

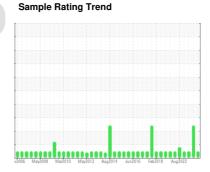
OIL ANALYSIS REPORT



OKLAHOMA/102/EG - SCRAPER 76.31L [OKLAHOMA^102^EG - SCRAPER]

Diesel Engine

MOBIL DELVAC 1300 SUPER15W40 (--- GAL)







DIAGNOSIS

Recommendation

Resample at the next service interval to monitor.

All component wear rates are normal.

Contamination

There is no indication of any contamination in the

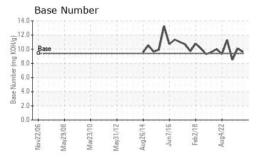
Fluid Condition

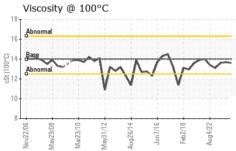
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Sample Number Client Info WC0873901 WC0821799 WC0746771 Sample Date Client Info 18 Jan 2024 30 Jun 2023 29 Mar 2023 Machine Age hrs Client Info 14772 14772 14581 Oil Age hrs Client Info Changed NA NA Sample Status Client Info Changed NA NORMAL ABNORMAL NORMAL CONTAMINATION method Imitibase current history1 history1 history2 Fuel WC Method >5 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <1.0 <td< th=""><th>SAMPLE INFORM</th><th>MATION</th><th>method</th><th>limit/base</th><th>current</th><th>history1</th><th>history2</th></td<>	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Date	Sample Number		Client Info		WC0873901	WC0821799	
Machine Age hrs Client Info 14772 14772 14581 Oil Age hrs Client Info 250 230 14299 Oil Changed N/A NORMAL NORMAL NORMAL NORMAL NORMAL NORMAL NORMAL NORMAL NORMAL CONTAMINATION method Imit/base current history1 history2 Fuel	•		Client Info		18 Jan 2024	30 Jun 2023	29 Mar 2023
Client Info	Machine Age	hrs	Client Info		14772	14772	14581
CONTAMINATION	Oil Age	hrs	Client Info		250	230	14299
CONTAMINATION	Oil Changed		Client Info		Changed	Changed	N/A
Fuel	Sample Status				NORMAL	ABNORMAL	NORMAL
Water Glycol WC Method >0.2 NEG NEG NEG NEG NEG NEG NEG WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >86 23 24 45 Chromium ppm ASTM D5185m >3 <1	CONTAMINATION	٧	method	limit/base	current	history1	history2
WEAR METALS	Fuel		WC Method	>5	<1.0	<1.0	<1.0
WEAR METALS	Water		WC Method	>0.2	NEG	NEG	NEG
Iron	Glycol		WC Method		NEG	NEG	NEG
Chromium ppm ASTM D5185m >3 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <1 <td>WEAR METALS</td> <td></td> <td>method</td> <td>limit/base</td> <th>current</th> <td>history1</td> <td>history2</td>	WEAR METALS		method	limit/base	current	history1	history2
Chromium ppm ASTM D5185m >3 <1 <1 <1 Nickel ppm ASTM D5185m >3 0 0 0 Titanium ppm ASTM D5185m >2 0 -1 0 Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >15 2 ▲ 4 1 Lead ppm ASTM D5185m >16 4 3 4 Copper ppm ASTM D5185m >16 4 3 4 Copper ppm ASTM D5185m >2 <1	Iron	ppm	ASTM D5185m	>86	23	24	45
Nickel	Chromium	• •	ASTM D5185m	>3	<1	<1	<1
Silver	Nickel				0	0	0
Silver ppm ASTM D5185m >2 0 0 0 Aluminum ppm ASTM D5185m >15 2 ▲ 4 1 Lead ppm ASTM D5185m >16 4 3 4 Copper ppm ASTM D5185m >250 3 2 3 Tin ppm ASTM D5185m >2 <1 <1 <1 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 51 50 46 Barium ppm ASTM D5185m 0 <1 0 0 Molybdenum ppm ASTM D5185m 0 <1 <1 1 Mangaesium ppm ASTM D5185m <1 <1 <th< td=""><td>Titanium</td><td>• •</td><td>ASTM D5185m</td><td>>2</td><th>0</th><td><1</td><td>0</td></th<>	Titanium	• •	ASTM D5185m	>2	0	<1	0
Aluminum ppm ASTM D5185m >15 2 ▲ 4 1 Lead ppm ASTM D5185m >16 4 3 4 Copper ppm ASTM D5185m >250 3 2 3 Tin ppm ASTM D5185m 0 0 0 0 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 <1	Silver		ASTM D5185m	>2	0	0	0
Lead ppm ASTM D5185m >16 4 3 4 Copper ppm ASTM D5185m >250 3 2 3 Tin ppm ASTM D5185m >2 <1 <1 <1 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 51 50 46 Barium ppm ASTM D5185m 0 <1 0 0 Barium ppm ASTM D5185m 0 <1 0 0 Molybdenum ppm ASTM D5185m 0 39 45 40 Manganese ppm ASTM D5185m <1 <1 1 1 1 1 1 1 1 1 1 1 1	Aluminum	• •	ASTM D5185m	>15	2	4	1
Copper ppm ASTM D5185m >250 3 2 3 Tin ppm ASTM D5185m >2 <1	Lead		ASTM D5185m	>16	4	3	4
Tin ppm ASTM D5185m >2 <1 <1 <1 Vanadium ppm ASTM D5185m 0 0 0 0 Cadmium ppm ASTM D5185m 0 0 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 51 50 46 Barium ppm ASTM D5185m 0 <1 0 0 Molybdenum ppm ASTM D5185m 0 39 45 40 Manganese ppm ASTM D5185m 0 521 491 550 Calcium ppm ASTM D5185m 0 521 491 550 Calcium ppm ASTM D5185m 756 776 784 Zinc ppm ASTM D5185m 889 940 962 Sulfur ppm ASTM D5185m 2394 2850 3046	Copper	ppm	ASTM D5185m	>250	3	2	3
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 0 51 50 46 Barium ppm ASTM D5185m 0 <1 0 0 Molybdenum ppm ASTM D5185m 0 39 45 40 Manganese ppm ASTM D5185m <1 1 1 Magnesium ppm ASTM D5185m 0 521 491 550 Calcium ppm ASTM D5185m 1599 1717 1765 776 784 Zinc ppm ASTM D5185m 756 776 784 20 Sulfur ppm ASTM D5185m 2394 2850 3046 CONTAMINANTS method limit/base current history1 history2					<1	<1	<1
ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 0 51 50 46 Barium ppm ASTM D5185m 0 <1	Vanadium	ppm	ASTM D5185m		0	0	0
Boron	Cadmium	ppm	ASTM D5185m		0	0	0
