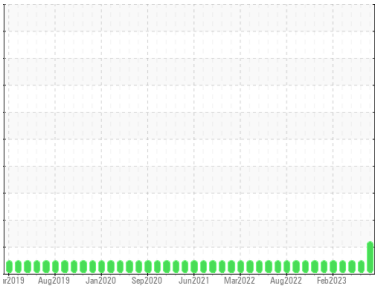
Hilcorp Alaska, LLC

PROBLEM SUMMARY

Sample Rating Trend

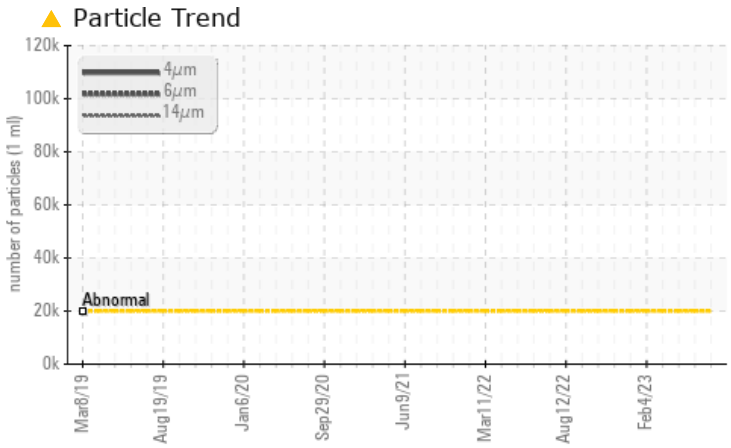


ISO

Machine Id
E 0110B E 0110B
Component
Diesel Engine
Fluid
MOBIL DELVAC 1240 (--- GAL)

COMPONENT CONDITION SUMMARY

Particle Trend



RECOMMENDATION

We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. We recommend you service the filters on this component. 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				ABNORMAL	NORMAL	NORMAL
Particles >4µm		ASTM D7647	>20000	▲ **109792**	---	---
Particles >6µm		ASTM D7647	>5000	▲ **11664**	---	---
Oil Cleanliness		ISO 4406 (c)	>21/19/16	▲ **24/21/11**	---	---

Customer Id: BPEMPU
Sample No.: HLC0002541
Lab Number: 05924184
Test Package: IND 2

To manage this report scan the QR code

To discuss the diagnosis or test data:
Wes Davis +1 905-569-8600 x223
wesd@wearcheck.ca

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	---	---	?	We recommend you service the filters on this component.
Resample	---	---	?	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 Dirt Access	---	---	?	We advise that you check the air filter, air induction system, and any areas where dirt may enter the component.

HISTORICAL DIAGNOSIS

09 Jun 2023 Diag: Wes Davis

NORMAL

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. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

view report

07 Apr 2023 Diag: Wes Davis

NORMAL

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. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

view report

02 Mar 2023 Diag: Jonathan Hester

NORMAL

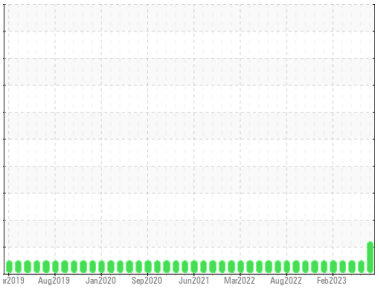
Resample at the next service interval to monitor.All component wear rates are normal. There is no indication of any contamination in the oil. The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

view report

Hilcorp Alaska, LLC

OIL ANALYSIS REPORT

Sample Rating Trend



ISO

Machine Id
E 0110B E 0110B
Component
Diesel Engine
Fluid
MOBIL DELVAC 1240 (--- GAL)

DIAGNOSIS

Recommendation
We advise that you check the air filter, air induction system, and any areas where dirt may enter the component. We recommend you service the filters on this component. 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
All component wear rates are normal.

Contamination
There is a moderate amount of silt (particulates < 14 microns in size) present in the oil.

Fluid Condition
The BN result indicates that there is suitable alkalinity remaining in the oil. The AN level is acceptable for this fluid.

SAMPLE INFORMATION		method	limit/base	current	history1	history2
Sample Number		Client Info		**HLC0002541**	HLC0002581	HLC0002240
Sample Date		Client Info		**06 Aug 2023**	09 Jun 2023	07 Apr 2023
Machine Age	hrs	Client Info		**0**	0	0
Oil Age	hrs	Client Info		**0**	0	0
Oil Changed		Client Info		**N/A**	N/A	N/A
Sample Status				**ABNORMAL**	NORMAL	NORMAL

CONTAMINATION		method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	**<1.0**	<1.0	<1.0
Glycol		WC Method		**NEG**	NEG	NEG

WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>90	**3**	3	3
Chromium	ppm	ASTM D5185m	>20	**<1**	<1	<1
Nickel	ppm	ASTM D5185m	>2	**0**	0	<1
Titanium	ppm	ASTM D5185m	>2	**0**	0	0
Silver	ppm	ASTM D5185m	>2	**0**	0	0
Aluminum	ppm	ASTM D5185m	>20	**<1**	1	<1
Lead	ppm	ASTM D5185m	>40	**0**	<1	0
Copper	ppm	ASTM D5185m	>330	**0**	0	<1
Tin	ppm	ASTM D5185m	>15	**<1**	0	<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		**197**	192	178
Barium	ppm	ASTM D5185m		**0**	0	0
Molybdenum	ppm	ASTM D5185m		**114**	110	113
Manganese	ppm	ASTM D5185m		**<1**	<1	<1
Magnesium	ppm	ASTM D5185m		**1036**	1051	1083
Calcium	ppm	ASTM D5185m		**425**	429	417
Phosphorus	ppm	ASTM D5185m		**946**	924	939
Zinc	ppm	ASTM D5185m		**1083**	1129	1113
Sulfur	ppm	ASTM D5185m		**3649**	3802	3911

