

OIL ANALYSIS REPORT

Sample Rating Trend



INTERNATIONAL 1916

Diesel Engine Fluid VALVOLINE 15W40 (--- 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.

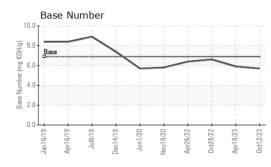
Fluid Condition

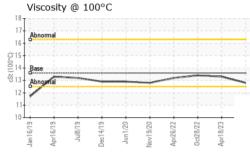
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		IL0034267	IL05832375	IL05692421
Sample Date		Client Info		12 Oct 2023	18 Apr 2023	28 Oct 2022
Machine Age	mls	Client Info		405752	373097	332522
Oil Age	mls	Client Info		0	0	0
Oil Changed		Client Info		Changed	N/A	N/A
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATIO	N	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	>100	20	16	23
Chromium	ppm	ASTM D5185m	>20	<1	<1	1
Nickel	ppm	ASTM D5185m	>4	0	0	0
Titanium	ppm	ASTM D5185m		0	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	3	3	6
Lead	ppm	ASTM D5185m	>40	4	2	10
Copper	ppm		>330	<1	<1	1
Tin	ppm		>15	<1	0	1
Vanadium	ppm	ASTM D5185m	210	0	0	0
Cadmium	ppm	ASTM D5185m		<1	0	0
oddiniani	ppm				0	0
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	39	41	21	16
Boron Barium	ppm	ASTM D5185m ASTM D5185m	39 1	41 <1	21 0	16 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	39 1 49	41 <1 79	21 0 68	16 0 71
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	39 1 49 1	41 <1 79 0	21 0 68 <1	16 0 71 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	39 1 49 1 616	41 <1 79 0 682	21 0 68 <1 867	16 0 71 <1 777
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	39 1 49 1 616 1554	41 <1 79 0 682 1272	21 0 68 <1 867 1345	16 0 71 <1 777 1323
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	39 1 49 1 616 1554 899	41 <1 79 0 682 1272 891	21 0 68 <1 867 1345 779	16 0 71 <1 777 1323 757
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	39 1 49 1 616 1554 899 1069	41 <1 79 0 682 1272 891 1070	21 0 68 <1 867 1345 779 1075	16 0 71 <1 777 1323 757 908
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	39 1 49 1 616 1554 899	41 <1 79 0 682 1272 891	21 0 68 <1 867 1345 779	16 0 71 <1 777 1323 757
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	39 1 49 1 616 1554 899 1069	41 <1 79 0 682 1272 891 1070	21 0 68 <1 867 1345 779 1075	16 0 71 <1 777 1323 757 908
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	39 1 49 1 616 1554 899 1069 2624 limit/base	41 <1 79 0 682 1272 891 1070 2889	21 0 68 <1 867 1345 779 1075 2821	16 0 71 <1 777 1323 757 908 2948
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	39 1 49 1 616 1554 899 1069 2624 limit/base	41 <1 79 0 682 1272 891 1070 2889 current	21 0 68 <1 867 1345 779 1075 2821 history1	16 0 71 <1 777 1323 757 908 2948 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	39 1 49 1 616 1554 899 1069 2624 <i>limit/base</i> >25	41 <1 79 0 682 1272 891 1070 2889 current 6	21 0 68 <1 867 1345 779 1075 2821 history1 5	16 0 71 <1 777 1323 757 908 2948 history2 4
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	39 1 49 1 616 1554 899 1069 2624 <i>limit/base</i> >25	41 <1 79 0 682 1272 891 1070 2889 Current 6 0	21 0 68 <1 867 1345 779 1075 2821 history1 5 2	16 0 71 <1 777 1323 757 908 2948 2948 history2 4 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	39 1 49 1 616 1554 899 1069 2624 limit/base >25 >20	41 <1 79 0 682 1272 891 1070 2889 <u>current</u> 6 0 6	21 0 68 <1 867 1345 779 1075 2821 history1 5 2 2 3	16 0 71 <1 777 1323 757 908 2948 history2 4 3 6
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	39 1 49 1 616 1554 899 1069 2624 limit/base >25	41 <1 79 0 682 1272 891 1070 2889 current 6 0 6	21 0 68 <1 867 1345 779 1075 2821 history1 5 2 3 history1	16 0 71 <1 777 1323 757 908 2948 bistory2 4 3 6 bistory2
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 ppm	ASTM D5185m ASTM D5185m	39 1 49 1 616 1554 899 1069 2624 limit/base >25	41 <1 79 0 682 1272 891 1070 2889 <u>current</u> 6 0 6 <u>0</u> 6	21 0 68 <1 867 1345 779 1075 2821 history1 5 2 2 3 history1 0.3	16 0 71 <1 777 1323 757 908 2948 history2 4 3 6 history2 0.5
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	39 1 49 1 616 1554 899 1069 2624 ////////////////////////////////////	41 <1 79 0 682 1272 891 1070 2889 current 6 0 6 current 0.4 10.5	21 0 68 <1 867 1345 779 1075 2821 history1 5 2 2 3 <u>history1</u> 0.3 11.1	16 0 71 <1 777 1323 757 908 2948 history2 4 3 6 history2 0.5 13.3
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	39 1 49 1 616 1554 899 1069 2624 imit/base >25 imit/base >3 >20 imit/base	41 <1 79 0 682 1272 891 1070 2889 Current 6 0 6 Current 0.4 10.5 23.3 Current	21 0 68 <1 867 1345 779 1075 2821 history1 5 2 2 3 history1 0.3 11.1 23.4	16 0 71 <1 777 1323 757 908 2948 bistory2 4 3 6 bistory2 0.5 13.3 27.1
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 *ASTM D7844	39 1 49 1 616 1554 899 1069 2624 imit/base >25 imit/base >3 >20 imit/base >30	41 <1 79 0 682 1272 891 1070 2889 <u>current</u> 6 0 6 0 6 <u>current</u> 0.4 10.5 23.3	21 0 68 <1 867 1345 779 1075 2821 history1 5 2 2 3 history1 0.3 11.1 23.4 history1	16 0 71 <1 777 1323 757 908 2948 history2 4 3 6 history2 0.5 13.3 27.1 history2

