

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id

95072 FREIGHTLINER

1 Diesel Engine Fluid DIESEL ENGINE OIL SAE 10W30 (--- GAL)

Recommendation

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

Wear

Metal levels are typical for a new component breaking in.

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		SBP0007215	SBP0007217	SBP0006016
Sample Date		Client Info		12 Jun 2024	28 May 2024	07 Dec 2023
Machine Age	mls	Client Info		61022	60865	49042
Oil Age	mls	Client Info		49042	11823	49042
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	ATTENTION
CONTAMINATION	٨	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	0.4
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>80	11	64	23
Chromium	ppm	ASTM D5185m	>5	0	1	<1
Nickel	ppm	ASTM D5185m		0	0	0
Titanium	ppm	ASTM D5185m	_	0	0	0
Silver	ppm	ASTM D5185m	>3	0	0	0
Aluminum	ppm	ASTM D5185m	>30	3	16	5
Lead	ppm	ASTM D5185m		0	0	0
Copper	ppm	ASTM D5185m	>150	<1	3	2
Tin	ppm	ASTM D5185m	>5	0	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
		1101111 20100111		U	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron		method	limit/base 250	current	-	-
	ppm			-	history1	history2
Boron Barium	ppm ppm	method ASTM D5185m	250	current 159	history1 2	history2 1
Boron	ppm ppm ppm	method ASTM D5185m ASTM D5185m	250 10	current 159 0	history1 2 0	history2 1 0
Boron Barium Molybdenum	ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	250 10	current 159 0 9	history1 2 0 64	history2 1 0 56
Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100	current 159 0 9 <1	history1 2 0 64 1	history2 1 0 56 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450	current 159 0 9 <1 174	history1 2 0 64 1 1055	history2 1 0 56 <1 929
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000	current 159 0 9 <1 174 1979	history1 2 0 64 1 1055 1154	history2 1 0 56 <1 929 1004
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150	current 159 0 9 <1 174 1979 1027	history1 2 0 64 1 1055 1154 1150	history2 1 0 56 <1 929 1004 947
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	250 10 100 450 3000 1150 1350	current 159 0 9 <1 174 1979 1027 1188	history1 2 0 64 1 1055 1155 1154 1150 1369	history2 1 0 56 <1 929 1004 947 1243
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm 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	250 10 100 450 3000 1150 1350 4250	Current 159 0 9 <1 174 1979 1027 1188 4047	history1 2 0 64 1 1055 1154 1150 1369 3804	history2 1 0 56 <1 929 1004 947 1243 2842
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	250 10 100 450 3000 1150 1350 4250	current 159 0 9 <1 174 1979 1027 1188 4047 current	history1 2 0 64 1 1055 1154 1150 1369 3804 history1	history2 1 0 56 <1 929 1004 947 1243 2842 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >20	current 159 0 9 <1 174 1979 1027 1188 4047 current 5	history1 2 0 64 1 1055 1154 1150 1369 3804 history1 5	history2 1 0 56 <1 929 1004 947 1243 2842 history2 3
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	250 10 100 450 3000 1150 1350 4250 Imit/base >20 S 20	current 159 0 9 <1 174 1979 1027 1188 4047 5 <1 10 current	history1 2 0 64 1 1055 1154 1150 1369 3804 history1 5 2 17 history1	history2 1 0 56 <1 929 1004 947 1243 2842 history2 3 <1 5 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm	method ASTM D5185m	250 10 100 450 3000 1150 1350 4250 Imit/base >20 20 Imit/base	current 159 0 9 <1 174 1979 1027 1188 4047 current 5 <1 10 current 0.1	history1 2 0 64 1 1055 1154 1150 1369 3804 history1 5 2 17 history1 0.6	history2 1 0 56 <1 929 1004 947 1243 2842 history2 3 <1 5 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	method ASTM D5185m	250 10 100 450 3000 1150 1350 4250 i mit/base >20 i mit/base >20	current 159 0 9 <1 174 1979 1027 1188 4047 current 5 <1 10 current 0.1 5.9	history1 2 0 64 1 1055 1154 1150 1369 3804 history1 5 2 17 history1 0.6 11.0	history2 1 0 56 <1 929 1004 947 1243 2842 history2 3 <1 5 history2 0.5 10.0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm	method ASTM D5185m	250 10 100 450 3000 1150 1350 4250 Imit/base >20 20 Imit/base	current 159 0 9 <1 174 1979 1027 1188 4047 current 5 <1 10 current 0.1	history1 2 0 64 1 1055 1154 1150 1369 3804 history1 5 2 17 history1 0.6	history2 1 0 56 <1 929 1004 947 1243 2842 history2 3 <1 5 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	method ASTM D5185m	250 10 100 450 3000 1150 1350 4250 i mit/base >20 i mit/base >20	current 159 0 9 <1 174 1979 1027 1188 4047 current 5 <1 10 current 0.1 5.9	history1 2 0 64 1 1055 1154 1150 1369 3804 history1 5 2 17 history1 0.6 11.0	history2 1 0 56 <1 929 1004 947 1243 2842 history2 3 <1 5 history2 0.5 10.0
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	250 10 100 450 3000 1150 1350 4250 imit/base >20 imit/base >3 >20 >3	current 159 0 9 <1 174 1979 1027 1188 4047 current 5 <1 10 current 0.1 5.9 20.4	history1 2 0 64 1 1055 1154 1150 1369 3804 history1 5 2 17 history1 0.6 11.0 21.6	history2 1 0 56 <1 929 1004 947 1243 2842 history2 3 <1 5 history2 0.5 10.0 21.4