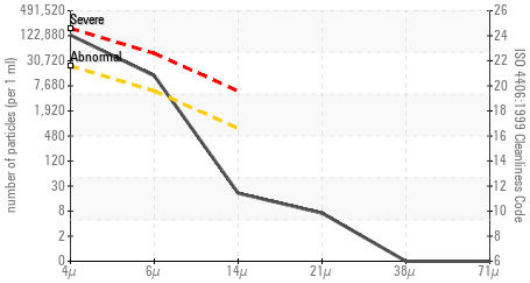
CONTAMINANTS		method	limit/base	current	history1	history2
Silicon	ppm	ASTM D5185m	>25	**14**	13	8
Sodium	ppm	ASTM D5185m		**2**	6	1
Potassium	ppm	ASTM D5185m	>20	**0**	<1	<1

INFRA-RED		method	limit/base	current	history1	history2
Soot %	%	*ASTM D7844	>6	**0**	0.1	0
Nitration	Abs/cm	*ASTM D7624	>20	**4.5**	4.8	5.1
Sulfation	Abs/.1mm	*ASTM D7415	>30	**13.1**	13.4	13.7

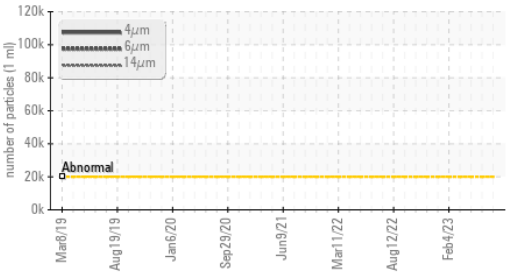
OIL ANALYSIS REPORT

Hilcorp Alaska, LLC

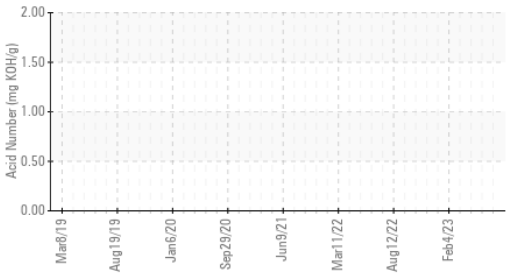
Particle Count



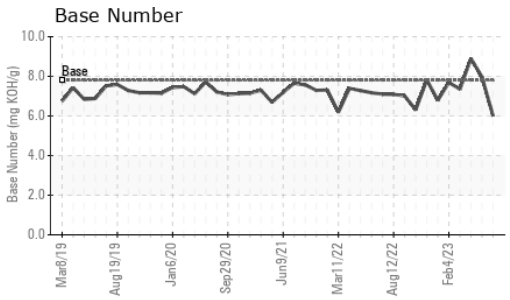
Particle Trend



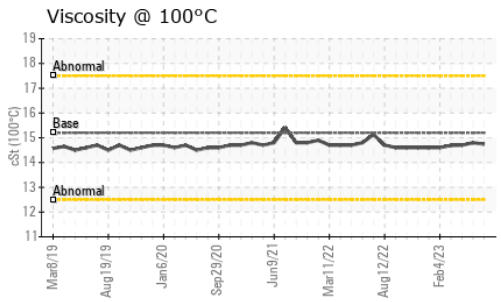
Acid Number



Base Number



Viscosity @ 100°C



FLUID CLEANLINESS		method	limit/base	current	history1	history2
Particles >4µm		ASTM D7647	>20000	▲ **109792**	---	---
Particles >6µm		ASTM D7647	>5000	▲ **11664**	---	---
Particles >14µm		ASTM D7647	>640	**18**	---	---
Particles >21µm		ASTM D7647	>160	**6**	---	---
Particles >38µm		ASTM D7647	>40	**0**	---	---
Particles >71µm		ASTM D7647	>10	**0**	---	---
Oil Cleanliness		ISO 4406 (c)	>21/19/16	▲ **24/21/11**	---	---

FLUID DEGRADATION		method	limit/base	current	history1	history2
Oxidation	Abs/.1mm	*ASTM D7414	>25	**8.4**	8.3	9.4
Acid Number (AN)	mg KOH/g	ASTM D8045		**1.95**	---	---
Base Number (BN)	mg KOH/g	ASTM D2896	7.8	**6.0**	7.96	8.90

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	**NONE**	NONE	NONE
Debris	scalar	*Visual	NONE	**NONE**	NONE	NONE
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 D445	143	**138**	---	---
Visc @ 100°C	cSt	ASTM D445	15.2	**14.74**	14.8	14.7
Viscosity Index (VI)	Scale	ASTM D2270	107	**106**	---	---

ANAB ACCREDITED ISO/IEC 17025 TESTING LABORATORY
Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : HLC0002541 **Received** : 14 Aug 2023
Lab Number : 05924184 **Diagnosed** : 16 Aug 2023
Unique Number : 10604131 **Diagnostician** : Wes Davis
Test Package : IND 2 (Additional Tests: KV40, 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)

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