

OIL ANALYSIS REPORT

Sample Rating Trend



Machine Id **22302** Component **Diesel Engine** Fluid **DIESEL ENGINE OIL SAE 10W30 (--- QTS)**

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 acceptable for the time in service.

SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0832071	WC0832050	WC0747844
Sample Date		Client Info		29 Jan 2024	29 Aug 2023	18 Jan 2023
Machine Age	mls	Client Info		230077	169240	78922
Oil Age	mls	Client Info		50000	50000	50000
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATION	J	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<10	<10	<10
Water		WC Method	>0.2	NFG	NEG	NEG
Glycol		WC Method	20.L	NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
			100		40	
Iron Okasa isas	ppm		>100	39	43	35
Chromium	ppm	ASTM D5185M	>20	<1	<	<
NICKEI	ppm		>4	U	< 1	0
litanium	ppm	ASTM D5185M	0	0	0	0
Sliver	ppm	ASTM D5185m	>3	<1	<	0
Aluminum	ppm	ASTM D5185M	>20	9	13	13
Lead	ppm	ASTM D5185m	>40	0	0	0
Copper	ppm	ASTM D5185m	>330	2	3	4
lin	ppm	ASTM D5185m	>15	<1	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM DS185m		0	0	0
ADDITIVES	ppm	method	limit/base	0 current	0 history1	0 history2
ADDITIVES Boron	ppm ppm	Method ASTM D5185m	limit/base 250	0 current 9	0 history1 8	0 history2 11
ADDITIVES Boron Barium	ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m	limit/base 250 10	0 current 9 0	0 history1 8 0	0 history2 11 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 250 10 100	0 current 9 0 66	0 history1 8 0 71	0 history2 11 0 58
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 250 10 100	0 current 9 0 66 <1	0 history1 8 0 71 <1	0 history2 11 0 58 1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 250 10 100 450	0 current 9 0 66 <1 885	0 history1 8 0 71 <1 993	0 history2 11 0 58 1 792
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 250 10 100 450 3000	0 current 9 0 66 <1 885 1464	0 history1 8 0 71 <1 993 1460	0 history2 11 0 58 1 792 1201
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	ppm 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 250 10 100 450 3000 1150	0 current 9 0 66 <1 885 1464 1104	0 history1 8 0 71 <1 993 1460 1182	0 history2 11 0 58 1 792 1201 924
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm 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 250 10 100 450 3000 1150 1350	0 current 9 0 66 <1 885 1464 1104 1338	0 history1 8 0 71 <1 993 1460 1182 1495	0 history2 11 0 58 1 792 1201 924 1105
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	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 ASTM D5185m	limit/base 250 10 100 450 3000 1150 1350 4250	0 current 9 0 66 <1 885 1464 1104 1338 3584	0 history1 8 0 71 <1 993 1460 1182 1495 3327	0 history2 11 0 58 1 792 1201 924 1105 3072
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	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 ASTM D5185m ASTM D5185m	limit/base 250 10 100 450 450 3000 1150 1350 4250 limit/base	0 current 9 0 66 <1 885 1464 1104 1338 3584 current	0 history1 8 0 71 <1 993 1460 1182 1495 3327 history1	0 history2 11 0 58 1 792 1201 924 1105 3072 history2
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	imit/base 250 10 100 450 3000 1150 1350 4250 imit/base >25	0 current 9 0 66 <1 885 1464 1104 1338 3584 current 15	0 history1 8 0 71 <1 993 1460 1182 1495 3327 history1 15	0 history2 11 0 58 1 792 1201 924 1105 3072 history2 9
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm 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 ASTM D5185m method ASTM D5185m	limit/base 250 10 100 450 3000 1150 1350 4250 limit/base >25	0 current 9 0 66 <1 885 1464 1104 1338 3584 current 15 1	0 history1 8 0 71 <1 993 1460 1182 1495 3327 history1 15 2	0 history2 11 0 58 1 792 1201 924 1105 3072 history2 9 2
