

OIL ANALYSIS REPORT

Sample Rating Trend



INTERNATIONAL 441322

Diesel Engine Fluid DIESEL ENGINE OIL SAE 30 (21 QTS)

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.

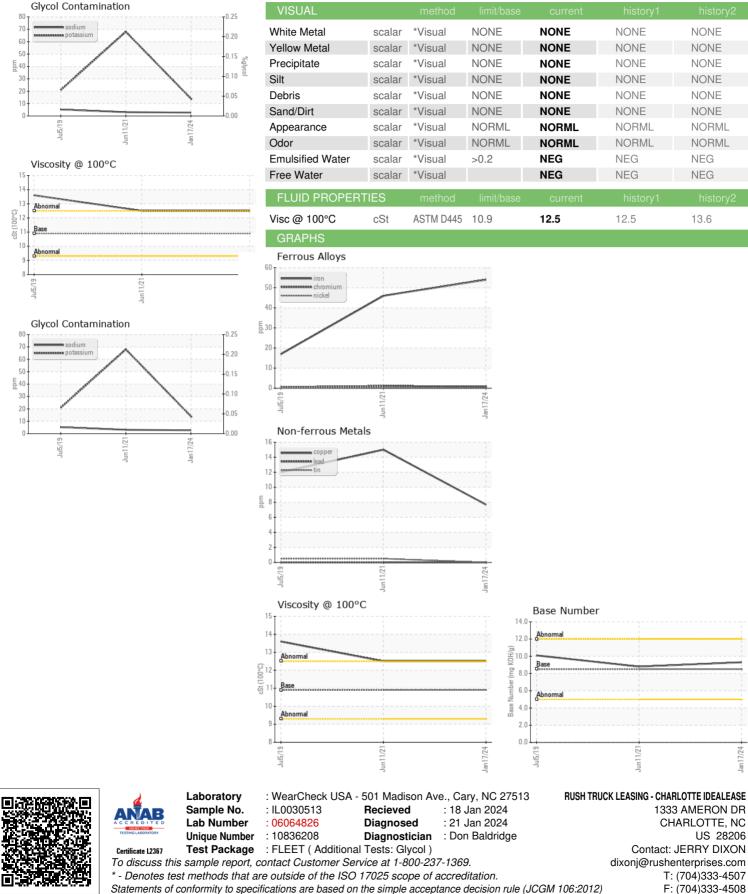
Fluid Condition

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

			2019	Jun2021 Jan20		
SAMPLE INFORM	ATION	method	limit/base	current	history1	history2
Sample Number		Client Info		IL0030513	IL0021855	ILMFC27921
Sample Date		Client Info		17 Jan 2024	11 Jun 2021	05 Jul 2019
Machine Age	mls	Client Info		58647	30433	2202
Oil Age	mls	Client Info		0	0	2202
Oil Changed		Client Info		N/A	Changed	Changed
Sample Status				NORMAL	ABNORMAL	NORMAL
CONTAMINATION	N	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>130	54	46	17
Chromium	ppm	ASTM D5185m	>10	<1	1	<1
Nickel	ppm	ASTM D5185m	>4	0	0	<1
Titanium	ppm	ASTM D5185m		0	<1	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	18	29	6
Lead	ppm	ASTM D5185m	>20	0	0	0
Copper	ppm	ASTM D5185m	>125	8	15	12
Tin	ppm	ASTM D5185m	>4	0	<1	<1
Antimony	ppm	ASTM D5185m			0	0
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method				history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 250	current 9	history1 60	history2 62
	ppm ppm					
Boron		ASTM D5185m	250	9	60	62
Boron Barium	ppm	ASTM D5185m ASTM D5185m	250 10	9 0	60 0	62 6
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	250 10	9 0 60	60 0 25	62 6 44
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100	9 0 60 <1	60 0 25 1	62 6 44 3
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450	9 0 60 <1 931	60 0 25 1 645	62 6 44 3 595
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	9 0 60 <1 931 1148	60 0 25 1 645 1591	62 6 44 3 595 1403
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	9 0 60 <1 931 1148 1053	60 0 25 1 645 1591 782	62 6 44 3 595 1403 896
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	9 0 60 <1 931 1148 1053 1248 3201	60 0 25 1 645 1591 782 894	62 6 44 3 595 1403 896 966
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	250 10 100 450 3000 1150 1350 4250	9 0 60 <1 931 1148 1053 1248 3201	60 0 25 1 645 1591 782 894 2581	62 6 44 3 595 1403 896 966 3559
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	250 10 100 450 3000 1150 1350 4250	9 0 60 <1 931 1148 1053 1248 3201 current	60 0 25 1 645 1591 782 894 2581 history1	62 6 44 3 595 1403 896 966 3559 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	250 10 100 450 3000 1150 1350 4250 limit/base >25	9 0 60 <1 931 1148 1053 1248 3201 current 8	60 0 25 1 645 1591 782 894 2581 <u>history1</u> 9	62 6 44 3 595 1403 896 966 3559 history2 34
