

## **OIL ANALYSIS REPORT**

#### Sample Rating Trend



### Machine Id 6018353

Component Diesel Engine Fluid DIESEL ENGINE OIL SAE 10W30 (--- QTS)

#### DIAGNOSIS

#### Recommendation

Resample at the next service interval to monitor. Please specify the component make and model with your next sample. Please specify the brand, type, and viscosity of the oil on your next sample.

#### 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		IL06009311	IL05887748	IL05418724
Sample Date		Client Info		07 Sep 2023	12 Jun 2023	30 Nov 2021
Machine Age	mls	Client Info		184301	173769	130946
Oil Age	mls	Client Info		20000	20000	20000
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATION	J	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	10	35	16
Chromium	ppm	ASTM D5185m	>20	<1	2	<1
Nickel	ppm	ASTM D5185m	>4	<1	0	0
Titanium	ppm	ASTM D5185m		0	0	<1
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>20	4	7	7
Lead	ppm	ASTM D5185m	>40	<1	0	<1
Copper	ppm	ASTM D5185m	>330	1	4	2
Tin	ppm	ASTM D5185m	>15	<1	<1	<1
Antimony	ppm	ASTM D5185m				0
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 29	history1 29	history2 33
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	limit/base 250 10	current 29 0	history1 29 0	history2 33 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 250 10 100	current 29 0 41	history1 29 0 49	history2 33 0 35
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 250 10 100	current 29 0 41 <1	history1 29 0 49 <1	history2 33 0 35 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 250 10 100 450	current 29 0 41 <1 501	history1 29 0 49 <1 495	history2 33 0 35 <1 631
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 250 10 100 450 3000	current           29           0           41           <1           501           1648	history1 29 0 49 <1 495 1722	history2 33 0 35 <1 631 1698
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 250 10 100 450 3000 1150	current           29           0           41           <1           501           1648           757	history1 29 0 49 <1 495 1722 737	history2 33 0 35 <1 631 1698 771
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 250 10 100 450 3000 1150 1350	current           29           0           41           <1           501           1648           757           927	history1 29 0 49 <1 495 1722 737 941	history2 33 0 35 <1 631 1698 771 867
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	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	limit/base 250 10 100 450 3000 1150 1350 4250	current           29           0           41           <1           501           1648           757           927           2462	history1         29         0         49         <1         495         1722         737         941         2723	history2           33           0           35           <1           631           1698           771           867           2380
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	limit/base 250 10 400 450 3000 1150 1350 4250 limit/base	Current 29 0 41 <1 501 1648 757 927 2462 Current	history1 29 0 49 <1 495 1722 737 941 2723 history1	history2         33         0         35         <1         631         1698         771         867         2380         history2
ADDITIVES Boron Barium Molybdenum Maganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm	method           ASTM D5185m	limit/base 250 10 100 450 3000 1150 1350 4250 limit/base >25	current           29           0           41           <1           501           1648           757           927           2462           current           6	history1         29         0         49         <1         495         1722         737         941         2723         history1         7	history2         33         0         35         <1         631         1698         771         867         2380         history2         12
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Chosphorus Zinc Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm	method           ASTM D5185m	limit/base 250 10 100 450 3000 1150 1350 4250 limit/base >25	current           29           0           41           <1           501           1648           757           927           2462           current           6           3	history1         29         0         49         <1         495         1722         737         941         2723         history1         7         2	history2         33         0         35         <1         631         1698         771         867         2380         history2         12         3
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm 1 ppm 2 ppm 2 ppm 2 ppm 2 ppm 2 ppm 3 ppm 4 ppm 4 ppm 4 ppm 2 ppm 4	method           ASTM D5185m	limit/base 250 10 100 450 3000 1150 1350 4250 kimit/base >25	current           29           0           41           <1           501           1648           757           927           2462           current           6           3           3	history1         29         0         49         <1         495         1722         737         941         2723         history1         7         2         8	history2           33           0           35           <1           631           1698           771           867           2380           history2           12           3           10
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	limit/base 250 10 100 450 3000 1150 1350 4250 kimit/base >25 >20	current         29         0         41         <1         501         1648         757         927         2462         current         6         3         3         current	history1         29         0         49         <1         495         1722         737         941         2723         history1         7         2         8         history1	history2         33         0         35         <1         631         1698         771         867         2380         history2         12         3         10         history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm 1 ppm 2 ppm 2 ppm 2 ppm 2 ppm 2 ppm 3 ppm 4 ppm 4	method           ASTM D5185m	<pre>limit/base 250 10 100 450 3000 1150 1350 4250 255 </pre>	current           29           0           41           <1           501           1648           757           927           2462           current           6           3           3           current           0.5	history1         29         0         49         <1         495         1722         737         941         2723         history1         7         2         8         history1         0.7	history2         33         0         35         <1         631         1698         771         867         2380         history2         12         3         10         history2         0.6
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium 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	limit/base 250 10 10 450 3000 1150 1350 4250 225 >20 limit/base >3 >20	current           29           0           41           <1           501           1648           757           927           2462           current           6           3           3           current           0.5           10.2	history1         29         0         49         <1         495         1722         737         941         2723         history1         7         2         8         history1         0.7         12.6	history2         33         0         35         <1         631         1698         771         867         2380         history2         12         3         10         history2         0.6         11.7
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	<pre>limit/base 250 10 100 450 3000 1150 1350 4250 limit/base &gt;25 20 limit/base &gt;3 &gt;20 &gt;30</pre>	current         29         0         41         <1         501         1648         757         927         2462         current         6         3         current         0.5         10.2         22.6	history1         29         0         49         <1         495         1722         737         941         2723         history1         7         2         8         history1         0.7         12.6         23.9	history2         33         0         35         <1         631         1698         771         867         2380         history2         12         3         10         history2         0.6         11.7         23.1
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	limit/base 250 10 10 450 3000 1150 1350 4250 225 >20 limit/base >33 >20 330 limit/base	current         29         0         41         <1         501         1648         757         927         2462         current         6         3         current         0.5         10.2         22.6	history1         29         0         49         <1         495         1722         737         941         2723         history1         7         2         8         history1         0.7         12.6         23.9         history1	history2         33         0         35         <1         631         1698         771         867         2380         history2         12         3         10         history2         0.6         11.7         23.1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRADA	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m           ASTM D7844           *ASTM D7624           *ASTM D7415           method	limit/base 250 10 450 3000 1150 1350 4250 limit/base >20 limit/base >30 >30 limit/base >25	current         29         0         41         <1         501         1648         757         927         2462         current         6         3         current         0.5         10.2         22.6         current	history1         29         0         49         <1         495         1722         737         941         2723         history1         7         2         8         history1         0.7         12.6         23.9         history1         25.4	history2         33         0         35         <1         631         1698         771         867         2380         history2         12         3         10         history2         0.6         11.7         23.1         history2         21.6



Abnorm

0ct7/20

# **OIL ANALYSIS REPORT**



VISUAL		method				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	10.9	11.3	11.3	11.3





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