

## **OIL ANALYSIS REPORT**

Sample Rating Trend





Diesel Engine Fluid NOT GIVEN (--- GAL)

### DIAGNOSIS

#### Recommendation

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

#### Wear

All component wear rates are normal.

#### Contamination

Fuel content negligible. There is no indication of any contamination in the oil.

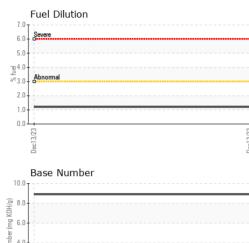
#### Fluid Condition

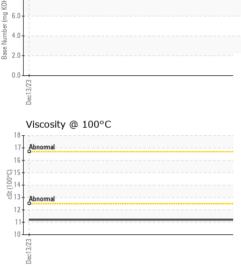
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

				Dec2023		
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0091677		
Sample Date		Client Info		13 Dec 2023		
Machine Age	days	Client Info		0		
Oil Age	days	Client Info		0		
Oil Changed		Client Info		N/A		
Sample Status				NORMAL		
CONTAMINAT	ION	method	limit/base	current	history1	history2
Water		WC Method	>0.2	NEG		
Glycol		WC Method		NEG		
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>90	6		
Chromium	ppm	ASTM D5185m	>20	<1		
Nickel	ppm	ASTM D5185m	>2	0		
Titanium	ppm	ASTM D5185m	>2	0		
Silver	ppm	ASTM D5185m	>2	0		
Aluminum	ppm	ASTM D5185m	>20	<1		
Lead	ppm	ASTM D5185m	>40	<1		
Copper	ppm	ASTM D5185m	>330	3		
Tin	ppm	ASTM D5185m	>15	0		
Vanadium	ppm	ASTM D5185m		<1		
Cadmium	ppm	ASTM D5185m		0		
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base	current	history1	history2
	ppm ppm		limit/base			
Boron Barium		ASTM D5185m	limit/base	1		
Boron	ppm	ASTM D5185m ASTM D5185m	limit/base	1 0		
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	1 0 57		
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	1 0 57 0		
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	1 0 57 0 865		
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	1 0 57 0 865 956	  	  
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base	1 0 57 0 865 956 942	  	
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	limit/base	1 0 57 0 865 956 942 1101	   	    
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		1 0 57 0 865 956 942 1101 2865		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm 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	1 0 57 0 865 956 942 1101 2865 current	     history1	     history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b>	limit/base	1 0 57 0 865 956 942 1101 2865 current 2	     history1 	     history2 
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m <b>method</b> ASTM D5185m	limit/base >25	1 0 57 0 865 956 942 1101 2865 current 2 0	      history1	      history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20	1 0 57 0 865 956 942 1101 2865 <u>current</u> 2 0 0	      history1	      history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 >3.0	1 0 57 0 865 956 942 1101 2865 current 2 0 0 0	     history1   	     history2  
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b>	ASTM D5185m ASTM D5185m	limit/base >25 >20 >3.0	1 0 57 0 865 956 942 1101 2865 <i>current</i> 2 0 0 0 1.2 <i>current</i>	     history1    history1	     history2    history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm TS	ASTM D5185m ASTM D5185m	limit/base >25 >20 >3.0 limit/base >6	1 0 57 0 865 956 942 1101 2865 <i>current</i> 2 0 0 0 1.2 <i>current</i>	     history1    history1   history1	     history2     history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 >3.0 limit/base >6 >20	1 0 57 0 865 956 942 1101 2865 <u>current</u> 2 0 0 1.2 <u>current</u> 0.2 5.6	      history1    history1  	      history2    history2  
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 >3.0 limit/base >6 >20 >3.0	1 0 57 0 865 956 942 1101 2865 <i>current</i> 2 0 0 0 1.2 <i>current</i> 0.2 5.6 18.2	       history1   history1  history1	      history2   history2  history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	limit/base >25 >20 >20 >3.0 limit/base >6 >20 >30 limit/base	1 0 57 0 865 956 942 1101 2865 current 2 0 0 1.2 0 0 1.2 0 0 0 1.2 0 0 1.2 0 0 1.2 0 0 1.2 0 0 0 1.2 0 0 0 1.2 0 0 0 1.2 0 0 0 0 1.2 0 0 0 0 1.2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	       history1   history1  history1    history1	      history2   history2  history2  history2  history2