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	250 10 100 450 3000 1150 1350 4250 limit/base >25 >75	9 0 60 <1 931 1148 1053 1248 3201 current 8 3	60 0 25 1 645 1591 782 894 2581 bistory1 9 3	62 6 44 3 595 1403 896 966 3559 history2 34 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 >75	9 0 60 <1 931 1148 1053 1248 3201 current 8 3 3 14 NEG	60 0 25 1 645 1591 782 894 2581	62 6 44 3 595 1403 896 966 3559 history2 34 5 21
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Glycol	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D2982	250 10 100 450 3000 1150 1350 4250 limit/base >25 >75 >20	9 0 60 <1 931 1148 1053 1248 3201 current 8 3 3 14 NEG	60 0 25 1 645 1591 782 894 2581 bistory1 9 3 3 68 NEG	62 6 44 3 595 1403 896 966 3559 history2 34 5 21 NEG
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Glycol INFRA-RED	ppm	ASTM D5185m ASTM D5185m *ASTM D2982	250 10 100 450 3000 1150 1350 4250 25 >75 >20 20 imit/base	9 0 60 <1 931 1148 1053 1248 3201 <i>current</i> 8 3 14 NEG	60 0 25 1 645 1591 782 894 2581 history1 9 3 68 NEG history1	62 6 44 3 595 1403 896 966 3559 history2 34 5 21 NEG history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Glycol INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m *ASTM D5185m	250 10 100 450 3000 1150 1350 4250 imit/base >25 >75 >20 imit/base	9 0 60 <1 931 1148 1053 1248 3201 <i>current</i> 8 3 14 NEG <i>current</i> 0.4	60 0 25 1 645 1591 782 894 2581 bistory1 9 3 68 68 NEG bistory1 0.4	62 6 44 3 595 1403 896 966 3559 history2 34 5 21 NEG history2 0.1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D2982 method *ASTM D7844 *ASTM D7844	250 10 100 450 3000 1150 1350 4250 Iimit/base >25 >75 >20 Iimit/base >6 >20	9 0 60 <1 931 1148 1053 1248 3201 current 8 3 14 NEG current 0.4 8.9 19.7	60 0 25 1 645 1591 782 894 2581 history1 9 3 € 68 NEG 68 NEG NEG 0.4 10.4	62 6 44 3 595 1403 896 966 3559 history2 34 5 21 NEG NEG history2 0.1 7.3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m *ASTM D2982 method *ASTM D7844 *ASTM D7844	250 10 100 450 3000 1150 1350 4250 binit/base >25 >75 >20 binit/base >6 >20 >20 >30	9 0 60 <1 931 1148 1053 1248 3201 current 8 3 14 NEG current 0.4 8.9 19.7	60 0 25 1 645 1591 782 894 2581 history1 9 3 € 68 NEG history1 0.4 10.4 22.2	62 6 44 3 595 1403 896 966 3559 history2 34 5 21 NEG history2 0.1 7.3 19.8
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Glycol INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m *ASTM D2982 ASTM D2982 ASTM D7844 *ASTM D7624 *ASTM D7624	250 10 100 450 3000 1150 1350 4250 Iimit/base >25 >75 >20 Iimit/base >6 >20 >30 Iimit/base	9 0 60 <1 931 1148 1053 1248 3201 Current 8 3 14 NEG 0.4 8.9 19.7	60 0 25 1 645 1591 782 894 2581 0 581 0 0.4 0.4 10.4 22.2 0 0.4 10.4 22.2	62 6 44 3 595 1403 896 966 3559 history2 34 5 21 NEG 21 NEG 0.1 7.3 19.8



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

Submitted By: JERRY DIXON

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