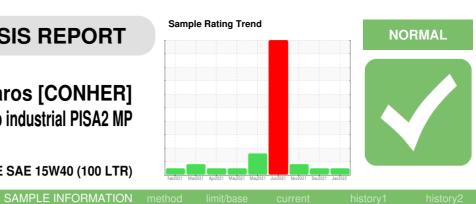


# **OIL ANALYSIS REPORT**

## GUAY SON/Yavaros [CONHER] Machine Id CATERPILLAR Pacifico industrial PISA2 MP Component

Diesel Engine

CHEVRON DELO 400 SDE SAE 15W40 (100 LTR)



### 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.

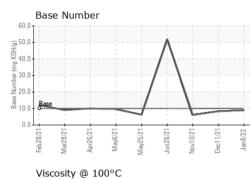
		method	iiiiii/base	current	Thistory	
Sample Number		Client Info		KL0009056	KL0009022	KL0007616
Sample Date		Client Info		08 Jan 2022	11 Dec 2021	10 Nov 2021
Machine Age	hrs	Client Info		33600	33300	32980
Oil Age	hrs	Client Info		820	520	200
Oil Changed		Client Info		Not Changd	Not Changd	N/A
Sample Status				NORMAL	NORMAL	ABNORMAL
CONTAMINATIO	N	method	limit/base	current	history1	history2
Fuel			>5	<1.0	<1.0	<1.0
Water		WC Method		NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS		method	limit/base		history1	history2
Iron	ppm	ASTM D5185m	>100	25	21	30
Chromium	ppm	ASTM D5185m	>20	<1	<1	1
Nickel	ppm	ASTM D5185m	>2	0	0	<1
Titanium	ppm	ASTM D5185m	>2	0	<1	<1
Silver	ppm	ASTM D5185m	>2	0	<1	0
Aluminum	ppm	ASTM D5185m	>25	<1	2	4
Lead	ppm	ASTM D5185m	>40	<1	<1	2
Copper	ppm	ASTM D5185m	>330	28	44	107
Tin	ppm	ASTM D5185m	>15	<1	1	0
Antimony	ppm	ASTM D5185m		0	0	0
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	<1
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 213	history1 208	history2 153
	ppm ppm		limit/base			
Boron	ppm	ASTM D5185m	limit/base	213	208	153
Boron Barium		ASTM D5185m ASTM D5185m	limit/base	213 0	208 0	153 0
Boron Barium Molybdenum	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	213 0 118	208 0 120	153 0 111
Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	213 0 118 <1	208 0 120 <1 710	153 0 111 1
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	213 0 118 <1 725	208 0 120 <1	153 0 111 1 767
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m		213 0 118 <1 725 1651 758	208 0 120 <1 710 1610 689	153 0 111 1 767 1722 674
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	760	213 0 118 <1 725 1651	208 0 120 <1 710 1610	153 0 111 1 767 1722
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	760 800	213 0 118 <1 725 1651 758 864 2452	208 0 120 <1 710 1610 689 811	153 0 111 1 767 1722 674 813
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	760 800 3000	213 0 118 <1 725 1651 758 864 2452	208 0 120 <1 710 1610 689 811 1976	153 0 111 1 767 1722 674 813 3053
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	760 800 3000 limit/base	213 0 118 <1 725 1651 758 864 2452 current	208 0 120 <1 710 1610 689 811 1976 history1	153 0 111 1 767 1722 674 813 3053 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m	760 800 3000 limit/base	213 0 118 <1 725 1651 758 864 2452 current 6	208 0 120 <1 710 1610 689 811 1976 history1 7	153 0 1111 1 767 1722 674 813 3053 history2 5
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m	760 800 3000 limit/base >25	213 0 118 <1 725 1651 758 864 2452 current 6 0 <1	208 0 120 <1 710 1610 689 811 1976 history1 7 0	153 0 111 1 767 1722 674 813 3053 history2 5 2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	760 800 3000 limit/base >25 >20	213 0 118 <1 725 1651 758 864 2452 current 6 0 <1	208 0 120 <1 710 1610 689 811 1976 history1 7 0 <1	153 0 111 1 767 1722 674 813 3053 history2 5 2 2 <1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	760 800 3000 limit/base >25 >20	213 0 118 <1 725 1651 758 864 2452 current 6 0 <1 current	208 0 120 <1 710 1610 689 811 1976 history1 7 0 <1 history1	153 0 111 1 767 1722 674 813 3053 history2 5 2 2 <1 kistory2
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	ASTM D5185m ASTM D5185m	760 800 3000 limit/base >25 >20 limit/base >3	213 0 118 <1 725 1651 758 864 2452 <u>current</u> 6 0 <1 <u>current</u>	208 0 120 <1 710 1610 689 811 1976 history1 7 0 <1 <i>history1</i> 1.3	153 0 111 1 767 1722 674 813 3053 history2 5 2 2 <1 history2 <1 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	760 800 3000 limit/base >25 >20 limit/base >3 >20	213 0 118 <1 725 1651 758 864 2452 <u>current</u> 6 0 <1 <u>current</u> 0.1 9.7 20.8	208 0 120 <1 710 1610 689 811 1976 history1 7 0 <1 * history1 1.3 8.2	153 0 111 1 767 1722 674 813 3053 history2 5 2 2 <1 2 <1 history2 4.1 14.7
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	ASTM D5185m ASTM D5185m	760 800 3000 limit/base >25 >20 limit/base >3 >20 >3 >20	213 0 118 <1 725 1651 758 864 2452 <u>current</u> 6 0 <1 <u>current</u> 0.1 9.7 20.8	208 0 120 <1 710 1610 689 811 1976 history1 7 0 <1 * history1 1.3 8.2 26.2	153 0 111 1 767 1722 674 813 3053 <b>history2</b> 5 2 <1 <b>bistory2</b> ▲ 4.1 14.7 27.9
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	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7414	760 800 3000 limit/base >25 20 imit/base >3 >20 >30 >30	213 0 118 <1 725 1651 758 864 2452 Current 6 0 <1 Current 0.1 9.7 20.8 Current	208 0 120 <1 710 1610 689 811 1976 history1 7 0 <1 istory1 1.3 8.2 26.2 history1	153 0 111 1 767 1722 674 813 3053 history2 5 2 <1 5 2 <1 history2 ▲ 4.1 14.7 27.9 history2