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	VISUAL		method				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		
6		scalar	*Visual	NORML	NORML		
13.02 2023	Odor	scalar	*Visual	NORML	NORML		
L. L	Emulsified Water		*Visual	>0.2	NEG		
				>0.2			
	Free Water	scalar	*Visual		NEG		
	FLUID PRO		method	limit/base	current	history1	history2
	Visc @ 100°C	cSt	ASTM D445		11.2		
	GRAPHS						
	Ferrous Alloys						
	iron						
	8 - nickel						
	6 -						
	E dd						
	4						
	2-						
	2						
	0						
	Dec13/23			Dec13/23			
	Dec			Dec			
	Non-ferrous M	etals					
	copper						
	copper						
	8 - copper 6 - timestante lead						
	copper						
	8 - copper 6 - timestante lead						
	8 - copper 6 - timestante lead						
	8 - Copper lead						
	8 - Copper lead			52			
	8 6 4 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			e13/23			
	8 6 4 2 0 CCPCFT			Dec13/23			
	8 6 4 2 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0°C		ā	Base Number	-	
	Viscosity @ 10	0°C		9.0	Base Number	-	
	Kine Copper lead	0°C		9.0			
	Viscosity @ 10	0°C		9.0		-	
	Viscosity @ 10	0°C		9.0		-	
	Copper lead 6 4 2 0 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	0°C		9.0			
	Copper lead	0°C		9.0		-	
	Copper lead 4 2 0 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	0°C		9.0		-	
	Copper lead Viscosity @ 10 Abnomal 12 11	0°C		0.0 8.0 8.0 9.0 8.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9			
	Copper 1 Ead 1	0°C		9.0 8.0 (b)HO2 6.0 UHO2 5.0 14 4.0 988 2.0 1.0 0.0			
	Copper 1 Ead 1	0°C		9.0 8.0 (b)HO2 6.0 UHO2 5.0 14 4.0 988 2.0 1.0 0.0		-	
	Copper lead Viscosity @ 10 Abnomal 12 11	0°C		0.0 8.0 8.0 9.0 8.0 9.0 8.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9		-	
l obcreter:	Copper lead Viscosity @ 10 Niscosity @ 10 Abnomal CEE Section CEE Section			0.0 8.0 9.0,10 0.0,00 0.0,00 0.0,00 0.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9	Dec13/23		
Laboratory	Viscosity @ 10	A - 501 Madia		9.0 8.0 (b)(h(3) (b)(b)(b)(b)(b)(b)(b)(b)(b)(b)(b)(b)(b)(	Dec13/23	ICSE	390 - O`Fallo
Sample No.	Viscosity @ 10	A - 501 Madia Recieved	d : 20	9.0 8.0 (b), HOX 60 b), HOX 60 b)	Dec13/23	ICSE	3 <b>390 - O`Fallo</b> Dint Ellen Stree O`Fallon. I
Sample No. Lab Number	Viscosity @ 10	A - 501 Madia Recieved Diagnos	d : 20 ed : 22	9.0 8.0 (b)(h(3) (b)(b)(b)(b)(b)(b)(b)(b)(b)(b)(b)(b)(b)(	Dec13/23	<b>ІСЅЕ</b> 149 Sa	<b>390 - O`Fallo</b> aint Ellen Stree O`Fallon, I
Sample No.	Viscosity @ 10 Viscosity @ 10	A - 501 Madia Recieved Diagnos Diagnos	d : 20 ed : 22 tician : Sea	9.0 8.0 9.0 8.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9.0 9	Dec13/23	ICSE 149 Sa L Contac	3 <b>90 - O`Fallo</b> aint Ellen Stree O`Fallon, I JS 62269-163 at: Mike Masse
Sample No. Lab Number Unique Numbe	Viscosity @ 10 Viscosity @ 10	A - 501 Madia Recieved Diagnos Diagnos nal Tests: Fu Service at 1-8	d : 20 ed : 22 tician : Sea uelDilution, P 800-237-1368	B 9.0 8.0 1.0 1.0 1.0 1.0 1.0 1.0 1.0 1	Dec13/23	ICSE 149 Sa L Contac m.massey@illin	3 <b>90 - O`Fallo</b> aint Ellen Stree O`Fallon, I JS 62269-163 at: Mike Masse

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