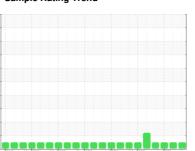


OIL ANALYSIS REPORT

Sample Rating Trend



NORMAL



Machine Id

PETERBILT SEMI TRI 36717 TCK9818 (S/N 1XPTP4EX6HD418247)

Component

Diesel Engine

DIESEL ENGINE OIL SAE 30 (48 QTS)

DIAGNOSIS

Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor. The fluid was not specified, however, a fluid match indicates that this fluid is (GENERIC) DIESEL ENGINE OIL SAE 30. Please confirm.

Wear

All component wear rates are normal.

Contamination

Fuel content negligible. There is no indication of any contamination in the oil.

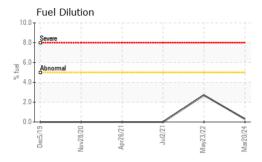
Fluid Condition

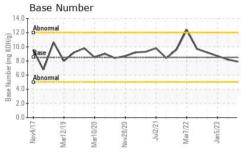
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is suitable for further service.

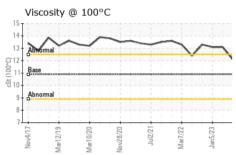
		ov2017 Ma		020 Jul2021 Mar2022 Ja		
SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Sample Number		Client Info		ARI06124516	ARI0006143	ARI0006164
Sample Date		Client Info		20 Mar 2024	20 Apr 2023	05 Jan 2023
Machine Age	mls	Client Info		202928	184926	174681
Oil Age	mls	Client Info		0	0	0
Oil Changed		Client Info		N/A	Changed	Changed
Sample Status				NORMAL	NORMAL	NORMAL
CONTAMINATION	V	method	limit/base	current	history1	history2
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	>110	5	15	14
Chromium	ppm	ASTM D5185m	>4	<1	<1	<1
Nickel	ppm	ASTM D5185m	>2	0	0	<1
Titanium	ppm	ASTM D5185m	_	<1	0	0
Silver	ppm	ASTM D5185m	>2	<1	0	0
Aluminum	ppm	ASTM D5185m	>25	3	5	3
Lead	ppm	ASTM D5185m	>45	<1	0	<1
Copper	ppm		>85	<1	<1	<1
Tin	ppm	ASTM D5185m	>4	<1	0	0
Vanadium	ppm	ASTM D5185m		<1	0	0
Cadmium	ppm	ASTM D5185m		0	0	0
	РР					
ADDITIVES		method	limit/base	current	history1	history2
Boron	ppm	ASTM D5185m	250	60	337	282
	ppm					
Boron		ASTM D5185m	250	60	337	282
Boron Barium	ppm	ASTM D5185m ASTM D5185m	250 10	60 2	337 0	282 0
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	250 10	60 2 42	337 0 132	282 0 126
Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100	60 2 42 0	337 0 132 <1	282 0 126 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450	60 2 42 0 154	337 0 132 <1 731	282 0 126 <1 592
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	250 10 100 450 3000	60 2 42 0 154 2096	337 0 132 <1 731 1716	282 0 126 <1 592 1600
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus	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	60 2 42 0 154 2096 873	337 0 132 <1 731 1716 731	282 0 126 <1 592 1600 698
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 ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base	60 2 42 0 154 2096 873 1030	337 0 132 <1 731 1716 731 961	282 0 126 <1 592 1600 698 865
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 limit/base	60 2 42 0 154 2096 873 1030 3354	337 0 132 <1 731 1716 731 961 2870	282 0 126 <1 592 1600 698 865 2344 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	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 ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base	60 2 42 0 154 2096 873 1030 3354 current 6	337 0 132 <1 731 1716 731 961 2870 history1 9	282 0 126 <1 592 1600 698 865 2344 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	250 10 100 450 3000 1150 1350 4250 Iimit/base >30 >75	60 2 42 0 154 2096 873 1030 3354 current	337 0 132 <1 731 1716 731 961 2870 history1	282 0 126 <1 592 1600 698 865 2344 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >30 >75 >20	60 2 42 0 154 2096 873 1030 3354 current 6	337 0 132 <1 731 1716 731 961 2870 history1 9	282 0 126 <1 592 1600 698 865 2344 history2 9
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >30 >75 >20	60 2 42 0 154 2096 873 1030 3354 current 6 1	337 0 132 <1 731 1716 731 961 2870 history1 9 3	282 0 126 <1 592 1600 698 865 2344 history2 9 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel	ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >30 >75 >20 >5	60 2 42 0 154 2096 873 1030 3354 current 6 1 4	337 0 132 <1 731 1716 731 961 2870 history1 9 3 5 <1.0	282 0 126 <1 592 1600 698 865 2344 history2 9 3 7 <1.0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >30 >75 >20 >5	60 2 42 0 154 2096 873 1030 3354 current 6 1 4 0.3	337 0 132 <1 731 1716 731 961 2870 history1 9 3 5 <1.0	282 0 126 <1 592 1600 698 865 2344 history2 9 3 7 <1.0
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot %	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	250 10 100 450 3000 1150 1350 4250 limit/base >30 >75 >20 >5 limit/base >3 >20	60 2 42 0 154 2096 873 1030 3354 current 6 1 4 0.3 current 0.1	337 0 132 <1 731 1716 731 961 2870 history1 9 3 5 <1.0 history1 0.3	282 0 126 <1 592 1600 698 865 2344 history2 9 3 7 <1.0 history2 0.3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7844	250 10 100 450 3000 1150 1350 4250 limit/base >30 >75 >20 >5 limit/base >3 >20	60 2 42 0 154 2096 873 1030 3354 current 6 1 4 0.3 current 0.1 5.9	337 0 132 <1 731 1716 731 961 2870 history1 9 3 5 <1.0 history1 0.3 8.6	282 0 126 <1 592 1600 698 865 2344 history2 9 3 7 <1.0 history2 0.3 8.9
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D7624	250 10 100 450 3000 1150 1350 4250 limit/base >30 >75 >20 >5 limit/base >3 >20 >30 limit/base	60 2 42 0 154 2096 873 1030 3354 current 6 1 4 0.3 current 0.1 5.9 17.2 current	337 0 132 <1 731 1716 731 961 2870 history1 9 3 5 <1.0 history1 0.3 8.6 24.0	282 0 126 <1 592 1600 698 865 2344 history2 9 3 7 <1.0 history2 0.3 8.9 23.9
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINANTS Silicon Sodium Potassium Fuel INFRA-RED Soot % Nitration Sulfation FLUID DEGRADA	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m Method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D78185m ASTM D7624 *ASTM D7624 *ASTM D76185m Method	250 10 100 450 3000 1150 1350 4250 limit/base >30 >75 >20 >5 limit/base >3 >20	60 2 42 0 154 2096 873 1030 3354 current 6 1 4 0.3 current 0.1 5.9 17.2	337 0 132 <1 731 1716 731 961 2870 history1 9 3 5 <1.0 history1 0.3 8.6 24.0 history1	282 0 126 <1 592 1600 698 865 2344 history2 9 3 7 <1.0 history2 0.3 8.9 23.9