Barium ppm ASTM D5185m 0 <1 0 0 Molybdenum ppm ASTM D5185m 0 39 45 40 Manganese ppm ASTM D5185m <1	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 0 39 45 40 Manganese ppm ASTM D5185m <1 <1 1 Magnesium ppm ASTM D5185m 0 521 491 550 Calcium ppm ASTM D5185m 1599 1717 1765 Phosphorus ppm ASTM D5185m 756 776 784 Zinc ppm ASTM D5185m 889 940 962 Sulfur ppm ASTM D5185m 2394 2850 3046 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >35 23 37 7 Sodium ppm ASTM D5185m 1 0 2 Potassium ppm ASTM D5185m >20 0 1 <1 INFRA-RED method limit/base current history1 history2 Soot % % <td>Boron</td> <td>ppm</td> <td>ASTM D5185m</td> <td>0</td> <th>51</th> <td>50</td> <td>46</td>	Boron	ppm	ASTM D5185m	0	51	50	46
Manganese ppm ASTM D5185m <1 <1 1 Magnesium ppm ASTM D5185m 0 521 491 550 Calcium ppm ASTM D5185m 1599 1717 1765 Phosphorus ppm ASTM D5185m 756 776 784 Zinc ppm ASTM D5185m 889 940 962 Sulfur ppm ASTM D5185m 2394 2850 3046 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >35 23 37 7 Sodium ppm ASTM D5185m >20 0 1 <1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.8 0.8 1.2 Nitration Abs/cm *ASTM D7845 >30 24.5 24.6 24.8 <	Barium	ppm	ASTM D5185m	0	<1	0	0
Magnesium ppm ASTM D5185m 0 521 491 550 Calcium ppm ASTM D5185m 1599 1717 1765 Phosphorus ppm ASTM D5185m 756 776 784 Zinc ppm ASTM D5185m 889 940 962 Sulfur ppm ASTM D5185m 2394 2850 3046 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >35 23 ▲ 37 7 Sodium ppm ASTM D5185m >20 0 1 <1 Potassium ppm ASTM D5185m >20 0 1 <1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.8 0.8 1.2 Nitration Abs/.1mm *ASTM D7415 >30 24.5 24.6 24.8	Molybdenum	ppm	ASTM D5185m	0	39	45	40
Calcium ppm ASTM D5185m 1599 1717 1765 Phosphorus ppm ASTM D5185m 756 776 784 Zinc ppm ASTM D5185m 889 940 962 Sulfur ppm ASTM D5185m 2394 2850 3046 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >35 23 37 7 Sodium ppm ASTM D5185m >20 0 1 <1	Manganese	ppm	ASTM D5185m		<1	<1	1
Phosphorus ppm ASTM D5185m 756 776 784 Zinc ppm ASTM D5185m 889 940 962 Sulfur ppm ASTM D5185m 2394 2850 3046 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >35 23 ▲ 37 7 Sodium ppm ASTM D5185m >35 1 0 2 Potassium ppm ASTM D5185m >20 0 1 <1	Magnesium	ppm	ASTM D5185m	0	521	491	550
Zinc ppm ASTM D5185m 889 940 962 Sulfur ppm ASTM D5185m 2394 2850 3046 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >35 23 37 7 Sodium ppm ASTM D5185m >35 1 0 2 Potassium ppm ASTM D5185m >20 0 1 <1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.8 0.8 1.2 Nitration Abs/cm *ASTM D7624 >20 9.8 9.2 10.8 Sulfation Abs/.1mm *ASTM D7415 >30 24.5 24.6 24.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.3	Calcium	ppm	ASTM D5185m		1599	1717	1765
Sulfur ppm ASTM D5185m 2394 2850 3046 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >35 23 37 7 Sodium ppm ASTM D5185m 1 0 2 Potassium ppm ASTM D5185m >20 0 1 <1	Phosphorus	ppm	ASTM D5185m		756	776	784
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >35 23 ▲ 37 7 Sodium ppm ASTM D5185m 1 0 2 Potassium ppm ASTM D5185m >20 0 1 <1	Zinc	ppm	ASTM D5185m		889	940	962
Silicon ppm ASTM D5185m >35 23 ▲ 37 7 Sodium ppm ASTM D5185m 1 0 2 Potassium ppm ASTM D5185m >20 0 1 <1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.8 0.8 1.2 Nitration Abs/cm *ASTM D7624 >20 9.8 9.2 10.8 Sulfation Abs/.1mm *ASTM D7415 >30 24.5 24.6 24.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.3 24.3 22.9	Sulfur	ppm	ASTM D5185m		2394	2850	3046
Sodium ppm ASTM D5185m 1 0 2 Potassium ppm ASTM D5185m >20 0 1 <1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.8 0.8 1.2 Nitration Abs/cm *ASTM D7624 >20 9.8 9.2 10.8 Sulfation Abs/.1mm *ASTM D7415 >30 24.5 24.6 24.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.3 24.3 22.9	CONTAMINANTS		method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 0 1 <1 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 >3 0.8 0.8 1.2 Nitration Abs/cm *ASTM D7624 >20 9.8 9.2 10.8 Sulfation Abs/.1mm *ASTM D7415 >30 24.5 24.6 24.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.3 24.3 22.9	Silicon	ppm		>35	23		
INFRA-RED	Sodium	ppm			1	0	
Soot % % *ASTM D7844 >3 0.8 0.8 1.2 Nitration Abs/cm *ASTM D7624 >20 9.8 9.2 10.8 Sulfation Abs/.1mm *ASTM D7415 >30 24.5 24.6 24.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.3 24.3 22.9	Potassium	ppm	ASTM D5185m	>20	0	1	<1
Nitration Abs/cm *ASTM D7624 >20 9.8 9.2 10.8 Sulfation Abs/.1mm *ASTM D7415 >30 24.5 24.6 24.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.3 24.3 22.9	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 24.5 24.6 24.8 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.3 24.3 22.9	Soot %	%	*ASTM D7844	>3	8.0		1.2
FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 23.3 24.3 22.9	Nitration	Abs/cm	*ASTM D7624	>20	9.8	9.2	10.8
Oxidation Abs/.1mm *ASTM D7414 >25 23.3 24.3 22.9	Sulfation	Abs/.1mm	*ASTM D7415	>30	24.5	24.6	24.8
	FLUID DEGRADA	TION	method	limit/base	current	history1	history2
Base Number (BN) mg KOH/g ASTM D2896 9.4 9.6 10.1 8.5	Oxidation	Abs/.1mm	*ASTM D7414	>25	23.3	24.3	22.9
	Page Number (PNI)	ma KOH/a	ACTM D2806	9.4	9.6	10.1	8.5



