

OIL ANALYSIS REPORT

Sample Rating Trend



hedaza



FORKLIFT 45008

Diesel Engine Fluid KENDALL 15W40 (--- 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

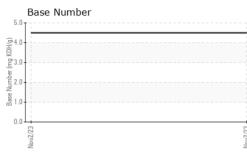
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

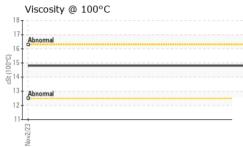
SAMPLE INFORM	IATION	method	limit/base	current	history1	history2
Sample Number		Client Info		WC0867796		
Sample Date		Client Info		02 Nov 2023		
Machine Age	hrs	Client Info		6444		
Oil Age	hrs	Client Info		351		
Oil Changed		Client Info		Changed		
Sample Status				NORMAL		
CONTAMINATIO	N	method	limit/base	current	history1	history2
Fuel		WC Method	>5	<1.0		
Glycol		WC Method		NEG		
WEAR METALS		method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>100	15		
Chromium	ppm	ASTM D5185m	>20	8		
Nickel	ppm	ASTM D5185m	>4	<1		
Titanium	ppm	ASTM D5185m		81		
Silver	ppm	ASTM D5185m	>3	0		
Aluminum	ppm	ASTM D5185m	>20	5		
Lead	ppm	ASTM D5185m	>40	<1		
Copper	ppm	ASTM D5185m	>330	1		
Tin	ppm	ASTM D5185m	>15	<1		
Vanadium	ppm	ASTM D5185m		<1		
Cadmium	ppm	ASTM D5185m		<1		
ADDITIVES		method	limit/base	current	history1	history2
ADDITIVES Boron	ppm	method ASTM D5185m	limit/base 6.3	current 60	history1	history2
	ppm ppm					
Boron		ASTM D5185m	6.3	60		
Boron Barium	ppm	ASTM D5185m ASTM D5185m	6.3 0.6	60 5		
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	6.3 0.6	60 5 6		
Boron Barium Molybdenum Manganese	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	6.3 0.6 0.4	60 5 6 <1		
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	6.3 0.6 0.4 277	60 5 6 <1 353		
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc	ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	6.3 0.6 0.4 277 1514 634 743	60 5 6 <1 353 1608	 	
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	6.3 0.6 0.4 277 1514 634	60 5 6 <1 353 1608 1012	 	
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	6.3 0.6 0.4 277 1514 634 743	60 5 6 <1 353 1608 1012 1150	 	
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	6.3 0.6 0.4 2777 1514 634 743 2592 limit/base	60 5 6 <1 353 1608 1012 1150 4076		
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	6.3 0.6 0.4 2777 1514 634 743 2592 limit/base	60 5 6 <1 353 1608 1012 1150 4076 current	 history1	 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 ASTM D5185m method	6.3 0.6 0.4 2777 1514 634 743 2592 limit/base >25	60 5 6 <1 353 1608 1012 1150 4076 current 9	 history1	 history2
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	6.3 0.6 0.4 2777 1514 634 743 2592 limit/base >25	60 5 6 <1 353 1608 1012 1150 4076 <u>current</u> 9 5	 history1	 history2
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	6.3 0.6 0.4 277 1514 634 743 2592 limit/base >25 >20	60 5 6 <1 353 1608 1012 1150 4076 current 9 5 5 5	 history1 	 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D5185m	6.3 0.6 0.4 2777 1514 634 743 2592 limit/base >25 25	60 5 6 <1 353 1608 1012 1150 4076 current 9 5 5 5	 history1 history1	 history2 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	6.3 0.6 0.4 277 1514 634 743 2592 limit/base >25 >20 limit/base >3	60 5 6 <1 353 1608 1012 1150 4076 <u>current</u> 9 5 5 5 <u>current</u> 0.1	 history1 history1 	 history2 history2 history2
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	6.3 0.6 0.4 277 1514 634 743 2592 limit/base >25 >20 limit/base >3 >20	60 5 6 <1 353 1608 1012 1150 4076 current 9 5 5 current 0.1 11.7	 history1 history1 	 history2 history2
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	6.3 0.6 0.4 277 1514 634 743 2592 imit/base >25 20 imit/base >3 >20 >3 >20	60 5 6 <1 353 1608 1012 1150 4076 <u>current</u> 9 5 5 5 5 <u>current</u> 0.1 11.7 23.3	 history1 history1 history1	 history2 history2 history2
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 D7844	6.3 0.6 0.4 277 1514 634 743 2592 imit/base >25 20 imit/base >3 >20 >30 imit/base	60 5 6 <1 353 1608 1012 1150 4076 <i>current</i> 9 5 5 5 <i>current</i> 0.1 11.7 23.3 <i>current</i>	history1 history1 history1 history1	 history2 history2 history2 history2 history2



