

# **OIL ANALYSIS REPORT**

Sample Rating Trend

**NORMAL** 



GEN 03 Component

**Diesel Engine** 

**DIESEL ENGINE OIL SAE 15W40 (--- GAL)** 

### Recommendation

Resample at the next service interval to monitor.

Metal levels are typical for a new component breaking in.

### Contamination

There is no indication of any contamination in the oil.

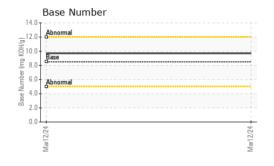
### **Fluid Condition**

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

				Mar2024		
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0884277		
Sample Date		Client Info		12 Mar 2024		
Machine Age	hrs	Client Info		17		
Oil Age	hrs	Client Info		0		
Oil Changed		Client Info		Not Changd		
Sample Status				NORMAL		
CONTAMINATIO	V	method	limit/base	current	history1	history2
Water		WC Method	>0.2	NEG		
Glycol		WC Method	7 0.2	NEG		
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	6		
Chromium	ppm	ASTM D5185m	>20	<1		
Nickel	ppm	ASTM D5185m	>4	0		
Titanium	ppm	ASTM D5185m		0		
Silver	ppm	ASTM D5185m	>3	0		
Aluminum	ppm	ASTM D5185m	>20	2		
Lead	ppm	ASTM D5185m	>40	- <1		
Copper	ppm	ASTM D5185m	>330	9		
Tin	ppm	ASTM D5185m	>15	<1		
Vanadium	ppm	ASTM D5185m	710	0		
Cadmium	ppm	ASTM D5185m		0		
ADDITIVES		method	limit/base	current	historv1	historv2
ADDITIVES	nnm	method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	250	13		
Boron Barium	ppm	ASTM D5185m ASTM D5185m	250 10	13 0		
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	250	13 0 54		
Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100	13 0 54 1		
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450	13 0 54 1 619		
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000	13 0 54 1 619 1450		
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	250 10 100 450 3000 1150	13 0 54 1 619 1450 998		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350	13 0 54 1 619 1450 998 1146		
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	250 10 100 450 3000 1150 1350 4250	13 0 54 1 619 1450 998		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	250 10 100 450 3000 1150 1350 4250	13 0 54 1 619 1450 998 1146 3590 current		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25	13 0 54 1 619 1450 998 1146 3590 current		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >158	13 0 54 1 619 1450 998 1146 3590 current 8 2	     history1	    history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >158 >20	13 0 54 1 619 1450 998 1146 3590 current 8 2 4	     history1	
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >158 >20	13 0 54 1 619 1450 998 1146 3590 current 8 2	    history1	history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >158 >20	13 0 54 1 619 1450 998 1146 3590 current 8 2 4	history1	history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >158 >20 >5	13 0 54 1 619 1450 998 1146 3590 current 8 2 4 <1.0	history1	history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D3524	250 10 100 450 3000 1150 1350 4250 limit/base >25 >158 >20 >5	13 0 54 1 619 1450 998 1146 3590 current 8 2 4 <1.0	history1 history1	history2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >158 >20 >5 limit/base >3	13 0 54 1 619 1450 998 1146 3590 current 8 2 4 <1.0 current	history1 history1	history2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844	250 10 100 450 3000 1150 1350 4250 limit/base >25 >158 >20 >5 limit/base >3 >20	13 0 54 1 619 1450 998 1146 3590 current 8 2 4 <1.0 current 0 4.6	history1 history1	history2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7624	250 10 100 450 3000 1150 1350 4250 limit/base >25 >158 >20 >5 limit/base >3 >20 >30	13 0 54 1 619 1450 998 1146 3590 current 8 2 4 <1.0 current 0 4.6 17.6	history1 history1	history2 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation FLUID DEGRADA	ppm	ASTM D5185m ASTM D78185m ASTM D7624 *ASTM D7624 *ASTM D7415 method	250 10 100 450 3000 1150 1350 4250 limit/base >25 >158 >20 >5 limit/base >3 >20 >30 limit/base >25	13 0 54 1 619 1450 998 1146 3590 current 8 2 4 <1.0 current 0 4.6 17.6 current	history1 history1 history1	history2 history2 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		
<b>Emulsified Water</b>	scalar	*Visual	>0.2	NEG		
Free Water	scalar	*Visual		NEG		
ELLID DDODEDI	TIEC	mathad	limit/bass	ourrent.	historyd	hiotom/0

Viscosity @ 100°C	
17 Abnormal	
16 9	
3 15 Base Base 3 14	
13 Abnormal	
12	
ar12/24	A C. C.
ar12	7

Visc @ 100°C	cSt	ASTM D445	14.4	12.4		
GRAPHS						
Iron (ppm)				Lead (ppm)	)	
200 Severe				Severe		
Abnormal				Abnormal		
100 - Abnormal	***************************************	***************************************		Abnormal		
50				20		
Mar12/24			Mar12/24	0 Mar12/24 <del>1</del> 1		Mar12/24
			Mari			Mar1
Aluminum (ppm)				Chromium	(ppm)	
40 Severe				40 Severe		
E 30				Abnormal		
Abnormal		***************************************	-	20 1		
10				10		
Mar12/24			Mar12/24	Mar12/24		Mar12/24
			Mai		,	Mai
Copper (ppm)  400 T Severe				Silicon (ppr	n) 	
300				60		
E 200				E 40		
100				Abnormal 20		
0				0		
Marl 2/24			Mar12/24	Mar12/24		Mar12/24
≥ Viscosity @ 100°	С		≥	≥ Base Numb	er	≥
Abnormal				15.0		
161				Dy Base		
Base Abnormal	***************************************	***************************************		Abnormal		
12				Abnormal  Abnormal  Abnormal		
10 2			24	0.0		- 54
Mar12/24			Mar12/24	Mar12/24		Mar12/24
						_
: WearCheck USA - 50	U1 Madis	on Ave., Cary	, NC 2	/513	NATIONA	L POWER CORP





Laboratory

Sample No. : WC0884277 Lab Number : 06125549

Unique Number : 10939700

Received Tested Diagnosed

: 21 Mar 2024 : 22 Mar 2024

: 22 Mar 2024 - Jonathan Hester Test Package: MOB 1 (Additional Tests: FuelDilution, TBN)

RALEIGH, NC US 27616 Contact: ANDREW RANDALL andrew.randall@natpow.com

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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