

# **OIL ANALYSIS REPORT**

# Area (YA156343) 020 410002

### Diesel Engine Fluid **DIESEL ENGINE OIL SAE 40 (36 QTS)**

# 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

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 Rating Trend

SAMPLE INFORM	<b>JATION</b>	method	limit/base	current	history1	history2
Sample Number		Client Info		GFL0117850	GFL0117865	GFL0103801
Sample Date		Client Info		04 Jun 2024	03 Apr 2024	27 Dec 2023
Machine Age	hrs	Client Info		8954	8513	8065
Oil Age	hrs	Client Info		602	448	602
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATI		method	limit/hase	current	history1	history2
Fuel		WC Method	. 2.0	1.0	-1.0	.1.0
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Chucol		WC Method	>0.2	NEG	NEG	NEG
	_	WC Wethou		NEG	NEG	NLG
WEAR METALS	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>90	10	51	1
Chromium	ppm	ASTM D5185m	>20	<1	2	<1
Nickel	ppm	ASTM D5185m	>2	0	<1	0
Titanium	ppm	ASTM D5185m	>2	0	<1	<1
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	3	10	<1
Lead	ppm	ASTM D5185m	>40	0	<1	0
Copper	ppm	ASTM D5185m	>330	<1	<1	<1
Tin	ppm	ASTM D5185m	>15	<1	<1	0
Vanadium	ppm	ASTM D5185m		0	<1	0
Cadmium	ppm	ASTM D5185m		0	<1	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 250	current 8	history1 7	history2 8
ADDITIVES Boron Barium	ppm ppm	method ASTM D5185m ASTM D5185m	limit/base 250 10	current 8 <1	history1 7 0	history2 8 0
ADDITIVES Boron Barium Molybdenum	ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 250 10 100	current 8 <1 56	history1 7 0 75	history2 8 0 59
ADDITIVES Boron Barium Molybdenum Manganese	ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 250 10 100	current 8 <1 56 <1	history1 7 0 75 1	history2 8 0 59 <1
ADDITIVES Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 250 10 100 450	current 8 <1 56 <1 860	history1 7 0 75 1 1154	history2 8 0 59 <1 959
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	limit/base 250 10 100 450 3000	current           8           <1           56           <1           860           988	history1 7 0 75 1 1154 1305	history2 8 0 59 <1 959 1104
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	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	current           8           <1           56           <1           860           988           1013	history1 7 0 75 1 1154 1305 1230	history2 8 0 59 <1 959 1104 987
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	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 1350	current           8           <1           56           <1           860           988           1013           1155	history1 7 0 75 1 1154 1305 1230 1517	history2 8 0 59 <1 959 1104 987 1311
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	limit/base 250 10 100 450 3000 1150 1350 4250	current           8           <1           56           <1           860           988           1013           1155           3355	history1 7 0 75 1 1154 1305 1230 1517 3886	history2           8           0           59           <1           959           1104           987           1311           3236
ADDITIVES Boron Barium Molybdenum Magnaese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	limit/base 250 10 100 450 3000 1150 1350 4250 limit/base	current           8           <1           56           <1           860           988           1013           1155           3355           current	history1 7 0 75 1 1154 1305 1230 1517 3886 history1	history2 8 0 59 <1 959 1104 987 1311 3236 history2
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m	limit/base 250 10 100 450 450 3000 1150 1350 4250 kimit/base >25	current           8           <1           56           <1           860           988           1013           1155           3355           current           4	history1 7 0 75 1 1154 1305 1230 1517 3886 history1 6	history2         8         0         59         <1         959         1104         987         1311         3236         history2         4
ADDITIVES Boron Barium Molybdenum Maganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm <b>TS</b>	method           ASTM D5185m	limit/base 250 10 100 450 3000 1150 1350 4250 limit/base >25 >216	current           8           <1           56           <1           860           988           1013           1155           3355           current           4           4	history1           7           0           75           1           1154           1305           1230           1517           3886           history1           6           4	history2         8         0         59         <1         959         1104         987         1311         3236         history2         4         1
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 kinit/base >25 >216 >20	current           8           <1           56           <1           860           988           1013           1155           3355           current           4           10	history1           7           0           75           1           1154           1305           1230           1517           3886           history1           6           4           22	history2         8         0         59         <1         959         1104         987         1311         3236         history2         4         1         2
