASTM D5185m	0	0	4
Potassium	ppm	ASTM D5185m >20	1	1	0
Water	%	ASTM D6304 >2.26	● 7.83	2.406	0.271
ppm Water	ppm	ASTM D6304 >22600	● 78300	24061.4	2717.5

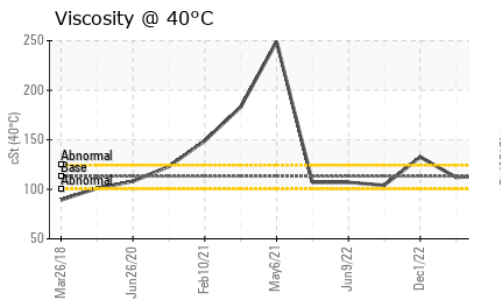
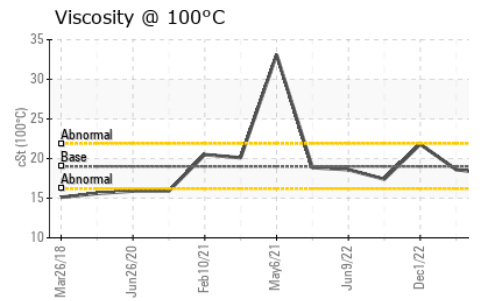
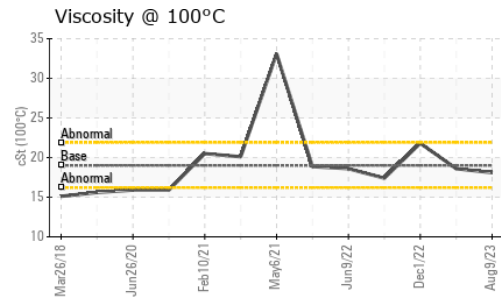
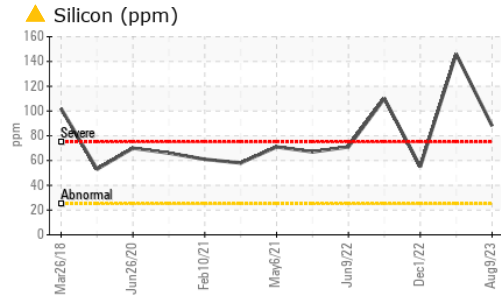
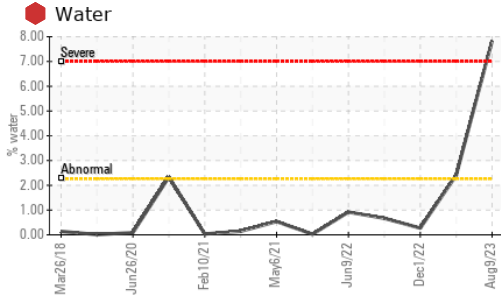
FLUID CLEANLINESS

	method	limit/base	current	history1	history2
Particles >4µm	ASTM D7647	>10000	---	---	3776
Particles >6µm	ASTM D7647	>2500	---	---	736
Particles >14µm	ASTM D7647	>320	---	---	42
Particles >21µm	ASTM D7647	>80	---	---	14
Particles >38µm	ASTM D7647	>20	---	---	0
Particles >71µm	ASTM D7647	>4	---	---	0
Oil Cleanliness	ISO 4406 (c)	>20/18/15	---	---	19/17/13

FLUID DEGRADATION

	method	limit/base	current	history1	history2
Acid Number (AN)	mg KOH/g	ASTM D8045	1.61	0.624	1.40

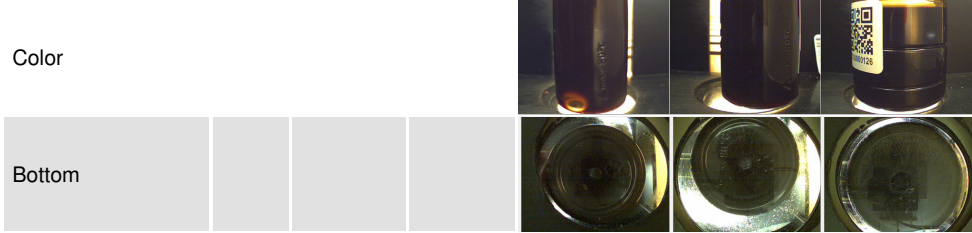
OIL ANALYSIS REPORT



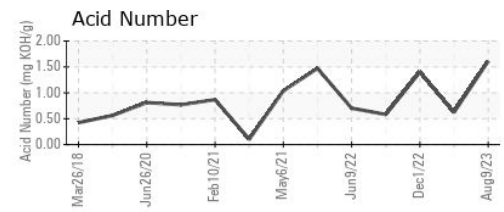
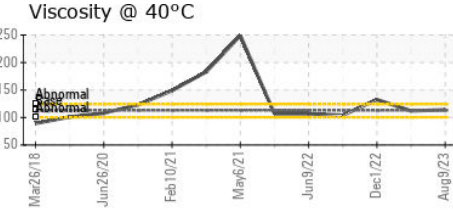
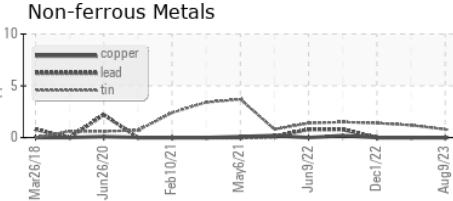
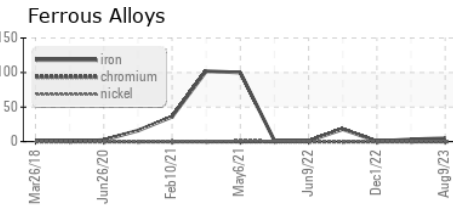
VISUAL	method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	▲ MODER	▲ MODER
Debris	scalar	*Visual	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>2.26	0.2%	NEG
Free Water	scalar	*Visual		1.0	NEG

FLUID PROPERTIES	method	limit/base	current	history1	history2
Visc @ 40°C	cSt	ASTM D445	113	114	112
Visc @ 100°C	cSt	ASTM D445	19	18.1	18.6
Viscosity Index (VI)	Scale	ASTM D2270	189	176	186

SAMPLE IMAGES	method	limit/base	current	history1	history2
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GRAPHS



Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : TO60001322 **Received** : 14 Aug 2023
Lab Number : 05924358 **Diagnosed** : 22 Aug 2023
Unique Number : 10604305 **Diagnostician** : Doug Bogart
Test Package : IND 2 (Additional Tests: KF, KV100, PrtCount, VI)

MELISSA RENEWABLES
 3820 SAM RAYBURN HWY
 MELISSA, TX
 US 75454
 Contact: BILL PALMER
 bpalmer@morrowenergy.com
 T: (972)529-8442
 F:

Certificate L2367
 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)