

OIL ANALYSIS REPORT

Sample Rating Trend

NORMAL

ADV MIX 141

Component Diesel Engine

DIESEL ENGINE OIL SAE 15W40 (10 GAL)

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.



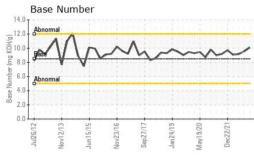


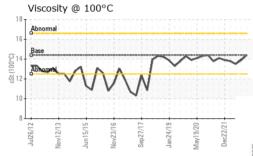
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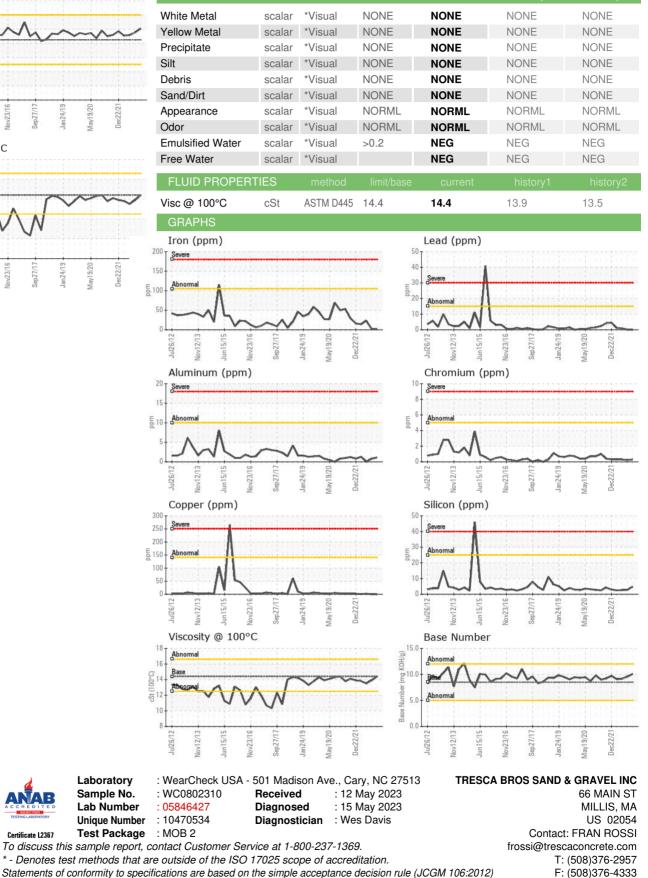
SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0802310	WC0661453	WC0569848
Sample Date		Client Info		27 Apr 2023	09 Jan 2023	15 Sep 2022
Machine Age	hrs	Client Info		40000	40000	40000
Oil Age	hrs	Client Info		500	500	500
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATION	٧	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>105	2	2	23
Chromium	ppm	ASTM D5185m	>5	<1	<1	<1
Nickel	ppm	ASTM D5185m	>4	<1	<1	0
Titanium	ppm	ASTM D5185m	>2	0	0	0
Silver	ppm	ASTM D5185m	>2	0	<1	0
Aluminum	ppm	ASTM D5185m	>10	1	<1	0
Lead	ppm	ASTM D5185m	>15	0	<1	<1
Copper	ppm	ASTM D5185m	>140	0	<1	2
Tin	ppm	ASTM D5185m	>4	1	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 250	current 6	history1 14	history2 11
	ppm ppm					
Boron		ASTM D5185m	250	6	14	11
Boron Barium	ppm	ASTM D5185m ASTM D5185m	250 10	6 0	14 2	11 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10	6 0 62	14 2 52	11 0 64
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100	6 0 62 <1 1036 1084	14 2 52 <1	11 0 64 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450	6 0 62 <1 1036 1084 1123	14 2 52 <1 833	11 0 64 <1 910
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	6 0 62 <1 1036 1084 1123 1426	14 2 52 <1 833 959	11 0 64 <1 910 1144 1045 1223
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	250 10 100 450 3000 1150	6 0 62 <1 1036 1084 1123	14 2 52 <1 833 959 912	11 0 64 <1 910 1144 1045
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	250 10 100 450 3000 1150 1350	6 0 62 <1 1036 1084 1123 1426	14 2 52 <1 833 959 912 1111	11 0 64 <1 910 1144 1045 1223
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	250 10 100 450 3000 1150 1350 4250	6 0 62 <1 1036 1084 1123 1426 4529	14 2 52 <1 833 959 912 1111 3369	11 0 64 <1 910 1144 1045 1223 3856
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 limit/base	6 0 62 <1 1036 1084 1123 1426 4529 current	14 2 52 <1 833 959 912 1111 3369 history1	11 0 64 <1 910 1144 1045 1223 3856 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 method ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base	6 0 62 <1 1036 1084 1123 1426 4529 current 5	14 2 52 <1 833 959 912 1111 3369 history1 3	11 0 64 <1 910 1144 1045 1223 3856 history2 3
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 method ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >158	6 0 62 <1 1036 1084 1123 1426 4529 current 5 1	14 2 52 <1 833 959 912 1111 3369 history1 3 1	11 0 64 <1 910 1144 1045 1223 3856 history2 3 5
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 limit/base >25 >158 >20	6 0 62 <1 1036 1084 1123 1426 4529 current 5 1 2	14 2 52 <1 833 959 912 1111 3369 history1 3 1 <1	11 0 64 <1 910 1144 1045 1223 3856 history2 3 5 6
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 Iimit/base >25 >158 >20 Iimit/base	6 0 62 <1 1036 1084 1123 1426 4529 current 5 1 2 2	14 2 52 <1 833 959 912 1111 3369 history1 3 1 <1 <1 history1	11 0 64 <1 910 1144 1045 1223 3856 history2 3 5 6 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	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 Iimit/base >25 >158 >20 Iimit/base >3	6 0 62 <1 1036 1084 1123 1426 4529 <u>current</u> 5 1 2 <u>current</u> 0.1	14 2 52 <1 833 959 912 1111 3369 history1 3 1 <1 <1 history1 0.1	11 0 64 <1 910 1144 1045 1223 3856 history2 3 5 6 history2 1.1
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 imit/base >25 >158 >20 imit/base >3 >20	6 0 62 <1 1036 1084 1123 1426 4529 current 5 1 2 2 current 0.1 4.3	14 2 52 <1 833 959 912 1111 3369 history1 3 1 <1 <1 history1 0.1 5.0	11 0 64 <1 910 1144 1045 1223 3856 history2 3 5 6 history2 1.1 7.4
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 imit/base >25 >158 >20 imit/base >3 >20 >30	6 0 62 <1 1036 1084 1123 1426 4529 <u>current</u> 5 1 2 <u>current</u> 0.1 4.3 17.5	14 2 52 <1 833 959 912 1111 3369 history1 3 1 <1 <1 0.1 5.0 17.3	11 0 64 <1 910 1144 1045 1223 3856 history2 3 5 6 history2 1.1 7.4 20.8



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Certificate L2367