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 TS	method           ASTM D5185m	limit/base 250 10 100 450 3000 1150 1350 4250 <b>limit/base</b> >20 <b>limit/base</b>	current           8           <1           56           <1           860           988           1013           1155           3355           current           4           10           current	history1 7 0 75 1 1154 1305 1230 1517 3886 history1 6 4 22 history1	history2         8         0         59         <1         959         1104         987         1311         3236         history2         4         1         2         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 10 100 450 3000 1150 1350 4250 limit/base >216 >20 limit/base	current           8           <1           56           <1           860           988           1013           1155           3355           current           4           10           current           0.8	history1         7         0         75         1         1305         1230         1517         3886         history1         6         4         22         history1         1.1	history2         8         0         59         <1         959         1104         987         1311         3236         history2         4         1         2         history2         0.3
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	<pre>limit/base 250 10 100 450 3000 1150 1350 4250 255 &gt;216 &gt;20 imit/base &gt;6 &gt;20</pre>	current           8           <1           56           <1           860           988           1013           1155           3355           current           4           10           current           0.8           7.2	history1           7           0           75           1           1154           1305           1230           1517           3886           history1           6           4           22           history1           1.1           7.8	history2         8         0         59         <1         959         1104         987         1311         3236         history2         4         1         2         history2         0.3         5.0
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 t ppm ppm	method           ASTM D5185m	<pre>limit/base 250 10 100 450 450 3000 1150 1350 4250 25 &gt;216 &gt;20 limit/base &gt;6 &gt;20 &gt;30</pre>	current           8           <1           56           <1           860           988           1013           1155           3355           current           4           10           current           0.8           7.2           18.9	history1         7         0         75         1         1305         1230         1517         3886         history1         6         4         22         history1         1.1         7.8         19.6	history2         8         0         59         <1         959         1104         987         1311         3236         history2         4         1         2         history2         0.3         5.0         17.4
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method           ASTM D5185m           ASTM D5185m	limit/base 250 10 450 3000 1150 1350 4250 216 >216 >20 imit/base >6 >20 30 limit/base	current           8           <1           56           <1           860           988           1013           1155           3355           current           4           10           current           0.8           7.2           18.9           current	history1         7         0         75         1         1305         1230         1517         3886         history1         6         4         22         history1         1.1         7.8         19.6         history1	history2         8         0         59         <1         959         1104         987         1311         3236         history2         4         1         2         history2         0.3         5.0         17.4
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D7844 *ASTM D7414	limit/base 250 10 450 450 3000 1150 1350 255 216 >20 limit/base >6 >20 30 limit/base >25	current           8           <1           56           <1           860           988           1013           1155           3355           current           4           10           current           0.8           7.2           18.9           current           13.7	history1         7         0         75         1         1305         1230         1517         3886         history1         6         4         22         history1         1.1         7.8         19.6         14.1	history2         8         0         59         <1         959         1104         987         1311         3236         history2         4         1         2         history2         0.3         5.0         17.4         history2         12.7
ADDITIVES Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAD Oxidation Base Number (RN)	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	method ASTM D5185m ASTM D7844 *ASTM D7844 *ASTM D7844	limit/base 250 10 450 3000 1150 1350 255 216 >20 limit/base >6 >20 sa0 limit/base >30 limit/base >25 30 Sa0 Sa	current         8         <1         56         <1         860         988         1013         1155         3355         current         4         10         current         0.8         7.2         18.9         current         13.7         8.5	history1         7         0         75         1         1305         1230         1517         3886         history1         6         4         22         history1         1.1         7.8         19.6         14.1         8.9	history2         8         0         59         <1         959         1104         987         1311         3236         history2         4         1         2         history2         0.3         5.0         17.4         history2         12.7         8.8



# **OIL ANALYSIS REPORT**





VISUAL		method				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 PROPE	RTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	14.4	14.1	14.1	14.2
GRAPHS						







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