Cadmium ADDITIVES 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 ASTM D5185m	limit/base 250 10 100 450 3000 1150 1350 4250 limit/base >25	0 current 9 0 66 <1 885 1464 1104 1338 3584 current 15 1 15 1 17	0 history1 8 0 71 <1 993 1460 1182 1495 3327 history1 15 2 31	0 history2 11 0 58 1 792 1201 924 1105 3072 history2 9 2 32
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	imit/base 250 10 100 450 3000 1150 1350 4250 imit/base ≥20 imit/base	0 current 9 0 66 <1 885 1464 1104 1338 3584 current 15 1 17 current	0 history1 8 0 71 <1 993 1460 1182 1495 3327 history1 15 2 31 history1	0 history2 11 0 58 1 792 1201 924 1105 3072 history2 9 2 32 history2
Cadmium ADDITIVES Boron Barium Molybdenum Maganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	imit/base 250 10 10 450 3000 1150 1350 4250 225 >20 imit/base >3	0 current 9 0 66 <1 885 1464 1104 1338 3584 current 15 1 17 current 0.8	0 history1 8 0 71 <1 993 1460 1182 1495 3327 history1 15 2 31 15 2 31 history1 0.7	0 history2 11 0 58 1 792 1201 924 1105 3072 history2 9 2 32 2 32 history2 0.3
Cadmium ADDITIVES 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	imit/base 250 10 10 450 3000 1150 1350 225 20 imit/base >3 >20	0 current 9 0 66 <1 885 1464 1104 1338 3584 current 15 1 15 1 17 current 0.8 14.1	0 history1 8 0 71 <1 993 1460 1182 1495 3327 history1 15 2 31 15 2 31 history1 0.7 13.8	0 history2 11 0 58 1 792 1201 924 1105 3072 history2 9 2 32 9 2 32 history2 0.3 10.3
Cadmium ADDITIVES 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 DS185m method ASTM D5185m	imit/base 250 10 450 3000 1150 1350 4250 25 20 imit/base >3 >20 >30 >30	0 current 9 0 66 <1 885 1464 1104 1338 3584 current 15 1 15 1 17 current 0.8 14.1 28.2	0 history1 8 0 71 <1 993 1460 1182 1495 3327 history1 15 2 31 15 2 31 0.7 13.8 28.0	0 history2 11 0 58 1 792 1201 924 1105 3072 history2 9 2 32 history2 0.3 10.3 20.6
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRADA	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D78441 *ASTM D7415 ASTM D7415 Method	limit/base 250 10 10 450 3000 1150 1350 255 20 20 33 >20 30 limit/base 33 30 limit/base	0 current 9 0 66 <1 885 1464 1104 1338 3584 current 15 1 17 current 0.8 14.1 28.2 current	0 history1 8 0 71 <1 993 1460 1182 1495 3327 history1 15 2 31 history1 0.7 13.8 28.0 history1	0 history2 11 0 58 1 792 1201 924 1105 3072 history2 9 2 32 history2 0.3 10.3 20.6 history2
Cadmium ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRADA Oxidation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m method ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7415 method *ASTM D7414	imit/base 250 10 100 450 3000 1150 1350 4250 imit/base >20 >3 >20 >30 imit/base >3 >20	0 current 9 0 66 <1 885 1464 1104 1338 3584 current 15 1 15 1 17 current 0.8 14.1 28.2 current 25.4	0 history1 8 0 71 <1 993 1460 1182 1495 3327 history1 15 2 31 15 2 31 0.7 13.8 28.0 history1 24.4	0 history2 11 0 58 1 792 1201 924 1105 3072 history2 9 2 32 history2 0.3 10.3 20.6 history2 17.3



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VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	NONE
Appearance	scalar	*Visual	NORML	NORML	NORML	NORML
Odor	scalar	*Visual	NORML	NORML	NORML	NORML
Emulsified Water	scalar	*Visual	>0.2	NEG	NEG	NEG
Free Water	scalar	*Visual		NEG	NEG	NEG
FLUID PROPERT	IES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	10.9	12.1	11.9	11.7



Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012)

Contact/Location: GARY LAWYER - MIDWIL Page 2 of 2