OIL ANALYSIS REPORT



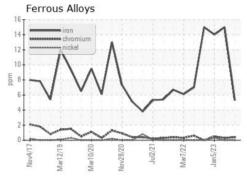


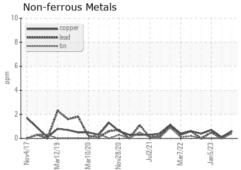


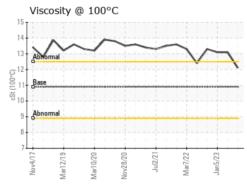
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

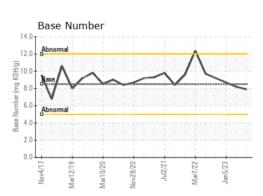
FLUID PROPERTIES		method				history2
Visc @ 100°C	cSt	ASTM D445	10.9	12.1	13.1	13.1

GRAPHS













Laboratory Sample No.

: ARI06124516 Lab Number : 06124516 Unique Number : 10938667

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 Received : 21 Mar 2024 **Tested** : 22 Mar 2024

Diagnosed

: 22 Mar 2024 - Wes Davis Test Package: CONST (Additional Tests: FuelDilution, PercentFuel, TBN)

US 63005 Contact: JOHN SLOAN ARICHTER@INSITUFORM.COM

INSITUFORM TECHNOLOGIES, INC

17988 EDISON AVE.

CHESTERFIELD, MO

T: (314)280-7555

To discuss this sample report, contact Customer Service at 1-800-237-1369. * - 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)

Report Id: AR5202CHE [WUSCAR] 06124516 (Generated: 03/23/2024 13:54:13) Rev: 1

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