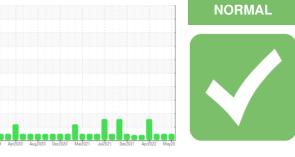


OIL ANALYSIS REPORT

Sample Rating Trend





11 Component Diesel Engine Fluid

DIESEL ENGINE OIL SAE 15W40 (--- GAL)

DIAGNOSIS Recommendation

Resample at the next service interval to monitor.

Please specify the brand, type, and viscosity of the oil on your next sample.

Machine Id

Wear

Metal levels are typical for a new component breaking in.

Contamination

There is no indication of any contamination in the oil.

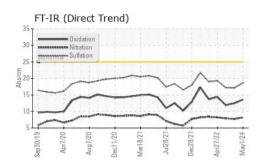
Fluid Condition

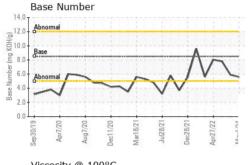
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

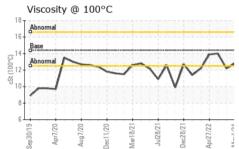
SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		KL0013540	KL0013569	KL0011480
Sample Date		Client Info		01 May 2024	01 Mar 2024	21 Mar 2023
Machine Age	mls	Client Info		35679	15442	12915
Oil Age	mls	Client Info		0	0	0
Oil Changed		Client Info		N/A	N/A	N/A
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATION	N	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0	0.5	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	4	8	4
Chromium	ppm	ASTM D5185m	>20	0	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	0	<1
Titanium	ppm	ASTM D5185m	>2	0	<1	0
Silver	ppm	ASTM D5185m	>2	0	<1	0
Aluminum	ppm	ASTM D5185m	>25	2	3	1
Lead	ppm	ASTM D5185m	>40	0	<1	0
Copper	ppm	ASTM D5185m	>330	13	2	<1
Tin	ppm	ASTM D5185m	>15	<1	<1	0
Vanadium	ppm	ASTM D5185m		0	<1	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 61	history1 61	history2 39
	ppm ppm					
Boron		ASTM D5185m	250	61	61	39
Boron Barium	ppm	ASTM D5185m ASTM D5185m	250 10	61 0	61 2	39 2
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	250 10	61 0 62	61 2 85	39 2 27
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450	61 0 62 <1	61 2 85 0	39 2 27 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450	61 0 62 <1 19	61 2 85 0 94	39 2 27 <1 16
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	61 0 62 <1 19 1706	61 2 85 0 94 1927	39 2 27 <1 16 2488
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	250 10 100 450 3000 1150	61 0 62 <1 19 1706 895	61 2 85 0 94 1927 843	39 2 27 <1 16 2488 1027
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	250 10 100 450 3000 1150 1350	61 0 62 <1 19 1706 895 996	61 2 85 0 94 1927 843 1106	39 2 27 <1 16 2488 1027 1195
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur	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	250 10 100 450 3000 1150 1350 4250 limit/base	61 0 62 <1 19 1706 895 996 4469	61 2 85 0 94 1927 843 1106 4372	39 2 27 <1 16 2488 1027 1195 4477
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 limit/base	61 0 62 <1 19 1706 895 996 4469 current	61 2 85 0 94 1927 843 1106 4372 history1	39 2 27 <1 16 2488 1027 1195 4477 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 >158	61 0 62 <1 19 1706 895 996 4469 current 2	61 2 85 0 94 1927 843 1106 4372 history1 4	39 2 27 <1 16 2488 1027 1195 4477 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 >158	61 0 62 <1 19 1706 895 996 4469 <u>current</u> 2 12	61 2 85 0 94 1927 843 1106 4372 history1 4 11	39 2 27 <1 16 2488 1027 1195 4477 history2 3 6
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 >158 >20 limit/base	61 0 62 <1 19 1706 895 996 4469 current 2 12 8	61 2 85 0 94 1927 843 1106 4372 history1 4 11 16	39 2 27 <1 16 2488 1027 1195 4477 history2 3 6 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >158 >158 >20 limit/base	61 0 62 <1 19 1706 895 996 4469 <u>current</u> 2 12 8	61 2 85 0 94 1927 843 1106 4372 history1 4 11 16 history1	39 2 27 <1 16 2488 1027 1195 4477 history2 3 6 3 6 3 3 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 ppm	ASTM D5185m ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >25 >158 >20 limit/base >3 >20	61 0 62 <1 19 1706 895 996 4469 <u>current</u> 2 12 8 <u>current</u> 0.3	61 2 85 0 94 1927 843 1106 4372 history1 4 11 16 history1 0.2	39 2 27 <1 16 2488 1027 1195 4477 history2 3 6 3 6 3 <i>history2</i> 0.1
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 limit/base >25 >158 >20 limit/base >3 >20	61 0 62 <1 19 1706 895 996 4469 <i>current</i> 2 12 8 <i>current</i> 0.3 8.2	61 2 85 0 94 1927 843 1106 4372 history1 4 11 16 history1 0.2 7.7	39 2 27 <1 16 2488 1027 1195 4477 history2 3 6 3 6 3 history2 0.1 7.9
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 limit/base >25 >158 >20 limit/base >3 >20	61 0 62 <1 19 1706 895 996 4469 <u>current</u> 2 12 8 <u>current</u> 0.3 8.2 18.6	61 2 85 0 94 1927 843 1106 4372 history1 4 11 16 history1 0.2 7.7 17.1	39 2 27 <1 16 2488 1027 1195 4477 history2 3 6 3 6 3 history2 0.1 7.9 17.2
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 D7844 *ASTM D7624 *ASTM D7615	250 10 100 450 3000 1150 1350 4250 imit/base >25 >158 >20 imit/base >3 >20 >30 imit/base	61 0 62 <1 19 1706 895 996 4469 current 2 12 8 current 0.3 8.2 18.6 current	61 2 85 0 94 1927 843 1106 4372 history1 4 11 16 history1 0.2 7.7 17.1 history1	39 2 27 <1 16 2488 1027 1195 4477 history2 3 6 3 6 3 <i>history2</i> 0.1 7.9 17.2 <i>history2</i>



