

OIL ANALYSIS REPORT

Sample Rating Trend

VISCOSITY

E002-062563 - FRANKLIN CO 911

Component

Diesel Engine

RED STAR 10W30 (--- GAL)

DIAGNOSIS

Recommendation

Oil and filter change at the time of sampling has been noted. Resample at the next service interval to monitor.

Wear

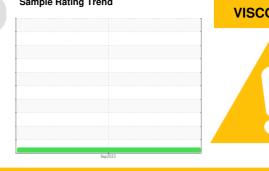
All component wear rates are normal.

Contamination

There is no indication of any contamination in the oil.

Fluid Condition

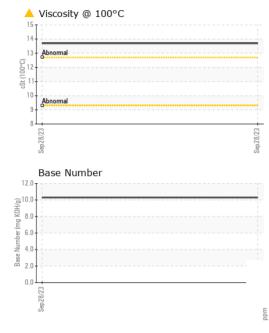
The oil viscosity is higher than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.



SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0812684		
Sample Date		Client Info		28 Sep 2023		
Machine Age	hrs	Client Info		12		
Oil Age	hrs	Client Info		0		
Oil Changed		Client Info		Changed		
Sample Status				ATTENTION		
CONTAMINATION	V	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0		
Glycol		WC Method		NEG		
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	4		
Chromium	ppm	ASTM D5185m	>20	0		
Nickel	ppm	ASTM D5185m	>4	0		
Titanium	ppm	ASTM D5185m		<1		
Silver	ppm	ASTM D5185m	>3	0		
Aluminum	ppm	ASTM D5185m	>20	3		
Lead	ppm	ASTM D5185m	>40	2		
Copper	ppm	ASTM D5185m	>330	4		
Tin	ppm	ASTM D5185m	>15	<1		
Vanadium	ppm	ASTM D5185m		0		
Cadmium	ppm	ASTM D5185m		0		
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current 37	history1	history2
	ppm		limit/base			
Boron Barium	• • • • • • • • • • • • • • • • • • • •	ASTM D5185m	limit/base	37		
Boron Barium Molybdenum	ppm	ASTM D5185m ASTM D5185m	limit/base	37 0		
Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	37 0 54		
Boron Barium Molybdenum	ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	37 0 54 <1		
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	37 0 54 <1 368		
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	37 0 54 <1 368 1940		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	37 0 54 <1 368 1940 1020		
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 ASTM D5185m	limit/base	37 0 54 <1 368 1940 1020 1206		
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 ASTM D5185m	limit/base	37 0 54 <1 368 1940 1020 1206 3709		
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	limit/base	37 0 54 <1 368 1940 1020 1206 3709 current		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >25	37 0 54 <1 368 1940 1020 1206 3709 current		history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >25	37 0 54 <1 368 1940 1020 1206 3709 current 8 3		history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >25 >20	37 0 54 <1 368 1940 1020 1206 3709 current 8 3 6		history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	limit/base >25 >20 limit/base >3	37 0 54 <1 368 1940 1020 1206 3709 current 8 3 6		history2
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 method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base >3	37 0 54 <1 368 1940 1020 1206 3709 current 8 3 6 current		history2 history2
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 method *ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base >25 >20 limit/base >3 >20	37 0 54 <1 368 1940 1020 1206 3709 current 8 3 6 current 0 4.7		history2 history2
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 method *ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D76145	limit/base >25 >20 limit/base >3 >20 >30	37 0 54 <1 368 1940 1020 1206 3709 current 8 3 6 current 0 4.7 18.3	history1	history2 history2



OIL ANALYSIS REPORT



VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE		
Yellow Metal	scalar	*Visual	NONE	NONE		
Precipitate	scalar	*Visual	NONE	NONE		
Silt	scalar	*Visual	NONE	NONE		
Debris	scalar	*Visual	NONE	NONE		
Sand/Dirt	scalar	*Visual	NONE	NONE		
Appearance	scalar	*Visual	NORML	NORML		
Odor	scalar	*Visual	NORML	NORML		
Emulsified Water	scalar	*Visual	>0.2	NEG		
Free Water	scalar	*Visual		NEG		
FLUID PROPER	TIES	method	limit/base	current	history1	history2
/isc @ 100°C	cSt	ASTM D445		<u> </u>		
GRAPHS						
Iron (ppm)			10	Lead (ppm)		
Severe			8	Severe		
			mdd 4	1:		
Abnormal			B 4	O - Abnormal		
			2	0 + ;		
53						
Sep 28/23			Sep28/23	Sep.28/23		
Aluminum (ppm))		03	Chromium (p	pm)	
50 7						
Severe			4			
Abnormal			E 3	Abnormal		
- 0						
			1	0		
Sep28/23			Sep 28/23	Sep28/23		
Copper (ppm)				Silicon (ppm)		
Severe Abmormal			8	O T Severe		
				0 +		
-			E 4	0 -		
			2	Abnormal		
Sep28/23			Sep28/23	Sep 28/23 -		
Sep			Sepi			
Viscosity @ 100°	С		4.0	Base Number		
			12. E 10.			
Abnormal			Q 8.	0		
			89se Mumber (mg KOH/g) 4.4			
Abnormal			Ling 4.	1		
-			% 2.1 % 2.1	1 :		
3/23			3/23	8/23		





Laboratory Sample No. Lab Number Unique Number : 10673901

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : WC0812684 : 05967350

Received

Diagnosed

: 03 Oct 2023 : 05 Oct 2023 Diagnostician : Jonathan Hester

Test Package : MOB 1 (Additional Tests: TBN)

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)

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