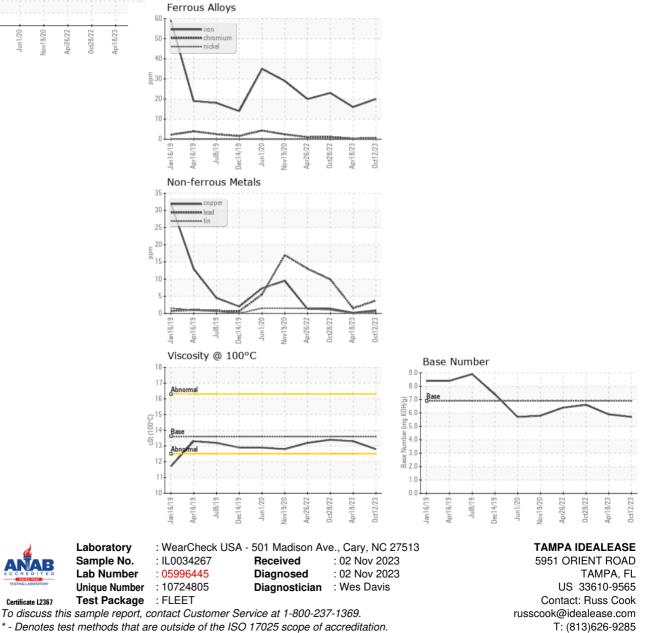


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VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*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 PROPER	TIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	13.6	12.8	13.3	13.4
GRAPHS						



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

Certificate L2367

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