

OIL ANALYSIS REPORT

Sample Rating Trend



history2



MACK 26361 Component

Diesel Engine

PETRO CANADA DURON SHP 10W30 (33 QTS)

DIAGNOSIS

Recommendation

Oil and filter change at the time of sampling has been noted. No corrective action is recommended at this time. Resample at the next service interval to monitor.

Wear

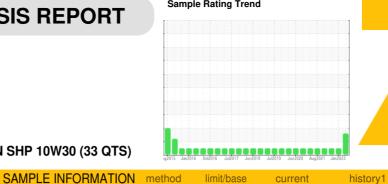
All component wear rates are normal.

Contamination

Elemental level of silicon (Si) above normal.

Fluid Condition

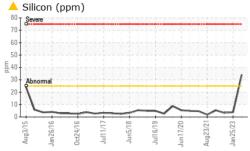
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.



Sample Number		Client Info		PCA0094594	PCA0052361	PCA0052374
Sample Date		Client Info		13 Dec 2023	25 Jan 2023	25 Aug 2022
Machine Age	mls	Client Info		747326	696477	666568
Oil Age	mls	Client Info		24438	29909	29770
Oil Changed	11110	Client Info		Changed	Changed	Changed
Sample Status				ABNORMAL	NORMAL	NORMAL
CONTAMINAT	ION	method	limit/base	current	history1	history2
Fuel		WC Method	>3.0	<1.0	<1.0	<1.0
Water		WC Method	>0.2	NEG	NEG	NEG
Glycol		WC Method		NEG	NEG	NEG
WEAR METAL	S	method	limit/base	current	history1	history2
Iron	ppm	ASTM D5185m	>120	16	19	21
Chromium	ppm	ASTM D5185m	>20	<1	<1	<1
Nickel	ppm	ASTM D5185m	>5	<1	<1	0
Titanium	ppm	ASTM D5185m	>2	<1	0	0
Silver	ppm	ASTM D5185m	>2	0	0	0
Aluminum	ppm	ASTM D5185m	>20	5	4	4
Lead	ppm	ASTM D5185m	>40	1	<1	0
Copper	ppm	ASTM D5185m	>330	3	2	3
Tin	ppm	ASTM D5185m	>15	<1	<1	0
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	current 14	history1 0	history2 2
	ppm ppm					
Boron	• • • • • • • • • • • • • • • • • • • •	ASTM D5185m	2	14	0	2
Boron Barium	ppm	ASTM D5185m ASTM D5185m	2	14 <1	0	2 <1
Boron Barium Molybdenum	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50	14 <1 46	0 0 60	2 <1 52
Boron Barium Molybdenum Manganese	ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0	14 <1 46 <1	0 0 60 <1	2 <1 52 <1
Boron Barium Molybdenum Manganese Magnesium	ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950	14 <1 46 <1 638	0 0 60 <1 904	2 <1 52 <1 729
Boron Barium Molybdenum Manganese Magnesium Calcium	ppm ppm ppm ppm	ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050	14 <1 46 <1 638 1522	0 0 60 <1 904 1040	2 <1 52 <1 729 923
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	2 0 50 0 950 1050 995	14 <1 46 <1 638 1522 870	0 0 60 <1 904 1040 929	2 <1 52 <1 729 923 793
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 ASTM D5185m	2 0 50 0 950 1050 995 1180	14 <1 46 <1 638 1522 870 1024	0 0 60 <1 904 1040 929 1175	2 <1 52 <1 729 923 793 942
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	2 0 50 0 950 1050 995 1180 2600 limit/base	14 <1 46 <1 638 1522 870 1024 2584	0 0 60 <1 904 1040 929 1175 3390	2 <1 52 <1 729 923 793 942 2317
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN	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 ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 limit/base	14 <1 46 <1 638 1522 870 1024 2584 current	0 0 60 <1 904 1040 929 1175 3390 history1	2 <1 52 <1 729 923 793 942 2317 history2
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 limit/base >25	14 <1 46 <1 638 1522 870 1024 2584 current	0 0 60 <1 904 1040 929 1175 3390 history1	2 <1 52 <1 729 923 793 942 2317 history2 3
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 limit/base >25	14 <1 46 <1 638 1522 870 1024 2584 current 34 6	0 0 60 <1 904 1040 929 1175 3390 history1 4	2 <1 52 <1 729 923 793 942 2317 history2 3 13
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 limit/base >25 >20	14 <1 46 <1 638 1522 870 1024 2584 current 34 6 2 current	0 0 60 <1 904 1040 929 1175 3390 history1 4 6 1	2 <1 52 <1 729 923 793 942 2317 history2 3 13 1 history2
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	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 limit/base >25 >20	14 <1 46 <1 638 1522 870 1024 2584 current 34 6 2 current 0.7	0 0 60 <1 904 1040 929 1175 3390 history1 4 6 1 history1	2 <1 52 <1 729 923 793 942 2317 history2 3 13 1 history2 1
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED	ppm ppm ppm ppm ppm ppm ppm ppm ppm ppm	ASTM D5185m	2 0 50 0 950 1050 995 1180 2600 limit/base >25 >20	14 <1 46 <1 638 1522 870 1024 2584 current 34 6 2 current	0 0 60 <1 904 1040 929 1175 3390 history1 4 6 1	2 <1 52 <1 729 923 793 942 2317 history2 3 13 1 history2
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 ppm	ASTM D5185m method *ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D76185m	2 0 50 0 950 1050 995 1180 2600 limit/base >25 >20 limit/base >4 >20 >30	14 <1 46 <1 638 1522 870 1024 2584	0 0 60 <1 904 1040 929 1175 3390 history1 4 6 1 history1 0.9 11.1 21.2	2 <1 52 <1 729 923 793 942 2317 history2 3 13 1 history2 1 12.5 23.7
Boron Barium Molybdenum Manganese Magnesium Calcium Phosphorus Zinc Sulfur CONTAMINAN Silicon Sodium Potassium INFRA-RED Soot % Nitration Sulfation FLUID DEGRAE	ppm	ASTM D5185m method ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m ASTM D5185m method *ASTM D7844 *ASTM D7844 *ASTM D7844 *ASTM D7844	2 0 50 0 950 1050 995 1180 2600 limit/base >25 >20 limit/base >4 >20 >30 limit/base	14	0 0 60 <1 904 1040 929 1175 3390 history1 4 6 1 history1 0.9 11.1 21.2 history1	2 <1 52 <1 729 923 793 942 2317 history2 3 13 1 1 12.5 23.7 history2
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 ppm	ASTM D5185m method *ASTM D5185m ASTM D7844 *ASTM D7624 *ASTM D76185m	2 0 50 0 950 1050 995 1180 2600 limit/base >25 >20 limit/base >4 >20 >30	14 <1 46 <1 638 1522 870 1024 2584	0 0 60 <1 904 1040 929 1175 3390 history1 4 6 1 history1 0.9 11.1 21.2	2 <1 52 <1 729 923 793 942 2317 history2 3 13 1 history2 1 12.5 23.7



