



OIL ANALYSIS REPORT

WEAR
CONTAMINATION
FLUID CONDITION

ATTENTION
NORMAL
NORMAL

Area

DOUGLAS BLISS

Machine Id

VOLVO PENTA A722498

Component

Center Diesel Engine

Fluid

VOLVO VDS-4.5 Premium Motor Oil 15W40 (2 GAL)

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.

Test	UOM	Method	Limit/Abn	Current	History1	History2
Sample Number		Client Info		VPA052319	---	---
Sample Date		Client Info		28 Jun 2024	---	---
Machine Age	hrs	Client Info		1355	---	---
Oil Age	hrs	Client Info		1355	---	---
Filter Age	hrs	Client Info		0	---	---
Oil Changed		Client Info		Changed	---	---
Filter Changed		Client Info		Changed	---	---
Sample Status				ATTENTION	---	---

WEAR

The aluminum level is abnormal. The nickel level is abnormal.

Iron	ppm	ASTM D5185m	>80	62	---	---
Chromium	ppm	ASTM D5185m	>6	4	---	---
Nickel	ppm	ASTM D5185m	>2	9	---	---
Titanium	ppm	ASTM D5185m	>2	<1	---	---
Silver	ppm	ASTM D5185m	>2	0	---	---
Aluminum	ppm	ASTM D5185m	>20	21	---	---
Lead	ppm	ASTM D5185m	>95	0	---	---
Copper	ppm	ASTM D5185m	>85	7	---	---
Tin	ppm	ASTM D5185m	>9	<1	---	---
Vanadium	ppm	ASTM D5185m		0	---	---
White Metal	scalar	*Visual	NONE	NONE	---	---
Yellow Metal	scalar	*Visual	NONE	NONE	---	---

CONTAMINATION

There is no indication of any contamination in the oil.

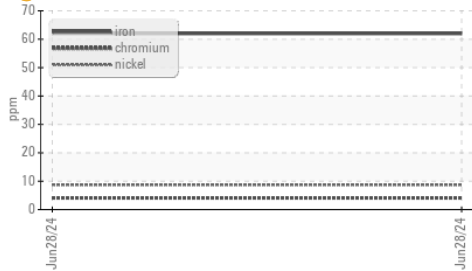
Silicon	ppm	ASTM D5185m	>25	6	---	---
Potassium	ppm	ASTM D5185m	>20	<1	---	---
Fuel		WC Method	>4.0	<1.0	---	---
Water		WC Method	>0.1	NEG	---	---
Glycol		WC Method		NEG	---	---
Soot %	%	*ASTM D7844		0.6	---	---
Nitration	Abs/cm	*ASTM D7624	>20	7.0	---	---
Sulfation	Abs/.1mm	*ASTM D7415	>30	19.9	---	---
Silt	scalar	*Visual	NONE	NONE	---	---
Debris	scalar	*Visual	NONE	NONE	---	---
Sand/Dirt	scalar	*Visual	NONE	NONE	---	---
Appearance	scalar	*Visual	NORML	NORML	---	---
Odor	scalar	*Visual	NORML	NORML	---	---
Emulsified Water	scalar	*Visual	>0.1	NEG	---	---

FLUID CONDITION

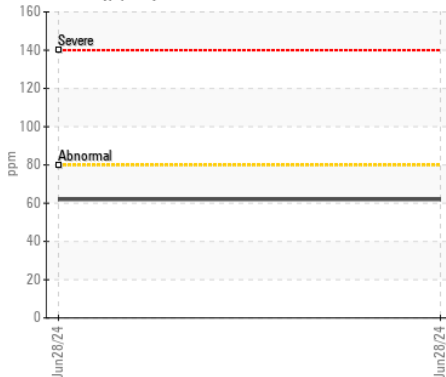
The BN result indicates that there is suitable alkalinity remaining in the oil. The condition of the oil is acceptable for the time in service.

Sodium	ppm	ASTM D5185m		5	---	---
Boron	ppm	ASTM D5185m		4	---	---
Barium	ppm	ASTM D5185m		0	---	---
Molybdenum	ppm	ASTM D5185m		60	---	---
Manganese	ppm	ASTM D5185m		1	---	---
Magnesium	ppm	ASTM D5185m		993	---	---
Calcium	ppm	ASTM D5185m		1081	---	---
Phosphorus	ppm	ASTM D5185m		1095	---	---
Zinc	ppm	ASTM D5185m		1301	---	---
Sulfur	ppm	ASTM D5185m		3810	---	---
Oxidation	Abs/.1mm	*ASTM D7414	>25	14.4	---	---
Base Number (BN)	mg KOH/g	ASTM D2896		9.6	---	---
Visc @ 100°C	cSt	ASTM D445		13.3	---	---

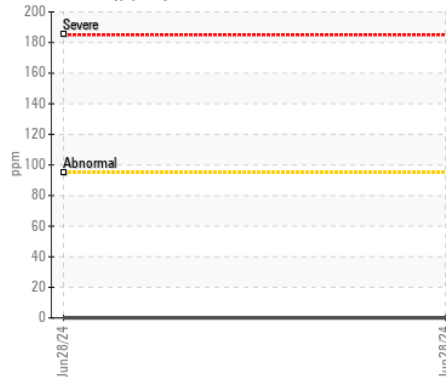
Ferrous Alloys



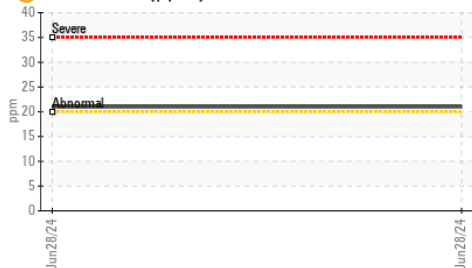
Iron (ppm)



