

# **OIL ANALYSIS REPORT**

Sample Rating Trend



#### Machine Id Machine Id 8510 Component Diesel Engine Fluid DIESEL ENGINE OIL SAE 15W40 (--- QTS)

## DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor. Please specify the component make and model with your next sample. Please specify the brand, type, and viscosity of the oil on your next sample.

#### Wear

Area

All component wear rates are normal.

### Contamination

Elevated aluminum (Al) and/or lead (Pb) and potassium (K) levels in your metals analysis are likely a result of solder flux release into the lubricant and is common on new equipment/components. There is no indication of any contamination in the oil.

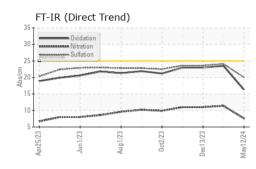
#### Fluid Condition

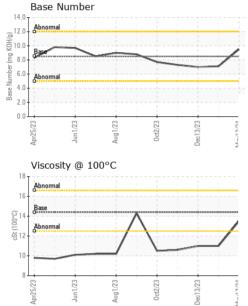
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORM	IATION	method	limit/base	current		history2
Sample Number		Client Info		WC0911656	WC0892142	WC0881855
Sample Date		Client Info		12 May 2024	10 Jan 2024	13 Dec 2023
Machine Age	mls	Client Info		0	43273	39673
Oil Age	mls	Client Info		0	0	0
Oil Changed		Client Info		N/A	Not Changd	Not Changd
Sample Status				NORMAL	ATTENTION	ATTENTION
CONTAMINATION	٨	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	20	86	89
Chromium	ppm	ASTM D5185m	>20	2	6	7
Nickel	ppm	ASTM D5185m	>4	<1	0	<1
Titanium	ppm	ASTM D5185m		<1	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	13	46	46
Lead	ppm	ASTM D5185m	>40	<1	0	0
Copper	ppm	ASTM D5185m	>330	1	7	7
Tin	ppm	ASTM D5185m	>15	<1	<1	0
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		<1	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 250	current 37	history1 19	history2 21
	ppm ppm					
Boron		ASTM D5185m	250	37	19	21
Boron Barium	ppm	ASTM D5185m ASTM D5185m	250 10	37 2	19 1	21 4
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	250 10	37 2 49	19 1 38	21 4 40
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100	37 2 49 <1	19 1 38 3	21 4 40 3
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450	37 2 49 <1 500	19 1 38 3 496	21 4 40 3 531
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000	37 2 49 <1 500 1432	19 1 38 3 496 1493	21 4 40 3 531 1623
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150	37 2 49 <1 500 1432 989	19 1 38 3 496 1493 676	21 4 40 3 531 1623 844
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350	37 2 49 <1 500 1432 989 1112	19 1 38 3 496 1493 676 923	21 4 40 3 531 1623 844 1002
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250	37 2 49 <1 500 1432 989 1112 3033	19 1 38 3 496 1493 676 923 2277	21 4 40 3 531 1623 844 1002 2528
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	250 10 100 450 3000 1150 1350 4250	37 2 49 <1 500 1432 989 1112 3033 current	19 1 38 3 496 1493 676 923 2277 history1	21 4 40 3 531 1623 844 1002 2528 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Chosphorus 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>	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25	37 2 49 <1 500 1432 989 1112 3033 current 5	19 1 38 3 496 1493 676 923 2277 history1 12	21 4 40 3 531 1623 844 1002 2528 history2 13
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 ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >158	37 2 49 <1 500 1432 989 1112 3033 <u>current</u> 5 <	19 1 38 3 496 1493 676 923 2277 history1 12 5	21 4 40 3 531 1623 844 1002 2528 history2 13 7
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	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >158 >20	37 2 49 <1 500 1432 989 1112 3033 current 5 < <1 40	19 1 38 3 496 1493 676 923 2277 history1 12 5 5 146	21 4 40 3 531 1623 844 1002 2528 history2 13 7 152
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>Imit/base</b> >25 >158 >20 <b>Imit/base</b>	37 2 49 <1 500 1432 989 1112 3033 current 5 <1 40 current	19 1 38 3 496 1493 676 923 2277 <b>history1</b> 12 5 146 <b>history1</b>	21 4 40 3 531 1623 844 1002 2528 history2 13 7 152 history2
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 ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >158 >20 <b>limit/base</b> >3	37 2 49 <1 500 1432 989 1112 3033 current 5 <1 40 current 0.3	19 1 38 3 496 1493 676 923 2277 history1 12 5 146 history1 1	21 4 40 3 531 1623 844 1002 2528 history2 13 7 152 history2 1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>Iimit/base</b> >25 >158 >20 <b>Iimit/base</b> >3 >20	37 2 49 <1 500 1432 989 1112 3033 <i>current</i> 5 <1 40 <i>current</i> 0.3 7.6	19 1 38 3 496 1493 676 923 2277 history1 12 5 146 history1 1 1 1 1 1	21 4 40 3 531 1623 844 1002 2528 history2 13 7 152 history2 1 152 1 11.0
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	250 10 100 450 3000 1150 1350 4250 <b>binit/base</b> >25 >158 >20 <b>binit/base</b> >3 >20	37 2 49 <1 500 1432 989 1112 3033 current 5 <1 40 current 0.3 7.6 20.0	19 1 38 3 496 1493 676 923 2277 history1 12 5 146 history1 1 1 1 1.4 24.1	21 4 40 3 531 1623 844 1002 2528 history2 13 7 152 history2 1 1 11.0 23.6



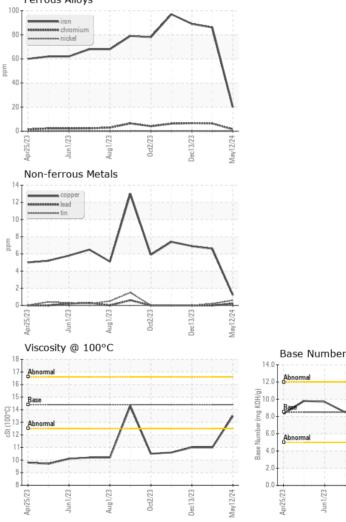
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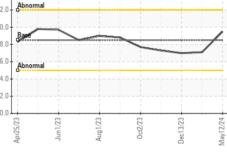




VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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 PROPER	TIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.4	13.5	11.0	11.0
GRAPHS						

Ferrous Alloys





Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 LIBERTY DISPOSAL Sample No. : WC0911656 6401 S EASTERN AVE Received : 10 May 2024 Lab Number : 06176525 Tested : 13 May 2024 OKLAHOMA CITY, OK Unique Number : 11022578 Diagnosed : 13 May 2024 - Wes Davis US 73149 Test Package : FLEET Contact: M Rutherford Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. M.Rutherford@ldi89.com \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F:

Contact/Location: M Rutherford - SEAOKL