OIL ANALYSIS REPORT

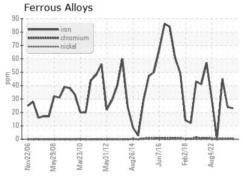


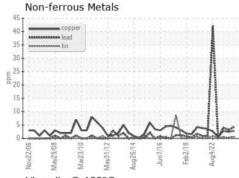


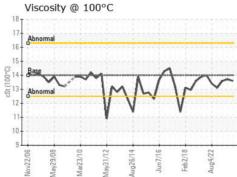
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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

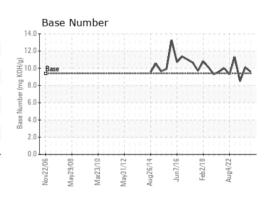
FLUID PROPERT	IES	method			history1	history2
Visc @ 100°C	cSt	ASTM D445	14	13.6	13.7	13.6

GRAPHS













Laboratory Sample No. Lab Number : 06076641 Unique Number : 10858732

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : WC0873901

Received **Tested** Diagnosed

: 01 Feb 2024 : 01 Feb 2024

: 01 Feb 2024 - Wes Davis

SHERWOOD CONSTRUCTION CO INC 3219 WEST MAY ST

WICHITA, KS US 67213

Test Package : CONST (Additional Tests: TBN) Contact: JIMMY DERAMUS To discuss this sample report, contact Customer Service at 1-800-237-1369. jimmy.deramus@sherwood.net * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: (918)691-3306

Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Report Id: SHEWIC [WUSCAR] 06076641 (Generated: 02/08/2024 11:48:53) Rev: 1

Submitted By: PATRICIA BIBLE

F: x: