

OIL ANALYSIS REPORT

Sample Rating Trend

VISCOSITY

PENTA

MANCHESTER 40 DRIVE [R812467M] Machine Id VOLVO PENTA 7011481578 - VARIABLE SPEED

Component

Diesel Engine

VOLVO PENTA SAE 15W40 (10 GAL)





DIAGNOSIS

Recommendation

No corrective action is recommended at this time. Resample at the next service interval to monitor.

Wear

Metal levels are typical for a new component breaking in.

Contamination

There is no indication of any contamination in the oil.

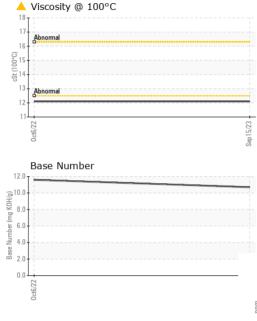
Fluid Condition

The oil viscosity is lower than normal. The BN result indicates that there is suitable alkalinity remaining in the oil. Confirm oil type.

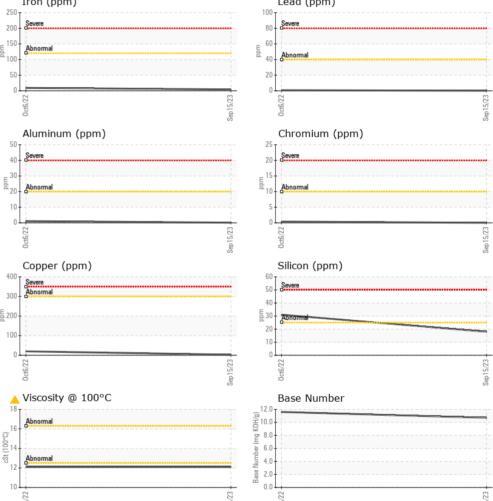
Sample Number Client Info VPA056671 VPA048401 Sample Date Client Info 15 Sep 2023 06 Oct 2022 Machine Age hrs Client Info 0 110 Oct				Oct2022	Sep2023		
Sample Date	SAMPLE INFORM	MATION	method	limit/base	current	history1	history2
Machine Age hrs Client Info 210 110	Sample Number		Client Info		VPA056671	VPA048401	
Dil Age	Sample Date		Client Info		15 Sep 2023	06 Oct 2022	
Contamed Client Info N/A ATTENTION ATTENTION ATTENTION CONTAMINATION method limit/base current history1 history2 history3 history3 current history4 history4 history5 fuel WC Method NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG NEG	Machine Age	hrs	Client Info		210	110	
Dil Changed Client Info N/A ATTENTION ATTENTION ATTENTION CONTAMINATION method limit/base current history1 history2 history3 history2 history3 history2 history3 history4 h	Oil Age	hrs	Client Info		0	110	
CONTAMINATION method limit/base current history1 history2	-		Client Info		N/A	N/A	
Fuel	Sample Status				ATTENTION	ATTENTION	
WEAR METALS	CONTAMINATION	١	method	limit/base	current	history1	history2
WEAR METALS method limit/base current history1 history2 Iron ppm ASTM D5185m >120 4 9	Fuel		WC Method	>4.0	<1.0	1.3	
Chromium	Glycol		WC Method		NEG	NEG	
Description	WEAR METALS		method	limit/base	current	history1	history2
Nickel	Iron	ppm	ASTM D5185m	>120	4	9	
Description	Chromium	ppm	ASTM D5185m	>10	0	<1	
Silver	Nickel	ppm	ASTM D5185m	>5	0	0	
Aluminum	Titanium	ppm	ASTM D5185m		0	0	
Aluminum	Silver	ppm	ASTM D5185m	>5	0	0	
Copper ppm ASTM D5185m >300 3 20 Tin ppm ASTM D5185m >10 <1	Aluminum	ppm	ASTM D5185m	>20	<1	1	
Tin	Lead	ppm	ASTM D5185m	>40	0	<1	
Tin	Copper	ppm	ASTM D5185m	>300	3	20	
Vanadium ppm ASTM D5185m 0 0 Cadmium ppm ASTM D5185m 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 71 8 Barium ppm ASTM D5185m 0 0 Molybdenum ppm ASTM D5185m 43 46 Manganese ppm ASTM D5185m 41 733 Manganesium ppm ASTM D5185m 541 733 Calcium ppm ASTM D5185m 792 1031 Phosphorus ppm ASTM D5185m 969 1254 Sulfur ppm ASTM D5185m 2879 4293 CONTAMINANTS method limit/base current history1 history2 Solium ppm ASTM D5185m 20 <1	Tin	ppm	ASTM D5185m	>10	<1	2	
Cadmium ppm ASTM D5185m 0 0 ADDITIVES method limit/base current history1 history2 Boron ppm ASTM D5185m 71 8 Barium ppm ASTM D5185m 0 0 Molybdenum ppm ASTM D5185m 43 46 Manganese ppm ASTM D5185m <1	Vanadium		ASTM D5185m		0	0	
Boron	Cadmium		ASTM D5185m		0	0	
Barium	ADDITIVES		method	limit/base	current	history1	history2
Molybdenum ppm ASTM D5185m 43 46 Manganese ppm ASTM D5185m <1	Boron	ppm	ASTM D5185m		71	8	
Manganese ppm ASTM D5185m <1 2 Magnesium ppm ASTM D5185m 541 733 Calcium ppm ASTM D5185m 1726 1454 Phosphorus ppm ASTM D5185m 792 1031 Zinc ppm ASTM D5185m 969 1254 Sulfur ppm ASTM D5185m 2879 4293 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 18 31 Sodium ppm ASTM D5185m 2 0 Potassium ppm ASTM D5185m 20 <1	Barium	ppm	ASTM D5185m		0	0	
Magnesium ppm ASTM D5185m 541 733 Calcium ppm ASTM D5185m 1726 1454 Phosphorus ppm ASTM D5185m 792 1031 Zinc ppm ASTM D5185m 969 1254 Sulfur ppm ASTM D5185m 2879 4293 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 18 31 Sodium ppm ASTM D5185m 2 0 Potassium ppm ASTM D5185m >20 <1	Molybdenum	ppm	ASTM D5185m		43	46	
Calcium ppm ASTM D5185m 1726 1454 Phosphorus ppm ASTM D5185m 792 1031 Zinc ppm ASTM D5185m 969 1254 Sulfur ppm ASTM D5185m 2879 4293 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m 25 18 31 Sodium ppm ASTM D5185m 2 0 Potassium ppm ASTM D5185m 20 <1	Manganese	ppm	ASTM D5185m		<1	2	
Phosphorus ppm ASTM D5185m 792 1031 Zinc ppm ASTM D5185m 969 1254 Sulfur ppm ASTM D5185m 2879 4293 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 18 31 Sodium ppm ASTM D5185m 2 0 Potassium ppm ASTM D5185m 20 <1 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0.1 Nitration Abs/cm *ASTM D7415 >30 20.7 20.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 18.3 15.7 <td>Magnesium</td> <td>ppm</td> <td>ASTM D5185m</td> <td></td> <td>541</td> <td>733</td> <td></td>	Magnesium	ppm	ASTM D5185m		541	733	
Zinc ppm ASTM D5185m 969 1254 Sulfur ppm ASTM D5185m 2879 4293 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 18 31 Sodium ppm ASTM D5185m 2 0 Potassium ppm ASTM D5185m >20 <1	Calcium	ppm	ASTM D5185m		1726	1454	
Sulfur ppm ASTM D5185m 2879 4293 CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 18 31 Sodium ppm ASTM D5185m 2 0 Potassium ppm ASTM D5185m >20 <1	Phosphorus	ppm	ASTM D5185m		792	1031	
CONTAMINANTS method limit/base current history1 history2 Silicon ppm ASTM D5185m >25 18 31 Sodium ppm ASTM D5185m 2 0 Potassium ppm ASTM D5185m >20 <1	Zinc	ppm	ASTM D5185m		969	1254	
Silicon ppm ASTM D5185m >25 18 31 Sodium ppm ASTM D5185m 2 0 Potassium ppm ASTM D5185m >20 <1 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 5.3 5.9 Sulfation Abs/.1mm *ASTM D7415 >30 20.7 20.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 18.3 15.7	Sulfur	ppm	ASTM D5185m		2879	4293	
Sodium ppm ASTM D5185m 2 0 Potassium ppm ASTM D5185m >20 <1	CONTAMINANTS		method	limit/base	current	history1	history2
Potassium ppm ASTM D5185m >20 <1 2 INFRA-RED method limit/base current history1 history2 Soot % % *ASTM D7844 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 5.3 5.9 Sulfation Abs/.1mm *ASTM D7415 >30 20.7 20.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 18.3 15.7	Silicon	ppm	ASTM D5185m	>25	18	31	
INFRA-RED	Sodium	ppm	ASTM D5185m		2	0	
Soot % *ASTM D7844 0.1 0.1 Nitration Abs/cm *ASTM D7624 >20 5.3 5.9 Sulfation Abs/.1mm *ASTM D7415 >30 20.7 20.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 18.3 15.7	Potassium	ppm	ASTM D5185m	>20	<1	2	
Nitration Abs/cm *ASTM D7624 >20 5.3 5.9 Sulfation Abs/.1mm *ASTM D7415 >30 20.7 20.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 18.3 15.7	INFRA-RED		method	limit/base	current	history1	history2
Sulfation Abs/.1mm *ASTM D7415 >30 20.7 20.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 18.3 15.7	Soot %	%	*ASTM D7844		0.1	0.1	
Sulfation Abs/.1mm *ASTM D7415 >30 20.7 20.0 FLUID DEGRADATION method limit/base current history1 history2 Oxidation Abs/.1mm *ASTM D7414 >25 18.3 15.7	Nitration	Abs/cm	*ASTM D7624	>20	5.3	5.9	
Oxidation	Sulfation	Abs/.1mm			20.7	20.0	
	FLUID DEGRADA	TION	method	limit/base	current	history1	history2
	Oxidation	Abs/.1mm	*ASTM D7414	>25	18.3	15.7	
	Base Number (BN)			-	10.7	11.6	



OIL ANALYSIS REPORT



VISUAL		method	limit/base	current	history1	history2
White Metal	scalar	*Visual	NONE	NONE	NONE	
Yellow Metal	scalar	*Visual	NONE	NONE	NONE	
Precipitate	scalar	*Visual	NONE	NONE	NONE	
Silt	scalar	*Visual	NONE	NONE	NONE	
Debris	scalar	*Visual	NONE	NONE	NONE	
Sand/Dirt	scalar	*Visual	NONE	NONE	NONE	
Appearance	scalar	*Visual	NORML	NORML	NORML	
Odor	scalar	*Visual	NORML	NORML	NORML	
Emulsified Water	scalar	*Visual	>0.1	NEG	NEG	
Free Water	scalar	*Visual		NEG	NEG	
FLUID PROPERT	IEC	method	limit/base	ou urra nat	hiotomid	hiotom/0
FLUID PHOPEN I	IES	metriod	IIIIII/Dase	current	history1	history2
Visc @ 100°C	cSt	ASTM D445		<u> </u>	▲ 12.1	
GRAPHS						
Iron (ppm)				Lead (ppm)		







Report Id: VP153549 [WUSCAR] 05963200 (Generated: 09/29/2023 14:17:22) Rev: 1

Laboratory Sample No. Lab Number Test Package : MOB 1 (Additional Tests: TBN)

Unique Number

: VPA056671 : 05963200 : 10669751

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

Received Diagnosed

: 28 Sep 2023 : 29 Sep 2023

Diagnostician : Sean Felton

Power Products Systems LLC 432 Warren Avenue, 432 Warren Ave. PORTLAND, ME US 04103

Contact: Cody Clemens cclemens@powerprodsys.com T:

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)

Contact/Location: Cody Clemens - VP153549

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