

# **OIL ANALYSIS REPORT**

# Area COLORADO/443 20.410L [COLORADO^443]

Diesel Engine

Fluid MOBIL DELVAC 1300 SUPER15W40 (--- GAL)

### DIAGNOSIS

### Recommendation

Resample at the next service interval to monitor.

#### Wear

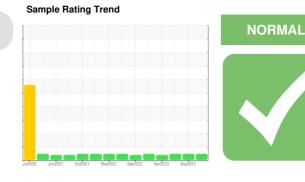
All component wear rates are normal.

#### 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.

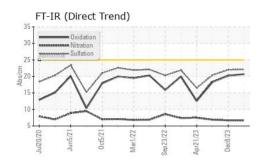


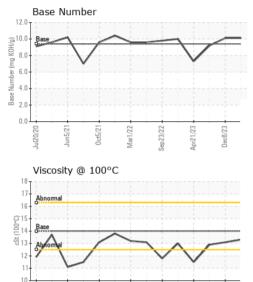
SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0883928	WC0859587	WC0823136
Sample Date		Client Info		22 Mar 2024	08 Dec 2023	23 Aug 2023
Machine Age	hrs	Client Info		8616	8339	8060
Oil Age	hrs	Client Info		0	0	0
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATION	١	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	9	11	9
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	0	0	0
Titanium	ppm	ASTM D5185m	- 1	<1	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	6	11	7
Lead	ppm	ASTM D5185m	>40	0	0	0
Copper	ppm	ASTM D5185m	>330	<1	1	<1
Tin		ASTM D5185m	>15	0	<1	<1
Vanadium	ppm ppm	ASTM D5185m	>15	ں <1	0	0
Cadmium		ASTM D5185m				0
	ppm			0	0	-
ADDITIVES	ppin	method	limit/base	current	history1	history2
	ppm		limit/base 0	current 59	history1 53	history2 56
ADDITIVES		method ASTM D5185m		current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	0	current 59	history1 53	history2 56
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	0	current 59 0	history1 53 0	history2 56 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	0	current 59 0 41	history1 53 0 38	history2 56 0 38 <1 571
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 0	current 59 0 41 <1	history1 53 0 38 <1	history2 56 0 38 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 0	current 59 0 41 <1 536	history1 53 0 38 <1 510	history2 56 0 38 <1 571
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 0	Current 59 0 41 <1 536 1870	history1 53 0 38 <1 510 1607	history2 56 0 38 <1 571 1758
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 0	Current 59 0 41 <1 536 1870 827	history1 53 0 38 <1 510 1607 750	history2 56 0 38 <1 571 1758 796
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	0 0 0	current     59     0     41     <1     536     1870     827     997	history1 53 0 38 <1 510 1607 750 885	history2 56 0 38 <1 571 1758 796 960
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	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	0 0 0 0 Init/base	Current 59 0 41 <1 536 1870 827 997 3147	history1     53     0     38     <1     510     1607     750     885     2362     history1     4	history2   56   0   38   <1   571   1758   796   960   3195   history2   5
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	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	0 0 0 0 Init/base	Current 59 0 41 <1 536 1870 827 997 3147 Current	history1     53     0     38     <1     510     1607     750     885     2362     history1	history2 56 0 38 <1 571 1758 796 960 3195 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	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	0 0 0 0 limit/base >25	current     59     0     41     <1     536     1870     827     997     3147     current     4	history1     53     0     38     <1     510     1607     750     885     2362     history1     4	history2     56     0     38     <1     571     1758     796     960     3195     history2     5
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	0 0 0 0 limit/base >25	current     59     0     41     <1     536     1870     827     997     3147     current     4     4	history1     53     0     38     <1     510     1607     750     885     2362     history1     4     5	history2   56   0   38   <1   571   1758   796   960   3195   history2   5   3
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method     ASTM D5185m	0 0 0 0 limit/base >25 >20	current     59     0     41     <1     536     1870     827     997     3147     current     4     4     1	history1     53     0     38     <1     510     1607     750     885     2362     history1     4     5     0	history2   56   0   38   <1   571   1758   796   960   3195   history2   5   3   0
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	0 0 0 0 limit/base >25 >20 limit/base >3	current     59     0     41     <1     536     1870     827     997     3147     current     4     1     current	history1   53   0   38   <1   510   1607   750   885   2362   history1   4   5   0   history1	history2   56   0   38   <1   571   1758   796   960   3195   history2   5   3   0   history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm	method     ASTM D5185m	0 0 0 0 limit/base >25 >20 limit/base >3	current     59     0     41     <1     536     1870     827     997     3147     current     4     1     current     0.2	history1     53     0     38     <1     510     1607     750     885     2362     history1     4     5     0     history1     4     5     0     history1     0.2	history2   56   0   38   <1   571   1758   796   960   3195   history2   5   3   0   history2   0   0.2
ADDITIVES 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	method     ASTM D5185m	0 0 0 0 limit/base >25 >20 limit/base >3 >20	current     59     0     41     <1     536     1870     827     997     3147     current     4     4     1     current     0.2     6.7	history1     53     0     38     <1     510     1607     750     885     2362     history1     4     5     0     history1     0     history1     0.2     6.7	history2     56     0     38     <1     571     1758     796     960     3195     history2     5     3     0     history2     0     6.9     0.2     6.9
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	0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	current     59     0     41     <1     536     1870     827     997     3147     current     4     1     current     0.2     6.7     22.1	history1     53     0     38     <1     510     1607     750     885     2362     history1     4     5     0     history1     4     5     0     history1     0.2     6.7     22.0	history2   56   0   38   <1   571   1758   796   960   3195   history2   5   3   0   history2   0.2   6.9   20.4



Jul20/20

# **OIL ANALYSIS REPORT**





Mar1/22

Sep23/22

Apr21/23

Dec8/23

12

10

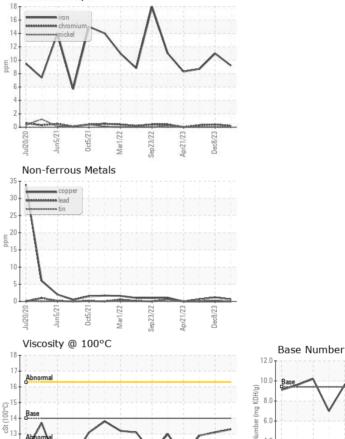
lul20/20

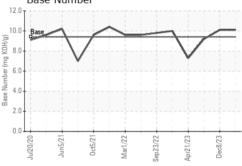
un5/21

0ct5/21

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	IES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14	13.3	13.1	12.9
GRAPHS						

Ferrous Alloys





SHERWOOD CONSTRUCTION CO INC Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 Sample No. : WC0883928 Received : 08 Apr 2024 3219 WEST MAY ST Lab Number : 06142037 Tested : 09 Apr 2024 WICHITA, KS Unique Number : 10966845 Diagnosed : 09 Apr 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:

Mar1/22

Sep 23/22

Apr21/23

Dec8/23

Report Id: SHEWIC [WUSCAR] 06142037 (Generated: 04/09/2024 19:08:34) Rev: 1

Submitted By: BRANDEN JAQUIAS

Page 2 of 2