OIL ANALYSIS REPORT

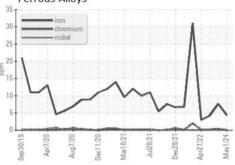


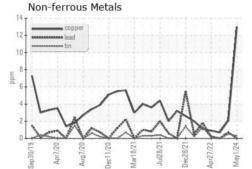


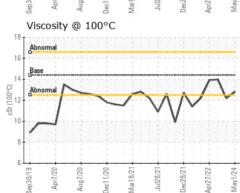


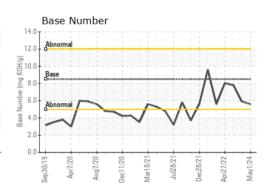
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual	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	14.4	12.8	12.2	14.0
GRAPHS						

Ferrous Alloys









Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513 UNITED SALT Sample No. : KL0013540 1434 POTASH MINES RD Received : 16 May 2024 Lab Number : 06182300 Tested : 18 May 2024 CARLSBAD, NM Unique Number : 11033626 Diagnosed : 18 May 2024 - Wes Davis US 88220 Test Package : FLEET Contact: GERALD GOAD Certificate 12367 To discuss this sample report, contact Customer Service at 1-800-237-1369. ggoad@unitedsalt.com * - Denotes test methods that are outside of the ISO 17025 scope of accreditation. T: Statements of conformity to specifications are based on the simple acceptance decision rule (JCGM 106:2012) F:

Report Id: UNICARKL [WUSCAR] 06182300 (Generated: 05/20/2024 13:23:50) Rev: 1

Sep30/19

Aug7/20

Dec11/20

Mar18/21 178/71 ec28/21 Apr 27/27

Contact/Location: GERALD GOAD - UNICARKL