OIL ANALYSIS REPORT

VISUAL





	White Metal	scalar	*Visual	NONE	NONE		
	Yellow Metal		*Visual	NONE	NONE		
	Precipitate		*Visual	NONE	NONE		
	Silt	scalar '	*Visual	NONE	NONE		
	Debris	scalar '	*Visual	NONE	NONE		
	Sand/Dirt	scalar '	*Visual	NONE	NONE		
Nov2/23	Appearance	scalar '	*Visual	NORML	NORML		
Nov	Odor	scalar '	*Visual	NORML	NORML		
	Emulsified Water	scalar	*Visual	>0.2	NEG		
	Free Water		*Visual		NEG		
	FLUID PROPER		method	limit/base	current	history1	history2
	Visc @ 100°C		ASTM D445		14.8		
	GRAPHS						
	Ferrous Alloys						
	16 iron						
	14						
	10						
	Md 8-						
	6						
	4						
	2						
	0						
	Nov2/23			Nov2/23			
	Nov			Nov			
	Non-ferrous Met	als					
	¹⁰ T						
	copper						
	8 - tin						
	6						
	udd						
	4						
	2						
	0						
				Nov2/23			
	Vov2			9			
	Nov2/23	<u> </u>		No			
	Viscosity @ 100°	Ċ		No	Base Number		
	Viscosity @ 100	'C		≥ 5.0-	Base Number		
	Viscosity @ 1000	'C		5.0-	Base Number		
	Viscosity @ 100	°C		5.0-	Base Number		
;	Viscosity @ 100°	°C		5.0-	Base Number		
	Viscosity @ 100°	°C		5.0-	Base Number		
	Viscosity @ 100°	°C		5.0-	Base Number		
	Viscosity @ 100°	°C		5.0 (0)HOX SUU bul) aquunty 2.0-	Base Number		
	Viscosity @ 100°	'C			Base Number		
	Viscosity @ 100° Abnormal 4 4 4 4 5 5 5 5 5 5 5 5 5 6 6 6 6 6 6 6 7 7 8 8 8 7 8 7 8 8 8 7 8 7 8 7 8 7 8 7 8 7 8 7 8 7 8 7 8 7 8 8 8 8 8 8 8 8 8 8 8 8 8	°C		5.0 (0,4.0 But) But) But) But) But) But) But) But)	Base Number		
	Viscosity @ 100° 18 17 Abnomal 15 4 Abnomal 12 11 4 Abnomal	°C		5.0- (9,4.0- HOX Bu) aquint a a a a a a a a a a a a a a a a a a a			
	Viscosity @ 100° Abnormal 4 4 4 4 5 5 5 5 5 5 5 5 5 6 6 6 6 6 6 6 7 7 8 8 8 7 8 7 8 8 8 7 8 7 8 7 8 7 8 7 8 7 8 7 8 7 8 7 8 7 8 8 8 8 8 8 8 8 8 8 8 8 8	'C		5.0 (0,4.0 But) But) But) But) But) But) But) But)	Base Number		
	Viscosity @ 100° ¹⁸ ¹⁷ <u>Abnomal</u> ¹⁰ 			5.0 (0)HOX Bull adum 2.0 1.0 EZIZ/VON	Nov2/23		
oratory	Viscosity @ 100°	501 Madisc		5.0 (0)HOX but squ 2.0- e 1.0- e czzwoł rry, NC 27513	GREEN	EVILLE OIL & P	
oratory ple No.	Viscosity @ 100 ¹⁸ ¹⁷ ¹⁸ ¹⁰ ¹⁸ ¹⁰ ¹⁸ ¹⁰ ¹¹ ¹⁰ ¹⁰ ¹⁰ ¹¹ ¹⁰ 	501 Madisc Received	: 06	5.0 (0)HOX but square 1.0 EZZ700 rry, NC 27513 Nov 2023	GREEN	ST ANDREW J	OHNSON HV
ratory ple No. Number	Viscosity @ 100 ¹⁸ ¹⁷ ⁴ ¹⁸ ¹⁰ ¹	501 Madisc Received Diagnosed	: 06 : 07	5.0 (0)HOU BUI SUBU SUBU SUBU SUBU SUBU SUBU SUBU	GREEN	ST ANDREW J	OHNSON HV EENEVILLE, 1
ratory ple No. Number le Number	Viscosity @ 100 ¹⁸ ¹⁷ ⁴ ¹⁸ ¹⁰ ¹	501 Madisc Received	: 06 : 07	5.0 (0)HOX but square 1.0 EZZ700 rry, NC 27513 Nov 2023	GREEN	ST ANDREW J GRE	OHNSON HV EENEVILLE, US 377
pratory ple No. Number Je Number Package	Viscosity @ 100 ¹⁸ ¹⁷ ⁴ ¹⁸ ¹⁰ ¹	501 Madisc Received Diagnosed Diagnostic	:06 1 :07 cian :We	5.0 (0)HOU BUI 30.0 BUI 30.0 BUI 30.0 BUI 20.0 1.0 0.0 EVENUE TOTAL	GREEN 860 WE	ST ANDREW J GRE	OHNSON HV ENEVILLE, US 377 Contact: SH0

To discuss this sample

* - Denotes test methods that are outside of the ISO 17025 scope of accreditation.

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

Certificate L2367

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