

### **OIL ANALYSIS REPORT**

Sample Rating Trend

### NORMAL

Machine Id

# KENWORTH 3919

#### Component Diesel Engine

Fluid CHEVRON DELO 400 XLE 10W30 (40 QTS)

#### DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor.

#### Wear

All component wear rates are normal.

#### Contamination

There is no indication of any contamination in the oil.

#### Fluid Condition

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

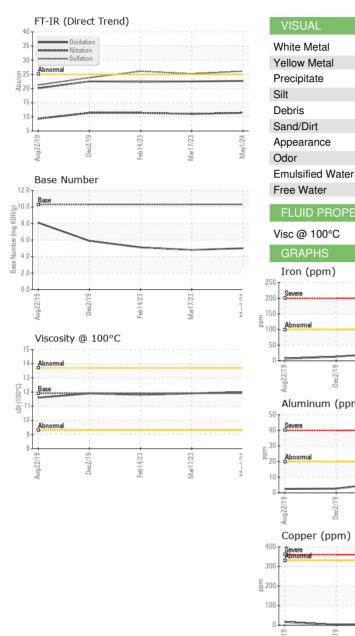
SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0650642	WC0754167	WC0650663
Sample Date		Client Info		01 May 2024	17 Mar 2023	14 Feb 2023
Machine Age	mls	Client Info		399354	289407	386424
Oil Age	mls	Client Info		0	49148	0
Oil Changed		Client Info		Changed	Changed	N/A
Sample Status				NORMAL	NORMAL	NORMAL
		mathad	limit/bass			
CONTAMINATION	N	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	29	19	24
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	<1	0	0
Titanium	ppm	ASTM D5185m		2	<1	1
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	7	5	6
Lead	ppm	ASTM D5185m	>40	<1	<1	<1
Copper	ppm	ASTM D5185m	>330	7	7	6
Tin	ppm	ASTM D5185m	>15	2	<1	<1
Antimony	ppm	ASTM D5185m				
Vanadium	ppm	ASTM D5185m		<1	<1	0
Cadmium	ppm	ASTM D5185m		<1	0	0
Cadmium ADDITIVES	ppm	ASTM D5185m method	limit/base	<1 current	0 history1	0 history2
	ppm ppm		limit/base			
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 32	history1 27	history2 21
ADDITIVES Boron Barium	ppm ppm ppm	method ASTM D5185m ASTM D5185m	limit/base	current 32 0	history1 27 0	history2 21 0
ADDITIVES Boron Barium Molybdenum	ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	current 32 0 3	history1 27 0 4	history2 21 0 2
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	current 32 0 3 <1	history1 27 0 4 <1	history2 21 0 2 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		current 32 0 3 <1 636	history1 27 0 4 <1 759	history2 21 0 2 <1 617
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm ppm ppm	Method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2900	current     32     0     3     <1     636     1479	history1 27 0 4 <1 759 1459	history2 21 0 2 <1 617 1589
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2900 1100	current     32     0     3     <1     636     1479     765	history1 27 0 4 <1 759 1459 725	history2     21     0     2     <1     617     1589     728
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	Method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2900 1100 1200	current     32     0     3     <1     636     1479     765     894	history1 27 0 4 <1 759 1459 725 865	history2     21     0     2     <1     617     1589     728     890
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2900 1100 1200 4000	current     32     0     3     <1     636     1479     765     894     3411	history1 27 0 4 <1 759 1459 725 865 3438	history2   21   0   2   <1   617   1589   728   890   3455
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2900 1100 1200 4000 limit/base	32   0   3   <1   636   1479   765   894   3411   current	history1   27   0   4   <1   759   1459   725   865   3438   history1	history2   21   0   2   <1   617   1589   728   890   3455   history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	method     ASTM D5185m	2900 1100 1200 4000 limit/base >25	current     32     0     3     <1     636     1479     765     894     3411     current     8	history1   27   0   4   <1   759   1459   725   865   3438   history1   8	history2   21   0   2   <1   617   1589   728   890   3455   history2   8
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method     ASTM D5185m	2900 1100 1200 4000 limit/base >25	current     32     0     3     <1     636     1479     765     894     3411     current     8     1	history1   27   0   4   <1   759   1459   725   865   3438   history1   8   3	history2   21   0   2   <1   617   1589   728   890   3455   history2   8   3
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method     ASTM D5185m	2900 1100 1200 4000 limit/base >25 >20 limit/base	32   0   3   <1   636   1479   765   894   3411   current   8   1   7   current	history1   27   0   4   <1   759   1459   725   865   3438   history1   8   3   6   history1	history2   21   0   2   <1   617   1589   728   890   3455   history2   8   3   4
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm	method     ASTM D5185m	2900 1100 1200 4000 limit/base >25 >20 limit/base >3	current   32   0   3   <1   636   1479   765   894   3411   current   8   1   7   current   0   0.8	history1   27   0   4   <1   759   1459   725   865   3438   history1   8   3   6   history1   0.5	history2   21   0   2   <1   617   1589   728   890   3455   history2   8   3   4   history2   0.7
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method     ASTM D5185m	2900 1100 1200 4000 limit/base >25 >20 limit/base >3 >20	32   0   3   <1   636   1479   765   894   3411   current   8   1   7   current	history1   27   0   4   <1   759   1459   725   865   3438   history1   8   3   6   history1	history2   21   0   2   <1   617   1589   728   890   3455   history2   8   3   4
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method     ASTM D5185m     ASTM D5185m	2900 1100 1200 4000 <b>1imit/base</b> >25 >20 <b>1imit/base</b> >3 >20 >30	Current   32   0   3   <1   636   1479   765   894   3411   current   8   1   7   current   0.8   11.4   26.1	history1   27   0   4   <1   759   1459   725   865   3438   history1   8   3   6   history1   0.5   11.0   25.2	history2   21   0   2   <1   617   1589   728   890   3455   history2   8   3   4   history2   0.7   11.4
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method     ASTM D5185m     ASTM D7844     *ASTM D7624     *ASTM D7415     method	29900 1100 1200 4000 225 220 220 imit/base >3 >20 >30 30 imit/base	32   0   3   <1   636   1479   765   894   3411   current   8   1   7   current   0.8   11.4   26.1   current	history1   27   0   4   <1   759   1459   725   865   3438   history1   8   3   6   history1   0.5   11.0   25.2   history1	history2   21   0   2   <10   617   1589   728   890   3455   history2   8   3   4   history2   0.7   11.4   26.1   history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method     ASTM D5185m     ASTM D5185m	2900 1100 1200 4000 <b>1imit/base</b> >25 >20 <b>1imit/base</b> >3 >20 >30	Current   32   0   3   <1   636   1479   765   894   3411   current   8   1   7   current   0.8   11.4   26.1	history1   27   0   4   <1   759   1459   725   865   3438   history1   8   3   6   history1   0.5   11.0   25.2	history2   21   0   2   <1   617   1589   728   890   3455   history2   8   3   4   history2   0.7   11.4   26.1

