

# **OIL ANALYSIS REPORT**

NORMAL 



Sample Rating Trend

# DIAGNOSIS

## 69.01 [OKLAHOMA^3^EG - TRUCK-OFF-HWY-HEAVY HAUL] **Diesel Engine** MOBIL DELVAC 1300 SUPER15W40 (--- GAL)

Area OKLAHOMA/3/EG - TRUCK-OFF-HWY-HEAVY HAUL

SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0935296	WC0914535	WC0886869
Sample Date		Client Info		12 May 2024	01 Apr 2024	20 Feb 2024
Machine Age	hrs	Client Info		23761	23567	2443
Oil Age	hrs	Client Info		23000	567	166
Oil Changed		Client Info		Changed	Not Changd	Changed
Sample Status				NORMAL	NORMAL	ABNORMAL
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	20.L	NEG	NEG	NEG
WEAR METALS				-		
		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	6	7	7
Chromium	ppm	ASTM D5185m		<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	<1	<1	1
Titanium	ppm	ASTM D5185m	>2	<1	<1	<1
Silver	ppm	ASTM D5185m	>2	<1	0	0
Aluminum	ppm	ASTM D5185m	>25	2	2	2
Lead	ppm	ASTM D5185m	>40	<1	<1	<1
Copper	ppm	ASTM D5185m		<1	1	2
Tin	ppm	ASTM D5185m	>15	<1	<1	<1
Vanadium	ppm	ASTM D5185m		<1	<1	<1
Cadmium	ppm	ASTM D5185m		0	<1	<1
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 67	history1 57	history2 55
	ppm ppm					
Boron		ASTM D5185m	0	67	57	55
Boron Barium	ppm	ASTM D5185m ASTM D5185m	0	67 0	57 0	55 1
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	0	67 0 39	57 0 38	55 1 39
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 0	67 0 39 0	57 0 38 <1	55 1 39 1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 0	67 0 39 0 472	57 0 38 <1 482	55 1 39 1 449
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 0	67 0 39 0 472 1658	57 0 38 <1 482 1614	55 1 39 1 449 1516
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	0 0 0	67 0 39 0 472 1658 827	57 0 38 <1 482 1614 756	55 1 39 1 449 1516 687
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	0 0 0	67 0 39 0 472 1658 827 904	57 0 38 <1 482 1614 756 891	55 1 39 1 449 1516 687 837
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	0 0 0 0	67 0 39 0 472 1658 827 904 2826	57 0 38 <1 482 1614 756 891 2604	55 1 39 1 449 1516 687 837 2589
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	0 0 0 0 Imit/base	67 0 39 0 472 1658 827 904 2826 current	57 0 38 <1 482 1614 756 891 2604 history1	55 1 39 1 449 1516 687 837 2589 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>	0 0 0 0 Imit/base	67 0 39 0 472 1658 827 904 2826 current 10	57 0 38 <1 482 1614 756 891 2604 history1 18	55 1 39 1 449 1516 687 837 2589 history2 ▲ 37
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 ASTM D5185m	0 0 0 0 	67 0 39 0 472 1658 827 904 2826 <u>current</u> 10 2	57 0 38 <1 482 1614 756 891 2604 history1 18 2	55 1 39 1 449 1516 687 837 2589 history2 ▲ 37 3
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	0 0 0 0 <u>limit/base</u> >25	67 0 39 0 472 1658 827 904 2826 <u>current</u> 10 2 2	57 0 38 <1 482 1614 756 891 2604 history1 18 2 2 2	55 1 39 1 449 1516 687 837 2589 history2 ▲ 37 3 1
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	0 0 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	67 0 39 0 472 1658 827 904 2826 current 10 2 2 2 2	57 0 38 <1 482 1614 756 891 2604 history1 18 2 2 2 2 history1	55 1 39 1 449 1516 687 837 2589 bistory2 37 3 3 1 1 bistory2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm	ASTM D5185m ASTM D5185m	0 0 0 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	67 0 39 0 472 1658 827 904 2826 current 10 2 2 2 2 current 0	57 0 38 <1 482 1614 756 891 2604 history1 18 2 2 2 history1 0.2	55 1 39 1 449 1516 687 837 2589 history2 37 3 1 1 history2 0.2
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	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	67 0 39 0 472 1658 827 904 2826 <u>current</u> 10 2 2 2 <u>current</u> 0 4.6	57 0 38 <1 482 1614 756 891 2604 history1 18 2 2 2 history1 0.2 6.0	55 1 39 1 449 1516 687 837 2589 history2 37 3 1 3 1 bistory2 0.2 5.5
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	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	67 0 39 0 472 1658 827 904 2826 <b>current</b> 10 2 2 2 <b>current</b> 0 4.6 16.7	57 0 38 <1 482 1614 756 891 2604 history1 18 2 2 2 history1 0.2 6.0 21.9	55 1 39 1 449 1516 687 837 2589 <b>history2</b> 37 3 1 <b>history2</b> 0.2 5.5 21.6
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 D7844	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	67 0 39 0 472 1658 827 904 2826 current 10 2 2 2 current 0 4.6 16.7	57 0 38 <1 482 1614 756 891 2604 history1 18 2 2 2 history1 0.2 6.0 21.9 history1	55 1 39 1 449 1516 687 837 2589 bistory2 ▲ 37 3 1 bistory2 0.2 5.5 21.6 bistory2

### 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.



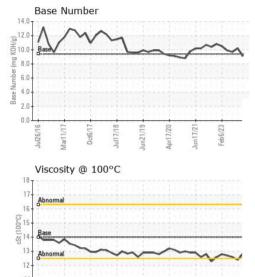
Jul26/16

Mar11/17

lcf6/17

# **OIL ANALYSIS REPORT**





un21/19 or17/20 Jun17/21

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 PROPERT	ΓIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14	12.8	12.4	12.6
GRAPHS						

Ferrous Alloys

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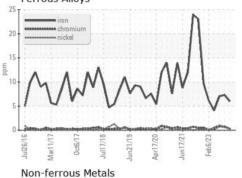
cSt (100°C) 14

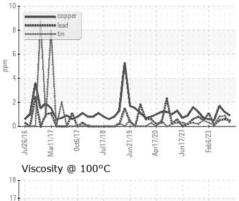
13 Abnorma

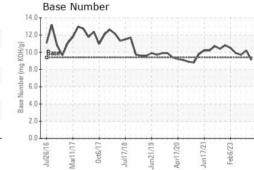
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Jul26/16

Mar11/17 Oct6/17







Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 SHERWOOD CONSTRUCTION CO INC Sample No. : WC0935296 Received : 20 May 2024 3219 WEST MAY ST Lab Number : 06185456 Tested : 22 May 2024 WICHITA, KS Unique Number : 11036782 Diagnosed : 22 May 2024 - Wes Davis US 67213 Test Package : CONST (Additional Tests: TBN) Contact: DOUG KING Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. doug.king@sherwood.net \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: (316)617-3161 Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F: x:

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Feb6/23 -

Apr17/20

Jun17/21

Submitted By: GARRETT ADAMS