10

14.0

0.21 (mg K0H/g) 0.8 (mg K0H/g) 0.9 (mg K0H/g)

2.0 0.0 Dec7/73

14 13

cSt (100°C) Ba

OIL ANALYSIS REPORT

T-IR (Direct Trend)		VISUAL		method	limit/base	current	history1	history2
Oxidation Nitration		White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
conomian Sulfation		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
	and a subscription of the local day	Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Dec//25 May28/24	Jun12/24	Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Way	Jun	Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Base Number		Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
		Free Water	scalar	*Visual		NEG	NEG	NEG
Abnormal	-	FLUID PROPER	TIES	method	limit/base	current	history1	history2
Base		Visc @ 100°C	cSt	ASTM D445	10.9	11.9	12.7	0.8
Abnormal		GRAPHS						
		Ferrous Alloys						
		⁷⁰ T						
lay/28/24	V C C	60 - iron	\wedge					
May28/24	-	50 - nickel						
(in a site of 10000		40						
/iscosity @ 100°C		E 40 30						
Name		20						
Abnormal		10						
Base								
		23 23						
					27			
Abnormal		Dec7/23	/lay28/		Jun 12/2			
Abnormal			May28/24		Jun12/24			
	VCC	Non-ferrous Meta			- Jun12/2			
Abnormal 	800 C î1	Non-ferrous Meta			Jun12/2			
	مرد د ۲۰۰۰	Non-ferrous Meta			Jun12/2			
	ACC?1	Non-ferrous Meta			Jun 122			
	anot1	Non-ferrous Meta			Jun 122			
	March mul	Non-ferrous Meta			Jun 122			
	Por Channel	Non-ferrous Meta			Jun 122			
	And the second	Non-ferrous Meta			Jun 122			
	And Chand	Non-ferrous Meta	als		224 / Jun 122			
	ACC?1	Non-ferrous Meta	als		1224			
	and f	Non-ferrous Meta	Hals		Jun1224	Baco Numbo		
	WC L-TT	Non-ferrous Meta	Hals		1224	Base Number	-	
	ACCF	Non-ferrous Meta	Hals		Jun1224	Abnormal	-	
	MC C F and	Non-ferrous Meta	Hals		14.0 12.0	Abnormal	-	
	AC 6 21	Non-ferrous Meta	Hals		14.0 12.0	Abnormal	-	
	And Party	Non-ferrous Meta	Hals		14.0 12.0	Abnormal	-	
		Non-ferrous Meta	Hals		14.0 12.0	Abnormal		
	And the second	Non-ferrous Meta	Hals		14.0 12.0 (0)HOX @u) Jaquinny 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0	Abnormal Base Abnormal		
		Non-ferrous Meta	Hals		14.0 12.0 (0)HOX Bu 30 10.0 10.0 10.0 10.0 10.0 10.0 10.0 10	Abnormal		
	MC Ch mil	Non-ferrous Meta	Hals		14.0 12.0 (0)HOX @u) Jaquinny 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0 8.0	Abnormal	May28/24	Jun1224

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Sapp Bros. Petroleum - Corporate - OMA Laboratory Sample No. : SBP0007215 Received : 26 Jun 2024 9915 South 148th Lab Number : 06220686 Tested : 27 Jun 2024 OMAHA, NE Unique Number : 11098883 Diagnosed : 27 Jun 2024 - Wes Davis US 68138 Test Package : FLEET Contact: Josh Broz Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. JBroz@sappbros.net T: (402)895-2202 * - 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) F:

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Submitted By: Joshua Kenney Page 2 of 2