

# **OIL ANALYSIS REPORT**

#### Sample Rating Trend





# Component Diesel Engine Fluid DIESEL ENGINE OIL SAE 15W40 (--- 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.

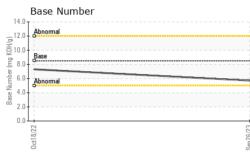
# Fluid Condition

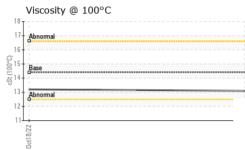
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

			0ct2022	Sep2023		
SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0840921	WC0749711	
Sample Date		Client Info		26 Sep 2023	18 Oct 2022	
Machine Age	mls	Client Info		0	109968	
Oil Age	mls	Client Info		0	0	
Oil Changed		Client Info		Changed	Changed	
Sample Status				NORMAL	NORMAL	
CONTAMINATION	N .	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	
Glycol		WC Method		NEG	NEG	
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	46	45	
Chromium	ppm	ASTM D5185m	>20	<1	<1	
Nickel	ppm	ASTM D5185m	>4	<1	0	
Titanium	ppm	ASTM D5185m		0	0	
Silver	ppm	ASTM D5185m	>3	0	0	
Aluminum	ppm	ASTM D5185m	>20	10	5	
Lead	ppm	ASTM D5185m	>40	15	11	
Copper	ppm	ASTM D5185m	>330	8	11	
Tin	ppm	ASTM D5185m	>15	3	2	
Vanadium	ppm	ASTM D5185m		0	0	
Cadmium	ppm	ASTM D5185m		0	0	
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	250	0	<1	
Barium	ppm	ASTM D5185m	10	0	0	
Molybdenum	ppm	ASTM D5185m	100	63	60	
Manganese	ppm	ASTM D5185m		1	<1	
Magnesium		LOTH DEVOE			- · · -	
Calcium	ppm	ASTM D5185m	450	980	947	
Calcium	ppm ppm	ASTM D5185m ASTM D5185m	450 3000	980 1056	947 1195	
Phosphorus						
	ppm	ASTM D5185m	3000	1056	1195	
Phosphorus	ppm ppm	ASTM D5185m ASTM D5185m	3000 1150	1056 965	1195 1033	
Phosphorus Zinc	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	3000 1150 1350	1056 965 1248	1195 1033 1295	
Phosphorus Zinc Sulfur	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	3000 1150 1350 4250	1056 965 1248 2625	1195 1033 1295 3052	 
Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method	3000 1150 1350 4250 limit/base >25	1056 965 1248 2625 current	1195 1033 1295 3052 history1	   history2
Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m	3000 1150 1350 4250 limit/base >25 >158	1056 965 1248 2625 current 6	1195 1033 1295 3052 history1 6	   history2
Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m ASTM D5185m	3000 1150 1350 4250 limit/base >25 >158	1056 965 1248 2625 current 6 10	1195 1033 1295 3052 history1 6 7	   history2 
Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m ASTM D5185m ASTM D5185m	3000 1150 1350 4250 limit/base >25 >158 >20 limit/base	1056 965 1248 2625 current 6 10 8	1195 1033 1295 3052 history1 6 7 6	  history2  
Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m Method ASTM D5185m ASTM D5185m ASTM D5185m	3000 1150 1350 4250 limit/base >25 >158 >20 limit/base >3	1056 965 1248 2625 current 6 10 8 current	1195 1033 1295 3052 history1 6 7 6 history1	  history2   history2
Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D7844	3000 1150 1350 4250 limit/base >25 >158 >20 limit/base >3 >20	1056 965 1248 2625 current 6 10 8 current 1.5	1195 1033 1295 3052 history1 6 7 6 history1 1.2	  history2   history2
Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm % Abs/.1mm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m *ASTM D7844 *ASTM D7844	3000 1150 1350 4250 limit/base >25 >158 >20 limit/base >3 >20	1056 965 1248 2625 current 6 10 8 current 1.5 11.4	1195 1033 1295 3052 history1 6 7 6 history1 1.2 11.4	  history2   history2
Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm % Abs/.1mm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7415	3000 1150 1350 4250 <b>limit/base</b> >25 >158 >20 <b>limit/base</b> >3 >20 >30	1056 965 1248 2625 current 6 10 8 current 1.5 11.4 25.8	1195 1033 1295 3052 history1 6 7 6 history1 1.2 11.4 26.2	  history2   history2  history2