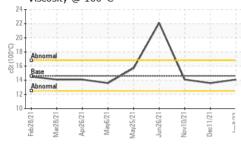
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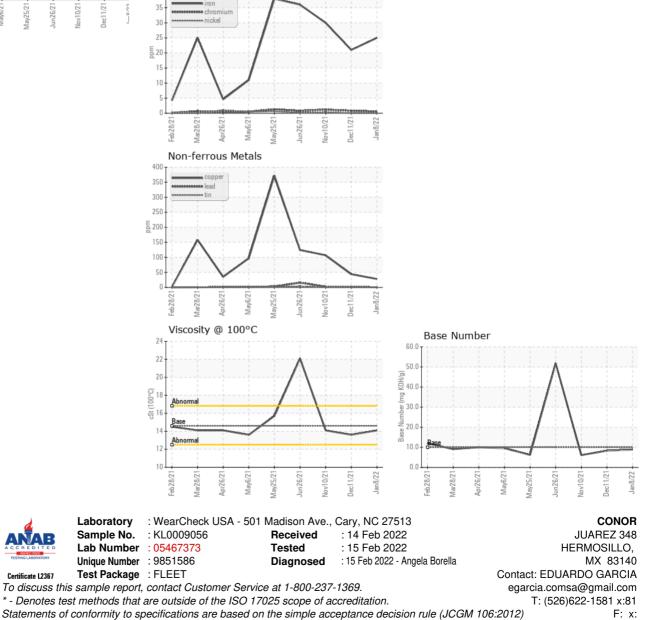
# **OIL ANALYSIS REPORT**





VISUAL		method				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 PROPER		method	limit/base	current	history1	history2
FLUID FROFER	IIE0	methoa	IIIIII/Dase	current	nistory i	TIIStOLY2
Visc @ 100°C	cSt	ASTM D445	14.6	14.1	13.6	14.1
GRAPHS						

Ferrous Alloys



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