

OIL ANALYSIS REPORT

Sample Rating Trend





Machine Id **20-220 (S/N 1M1AN07YXEM016353)** Diesel Engine

Fluid DIESEL ENGINE OIL SAE 30 (--- 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.

SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		PCA0109630	PCA0104619	
Sample Date		Client Info		22 May 2024	10 Oct 2023	
Machine Age	mls	Client Info		426409	403188	
Oil Age	mls	Client Info		403188	403188	
Oil Changed		Client Info		N/A	N/A	
Sample Status				NORMAL	NORMAL	
CONTAMINATI	ON	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	1.9	
Water		WC Method	>0.2	NEG	NEG	
Glycol		WC Method		NEG	NEG	
WEAR METALS	S	method	limit/base	current	historv1	history2
Iron			. 100	0	11	
Chromium	ppin	AGTINI DOTODIII	>120	9	-1	
Niekol	ppin	AGTM DE105m	>20	0	< 1	
Titonium	ppm	ASTM DE105m	>0	0	-1	
Silver	ppm	ASTM D5195m	>2	0	0	
Aluminum	ppm	ASTM D5105III	>20	4	5	
	ppm	ASTM D5105III	>10	4	0	
Coppor	ppin	AGTM DE105m	>40	0	1	
Tin	ppm	ASTIVI DOTODIII	>330	0	-1	
Vanadium	ppm	ASTM D5105m	>15	0	< 1	
Cadmium	ppm	ASTM D5185m		0	0	
	pp	method	limit/base	ourrent	bistory1	history?
ADDITIVES	PP	method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 250	current	history1	history2
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	limit/base 250 10	current 2 0	history1 3 0	history2
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 250 10 100	current 2 0 51	history1 3 0 57	history2
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 250 10 100	2 0 51 <1	history1 3 0 57 <1	history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 250 10 100 450	current 2 0 51 <1 853	history1 3 0 57 <1 787	history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm ppm	Method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 250 10 100 450 3000	current 2 0 51 <1 853 995	history1 3 0 57 <1 787 1071	history2
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	limit/base 250 10 100 450 3000 1150 1250	current 2 0 51 <1 853 995 968 1140	history1 3 0 57 <1 787 1071 915 1070	history2
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	limit/base 250 10 100 450 3000 1150 1350 4250	Current 2 0 51 <1 853 995 968 1146 2020	history1 3 0 57 <1 787 1071 915 1079 2696	history2
ADDITIVES 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	limit/base 250 10 100 450 3000 1150 1350 4250	current 2 0 51 <1 853 995 968 1146 3039	history1 3 0 57 <1 787 1071 915 1079 2696	history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm 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	limit/base 250 10 100 450 3000 1150 1350 4250 limit/base	current 2 0 51 <1 853 995 968 1146 3039 current	history1 3 0 57 <1 787 1071 915 1079 2696 history1	history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm 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	limit/base 250 10 100 450 3000 1150 1350 4250 limit/base >25	current 2 0 51 <1 853 995 968 1146 3039 current 4	history1 3 0 57 <1 787 1071 915 1079 2696 history1 5	history2 history2 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	limit/base 250 10 100 450 3000 1150 1350 4250 limit/base >25 >75	Current 2 0 51 <1 853 995 968 1146 3039 Current 4 <	history1 3 0 57 <1 787 1071 915 1079 2696 history1 5 2	history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	limit/base 250 10 100 450 3000 1150 1350 4250 limit/base >25 >75 >20	current 2 0 51 <1 853 995 968 1146 3039 current 4 <1 3	history1 3 0 57 <1 787 1071 915 1079 2696 history1 5 2 9	history2 history2
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	limit/base 250 10 100 450 3000 1150 1350 4250 limit/base >25 >75 >20	current 2 0 51 <1 853 995 968 1146 3039 current 4 <1 3 current	history1 3 0 57 <1 787 1071 915 1079 2696 history1 5 2 9 history1	history2 history2 history2 history2 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	limit/base 250 10 10 100 450 3000 1150 1350 4250 limit/base >25 >75 >20 limit/base >4	current 2 0 51 <1 853 995 968 1146 3039 current 4 <1 3 current 0.5	history1 3 0 57 <1 787 1071 915 1079 2696 history1 5 2 9 history1 0.6	history2 history2 history2 history2 history2 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m	limit/base 250 10 10 100 450 3000 1150 1350 4250 25 >75 >20 limit/base >4 >20 >20	current 2 0 51 <1 853 995 968 1146 3039 current 4 <1 3 current 0.5 8.7	history1 3 0 57 <1 787 1071 915 1079 2696 history1 5 2 9 history1 0.6 8.4	history2 history2
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 D7844 *ASTM D7624	limit/base 250 10 10 100 450 3000 1150 1350 4250 limit/base >25 >75 >20 limit/base >4 >20 >30	current 2 0 51 <1 853 995 968 1146 3039 current 4 <1 3 current 0.5 8.7 18.7	history1 3 0 57 <1 787 1071 915 1079 2696 history1 5 2 9 history1 0.6 8.4 19.0	history2 history2 history2
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 D7844 *ASTM D7624 *ASTM D7415 method	limit/base 250 10 10 100 450 450 3000 1150 1350 4250 255 >75 20 limit/base >4 >20 30 limit/base	current 2 0 51 <1 853 995 968 1146 3039 current 4 <1 3 current 0.5 8.7 18.7 current	history1 3 0 57 <1 787 1071 915 1079 2696 history1 5 2 9 history1 0.6 8.4 19.0 history1	history2 history2 history2 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE Oxidation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7414	limit/base 250 10 100 450 450 3000 1150 1350 4250 255 >20 limit/base >24 >20 sa0 imit/base >25 30 imit/base >25 >25	current 2 0 51 <1 853 995 968 1146 3039 current 4 <1 3 current 0.5 8.7 18.7 current 14.9	history1 3 0 57 <1 787 1071 915 1079 2696 history1 5 2 9 history1 0.6 8.4 19.0 history1 15.3	history2 <tr tr=""> </tr>









Yellow Metal *Visual NONE NONE NONE scalar NONE Precipitate scalar *Visual NONE NONE Silt scalar *Visual NONE NONE NONE Debris *Visual NONE NONE NONE scalar Sand/Dirt NONE NONE NONE scalar *Visual scalar NORML NORML ARUDDA DA Appearance *Visual NORML Odor *Visual NORML NORML scalar NORML **Emulsified Water** scalar *Visual >0.2 NEG NEG Free Water scalar *Visual NEG NEG **FLUID PROPERTIES** Visc @ 100°C cSt ASTM D445 10.9 10.8 11.2 GRAPHS Iron (ppm) Lead (ppm) 300 100 250 Sever 80 200 60 la 150 ppm Ah 40 100 20 50 Π /lav22/24 Aluminum (ppm) Chromium (ppm) 5 Se 40 40 30 31 ARUT CONA Silicon (ppm) Copper (ppm) 400 80 300 6 la 200 ۲,40 100 20 UCCURIN Viscosity @ 100°C Base Number 15. (B/HOX Bu)

> 5.0 Base 0.0

NONE

NONE

OIL ANALYSIS REPORT VISUAL

scalar

*Visual

NONE

White Metal



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1100°C

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Submitted By: MARC CARVALHO

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