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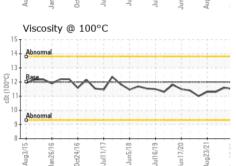


	VISUAL
	White Meta
	Yellow Meta
	Precipitate
1	Silt
	Debris
	Sand/Dirt
25/23	Appearance
Jan	Odor
	Emulsified '

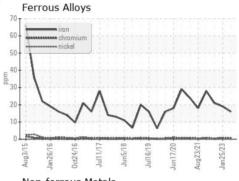
VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	NONE
Precipitate	scalar	*Visual	NONE	NONE	NONE	NONE
Silt	scalar	*Visual	NONE	NONE	NONE	NONE
Debris	scalar	*Visual	NONE	NONE	NONE	NONE
Sand/Dirt	scalar	*Visual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

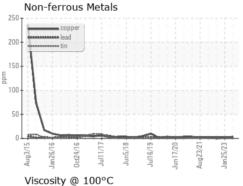
FLUID PROPE	ERTIES	method	limit/base	current	history1	history2
Visc @ 100°C	cSt	ASTM D445	12.00	11.6	11.5	11.6

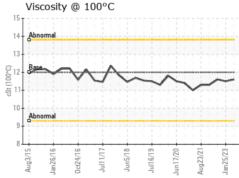
Base Number 14.0 Base Number (mg KOH/g) 0.0 0.0 4.0 4.0 0.0

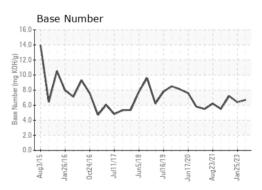


GRAPHS













Certificate L2367

Laboratory Sample No. Lab Number Unique Number : 10804355 Test Package : FLEET

: WearCheck USA - 501 Madison Ave., Cary, NC 27513 : PCA0094594 : 06043747

Recieved Diagnosed

: 22 Dec 2023 : 27 Dec 2023

Diagnostician : Don Baldridge

US 47501 Contact: DEREK RYAN

PERDUE FARMS - WASHINGTON

derek.ryan@perdue.com T: (812)257-3023

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: PERWAS [WUSCAR] 06043747 (Generated: 12/28/2023 03:29:10) Rev: 1

Contact/Location: DEREK RYAN - PERWAS

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