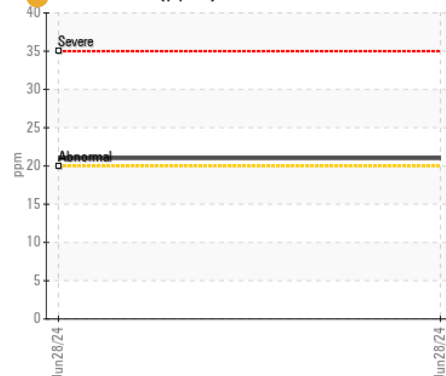
Lead (ppm)



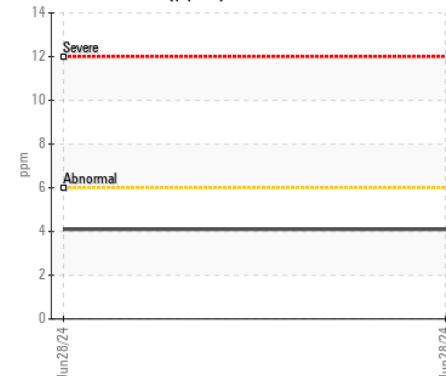
Aluminum (ppm)



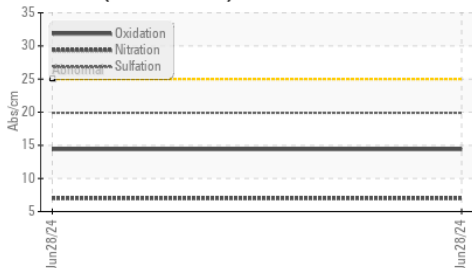
Aluminum (ppm)



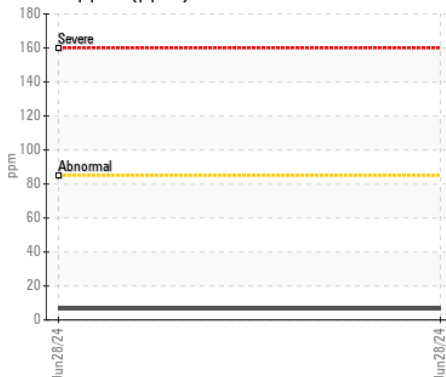
Chromium (ppm)



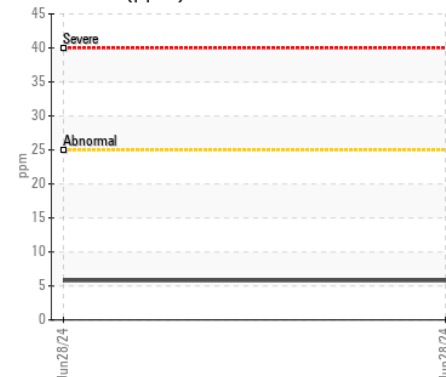
FT-IR (Direct Trend)



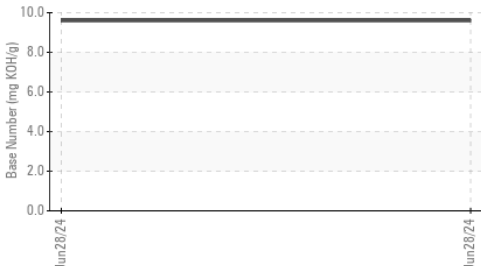
Copper (ppm)



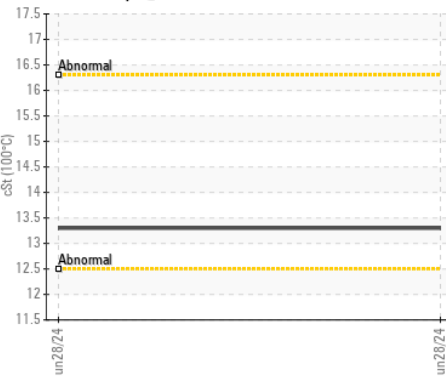
Silicon (ppm)



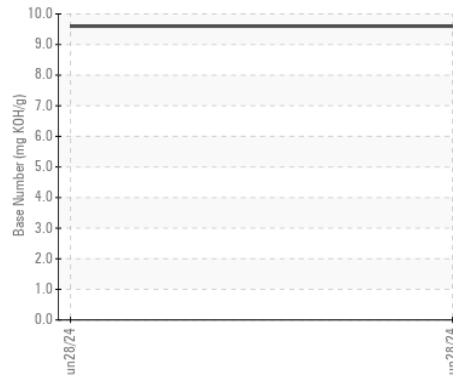
Base Number



Viscosity @ 100°C



Base Number



Viscosity @ 100°C



Certificate L2367

Laboratory : WearCheck USA - 501 Madison Ave., Cary, NC 27513
Sample No. : VPA052319 **Received** : 03 Jul 2024
Lab Number : 06227134 **Tested** : 05 Jul 2024
Unique Number : 11110627 **Diagnosed** : 05 Jul 2024 - Don Baldrige
Test Package : MOB 1 (Additional Tests: TBN, KV40)

Helmuts Marine Service
 619 Canal Street
 SAN RAFAEL, CA
 US 94901-3545
 Contact: NADINE URCIUOLI
 SERVICE@HELMUTSMARINE.COM

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)

T: x:
 F: x: