

# **OIL ANALYSIS REPORT**

#### Sample Rating Trend





Diesel Engine

DIESEL ENGINE OIL SAE 40 (--- GAL)

## DIAGNOSIS

#### Recommendation

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.

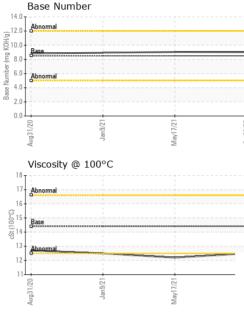
## Fluid Condition

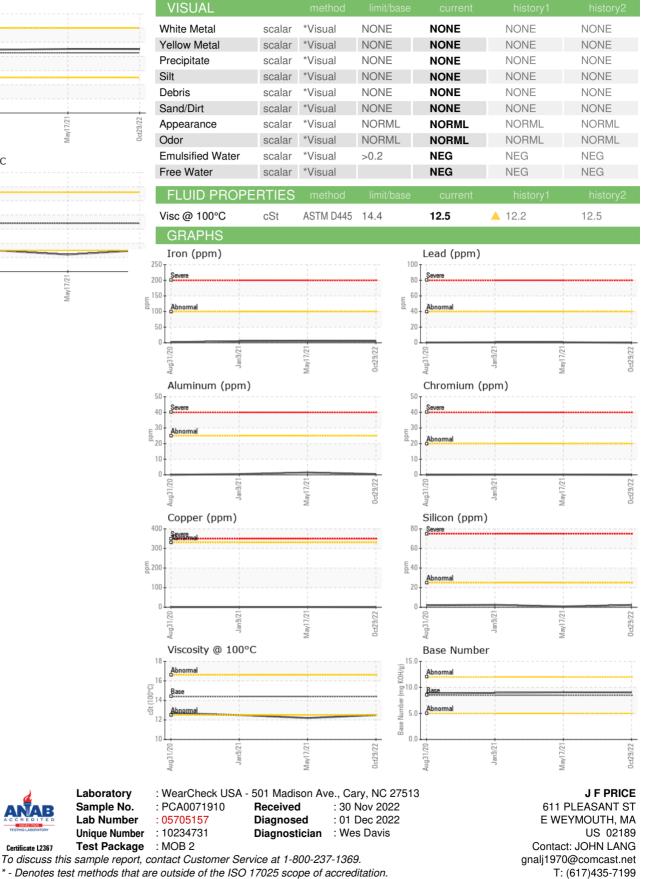
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

Aug2020 Jan2021 Mar(2021 Oct2022						
SAMPLE INFOR	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0071910	PCA0041175	PCA0023288
Sample Date		Client Info		29 Oct 2022	17 May 2021	09 Jan 2021
Machine Age	hrs	Client Info		8558	7162	6782
Oil Age	hrs	Client Info		1396	400	525
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	ATTENTION	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	1.8	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	5	5	5
Chromium	ppm	ASTM D5185m	>20	0	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	<1	<1
Titanium	ppm	ASTM D5185m		<1	<1	<1
Silver	ppm	ASTM D5185m	>2	0	<1	0
Aluminum	ppm	ASTM D5185m	>25	<1	2	<1
Lead	ppm	ASTM D5185m	>40	0	<1	<1
Copper	ppm	ASTM D5185m	>330	<1	1	<1
Tin	ppm	ASTM D5185m	>15	0	<1	<1
Antimony	ppm	ASTM D5185m			0	0
Vanadium	ppm	ASTM D5185m		0	0	0
Codmium		AOTH DEADE			0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES	ppm	method	limit/base	0 current	0 history1	0 history2
	ppm ppm		limit/base 250		-	
ADDITIVES		method		current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	250	current 3	history1 11	history2 8
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	250 10	current 3 0	history1 11 0	history2 8 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	250 10	current 3 0 62	history1 11 0 59	history2 8 0 58
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100	current 3 0 62 <1	history1 11 0 59 <1	history2 8 0 58 <1
ADDITIVES 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 3 0 62 <1 878	history1 11 0 59 <1 872	history2 8 0 58 <1 779
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000	current           3           0           62           <1           878           1128	history1 11 0 59 <1 872 1013	history2 8 0 58 <1 779 1247
ADDITIVES 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 3 0 62 <1 878 1128 1024	history1 11 0 59 <1 872 1013 970	history2 8 0 58 <1 779 1247 1005
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350	current           3           0           62           <1           878           1128           1024           1210	history1 11 0 59 <1 872 1013 970 1123	history2 8 0 58 <1 779 1247 1005 1200
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	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 3 0 62 <1 878 1128 1024 1210 3676	history1 11 0 59 <1 872 1013 970 1123 2582	history2 8 0 58 <1 779 1247 1005 1200 2749
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	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 ASTM D5185m	250 10 100 450 3000 1150 1350 4250	current           3           0           62           <1           878           1128           1024           1210           3676           current	history1 11 0 59 <1 872 1013 970 1123 2582 history1	history2         8         0         58         <1         779         1247         1005         1200         2749         history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b>	methodASTM D5185mASTM D5185m	250 10 100 450 3000 1150 1350 4250 Limit/base	current           3           0           62           <1           878           1128           1024           1210           3676           current           2	history1           11           0           59           <1           872           1013           970           1123           2582           history1           <1	history2           8           0           58           <1           779           1247           1005           1200           2749           history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >216	current           3           0           62           <1           878           1128           1024           1210           3676           current           2           0	history1         11         0         59         <1         872         1013         970         1123         2582         history1         <1         2	history2         8         0         58         <1         779         1247         1005         1200         2749         history2         2         <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >25 >216 >20	current           3           0           62           <1           878           1128           1024           1210           3676           current           2           0           0	history1         11         0         59         <1         872         1013         970         1123         2582         history1         <1         2         <1         2         <1         2         <1         2         <1         2         <1         <1         2         <1	history2         8         0         58         <1         779         1247         1005         1200         2749         history2         2         <1         0         history2         2         <1         0         history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>Iinit/base</b> >216 >216 >20 <b>Iinit/base</b> >3	current           3           0           62           <1           878           1128           1024           1210           3676           current           2           0           0           current           0.3	history1         11         0         59         <1         872         1013         970         1123         2582         history1         <1         2         <1         2         <1         0.3	history2         8         0         58         <1         779         1247         1005         1200         2749         history2         2         <1         0         history2         0.3
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	250 10 100 450 3000 1150 1350 4250 <b>Iinit/base</b> >216 >216 >20 <b>Iinit/base</b> >3	current           3           0           62           <1           878           1128           1024           1210           3676           current           2           0           0           0           0           0           0           current	history1         11         0         59         <1         872         1013         970         1123         2582         history1         <1         2         <1         2         <1         2         <1         history1	history2         8         0         58         <1         779         1247         1005         1200         2749         history2         2         <1         0         history2         2         <1         0         history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m           ASTM D5185m	250 10 100 450 3000 1150 1350 4250 20 imit/base >25 >216 >20 imit/base >3 >3	current           3           0           62           <1           878           1128           1024           1210           3676           current           2           0           0           current           0.3           6.8	history1         11         0         59         <1         872         1013         970         1123         2582         history1         <1         2         <1         2         <1         2         <1         0.3         6.5	history2           8           0           58           <1           779           1247           1005           1200           2749           history2           2           <1           0           history2           0           history2           0.3           6.2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAM	ppm ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b> ppm ppm ppm ppm	method           ASTM D5185m           ASTM D7844           *ASTM D7624           *ASTM D7415           method	250 10 100 450 3000 1150 1350 4250 20 216 >216 >216 >20 >20 >3 >20 >30 >30	Current         3         0         62         <1         878         1128         1024         1210         3676         current         2         0         0         current         0         0.3         6.8         19.7         current	history1         11         0         59         <1         872         1013         970         1123         2582         history1         <1         2         <1         2         <1         2         <1         0.3         6.5         19.6         history1	history2         8         0         58         <1         779         1247         1005         1200         2749         history2         2         <1         0         history2         0         history2         0.3         6.2         19.1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN 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 <b>imit/base</b> >25 >216 >20 <b>imit/base</b> >3 >20 >3	current           3           0           62           <1           878           1128           1024           1210           3676           current           2           0           0           current           0.3           6.8           19.7	history1         11         0         59         <1         872         1013         970         1123         2582         history1         <1         2         <1         0.3         6.5         19.6	history2         8         0         58         <1         779         1247         1005         1200         2749         history2         2         <1         0         history2         0.3         6.2         19.1



# **OIL ANALYSIS REPORT**





Certificate L2367

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