# **OIL ANALYSIS REPORT**





	VISUAL		method	iiiiii/Dase	current	TIISTOLA	nistory
	White Metal	scalar	*Visual	NONE	NONE	NONE	
	Yellow Metal	scalar	*Visual	NONE	NONE	NONE	
h	Precipitate	scalar	*Visual	NONE	NONE	NONE	
	Silt	scalar	*Visual	NONE	NONE	NONE	
	Debris	scalar	*Visual	NONE	NONE	NONE	
	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	
	Appearance	scalar	*Visual	NORML	NORML	NORML	
	Odor	scalar	*Visual	NORML	NORML	NORML	
	Emulsified Water						
		scalar	*Visual	>0.2	NEG	NEG	
	Free Water	scalar	*Visual		NEG	NEG	
	FLUID PROPE	RTIES	method	limit/base	current	history1	history
	Visc @ 100°C	cSt	ASTM D445	14.4	13.1	13.2	
	GRAPHS						
	Ferrous Alloys						
	iron						
	40 - nickel						
maa	30						
00	20						
	10						
	8/22			6/23 -			
	0ct18/22			Sep 26/23			
	Non-ferrous Me	tals					
	<sup>16</sup> T						
	14 - copper		ARAB DISTANT ARABA DISTANT	ARMAN RANKS			
	12 - Internet tin	atendesisting and a subscription of the subscr					
	10						
200	8						
~ 00	5 6						
w u u	1						
	1						
MUN	6 4 2 0						
	6 4 2 0			26/23			
	6			Sep26/23			
	6 4 2 0 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	)°C		Sep26/23	Base Number		
MARKA	6 4 4	)°C		67992das 14.0	Base Number		
MINN MINN	6 4 2 0 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7 7	)°C			Abaamal		
Mi Ni Ni	6 4 2 0 Viscosity @ 100	)°C		14.0	Abnormal		
	6 4 2 0 Viscosity @ 100	)°C		14.0	Abnormal		
	6 4 2 0 Viscosity @ 100	)°C		14.0	Abnormal Base		
mun	6 4 2 0 Viscosity @ 100 18 17 6 5 5 5 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8 8	)°C		14.0	Abnormal Base Abnormal		
	6 4 2 0 Viscosity @ 100	)oC		14.0 12.0 (PHO) BU 8.0 bu	Abnormal Base Abnormal		
	6 4 2 0 Viscosity @ 100 18 17 6 16 14 12 15 Base	)°C		14.0	Abnormal Base Abnormal	-	
	6 4 2 0 Viscosity @ 100 8 17 Abnormal 16 15 14 4 13 Abnormal 12	)°C		14.0 12.0 ()()(10.0 ()()(10.0 ()()(10.0 ()()(10.0) ()()(10.0) ()()(10.0) ()()(10.0) ()()(10.0) ()()(10.0) ()()((10.0))((10.0))	Abnormal Base Abnormal		
	6 4 2 0 Viscosity @ 100 8 17 Abnormal 16 15 14 4 13 Abnormal 12	)₀C		14.0 12.0 ()()(10.0 ()()(10.0 ()()(10.0 ()()(10.0) ()()(10.0) ()()(10.0) ()()(10.0) ()()(10.0) ()()(10.0) ()()((10.0))((10.0))	Abnormal Base Abnormal		
	6 4 2 0 Viscosity @ 100 18 17 Abnomal 12	b <sub>o</sub> C		14.0 12.0 (Ph10.0 uu) 8.0 9 0 9 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	Abnormal Base Abnormal		
	6 4 2 0 10 10 10 10 10 10 10 10 10 10 10 10 1			14.0 12.0 (0)H10.0 WW Jan B.0 Jan B.0	Abnormal Base Abnormal		FRESHDO
	Viscosity @ 100	- 501 Madia		14.0 12.0 (0)(10)(0)(10)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0	Abnormal Base Abnormal		
100001/48-4	6 4 2 0 Viscosity @ 100 18 17 Abnormal 16 15 16 17 Abnormal 12 11 12 11 12 12 11 12 12 12	- 501 Madia Received	d : 27 :	14.0 12.0 10.0	Abnormal Base Abnormal	8801 EXC	HANGE DR
(J=0UU) +35-2	Viscosity @ 100	- 501 Madia Received Diagnosa	d : 27 : ed : 28 :	14.0 12.0 (0)(10)(0)(10)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0)(0	Abnormal Base Abnormal	8801 EXC	HANGE DR ORLANDO
100001/48-4	6 4 2 0 Viscosity @ 100 17 Abnomal 10 10 10 10 10 10 10 10 10 10	- 501 Madia Received	d : 27 : ed : 28 :	14.0 12.0 12.0 10.0	Abnormal Base Abnormal	8801 EXC	FRESHPO HANGE DR ORLANDO, US 321 CRAIG EVA

To discuss this sample report, contact Customer Service at 1-800-237-1369. \* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

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

Certificate L2367

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