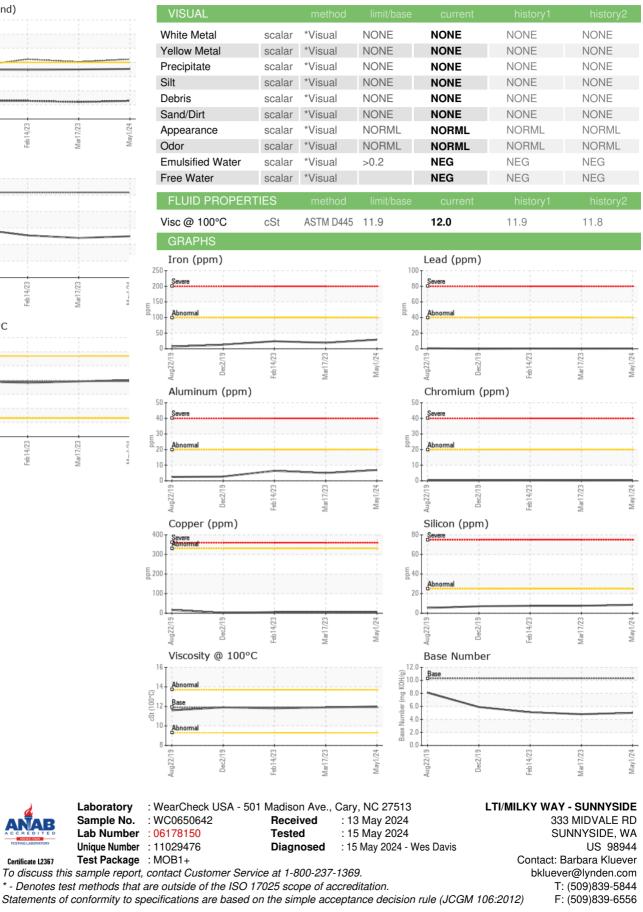
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Contact/Location: Barbara Kluever - LTISUN



## **OIL ANALYSIS REPORT**





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Certificate 12367

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St (100°C)

Laboratory

Sample No.

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Contact/Location: Barbara Kluever - LTISUN