

OIL ANALYSIS REPORT

Sample Rating Trend



KENWORTH Mixer 271

Diesel Engine Fluid 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.

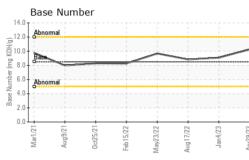
Fluid Condition

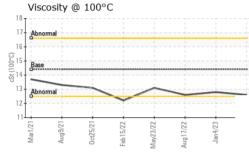
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

SAMPLE INFORM			11	22 May2022 Aug2022 Jan2023	1.5	1.11
	/IATION	method	limit/base		history1	history2
Sample Number		Client Info		WC0802331	WC0661455	WC0569852
Sample Date		Client Info		29 Apr 2023	04 Jan 2023	17 Aug 2022
Machine Age	hrs	Client Info		4655	4655	4041
Oil Age	hrs	Client Info		500	500	500
Oil Changed		Client Info		Changed	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATION	N	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	<1.0	<1.0
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>90	15	11	25
Chromium	ppm	ASTM D5185m	>20	2	1	2
Nickel	ppm	ASTM D5185m	>2	<1	<1	0
Titanium	ppm	ASTM D5185m	>2	0	<1	0
Silver	ppm	ASTM D5185m	>2	0	<1	0
Aluminum	ppm	ASTM D5185m	>20	2	1	0
Lead	ppm	ASTM D5185m	>40	0	<1	2
Copper	ppm	ASTM D5185m	>330	0	<1	<1
Tin	ppm	ASTM D5185m	>15	1	<1	<1
Vanadium	ppm	ASTM D5185m		0	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 250	current 8	history1 10	history2 10
	ppm ppm					
Boron		ASTM D5185m	250	8	10	10
Boron Barium	ppm	ASTM D5185m ASTM D5185m	250 10	8 0	10 2	10 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	250 10	8 0 64	10 2 54	10 0 64
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100	8 0 64 <1	10 2 54 <1	10 0 64 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450	8 0 64 <1 1041	10 2 54 <1 837	10 0 64 <1 918
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000	8 0 64 <1 1041 1153	10 2 54 <1 837 998	10 0 64 <1 918 1149
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 ASTM D5185m	250 10 100 450 3000 1150	8 0 64 <1 1041 1153 1137	10 2 54 <1 837 998 930	10 0 64 <1 918 1149 1039
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	250 10 100 450 3000 1150 1350	8 0 64 <1 1041 1153 1137 1460	10 2 54 <1 837 998 930 1144	10 0 64 <1 918 1149 1039 1250
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 ASTM D5185m	250 10 100 450 3000 1150 1350 4250	8 0 64 <1 1041 1153 1137 1460 4520	10 2 54 <1 837 998 930 1144 3388	10 0 64 <1 918 1149 1039 1250 3517
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS	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	250 10 100 450 3000 1150 1350 4250	8 0 64 <1 1041 1153 1137 1460 4520 current	10 2 54 <1 837 998 930 1144 3388 history1	10 0 64 <1 918 1149 1039 1250 3517 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS 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 method ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25	8 0 64 <1 1041 1153 1137 1460 4520 current 4	10 2 54 <1 837 998 930 1144 3388 history1 4	10 0 64 <1 918 1149 1039 1250 3517 history2 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >216	8 0 64 <1 1041 1153 1137 1460 4520 Current 4 2	10 2 54 <1 837 998 930 1144 3388 history1 4 2	10 0 64 <1 918 1149 1039 1250 3517 history2 3 0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >216 >20	8 0 64 <1 1041 1153 1137 1460 4520 current 4 2 1	10 2 54 <1 837 998 930 1144 3388 history1 4 2 2 <1	10 0 64 <1 918 1149 1039 1250 3517 history2 3 0 1
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	250 10 100 450 3000 1150 1350 4250 216 >216 >20 limit/base	8 0 64 <1 1041 1153 1137 1460 4520 current 4 2 1 1 current	10 2 54 <1 837 998 930 1144 3388 history1 4 2 <1 kistory1	10 0 64 <1 918 1149 1039 1250 3517 history2 3 0 1 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >216 >20 limit/base >26	8 0 64 <1 1041 1153 1137 1460 4520 <u>current</u> 4 2 1 1 <u>current</u> 0.4	10 2 54 <1 837 998 930 1144 3388 history1 4 2 <1 4 2 <1 bistory1 0.4	10 0 64 <1 918 1149 1039 1250 3517 history2 3 0 1 history2 0.7
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 ASTM D5185m	250 10 100 450 3000 1150 1350 4250 Iimit/base >25 >216 >20 Iimit/base >6 >20	8 0 64 <1 1041 1153 1137 1460 4520 Current 4 2 1 Current 0.4 8.0 19.6	10 2 54 <1 837 998 930 1144 3388 history1 4 2 <1 4 2 <1 history1 0.4 7.3	10 0 64 <1 918 1149 1039 1250 3517 history2 3 0 1 history2 0.7 10.2
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 D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 imit/base >25 >216 >20 imit/base >6 >20	8 0 64 <1 1041 1153 1137 1460 4520 Current 4 2 1 Current 0.4 8.0 19.6	10 2 54 <1 837 998 930 1144 3388 history1 4 2 <1 4 2 <1 0.4 7.3 18.7	10 0 64 <1 918 1149 1039 1250 3517 history2 3 0 1 history2 0.7 10.2 22.4
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 ASTM D7844 *ASTM D7624 *ASTM D7415	250 10 100 450 3000 1150 1350 4250 Iimit/base >25 >216 >20 20 Iimit/base >6 >20 >30	8 0 64 <1 1041 1153 1137 1460 4520 Current 4 2 1 Current 0.4 8.0 19.6 Current	10 2 54 37 998 930 1144 3388 history1 4 2 <1 4 2 <1 history1 0.4 7.3 18.7 history1	10 0 64 31 918 1149 1039 1250 3517 history2 3 0 1 history2 0.7 10.2 22.4 history2



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

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Certificate L2367